

L.A. HERALD EDTHESS 9/30/42

IT'S BIGGER THAN BOULDER DAM World's Largest Magnesium Plant Las Vegas, Nevada

A. HIGRALD SCO MINST 9/30/43

BOULDER DAM, a masterpiece of American designing and construction genius, required five years for completion. This achievement was considered a record.

Within the span of just nine months, McNeil Construction Co., has brought into operation an even greater job . . . the world's largest magnesium plant.

Magnesium is now being produced from the first unit and the remaining units are being rushed to completion. Not only is this the largest magnesium plant in the world, but it will produce more chlorine—a vital war necessity—than any other plant in the nation.

From a descrit waste to a 100 million dollar plant in less than one year establishes a construction record, we believe, unequalled in the annals of American industrial building.

Not only has McNeil Construction Co. done this job for Defense Plant Corporation, but it has exected 1000 demountable homes for married

HERALD AND EXPRESS

LOS ANGELES EVENING

workers and their families, a camp to house 6000 single men and constructed and put into operation a fine concrete hospital building. 1.A. DAILY NERS 7/53/48 LOS ANDELES, CALIF

Some idea of the magnitude of this project may be gained from the following facts:

It required the largest single electrical installation in the history of American industrial construction.

It was necessary to build 26 miles of railroad and 50 miles of temporary dirt road.

In addition, 4,500,000 yards of carth were moved, 6,764,000 bricks of every conceivable size and shape were put into place and 37,699,000 board feet of lumber were required for this mammoth undertaking.

Cold statistics do not begin to tell the dramatic story of the will to get the job done. The - preliminary stage of completion of this huge project in such a limited time was possible only through the line, patriotic spirit exhibited by every member of the McNeil organization, which truly has gone "all out" in this great war effort.

MCNEIL CONSTRUCTION CO. Established 1886 LOS ANGELES

Largest Daily Circulation in Entire West

L.A.RERALD EXPRESS 9/30/42

GIANT MAGNESIUM PLANT IN DESERT By GERRY WATTERSON

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L.A. DAILY NEWS LOS ANTELES, CALLY

UNPAIR PERIODICE-ODE of the most important new way plants is that for the manufacture of laste magnesium, new under emsfraction at Las Vegas, New. Magnesium is used with aluminum to make an alloy for aiplane construction and it is also used in the manufacture of boundance tendes.

and R is also used in the manufacture of Incominey bonds. But in the Los Versis project, an incon-stary bonds of another character has already upholed. Its repertunions were found even in enhance meeting when Josse Jones tald the president how rare proju-dice had been allowed to inforfere with defense construction. These are 10,000 workers on the Los Vegas projuct, of when 100 are Negross. A group of while workers declared hity would not werk unless the Negross were anarged. Jews Jones is from Texas, but he host

wead nut work unless the Argrees were idealized. Tense Jones is frum Texas, but he has no such project is being built with The Las Vegra project is being built with The Tanks. And he wands no bioterenzes with the work. So he hald the matter separable fore the president with the suggestion that federal actions might be desirable. The the moment the sugrestion that federal actions might be desirable. The the moment the sugrestion that federal actions for federal inferention. Int if they de fail mother-thingle arises. Yor if federal trougs absuid be cuiled in, the nearest force, two or furce niles away, in a regiment of Negroex.

thef stild material, and great immutation of sait, hashing hy-trich form Death Valley. Two-pest Monages buildings, with their 40 degree angle reets rents an and appearance and regressmall formation into the mater along sent 32 each and the mater along sent 32 each and the mater along a additional the each of builts and mineral mate trees. Off the net dim-mate the sent sent material sents is 10,000,000 gallen appfr-will in another dimension is the whill in Another direction in the serve go disputal system, both for he plant and the nextly de-mathic ally of 1500 houses. BAW MANE WORKERS

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TOUGH PAINT JOB



and will deliver efficient in its particular duty in t details of construction a

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L. V. REVIEW-JOURNAL 7-10-44

will Award Plan bing Completed

B. C. NENS 7-13-44 B.M.I. Safety Record Is Praised at OCD Award Session Last Evening

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B.M.L. ar

Vall Pittm spoke of justifiable achievement, afety award, pride This he

Two More Units Of BMI Ordered Closed by WPB

L. V. REVIEW-JOURNAL 7-26-44 Two More Units Of BMI Ordered Closed by WPB

(Continued from Page One)

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RENO STERINO GAZETTE 0-2-44 **Outlook for BMI** Is Not Promising

Governor Studies Future of Plant

L. V. TRIBURE 8-4-44

Carville Not Hopeful About BMI Operation

Observations

L. V. ADE 7-18-44

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THE BMI AWARD

BMI Award Program Is Completed Today

The program for the presentation of the National Security Award to the Basic Magnesium plant will be held at 7:30 o'clock tomorrow evening in the B. M. I. softball park, it was announced today.

Selections by the Las Vegas army air field band will open the ceremony. W. Harold Kingsley will be temporary chairman. One verse of "America." by the band and assembly, will be followed by the pledge of allegiance by the assembly and the invocation by the Rev. Peter Moran, pastor of St. Peter's

Pittman to Talk

The introduction of permanent chairman Hugh Shamberger, re-

*ENO, NEV. (OURHAN) (= 7503 JULY 12, 1944

Parish.

VAIL PITTMAN IS BMI SPEAKER Represents Carvil e

At Presentation

LAS VEGAS, July 11. (UP). Vail Pittman, lieutenant governor of Nevada, will be the principal speaker here Wednesday night when the national security award is presented Basic Magnesium, Inc. Pittman yas named by Content

Pittman was named by Governor E. P. Carville to make the principal address when the chief executive felt it would not be adviseable for him to attend because of a recent illness.

Actual presentation of the award <u>second to be made in Nevada</u> will be handled by Col. J. W. Leedom, senior field representative protection services division of the minth region, office of civilian defense.

fense. F. O. Case, general manager of the Sprawling B. M. I. plant, will receive the award.

Hugh Shamberger, Nevada director of civilian defense, will present emblems to the plant's near 5,000 workers. Twenty-five reprosentatives of the various B. M. I departments have been named to accept the individual awards.

Presentation ceremonies to b held at the B. M. I. baseball park at 7:30 p. m., are to be preceded by a banquet at the Anderson Cafeteria at which all national, state, county and civic leaders will be guests.

A band from the Las Vegas aerial gunnery school will furnish music.

gional director of the office of civilian defense will be followed by an address by the Honorable Vail Pittman, lieutenant-govertor of the State of Nevada.

The presentation of the award will be made by Colonel J. W. Leedom, senior field representative of the protective services division, ninth region, to F. O. Case, general manager of Basic Magnesium, incorporated.

Hugh Shamberger will present the token award of emblems to the employes of the plant.

Receiving the awards on behalf of their fellow workers will be the representatives from the following departments:

Chlorine and Caustic, Henry C. Weideman; preparation, James Ryan and Oscar C. McDonald; chlorination, G. W. Neal and W. E. Blankenship; electrolysis, A. Webster, C. B. Johnson, and Rufus Drake; refineries, Frank Greenleaf, John C. Davis, and Evelyn Malmin; metal plant repair, W. B. Mainor; drafting room, Joy Syphus; water treatment, James Keller; electrical, T. P. Benedict; plumbing shop, Yolande Mirabelli; metal shops, Betty Bradshaw; general service, William, C. Daniel; boiler plant combustion, Lloyd B. Isham; building maintenance, Evelyn

Refractories, Jack Arnold; gen-³, eral ledger, Leona Gravelle; general office, Ruth Lusch; accounting, John Hanson, traffic, John VanderLaan; safety and transportation, Beth Schwartz; guard force, Sergeant Stanley Nelson; fire department, John T. Taylor; hospitals, Bill Byrne; purchasing and stores, Jake Schmidt; and

and stores, Jake Schmidt; and technical service, Donald Musser. Benediction will be offered by the Rev. Roy C. Crouch, pastor of the Community Church, followed by the National Anthem by the band and assembly, and the recession of colors by the American Legion color guard.

At the adjournment of the presentation ceremony, a softball game between the Las Vegas army air field team one and the B. M. I. riggers.

the B. M. I. riggers. Preceding the program at which the awards will be presented, there will be a banquet in the Anderson cafeteria, starting at 6 o'clock, to whic' more than 200 invitations have been seen to prominent leaders throughout the county.

BMI Curtailment Ordered by WPB; Case Reassuring

V. TRIBUNE

7-27-44

L.

Second of two curtailments of production in four months ordered by the War Production Board and the Defense Plants Corporation, yesterday closed down two additional units at Basic Magnesium Incorporated.

In an effort to cut down production now exceeding present demands for war purposes, other plants producing magnesium were similarly affected by the order. The Marysville, Mich., plant of Dow Chemical Company, producing 6,000,000 pounds per month, was ordered closed entirely. The electro-metallurgical plant at Spokane, Wash, was reduced

The electro-metallurgical plant at Spokane, Wash., was reduced to 36 per cent of capacity, and Dow plants at Velasco and Freeport, Texas, and Midland, Mich., were cut.

F. O. Case, general manager at BMI, was notified by telegram of the curtailment by Albert E. Bassett, vice president of the Defense Plants Corporation. Case estimated that although 300 to 400 workers would be affected by the order, cessation of hiring, "justified terminations" and "selective service withdrawals" would account for the manpower cut at the Basic plant.

Work is proceeding at the plant on the postwar development program for the use of magnesium in industry, Case said. A fund of \$350,000 was recently allocated BMI for this purpose.

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tractive decorations on the speakers' table, red and white satin streamers and bows with red crosses. Mrs. F, O. Case was introduced as chairman of the local branch chapter and M. L. Satterthwaite of BMI re-sponded to his introduction. Special guests of the evening were Mr. and Mrs. Halley Stew-art of Las Vegas. Stewart is the head of the Clark County Red Cross drive and gave a resume of what is expected in the county as a whole. William Burke entertained during the evening with several songs, and Ben Wolfe, who was once a student of Fritz Kreisler, played several violin solos, written by Kreisler, Rev. Cruze played two sacred numbers on the vibraphone which were en-thusiastically received. The main talk of the evening was given by Price Webb, presi-dent of the Townsite Toastmas-ter's club. Webb explained that the wearing of paper tabs, in-stead of pins, to show we had given to the Red Cross this year would save 52 tons of metal or enough to build one tank, with enough left over for eight jeeps. The Red Cross has served more than one million men since Pearl Harbor, Webb said, besides the work which constantly goes on in this country in time of need. work which constantly goes on in this country in time of need. In answer to popular demand, Norman Kelch sang some num-bers and led in the closing song, "God Bless America."

"tod Biess America." The drive will be on in full swing today and tomorrow. Ev-ery home will be called upon in the district, and Seibert urges everyone to join the Red Cross individually. The McNeil Con-struction company plans a 100 per cent drive among employes, Seibert said Seibert said.

Seibert said. Those heading the work among the homes are Mrs. H. I. Wilkerson, colonel, who has the district the south side of Water street on the Townsite. The captains working with her are the Mesdames M. A. Hancock, Leigh Hunt, F. Nason and F. N. Natusch. The north side of Wa-ter street will be handled by Mrs. A. C. Terrill, colonel, with Mesdames T. P. Turchan, R. C. Grouch, Perry Fallis and Ollvia Colgrove as captains. The col-onel in charge of the BMI Trailer park is Mrs. R. D. Bailey.

L.V.R.J. 3/8/43

BMI Plant Now At Half-Way Point

With the first refinery unit going into operation, the Basic Mognesium, Inc., plant this week reached the point of 50 per cent production, official sources said today.

Half of the metals plants are now in operation. At the preparation plant half of both the tunnel and rotary kilns are operating. The chloride plant has passed the 50 per cent produc-tion point, it was revealed.

L.V.R.J. 3/5/43 **Rotary Club Hears** An Interesting Talk

Las Vegas Rotary Club enjoyed an unusually interesting program Thursday noon, when a distinguished former Rotarian, W. Har-

guished former Rotarian, W. Har-old Kingsley, who has been presi-dent of the Rotary clubs at both Flint, Michigan, and Torrance, California, and who now is con-nected with Basic Magnesium, Inc., was the guest speaker. The speaker was introduced by Crosby Lovett. He declared that the newcomer to Basic Magne-sium, in contradiction to the idea that there is great discontent among those who have recently moved to that area, are greatly ap-preciative of the fine spirit of co-operation they have enjoyed with Las Vegas. Las Vegas.

"Southern Nevada," he said, "has taken to itself this great 'War Baby.' There are two states I would not have changed. They ought to have a fence built around them. They are Vermont, with its true spirit of the west. We have got it at BMI and are helping to write a new chapter in this state of Nevada.'

state of Nevada." The speaker recounted the de-mand for more and more magne-sium from the great plant now only fifty per cent in production and recounted several new and novel uses for the metal. He de-clared that with the immense out-put of the metal already being produced, the morale of the work-ers has greatly improved, and that the production of magnesium is taking on new meaning as word taking on new meaning as word of the great happenings in the war areas comes back to us.

"It is an inspiration to see the metal rolling out," he declared. "There is an increasingly great responsibility on you of Las Vegas." Max Kelch aroused hearty applause by his picture of the out-standing victory over the Japs in the Pacific and their advances in all other war areas.

An invitation was received from the Needles, Cal., Rotary Club to attend the Tri-State Rotary meeting there Saturday evening, March 6.

L.V.R.J. 3/10/43

Scrap Lumber Is Donated To USO In Boulder City

Five huge stacks of scrap lumber, used in the construction of the Basic Magnesium, Inc., plant, have been donated to the U. S. O., it was announced today.

The U. S. O. will act as a medium in disposing of this lumber to the people. With the scarcity of humber at the present time, this will enable many to obtain lumber which they would be unable to get otherwise.

The public is invited to secure wish, of all shapes and sizes. The lumber must be selected and hauled away by the individual, as transportation for the lumber will not be provided. A desk, operated by the U. S. O., and manned by volunteer workers, has been set up in the plant protection building, where per-mits will be issued to allow persons entry on the premises where the lumber is stored.

All donations given for the lumber will be used to furnish the Boulder City U. S. O. club which has been recently established. Miss Mary Hanlon, program chairman of the Boulder City club, is acting chairman of this group of volunteers who will be there every day from 10 A. M. to 5 P. M. Further information may be obtained at the U.S.O. office in Las Vegas, located at 209 South Third street.

L.V.R.J. 3/5/43

Deliveries of 150 bags of chemi cal fertilizer were made to Vic-tory gardeners in Basic Townsite who attended the third meeting of the club Wednesday evening, and the supply temporarily ex-hausted. Additional quantities will be available to those who will call on Sunday, at the house of Mrs. Edward Morley, 338 Nebraska Avenue, it was announc-

Recommendations for better control of dogs in the Townsite were made by a garden club sub-committee which included both dog owners and gardeners. Resi-dents at this club meeting, after considering information relatitve to Nevada laws and Clark coun-ty administration, unanimously voted to accent the recommendavoted to accept the recommenda-tion of this committee. The following request will be made to the Board of Commissioners at

its next board meeting: "The undersigned hereby peti-tion the Board of Commissioners of Clark County, Nevada to provide at their earliest opportunity some reasonable and adequate form of dog-nuisance control for an area which includes the B.M.I. Townsite and Trailer Park communities, an area bounded by Pittman to the north and the Railroad Pass district to the

Railroad Pass district to the south. "The undersigned believe that the type of dog control which has been in force in Boulder City for a number of years is general-ly applicable to the Townsite area and ask that the Commis-sioners use their judgment and authority in establishing a simi-lar or somewhat similar control for the Townsite area. All the undersigned are residents of the undersigned are residents of the B.M.I. Townsite or B.M.I. Trailer Park and most of them, as indi-cated are either dog-owners or Victory gardeners or both, whose welfare can be much benefitted by your action

In order that dog owners who were not present at this meeting were not present at this meeting may be informed at this meeting opportunity to present any objec-tions or counter-proposals to the Board of Commissioners on Sat-urday afternoon, the B M I, resi-dents who signed the above peti-tion are requested the Review-Loured to print this patities in Journal to print this petition in full.

L.V.R.J. 3/10/43 **Expert At BMI On Ventilation**

Dr. Francis R. Holden of the Industrial Hygiene Foundation, University of Pittsburgh, arrived at Basic Magnesium yesterday and will spend some time here in consultation with the engineering department relative to problems of ventilation and hy-

The Foundation is maintained at Pittsburgh by the large indus-trial concerns of the east to con-duct research into various problems of industrial hygiene in the big plants and has been highly successful in this field, While concerned with the gen-

eral set-up at the plant. Dr. Holden will pay particular at-tention to the problem of proper ventilation of the cell units, it was stated.

Boulder City, March 4.

Found In The

Mail Bag

1.V.R.J. 3/9/43

Boulder City, March 4. To the editor: I follow all your articles in the paper. Sometimes your opin-ions are the same as mine and sometimes they are not. How-ever, sometimes difference of op-inions is caused by difference in one's living or work. In this case, I believe our difference of cpinions is due to our work and what we see. what we see, The article I wish to comment

on is the difference of opinions of Captain Eddie Rickenbacker and a worker in defense of Cap-tain "Eddie's" remarks about war

labor. I think and know they are both wrong—very much wrong. The worker is very wrong, getting angry and saying regret-table and untrue words which do not do good anyway. Captain "Eddie" is very wrong for say-ing that labor is laying down on the war ich or words to that efthe war job or words to that ef-

fect. Let me illustrate what I mean. Let's take the magnesium plant for our example. Magnesium is our number one job here in Ne-vada. Magnesium is one of the number one jobs of the nation. The war production board wants only one thing from the workers in this area and that is magne-sium all we can produce sium, all we can produce

sium, all we can produce They are getting magnesium nuch more than they are able to handle. It is packed in the buildings and stacked in the yard in such quantities that these huge piles are visible by passers-by on highway 93 and may soon be a bottleneck in its own pro-duction if these piles are not moved out of the workers' way. There seems only one answer There seems only one answer

There seems only one answer to me for this situation. The answer is that the big shots (in production and government) through red tape binding pro-cedure cannot handle what fley get when they get it, then in order to lay the blame on some-one, they pass it to the poor laborer who has to keep still or get fired. get fired.

get fired. I wonder if Captain "Eddie" was gassed in the first world war? If so, he knows how it is Of course, we don't have bullets flying around, but we do have the gas, and in dangerous quan-tities. They tell us it won't hurt us, but we can all read our chemistry books and explode that myth and even prove that it is a falsehood. The bill introduced in the Ne-vada legislature by James Fern-

The bill introduced in the Ne-vada legislature by James Fern-dale this year to make chlorine gas at the plant an industrial accident (when victims are gassed with it on the job) was turned down for consideration, so I heard through the grape-vine, and I suppose is forgotten by now. So they think that labor is stalling, do they? Why is there a labor shortage at Basic? Why is there a train load of magnesium ingots piled up in the enclosure How do we know this is not the case every-

know this is not the case every-where else? Maybe acres of finished planes are waiting to be taken away from airplane factories.

You know, Mr. Cahlan, I just have a hunch that there are supplies piled up everywhere al-most, that labor has produced, and with the help of something besides talk, our yards would be cleared.

Are we entitled to a day or so away from the battle line, to cough chlorine out of our lungs? Maybe it would clear the yard. What do you think? W. C. H.

BMI Curtailment Report Explained

Magnesium Industry of Nation Gets Orders; Nevada Plant Active

AS, June T. -- Mark

LES AMORTH CALLS, STAMPHER KELTY

Scientific Wonders May Flower After War's End BY CARL S. SELTY Pleasest Eddor

Safety Award

Given to BMI

Similar Prize For Copper Co.

Sniety Award Given To Basic Magneseum

BEVIEW-JOURNAL Tuesday, June 13, 1944

L. V. TRIBUSE 7-1-44

B.M.I. Wins U.S. **Civilian** Defense **Protection Prize**

Further Cuts in Cost Predicted for B. M. I.

Page Two

No Change at BMI Seen in Nelson Order

SON'S ORDER

Basic Magnesium has wan the Office of Civilian Defense the Office of Civilion Defense national security award for "effective joint efforts to safe-guard production, employes and property." The presento-tion will be made through the Las Veges office of OCD, of which I, R. Crandell is secre-tory, at a ceremony to be held within the next two weeks. The long magnetime plant in the second war industry in Ne-ada to with the award of the

To Be Given BMI

L. F. HEVIRE JOENAL

Security Award

Magnesium Plant

Wins OCD Award

LAS YEEAN LOY S. D.

Nelson Order The result only

No Change at

BMI Seen in

STEEL MEN OPPOSE IDEA OF DISPERSAL

WORK N. Y., TIMES

Gather Data to Support Their **Contention Centralization** Is Economic Necessity

By KENNETH AUSTIN

American steel companies, concerned over the Congressional movement led by Senator Patrick J. McCarran, Democrat, of Nevada, to decentralize industry, are collecting data which they will utilize at the proper time in support of the economic and historical reasons for the concentration of iron and steel facilities in a few well defined areas. These facilities, in the main, have been located near the principal coal and iron deposits of the country, or in such manner that whichever of these important materials has to be brought in, cheap transportation is available, generally by water routes.

Senator McCarran, in launching his campaign for dispersion of of heavy industry among all the States nearly a year ago, selected the steel industry as his first tar-get. He urged the appropriation get. He urged the appropriation of Federal funds to duplicate this industry's 90,000,000-ton annual ca-pacity in States which boasted few or no steel plants, without await-ing an end of the war. A caucus of fifty Representatives and thirty Senators was the sounding board for his appeal. From this joint caucus, which is still in existence, sprang the Special Committee of the Senate to Investigate the Ef-fects of the Centralization of Heavy Industry. Industry

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This committee has held one hearing, on basic magnesium, but has made no report and has taken one no further action. However, Senator McCarran appeared in February as the principal speaker at a Council of Interstate Cooperation in Carson City, Nev., where his State was the host to strong con-tingents from California and Utah and a solitary delegate from Ore-gon. Their goal was to maintain and advance the industrial growth 1 of the West Coast, which has taken place during the war. This expana sion included the building of two completely integrated steel plants, operated respectively by the United n

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Continued From Page 5

States Steel Corporation and Henry J. Kaiser.

There were cogent reasons why these two huge new steel establishments were located in California and Utah. First, there was the risk that the Panama Canal might be bombed and closed for some period; second, there was considerable shipbuilding on the West Coast which the new steel plants were devised to serve. But from a purely economic standpoint, the Geneva Works in Utah are 130 miles from their coal supply, and 225 miles from their iron mines, and the Fontana Works in California are 830 miles from coal and 179 miles from iron. The question of who will own and operate these plants after the war is far from being resolved.

As to Senator McCarran's major thesis, however, that every State should have a heavy industry of its own, the rejoinder might be made that every State should grow its own cotton and lemons and mine own lemons. This probably could be accomplished if costs, to say nothing of profits, could be ignored The lemons could be grown in Minnesota hot-houses reproducing the necessary actinic, temperature and humidity conditions.

What nature has provided in the way of geographical and geological conditions has, in the main, caused the location and rise and fall of industries. There is no reason why each State should become economically self-sufficient, any more than that each country in the world should become an integrated unit. There have been considerable loose thinking and planning along these lines among nations in recent years, and such considerations have been prominent in our goodneighbor policy and in the postwar planning of many governments, whereas plans to increase

SUNDAY, JULY 2. 194

to promote peace and the welfare of all nations. To inflict the theory of economic independence on the forty-eight States would do immeasurable harm, by weakening our national economic structure, destroying its financial strength. and vitiating its chances for an adequate share in world trade.

To apply the "public utility" theories of government of the last ten years to steel and other major commodifies indubitably would be a blow to American capitalism. There is no doubt that Federally-built plants could be operated in such a manner that private plants, however well located, could sell only at a loss. One has only to study the effects of TVA, Bonneville and Grand Coulee developments on neighboring utilities to realize this. There are better ways to enhance the economic strength of all the States: by developing the natural resources that definitely are theirs and by stimulating "home" production of consumer goods which can make advantageous use of such raw materials.

S.F. CAL

Post-War Plans Studied No More Cutbacks Seen For Basic Magnesium;

SAN FRANCISCO To alleviate a manpower threat which arose following the recent 40% cut-back ordered for Basic Magmesium. Inc. by the War Production Board, the management of the War Production Board, the management of the plant has been assured that there are no further plant for reducing operations. It is disclosed, furthermore, that federal agen-cies will complete recreational and library facil-gies for the town of Henderson, adjacent to the plant.

Additionally it is stated that President to the Additionally it is stated that President James R. Robbins of Basic, who also is president of Anaconda Copper Mining Co., operator of Basic has presented at Washington four alternative plans which Anaconda holds for post-war oper-ation of the facility. These include addition of rabricating facilities and the addition of sales orgineering and promotion for peacetime manu-engineering and promotion for peacetime manu-disting facilities and the stated that Basic's management is now considering plans for pro-duction of sodium and sodium hydroxide at B.M.L. Philip D. Wilson, director of the addition of the

filion, director of the magnesium branch of WFB, has wired F. O. manager of Basic. 'In answer to regarding the production of Basic, there are no plans to make one there. This advice should de-minations and stabilize your em-ecessary we will recommend that y be assigned to Basic to enable present scale operations.'' as having stated that 'we will as having stated that 'we will Bas ur qu and Case your mag

d as having stated that "we will asic any further." I the information at the plant is have materially moderated a dis-exodus.

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REVIEW-JOURNAL 6-21-44

From OCD Office BMI to Receive Security Award

CARSON CITY, June 21 (UP Basic Magnesium, Inc., of Lus Ve gas, hais been selected to receiv the second national securit award given in Nevada, Hug Shamberger, state director, Sciention of BMI was made the national OCD headquarters Months ago Nevada Mines div sion of Kennecott Copper cu sion of Kennecott Copper cu piny, Ely, was given the fin such award made in the state. T wward to Kennecott was the se enth in the Unded States. No dute for presentation of t BMI award has been set, Sha

t was to States. Estates entation of the or set, Shamsion of K party, Ely such awart award to 1 enth in th No date BMI awar berger sai

Nevada.

war plant.

ment problem.

heat

B. M. I. and the civic groups, including the labor unions, have been plagued in their educational campaigns. by minor irritations such as the reported transfer of the single men's dormitory and cafeteria to a restaurant concessionaire who has not been popular in other departments of the mill with the workers.

A petition signed by many of the men and a delegation of protesters brought forth information from the company that the proposed transfer is not to be made, and that irritation hence has been removed. It is to be assumed that the workers who had threat-

the hope engendered in the Government's promise not to chop down any more of the mills even though other magnesium mills and aluminum plants in the nation have just been closed, is the new order by which the War Manpower Commission takes over almost complete control of male labor on July 1.

This will serve not only to help keep men in Clark County as B. M. I. workers or potential workers, but will serve to bring other men here from non-critical areas and non-critical industries.

A hopeful factor, in addition to all the education and

Rev. 8:12. L. V. TRIBUNE 6-4-44

B. M. I.'S HOPE FROM THE NORTH

When War Manpower Commission Chief John P. Burns returns to Las Vegas tomorrow he will undoubtedly havemore complete word on the picture of Basic Magnesium as is related to recruitment of men in Reno and northern

All in the county will hope that the efforts of the manpower commission and of the United States Employment Service will have met with encouragement and that many more men will be available immediately to insure the capacity operation of the six remaining mills at the

Basic Magnesium has encountered more than a small amount of difficulty in attempting to solve this employ-

The warmer weather coming up and the closing of the Henderson schools have each contributed to an exodusof workmen into other sections of the country, some to return to their homes on the discouraging thought that sooner or later B. M. I. will be closed permanently and that they will be out of work then anyway, and they might as well go now and avoid the unpleasantness of summer

It has been that excuse for leaving which B. M. L. the Government's labor agencies here, the Chamber of Commerce and the unions have been attempting to combat, So far the efforts have been fairly successful, and slowly the people of Clark County are being reassured that the plant is not to be vacated and dismantled.

There is a certain amount of optimism that, even if B. M. I. or the parent body, Anaconda Copper, may decide after the war to turn the plant back to the Government, the Government or some other private concern will operate the plant because of the availability here of magnesium ore, of water power and of Boulder Dam electricity.

ened to leave B. M. I. if the deal were consummated now have changed their minds and will remain.



United States. No date for presentation of the BMI award has been set, Shamberger said.

L.V.R.J. 3/12/43

Basic Area Gives AImost \$6,000 To Red Cross

An incomplete report from the Basic school district indicates that a total of \$5,990.70 has been collected, and the war fund drive of the Red Cross still is going full swing in the area under the Basic branch of the Clark county chapter of the Red Cross. Re-ports from Basic and from the Las Vegas drive took the county Las Vegas drive took the county quota over the half-way mark, with a total of \$14,413.74 collected toward the county quota of \$26,600.00.

\$26,600.00. No report has been received from the McNeil Construction company yet, but it was under-stood unofficially that it had gone over its quota of \$4,000. The total quota for the Basic district 'was set at \$10,000. In Las Vegas to date a total of \$7,030.90 has been raised to-ward the quota of \$11,500

of \$7,030.90 has been raised to-ward the quota of \$11,500. Latest contributors of large sums are: \$100.00-El Cortez hotel; \$50.00-Mark S. Schul-man; \$40.00 - Garchime Music company; \$29.50-El Cortez hotel employes; \$25.00 - Lewis and Hawkins, Coca Cola Bottling company and employees, El Rio garage, Musician's Protective Un-ion local 369, City Mercantile company, Fred S. Alward, the Toggery, and Home Lumber company; \$19.65-Clark Market pmployees; \$15.00 - M o d e r n Cleaners; \$12.00 - M. W. Davis

L.V.AGE 3/12/43

Basic Plant Has Reached Half Way Mark in Production

Official sources announced this week that Basic Magnesium plant had reached the point of 50 per cent of its capacity for production. This was announced when the first refinery unit went into operation the fore part of the week. When this unit of refinery op-eration went into started one-half of the metals plant was under op-eration. Half of the rotary kilns and tunnel plant are in operation. The chloride plant has passed the half-way production point, it was announced by officials of teh BMI.

L.V.AGE 3/12/43 **Magnesium** Plant **Metal Production**

L.V. AGE 3/12/43

Dog Control Urged By Basic Townsite Victory Gardeners

Commissioners of Clark County Petitioned to Protect BMI Gardens - Dog Control

Victory gardens received not over 150 bags of chemical fertilizer last week in the Basic Town-site. This was not sufficient, but additional quantities of fetrilizer are promised later. Mrs. Edward Morley at 338 Nebraska Avenue has been designated to accept calls for more fertilizer.

Recommendations for better control of dogs in the Townsite were made by a garden club sub-committee which included both dog owners and gardeners. Residents at this club meeting, after considering information relative to Nevada laws and Clark county administration, unanimously voted to accept the recommendations of this committee. The following request will be made to the Board of Commissioners at its next board

"The undersigned hereby peti-tion the Board of Commissioners of Clark County, Nevada, to pro-vide at their earliest opportunity some reasonable and adequate form of dog nuisance control for an area which includes the B.M.I. Townsite and Trailer Park com-Townsite and Trailer Park communities, an area bounded by Pittman to the north and the Railroad Pass district of the south.

"The undersigned believe that the type of dog control which has been in force in Boulder City for a number of years is generally applicable to the Townsite area and ask that the Commissioners use their judgment and authority in establishing a similar or somewhat similar control for the Townsite area. All the undersigned are residents of the B. M. I. Townsite or B. M. I. Trailer Park, and most of them, as indicated, are either dog owners or Victory gardeners, or both, whose welcare can be much benefited by your action." In order that dog owners who were not present at this meeting

Friday, April 2, 1943

Anaconda Copper **Officials Visit**

A group of officials from the Anaconda Copper Mining com-pany, world famous holding company, arrived Thursday eve-

L.V. AGE 3/12/43

Lumber For Sale By Women of USO Waste From BMI May Be Secured By People — Pro-ceeds Go To Boulder USO

Lumber, used in the construction of Basic,-five huge stacks of it,-has been donated to the U.S.O. by Mr. F. O. Case, B. M. I. execu-tive. The U. S. O. will act as a medium in disposing of this lum-ber to the people. With the scarc-ity of lumber at the present time, this will enable the U.S.O. through the courtesy of B. M. I., to render an invaluable service to the residents of Southern Nevada.

The public is invited to secure any amount of the lumber they wish, of all shapes and sizes. The lumber must be selected and haul-ed away by the individual, as transportation for the lumber will not be provided. A desk, operat-ed by the U. S. O., and manned by volunteer workers, will be set up in the Plant Protection building, where permits will be issued to allow persons entry on the premises where the lumber is stored.

All donations given for the lumber will be used to furnish the Boulder City U. S. O. Club, which has recently been established. Miss Mary Hanlon, program chairman of the Boulder City Club, is acting chairman of this group of volunteers who will be there ev-ery day from 10 a. m. to 5 p. m. For further information please call the U. S. O. office in Las Ve-gas, located at 209 South Third Street, Phone 2054-J, or the U.S.O. Club in Boulder City, located in the Women's Auxiliary room of the Ameircan Legion Hall, Phone 245-R.

L.V.AGE 3/19/43

B.M.I. Lumber Is **Still Available To General Public**

The USO is still offering to the people of the community, the lum-ber located at B. M. I.

Miss Mary E. Hanlon and Mrs. Florence Bradford, who head the USO committee that has charge of the "bone piles" at B. M. L, state over 150 permits have been issued and answers given to over 300 inquirers.

"B. M. I. has more or less set a

Great Plant Now Turning Out Fifty Per Cent of Estimated Final Capacity (From "The Big Job," Basic Magnesium News Letter.) With the first refinery unit going into operation, Basic this week reached the point of 50 per cent production. Half of the metals units are now in operation. At the preparation plant half of both the tunnel and rotary kilns are operating. The chlorine plant has passed the 50 per cent production point

Mrs. Paul Hughes bespoke the feelings of almost every one around the project when she went to work last week in the billetshipping department. Said Mrs. Hughes: "I have a boy in the Solomons and somehow when I wrap. this bomb metal I feel as though I am putting a weapon into the hands of my son. It may save his ning at El Rancho Vegas where they will stay during their visit to Las Vegas and the Basic Magnesium plant, recently acquired by Anaconda.

by Anaconda. In the group are Mr. and Mrs. Cornelius Kelley, Mr. and Mrs. James R. Hobbins and T. H. O'Brien. Kelley is the chair-man of the Anaconda company, Hobbins, the president, and O'Brien is vice president of the Inspiration company, an Anaconda holding located at Inspiration, Arizona.

The Anaconda Copper company was incorporated in 1895 in Montana and has since grown to be one of the outstanding companies of its kind in the companies of its kind in the world. Its holdings include mines, smelters, refineries and properties in many of the United States and several for-eign countries. The head office of the concern is 25 Broadway, New York City.

precedent in turning this lumber over to the public, and the USO feels privileged to have the opportunity of acting as the medium in the distribution of this lumber to the people of the surrounding communities," states Miss Margaret M. Bushard, USO Club director.

Caravans of trucks, trailers, pick-ups, and automobiles have been leaving the "bone yard' lad-en with scrap lumber from the USO lumber piles.

Fences, walks, lath houses, and even cabins are being built from the lumber, which has also proved useful to those engaged in making "Victory Gardens."

This scrap lumber is available to anyone who wishes to haul it away. The USO maintains a desk at Room 14, in the Plant Protection Buildings at BMI to issue the permits. 44

WESTERN INDUSTRY "A magazine directed to the men of management in all manufacturing industries in the industrial West."

San Francisco, California

Fight to Keep Basic In Full Production ...

ENATOR McCARRAN of Nevada is able in Los Angeles to operate the steam making the fur fly in his efforts to keep WPB from putting into effect proposed order (forecast in the April ae of Western Industry) closing down four units of the monster Basic Magnesium, Inc., plant at Las Vegas, Nevada, followthe reduction in magnesium output ordered elsewhere

Reasons assigned by Phillip Wilson, head of the magnesium and aluminum division of WPB, are: (1) a shortage of oil in the West which would be relieved by utilizing the hydro-electric power from Boulder Dam now used by the four units instead of allowing two steam power plants at Los Angeles to consume oil needlessly; (2) the shut-down at BMI would release 1500 men to relieve the labor shortage at Los Angeles; (3) transportation of mag-nesium from BMI to the East is an economic loss and is creating a bottleneck, and hauling peat moss from Canada wastes transportation needlessly.

Senator McCarran learned that Petrolm Administrator Ickes wrote Donald Nelson the saving in oil would be inconuential and that gas will soon be avail-

plants; that Paul McNutt, War Manpower Commissioner, advised there is no housing available in the Los Angeles area for additional workers; that five cars a day will move all the magnesium that can be produced at BMI and that 60 to 70 per cent of the 600 eastbound freight cars passing Las Vegas every day are empties; and that Anaconda is steadily reducing its use of peat moss and will shortly dispense with it altogether.

Despite the extravagance and inefficiencies of the early days of the project, which the Truman Committee said had made a \$63,000,000 project cost nearly twice that much, the Anaconda Copper Company management has been making steady gains in efficiency. These eventually may challenge the Truman Committee's assertion that the capital expenditures and expenses of transporting the ore 350 miles place a handicap on the project which alone make it difficult to compete with other projects. It is asserted by Senator McCarran that

in January BMI produced metallic magnesium at a cost of \$0.1975 a pound, and the Truman Committee reported that Anaconda had reduced the cost from \$0.316 in June 1943 to \$0.235 in November.

"It should be noted," says the Committee, "that the foregoing costs do not include amortization of plant facilities, which of course are borne by both Dow Chemical and Permanente Metals Corporation in the operation of their privately owned plants.

"Although the cost is still above the \$0.205 per pound (Editor's note: Senator McCarran's later figures brings BMI below that figure) at which Dow Chemical is selling magnesium produced in its privately owned plants and the \$0.124 per pound cost of producing magnesium in the plant operated for the Government by Dow Chemical at Velasco, Texas, it is substantially lower than the cost of producing magnesium to date by either the ferrosilicon of the carbothermic processes."

The Truman Committee notes several objections to the BMI project besides the squandering of money in the days before Anaconda was called in to bring order out of chaos. One of these is that it should have been located near Lake Meade, where it would not have been necessary to run a 40-inch pipe line over the mountains for pumping water nor build two 15-mile 230,000-volt transmission lines.

"It is also obvious," say the Committee, 'that the plant was wrongly located on the site itself, in that the railroad terminal is



WESTERN INDUSTRY-May, 1944



Contro, Cal., Desprt Magazine

JUNE, 1944

Left to right. 1—The prospector, daring desert heat and endless miles of hills and sand, deserves credit for locating the great deposits of magnesite from which magnesium is made. Photo by Truman D. Vencill. 2—Magnesite blasted out with dynamite is scooped up with big shovels, dumped into specially designed trucks which carry 20 tons of ore each, in steady stream to Gabbs plant, from where magnesium oxide and other concentrates are bauled to plant at Las Vegas, 334 miles away. 3—Ore is pulver-ized in a battery of ball mills (center), then moves to classifiers (joreground). Finer material flows out and is carried to the next operation.

HE romantic thing to me is that the plant stands squarely astride the old Spanish trail so that I like to refer to it as the Path of Progress." Guernsey Frazer, administrative assistant to the general manager of Basic Magnesium was talking to me as we looked over

the enormous plant at Henderson, Nevada. That idea pops into my mind oftener than do the facts that confront us daily, such as how we built this third largest city in Nevada in 11 months to house the 5500 permanent workers we now have at BMIa town complete with hospital, schools, churches, markets and a general shopping center. Construction of the plant itself over a period of only 18 months was the largest construction job ever accomplished in four directions-in refractory brick work, sheet metal, electrical and plumbing installations. It was built by McNeil construction company of Los Angeles between November 15, 1941, and July 31, 1943.

Left to right. 4-In battery of roasters magnesium oxide is calcined. Partially moist magnesium oxide, introduced at top of these seven-story units, is subjected to intense heat generated by oil burners. Last process at Gabbs mill. 5-One of a battery of wet mixers in which coal, peat moss, magnesium oxide, magnesium chloride are mixed. From mixture cakes of magnesium are extruded, cut into slabs by piano wire. 6-Here cakes of raw materials pass through long tunnel kilns, thoroughly dried. Process consumes some of the coal and peat moss, leaving cakes porous.





Miracle Metal From Nevada Hills

By LELANDE QUICK Photos courtesy Basic Magnesium, Incorporated

> I had spent the whole day with Bill Dam power daily than the city of Los An-Burke, Frazer's able assistant. I wasn't too tired, for the buildings were so large we had driven right through most of them in our car. Silver-like magnesium has been aptly called the miracle metal. Its use is comparatively new because it used to cost \$5.00 a pound to produce it but now it can be turned out for about 20 cents. Magnesium is about two-thirds the weight of aluminum but it has the tensile strength of hot rolled or mild steel. Its potentialities for postwar use are unlimited for making the standard things lighter-washing machines that will weigh less than present vacuum cleaners, bath tubs that one man can easily carry. And because it is cheaper to produce, the cost of items made from it will be reduced in two directions for it is an axiom in the metal industry that "if you save a pound you save a dollar.'

BMI, as they always refer to Basic Mag-

geles. It cost more than \$140.000,000. and beside it other war plants authorized by Defense Plant corporation were really minute. The electrical installation alone cost \$40,000,000. Of this amount \$23,-000,000 went into solid silver bus bars. All of this silver had been mined in Nevada and stored in eastern vaults at West Point, New York, but because of the acute shortage of needed copper, usually used for bus bars, the silver was processed into equipment in the east and came home again to Nevada as a substitute for the copper bars in six of the ten electrolysis units now operating at the plant.

Aside from the cold and unromantic statistics of the accomplishment the real romance was in the successful fight of more than 13,000 construction workers (Boulder Dam had but 5250 at the peak) to accomplish their purpose in the face of nesium, Inc., is the largest magnesium natural difficulties and lack of living plant in the world, using more Boulder quarters. With the combination of natural



automotive accessory, cinematographic equip-

With all due respect to this highlyrespected pioneer publication of the advertising world, the answer is "What with?"

Value of Western Oil Shale Deposits

In regard to the development of the oil shales in the Rocky Mountain region, reported from Washington in the April issue of *Western Industry* as about to be authorized by Congress, Per K. Frolich, president of the American Chemical Society, describes them as the most important in the United States.

In a paper entitled "Petroleum, past present and future" he states that a much larger potential supply of liquid hydrocarbons is obtainable from the oil shales in the United States than from the natural gas reserves, which are in turn equal to about 75 per cent of the proved reserves of petroleum. At the present rate of consumption, Mr. Frolich, who is director of the chemical division of the research laboratories of the Standard Oil Company of New Jersey, says the proven gas supply should last about 30 years, or twice as long as the oil supply.

"From 1925 to 1929 the Bureau of Mines experimented with the recovery of oil from Colorado shales," he reports. "Although no commercial scale production was undertaken, sufficient work was done to demonstrate the practicability of producing oil from this source. The oil obtained by retorting of shale differs from conventional crude oil in that it has a higher percentage of unsaturated hydrocarbons, a lower percentage of gasoline, a higher wax content, and relatively high content of phenolic compounds and nitrogen bases. Additional work therefore remains to be done on the development of satisfactory refining methods."

Gold Mining Relief

Permission to resume limited milling of ore to meet maintenance costs has been granted by WPB to two of the nation's largest gold producers, the Idaho Maryland and Empire Star mines at Grass Valley, California, Maintenance workers and miners non-essential to higher urgency war production were made available, also critical equipment, subject to prior call to military or other production. It was shown that the two mines included over 400 miles of underground tunnels and mining developments, that nearby communities were dependent upon the gold mining industry and that over 100 homes had been closed as a result of the stop order on gold mining. This step was taken to indicate that WPB's policy will be to give consideration to appeals from authorized producers who are faced with drastic losses to property.



Your job—and ours and every good American's—is to win the war as conclusively and as quickly as possible. Every man and woman engaged in American industry, in whatever capacity, is a Citizen Soldier charged with the duty to work full time, produce to the limit, and conserve vital materials and machines. It is a duty that will not be fully discharged until Victory is won. It's up to all of us to stay on the job and finish the job.

GUARD PRECIOUS EQUIPMENT

The machines and equipment you use must be kept on the job top. To help you, we are producing vastly increased quantities of first quality lubricants for protective maintenance and more efficient operation. We are also developing new and remarkably better lubricants to meet today's requirements. Your Associated representative "knows the score" on wartime lubrication problems and their solution. His knowledge and experience are at your disposal, without obligation, at all times.



TIDE WATER ASSOCIATED OIL COMPANY

VEEDOL AND TYDOL MOTOR OILS + CADEL A.P. HEAVY DUTY LUBRICANT CYCOL INDUSTRIAL LUBRICANTS + ASSOCIATED AVIATION ETHYL AND FLYING A GASOLINES + FISK TIRES + AERO BATTERIES

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at the lowest point and all materials entering into the construction and operation of the plant must be carried upgrade to their point of use . . . proper consideration was not given to prevailing winds in the area and the corrosive fumes of chlorine are carried against the expensive transformer and distribution equipment with a deteriorating and injurious effect."

Machining Problems In Magnesium

The questions as to what types of tool steel are best for cutting tools for magnesium, and what cutting angles and clearance angles are best for flat drills, were recently submitted to the San Francisco office of Smaller War Plants Corporation technical advisory service in San Francisco by a manufacturer of cutting tools for machining magnesium incendiary bombs.

Tungsten carbide tipped tools and other alloys for high production work were generally recommended by the authorities from the SWPC consulted. One source advised that tools used for machining magnesium should have the following characteristics: (1) smooth faces, (2) large peripheral clearances, (3) large chip spaces, (4) small areas of tool in contact with the work, and (5) comparatively small rake angles (undercuts),

Tool materials were rated by one source in the following manner in order of increasing tool life: (1) high-speed steels, (2) high-speed steels plus surface treatments, (3) non-ferrous tool materials, (4) carbide-tipped tools.

Compared to the average cutter, the milling cutters for magnesium should have less teeth, more undercut, greater angle of spiral, and more chip space, was the opinion from another source.

One metallurgist advised against the use of flat drills for magnesium, recommending instead spiral drills for ordinary or shallow depth holes and fast spiral drill for rapid chip removal, saying it was necessary to use extreme clearance and regular angles for the free cutting of magnesium.

Consolidated's First Postwar Plane

A 48-passenger commercial transport plane has been announced by Consolidated Vultee Aircraft Corporation as its first postwar ship. This Model 39 incorporates the Davis wing, power-plant and landing gear of the Convair Liberator bomber together with a specially designed fuselage. It is designed for long range operations and will carry 48 passengers with baggage and 1200 pounds of mail on flights up to 2500 miles. As a sleeper plane, it will accommodate 24 passengers and a cargo version is expected to carry a payload of 12,000 pounds over similar distances.

Normal cruising speed for the ship will be 240 miles per hour contrasted with 180 miles per hour for present day planes.



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WESTERN MARKETERS AND MARKETING A monthly column devoted to the promotional and advertising plans of western manufacturers

Dar Johnson has been newly appointed sales and advertising manager for Willamette-Hyster Co., Portland, Ore. and Peoria, Ill., filling the vacancy created when Manford Pate resigned to join the Royce Mac-Candliss Agency. Johnson was formerly public relations and industrial promotion manager for the Peoria Journal Transcript.

Now associated with the Knollin Advertising Agency, San Francisco, is Norman Erickson as art director, and Thomas J. McNamara as account executive. Erickson comes from Chicago where he operated his own studios; McNamara from the San Francisco office of J. Walter Thompson.

Replacing Ralph Dorland as manager of production and promotion for Western Industry is Robert C. Williams, formerly advertising manager of Stauffer Chemical Co., San Francisco. Dorland resigned to join the merchant marine.

New president of the Los Angeles chapter of the National Industrial Advertisers Ass'n is R. Calvert Haws, manager of ad- Advertising Agency.

vertising and sales promotion for Western Drop and Pick-up Air Precipitation Corp.

Altec Lansing Corp., Los Angeles, account, electrohic equipment, to the Davis & Beaven agency. The campaign in industrial journals and direct mail will be supervised by Ford C. McElligott.

The Olds Alloys Co., South Gate, Calif., has appointed the Darwin H. Clark agency to supervise its advertising. Media will be national industrial publications.

To the Hillman-Shane & Breyer agency. Los Angeles, as manager goes Hassell Smith, formerly manager of the L. A. office of Botsford, Constantine & Gardner.

The Davis-Beaven Agency. Los Angeles, adds Jerry Coleman toxits staff as head of the planning board. Coleman was formerly advertising manager for White King Soap Company

Malcolm Dewees retires as Pacific Coast manager for Kelly, Nason & Roosevelt to join the San Francisco office of Botsford, Constantine & Gardner.

Add to list of accounts serviced by Brisacher, Van Norden & Staff, San Francisco, the Ray Oil Burner Co., same city.

been elected president of the Tacoma Advertising and Sales Club.

Frederick Henning, who has been operjoined forces with the Garfield & Guild

Mail Without Stopping

Permission to provide airmail and express cargo service to more than 100 California cities not previously served by air transportation facilities is being applied for by the Ryan School of Aeronautics at San Diego. Plans call for operation of twinengined airliners equipped with an aerial pick-up device after the method of taking. on mail pouches from a moving train, for service at communities between the regular landing stops. No landing field, only an unobstructed area for flying close to the ground, would be necessary at such points.

2-

The pick-up unit in the plane consists of an electrically operated winch with a shock-absorbing device, a rope and a pickup arm, which retracts into the bottom of the plane when not in use. Approaching the pick-up station at an altitude of only 20 feet, the pilot trips a release and the fiber-encased delivery container drops to the ground.

At the same time the arm with the pickup hook strikes a transfer loop suspended Lloyd Thorpe, assistant advertising between two 14-foot upright poles, setting manager of Weyerhaeuser Timber Co., has in motion the energy-absorbing device on the unit in the cabin. This operation absorbs the shock of contact to such an extent that it is hardly noticed in the plane. After ating his own agency in San Francisco, has the pick-up is made the container is automatically pulled into the plane by the electrically operated winch.

the Easiest, Fastest, Most



Repair them Quickly with SPEED-PATCH

* Worn, broken floors, loading platforms and other areas contribute to shipping delays by upsetting loaded trucks and damaging critical materials. Put an end to these costly interruptions by repairing with ready-mixed, spark-proof Speed Patch.

Speed Patch "sets" immediately. No need for traffic detours. Truck over repaired area without waiting. Simple directions are: Fill broken area with Speed Patch, tamp solid and open to traffic. Nothing is easier-nothing is faster-nothing is better. Order Speed Patch, recognized the best by leading industries,

Ask about Heavy Duty ROCK-TRED for Complete Resurfacing REPRESENTATIVES IN PRINCIPAL CITIES





PUNCH-LOK COMPANY 321 N. Justine St. Chicago, Illinois DISTRIBUTORS IN PRINCIPAL WESTERN CITIES

WESTERN INDUSTRY-May, 1944



Parade of the Pentstemons

By MARY BEAL

fiery brilliance of the Scarlet Buglers described in the May issue of Desert Magazine. One of the loveliest, Palmer's Pentstemon, is rather widespread at moderate to high altitudes, its graceful wands of delicately colored bloom lighting up slopes, washes and canyons, and exhaling a delightful fragrance. Etched in my memory is the vision of a magnificent clump over 5 feet tall, supremely beautiful in the late afternoon light. It appeared like magic at a bend of the road skirting the Providence mountains in eastern Mojave desert. It was standing at the edge of a shallow rainwash, its dozens of flowerstrung stems gently swaying in the breeze.

Pentstemon palmeri

Several to many slender erect stems 11/2 to over 5 feet tall, from a woody base, more leafy below, the herbage hairless and lightly covered with a bloom, the narrow sessile leaves mostly lanceolate with shallow sharp teeth. The inch-long (or more) corolla is pale pink (or deeper) or orchid pink, with crimson lines in the throat extending well down the 3-lobed lower lip, the short tube abruptly dilated into the wide-open throat, showing the hairy palate and densely hairy tip of the sterile filament. Frequent from 3500 to 6500 feet in Mojave desert, Arizona, southern Nevada and Utah.

Pentstemon spectabilis

ONTINUING the Pentstemon desert from bordering ranges on the west, quest, we select a few without the making itself at home on dry hills and in rocky canyons. Its stately clusters of stems, 2 or 3 feet tall, are generously bedecked with flowers of an entrancing gamut of color tones, the corollas over an inch long, bright blue or purplish blue, lighter at base, the abruptly dilated, bell shaped throat lilac or red-purple. A panicle often has 50 or more blossoms. The pale-green leaves are sharply toothed, the sterile stamen beardless. Look for it in April and May along the western edge of Colorado desert and in the western and southern borders of Mojave desert.

Pentstemon albomarginatus

A smaller species, growing in low clumps 6 to 10 inches high with several leafy stems from the long fleshy root, the herbage pale grey-green with a sheen. Leaves and sepals white-margined, flowers whorled in a spike-like leafy panicle, the corolla light to deep rose pink, throat paler with bright reddish lines and dense yellow beard. Found infrequently at moderate altitudes in April and May in sandy areas of western Arizona, southern Nevada and eastern Mojave desert.

Pentstemon antirrhinoides

An intricately-branched leafy shrub 2 to 7 feet high, with many small glossy richgreen leaves on pale woody branches. The very broad, gaping corolla is sulphur-yellow, washed with terra cotta or russet outside, the sterile filament densely bearded. Rather common up to 5000 feet in rocky This showy species has ventured into the canyons and mesas of southern and western summer, according to altitude.



Blue Beard-tongue (Pentstemon spectabilis). Photographed by the author in southwestern Mojave desert, California.

Arizona, southern and eastern Mojave desert and along the western edge of Colorado desert from April to June.

Pentstemon pseudospectabilis

A beautiful plant with several erect stems up to 4 feet tall, the oblong-ovate leaves sharply serrate, the corolla about an inch long, gradually inflated to the spreading lips, bright pink to rose-purple. Common in sandy washes and open ground up to 6500 feet in mountains of eastern Colorado desert, Arizona and southwestern New Mexico, blooming in spring and

Left to right-Scented Pentstemon (P. palmeri), a favorite of honey bees in eastern Mojave desert. Bushy Beard-tongue (P. antirrhinoides), specimen from Providence mountains of eastern Mojave desert. White-margined Pentstemon (P. albomarginatus), usually growing in drifting sand. Photographed specimen from a colony found by the author near black lava bed surrounding Pisgah Crater.





Left to right. 7-Cakes of raw materials after being conveyed from oven kilns. From here they are conveyed to crushers which break them into small pellets, which go to chlorinators where magnesium oxide is transformed into magnesium chloride. 8-From chlorinators molten magnesium chloride is carried in electrical jeeps and poured into cells. In cells are other chlorides. Direct current of high amperage, low voltage, passes through. Electro-chemical action causes metallic magnesium to rise to surface, while chlorine passes out to be re-used in process. 9-From electrolytic cells metallic magnesium is skimmed from top and poured into pots. Worker at left is ready to sprinkle flux in pot in case molten magnesium catches fire. There are 880 of these cells at Basic plant, in operation 24 hours a day, 7 days a week.

and man-made hazards a world safety rec- sium from sea water. Only BMI uses the explored by Escalante, a land whose magord was established despite 75,000 recorded accidents which resulted in but ten deaths. That many fatalities reasonably could occur in any community of 10,000 persons following normal pursuits in an purpose was to keep England stronger than 18-month period. Never had there been a the France she feared and believed strong. more concentrated effort to whip the im- Later England needed our magnesium and serve man.

They tell you at BMI that while the magnesite ore exists all around them they get it from deposits nearby that had been worked earlier. "Nearby" is the Gabbs valley, 334 miles northeast of the plant. The Pacific ocean is the same distance from BMI! But distance is not the tangible thing in the desert that it is in cities. A few hundred miles of desert is not awe- vada history and as near as I have been strangest of all was that mortar set too fast some to a man working in a plant so large able to learn, Father Silvestre Velez de Esthat one section of it has more than 50 calante was the first white man to go buildings in a row. Gabbs valley contains through here. He made the trail through mountains of magnesite ore which is these vegas or meadows in the summer of crushed and processed into magnesium 1776, the trail that later was used by Jed oxides and other concentrates at the mine and then hauled in huge trailer trucks pant Bringhurst, sent down here by Brigsouth to the plant at BMI which is 15 miles ham Young in 1855. east of Las Vegas.

Left to right. 10-After molten white metal is ladled from cells into pots, it is poured into containers as shown here. 11-Magnesium "cheeses" go into crucibles at BMI refineries, where other alloying metals are introduced. Various alloys are made-for incendiary bombs, sheet magnesium, airplane parts, tracer bullets, flares. 12-Crucibles of still-hot magnesium alloy go into ingot pouring machine which is kept bot by gas flames, tips automatically, keeping outpoured magnesium alloy flowing steadily into moving molds. Ingot molds move down line to right, cooling as they go. At end, they drop into bins-a finished product.



bination of circumstances. Germany first developed the process and then she helped England build a plant at a time when her the secret to us in exchange for the incendiary bomb material. The magnesite of Gabbs valley in the desert drops on the cities of Europe almost nightly to destroy the factories producing materials for the

Frazer continued his conversation as we sat in his office at the end of the day. "I always have been a close student of Ne-Smith, Jefferson Hunt and the first occu-

The founding fathers in Philadelphia,

electrolysis process, through a strange com- nesium would one day help save the liberties they were founding. Ever since then we've celebrated the 4th of July and the fireworks have been steadily improved in magnificence due to magnesium. But now, with cheap production of this flare material, a community need only spend a mutable forces of the desert to make it through lendlease arranged to pass along hundred dollars for an evening of fireworks where it used to spend a thousand.

> "Just why did you build at this spot?" I wanted to know.

We had to use Boulder Dam power and Lake Mead water-lots of it, and it was better to bring the ore to the power and water than vice versa. We had many unique problems to solve here, but the on the bricks for the furnaces, or refractories as we call them. In these desert temperatures the mortar became as hard as a bride's first cake in less time than it takes to say BMI. We solved that problem by mixing mortar in ice cream freezers."

'Yes, I read about that," I said. "I saw the special ice plant you built for the pur-pose. Bill Burke was telling me how the There are other magnesium plants in ringing their liberty bell at almost the same mortar hardened like glass so that it was the country but they recover the magne- hour, did not dream of this vast land being air tight, acid tight, current tight, gas



JUNE, 1944

Cantro, Cal., Desert Magazina

tight and corrosion resistant-and that's tighter than a funeral drum, I guess."

And then Frazer asked me, after I had peered into every tunnel, furnace and laboratory for eight hours, if I knew what was going on at BMI. "No," I said, "what do you make?" After the loudest guffaw ever heard in southern Nevada the genial Frazer said, "Tell him again, Bill. He's seen so much today we've got him dizzy."

"Well, I helped string up the first power line here," Bill Burke replied, "but I vaguely understand it all myself. After we get the materials in from Gabbs, the magnesite concentrates, calcined magnesia, coal and peat are mixed in a dry state and then mixed in a solution of magnesium chloride. After kneading the wet mix and drying in kilns the material is made into pellets. Then anhydrous magnesium chloride is made as a fused melt by treating the pellets with chlorine gas in electric furnaces. Crude magnesium metal results from electrolysis of the molten magnesium chloride. From this we get slabs for rolling into sheets and plates for aircraft, automotive and other transportation equipment. Then we get a standard ingot for making powder billets and magnesium and aluminum alloys. The billets are powdered for use in tracer bullets and flares. We also make alloy ingots for aircraft engine and frame parts and for incendiary bomb casings. It's a big step from

grandma had her tintype taken-but it's We load them with liquid chlorine and not so complicated, is it?" they are lined so that the contents never "Simpler than the solar system," I re- vary more than ten degrees while in tranplied. sit regardless of the outside temperature. "We get a lot of things besides magne-sium, too," continued Bill. "See those big That goes back to Pittsburgh to make glass. Then we get sodium hydroxide as the first magnesium used in the flash when tank cars? They're super-thermos bottles. another by-product of the electrolysis of the brine. This is used by many other de-In shipping department, finished ingots are strapped with steel and packed into fense industries. We use mountains of salt from the deserts roundabout to make the cardboard cartons for shipping. brine and we couldn't get far with our ore if we didn't have all this water, salt and electricity we get near the plant."



IUNE, 1944

12



Crucible, loaded with two tons of white hot magnesium alloy, has been lifted from gas furnace by overhead conveyor in one of the three BMI refinery units. It is being lowered to cooler before being sent to ingot-pouring machine (See No. 12).

Then I asked Frazer what postwar would mean to BMI. "It will mean many things," he said, "but this is no 'war baby. Magnesium will be in terrific demand for postwar recovery and industries."

Even so, the possibility of a shutdown is a real nightmare to every BMI employee. But the Anaconda Copper company, greatest name in metals, operates BMI and they have an easily understood urge to do to aluminum what aluminum did to copper. Whatever happens two things are practically assured-the metal business will be revolutionized and the desert will be industrialized. They brought the cotton mills to the cotton fields and the romance of the deep South faded. Now they bring the furnaces and foundries to the ore deposits of the deserts, but we hope that at least the peace of the desert will not be too disturbed.



AUTHENTIC BONANZA HISTORY PUBLISHED BY MINES BUREAU

THE HISTORY OF THE COM-STOCK LODE, by Grant H. Smith, is a comprehensive mining history of the Lode from 1850 to 1920. For the experts or specialists it contains a progressive record absorbing reading as fiction.

ing days when the Lode was most active, and the personal lives of the men who developed it color each page of this chronicle. Historically exact and authentic in every detail, it is fascinating reading because it tells the story of one of the most romantic evidence supporting both theories, but

Publication of Nevada State Bureau of Mines, 1943. 290 pp. Appendix, production records, illustrations. Spec. ed. for Nev. residents, 75c. Library edition, twelfth century, \$2.00

-A. M.

SPANISH LANGUAGE GUIDES FOR THE ARMY AIR FORCE

CONVERSATIONAL SPANISH, by Solomon Lipp and Henry V. Besso, was especially written for the army air forces of the United States, but can be just as useful to the civilian. Special words, useful to the flyer only, are common throughout the book, but these can be omitted by civilians, or others substituted from the vocabulary with good results. The thousands of other idioms, words and expressions easily can craft which can take its place beside those be used by anyone. The simple construc- of pottery making, weaving and silver tion and direct method make the book one work. of the best for an earnest beginner. Clothbound, \$1.25; paper, 75c. 6x9 inches, 168 pages.

CONVERSACION, by H. V. Besso and S. Lipp, is a more advanced book, to follow man City on an errand of personal revenge the completion of Conversational Spanish, especially for use of both army and navy. The story and cartoons are amusing and interesting enough to lead the advanced student from lesson to lesson. The book also contains much valuable information on it, "I guess I'm the only one in town that Spanish America, vocabularies, grammar ain't lined up." Personal motives are interreview and all necessary material for a real woven with those of the rival desert and student. Cloth \$1.50, paper \$1.00. 6x9 hill cattlemen to make Ernest Haycox' inches, 294 pages. Both titles published in THE WILD BUNCH a tense emotional

STUDY DISCLOSES NEW PUEBLO INDIAN CRAFT

PUEBLO INDIAN EMBROIDERY, title of volume four of Memoirs of the Laboratory of Anthropology, Santa Fe, New Mexico, will come as a surprise to most readers. Although it is well known of the development work carried out, the that weaving of textiles is one of the crafts failures encountered, the bonanzas discov- of the Hopis of northern Arizona and ered, and the production reports of the other Pueblo tribes of New Mexico, exmines. But for the layman the work is as amples of these textiles embellished with embroidery are rare. During his intensive The rise and fall of fortunes in the roar- search for material on this subject, the author, H. P. Mera, found less than 100 examples dating prior to 1880.

This craft is believed by some to be of prehistoric origin, by others a result entirely of European influence. Mera gives and brilliant periods in American history. concludes that present knowledge cannot prove either theory, although he would tentatively accept an aboriginal origin in the Southwest, at least as early as the

Most of the 73 pages of the monograph are devoted to a study of the embroidery style and technique on both cotton and wool fabrics. Twenty-six page plates three in full color, show both embroidered garments and remnants which have been found in ancient Indian dwellings, and many detailed studies of specific designs.

Altogether, this is an unusual and interesting study, despite scarcity of material. Since it is doubtful much additional material will be uncovered, this presentation of the subject in monograph form at least calls attention to another American

WHEN LAW WAS MADE BY MEN QUICK ON THE DRAW

When Frank Goodnight rode into Sherhe discovered nearly everyone in the cattle community belonged to one of two rival law-dispensing factions from which he could not remain free. As one oldtimer put 1943 by Hastings House, New York. story of conflict in the Old West. Publish--Arthur L. Eaton ed by Little, Brown, Boston, 1943. \$2.00.

BOOK'S OF INDL

Charles book-of-th writes of a

describes the life of a young white boy who is brought up with and influenced by contact with southwestern Indian tribes. Mr. Nichols himself was raised on 11 different Indian reservations where his father was a special agent for the U.S. department of interior. The author has used his special, intimate knowledge of Indian life, character and customs in writing one of the most interesting and original stories that has been produced in some time.

South Boy, young son of a white cattleman, spent a lonely childhood in the partially uncivilized and wholly forsaken regions along the Colorado river. Most of his time was spent among his Mojave friends who accepted him as an equal and initiated him into their tribal lore and superstitions. His education, consequently, was a peculiar mixture of redmen's doctrines and what his dainty mother referred to as Cultural Advancement and Christian Instruction against Rough and Heathen Worlds

The plot of CRAZY WEATHER concerns itself with the development of South Boy's character and attitude-the resolving of his mind from confused loyalties to courageous, purposeful decisions. He runs away from home to join a Mojave war party heading south to fight the Piutes in the blazing heat of summer. Through these brief, strange events South Boy emerges a man.

Refreshing elements in the book are its complete lack of any "love interests," its frank simplicity and its very natural and responsive dialogue. Macmillan Co., 1944. \$2.00. -Aliton Marsh

THE FANTASTIC CLAN



As enjoyable as a good travelog. Tells you how to "call by name" the odd members of the spiny clan of the desert.

THE FANTASTIC CLAN by Thomber and Bonker, describes with charm and accuracy the strange and marvelous growth on the desert. An informal introduction to the common species in their native habitat, including notes on discovery, naming, uses and directions for growing. Many excellent drawings, paintings and photographs, some in full color. Endmaps, glossary, prono ing vocabulary, index.

\$3.50

DESERT CRAFTS SHOP 636 State St. El Centro, California



L.V.R. JOURNAL 5-18-44

Further BMI Cut Plant Status Is Firm, Wilson Say

WPB Pledges No

Be Changed to Get Labor on Job

Definite assurance that no further slash in the product tion rate at Basic Magnesium Inc., is contemplated, was received by officials of the company this morning from Phillip D. Wilson, director of the aluminum and magnesium branch of the war pro-

Further than that, a determin ation to keep the plant operating on its present scale so that t war effort will not be impedied. was indicated when Wilson, in a wire to F. O. Case, general man ager, reported that, if necessary changes in the manpower ulations for this area might made to insure sufficient la to keep the plant at full prod on in the six units now operation

ing. Wire Answered Officials at the plant rece lispatched a wire to sking the WPB for its st the future operation of the r and this morning a wire w ceived from Wilson giving that information.

"In answer to your question re garding production at Basic Mag nesium," the wire read, "Un WPB has no plans to make furth er reduction there. This advis should decrease terminations and

plant. If necessary, we will recommend that suitable links priorities be assigned to Basis Magnesium to enable you to con

the telegraphic report, declaring that the information in the wir should set at rest the rumors rampant in this area, that the plant would be shut down com-pletely and the men now on the job left to seek new employ-

ment regarding labor priorities indicated that the WPB was netermined to keep the plant in operation at its present capat even if WMC regulations no

6-24-44

pointed out.

rity Award to a Nevada industry for maintenance of protection services resulting in maximum production will be made to Basic Magnesium Incorporated sometime during July, Hugh Shamberger, state director of the Office of Civilian Defense, announced last night.

word of the award from Kenneth Hammaker, regional OCD officer in San Francisco, who compli-mented the Nevada OCD, saying it was through the Nevada organization's efforts that a second presentation of the high award has been made possible in this state. Only recently Kennecott Copper company at Ruth was presented the first National Security Award to a Nevada industry and the seventh such award in the nation.

WMC Regulations

duction board.

stabilize employment at th

erations Officials at the plant were jubilant that Wilson had made

tinue on the present scale of op

ment. The officials said that the state-

effect had to be altered.

B. C. NEWS

B.M.I. Receives Second Nevada Security Award

RENO, June 23 - The second presentation of the National Secu-

Shamberger said he received mercial lines.

"With the demonstrated and established ad vantages of magnesium's light weight, excel Anaconda Spokesman Discusses machinability, high faligue strength and vib tion dampening characteristics and the three favorable conditions I have mentioned, namely superative research, increased fabricating fact lites and a non-monopolistic market for you buy magnesium in, we cannot help but feel LAS VEGAS, Nev. On the recent visit of a rather cheerful about our post-war future an

Seattle (Wn) Star

May 23, 1944

Ennuise Sincu

Basic Magnesium

To Shut Down Four

Of 10 Units Soon

LAS VEGAS, Nev., April 15 (U.B)

-Shutting down of one unit of the huge Basic Magnesium, Inc.,

plant was reported yesterday, and it was understood that a total of

four of the plant's ten units will be idle by May 31. Superintendent Frank O. Case

refused to confirm or deny the re-port. BMI has been operated by

the Angeanda company for the Defense Plant Corporation.

Sen. Pat McCarran, Nev., de-

clared if a shut-down order has been issued, "I and the members of the U. S. Senste committee I

head will fight to have such an

Reports have been recurrent

here that production at the BMI plant, largest in the world, would be curtailed because production

of magnesium has exceeded re-

quirements. The plant reportedly

has anticipated the action by not

replacing drafted employes.

order revoked.

144. 15 1944

L. M.R. JOURNAL Friday, May 19, 1944 5_19_44 Iditorials and Features

Vegas, Nevada. The Review of dama matter. Sub-Postoffice at Las Vegas as second class matter. Sub-rice \$105 per month by mail or carrier. fember United Pres, Associated Press, American News-aper Publishers Association. de, Publisher Phone 6 A. E. Cahlan, Managing Editor

Should Clear the Atmosphere

The statement yesterday that Phillip D. Wilson director of WPB's aluminum and magnesium divi sion that production at BMI will not be further qu tailed, should set at rest all the wild rumors which have been floating around for weeks, most of while had for their theme the prediction Basic would be closed entirely within a few months.

These rumors have had serious results so far as the manpower situation at the plant is concerned. Hundreds of men have terminated here to seek work in other war plants which appeared to offer promise of longer employment. And this has brought about a critical condition which, if not checked, might actually force the shutdown of the plant for lack of men to run it.

Anticipating this possibility, however, the WPB chieftain says if the terminations don't cease, step will be taken to assign a labor priority to BMI which will assure the necessary number to insure maximum production from the six operating units.

This statement is significant two ways. In the first place, it indicates BMI has lost none of its importance to the war effort, because production has been cut forty per cent. The remaining sixty er cent is just as vital as we have been led to believe the plant was from the beginning. And there are those who know what they're talking about who are medicting the four idle units will be back in production by fall, basing their prediction on the theory the army has underestimated its magnesiumneeds and will have to send out an S.O.S. below very long, to step up production again.

Second point to be made in connection with the proposed labor priority is that if such a priority is ortheoming, it may result in bringing back many workers who have left to seek employment elsewhere, for in the distribution of manpower, those with experience here would be the first to be chosen by the U.S. Employment service to fill the need.

stabilizing effect on the entire BMI picture, and should have the effect of halting the flow of workers out of the community which has been largely inspired by fear the plant would close and the feeling among many that the production of magnesium is no longer as important to the war effort as other plants

Magnesium IS vital to the war effort and BMI's duction is the backbone of the nation's supply. en there MUST accept this message and stick. with their jobs. They're as essential where they as as men on the fighting front. For after all, the air fore- and its bomb forays are still absolutely necessary to the success of our victory campaign.

SANTA BARBARA, CALIP. NEWS-PRESS, INV. ES. CJ. 10.000

SECURITY AWARDS MADE CARSON CWY, Nev., June 21 (P)-Basic Magnesium at Hen-derson, Nevada, has been given the National Security award for outstanding accomplishment in plant protection and security. Hugh Shamberger, director of the state council of defense, announced Wednesday. Public presentation ceremonies are planned, he said.

good market to buy in, and we hope the post-This article was clipped from SCIENCE NEWS LETTER Fublished by Science Bervice, Weekly inne-trated magazine for quick reading—new items in science written non-technically by experts." Washington, D. C.

MIN Star 1944

METALLUEGY **Swiss Rolling Process** Successful for Magnesium

➤ A NEW industrial process, a method for rolling sheets of magnesium and its alloys, presented by a Swiss inventor, Julius Zueblin of Glarisegg, was award-ed a United States patent, 2,349,395.

Lubricants used in rolling most metals are useless in handling the chemically more active magnesium, it was discovered quite early in the development of magnesium metallurgy. Dry rolling was marked by an annoying flaking off of the surface, necessitating constant brushing and polishing of both sheets and working rollers. The new process substitutes for the conventional lubricants one of a number of resin-like substances, such as taroil, anthracene oil, etc. The surface layer thus formed also protects the magnesium during subsequent processing and storage.

Science News Letter, June 3, 1944

there would be no magnesium or aluminum available for the alternit industry. We hope BIG MAGNESIUM that, although the statistic is true, the condition PLANT HOPEFUL won't occur.

Post-War Outlook Before Aircraft Executives

party of airline executives and representatives yours there's a long period of commercial exof aircraft makers to Anaconda Copper Mining pansion ahead for both of us." Co.'s Basic Magnesium, Inc., plant near here, the group were addressed by Ross A. Ross of Basic on post-war prospects for the light metal. Notwithstanding that Basic has been cut

back to 60% of capacity recently by WPE. Mr. Ross was markedly hopeful for the post-war outlook for the plant,

After reviewing the condition in which last year's output in the United States reached an much in tons as it did in pounds at the peak of World War I, with Basic producing 40% of the 1943 national output, Mr. Ross said;

"Second only to our opportunity to contribute to the war effort has been our opportunity to contribute to the future of magnesium as an mportant post-war metal.

Cooperative Research

Because magnesium is a relatively new metal whose characteristics and possibilities are not yet fully known, mest producers, fabricators and Government agencies have recognized the value of copperative research, so that all companies can get the maximum benefit of all new

data on the properties and uses of magnesium "Last year saw the greatest amount of information ever furnished to the magnesium in-

dustry and we have every reason to believe this will continue and that much of the great amount of experimental work now being done on the uses and applications of magnesium will be for the benefit of all in the industry.

"The urgent war need for magnesium was for its pyrotechnic properties - tracer builets. flares, incendiary bombs-and most of the tremendously increased production has been thus used nevertheless, fabricating capacity for magnesium, other than bomb casting, has also expanded and now is about one-third of the total ingot production capacity. This seems rather remarkable. In addition to this one-third, there are approximately 1,000 aluminum fabricators whose equipment is largely adaptable to casting magnesium. So it would appear that consumers of magnesium parts can look forward to increased fabricating capacity to serve them.

Post-War Operation Recommended The third fact which should hearten consumers of our product is the recommendation of the Truman Committee that operation or Basic Magnesium be continued after the war in order to eliminate the monopoly which existed prior to the war-and to provide all consumers with more than one market to buy it A free, competitive production market is a

"Published by Science Service, Weekly illus-



All in all, the WPB declaration should have a

in which they might be needed.

CHEMICAL INDUSTRIES

"Devoted to economic and business problems of making and marketing, buying and using of chemicals."

New York City

1944

Anti-Monopoly Again

Touched off by the REPORTED SALE of the government-financed Basic Magnesium plant at Las Vegas, Nevada, to Anaconda Copper Company, Rep. Voorhis of California has introduced in the House still another bill aimed at industrial monopolies. He will be recalled as having already authored a number of such billsone requiring American corporations to register all cartel agreements with the Department of Justice, another aimed at companies acquiring blocks of patents allegedly to withhold them from competitive use.

The latest measure by Mr. Voorhis would make sales of government-owned plants or industries subject to veto by the Smaller War Plants Corporation where, in that agency's opinion, the sale might act to the competitive disadvantage of smaller concerns in the field, and would give the Federal government power to terminate any lease of such properties for private operation, whenever such plants began to be operated at 75 per cent of capacity or less.

Sale of the Basic plant, incidentally, was made after it and two others were shut down and three more partially curtailed due to magnesium production having overtaken the original large estimated needs of the armed services. The government stockpile and the capacity of existing facilities made it appear unnecessary to continue Basic's operation, it was explained recently by Philip D. Wilson, chief of the Aluminum-Magnesium Division of WPB.

STEEL Cleveland, Ohio

MAY 1 1944

JANUARY ALUMINUM OUTPUT DOWN 10 PER CENT WASHINGTON-Production of primary aluminum ingots in January amounted to 169,600,000 pounds, down 10 per cent from December output.

MAGNESIUM UNITS ORDERED TO SUSPEND LAS VEGAS, NEV.-Basic Magnesium Inc. has been ordered to switch out four of its ten production units, but to keep them in condition for resumption. Management says there should be no widespread layoff of workers.

From

REVIEW-JOURNAL 6-21-44

No Big Change At BMI Is Seen By Nelson Order

The recent order of Donald M. Nelson, chairman of the war pro-duction board, releasing magnesium for commercial use, will make no radical change in the handling of metal produced at the Basic Magnesium, Inc., plant, according to F. O. Case, general

If a manufacturer needs magnesium for commercial purposes or development and can show that its use will not interfere with the war effort either in use of equipment or manpower, then the metal will be allocated, Case

However, if there is an immediate demand for the metal for some phase of the war effort, the some phase of the war enter, the supply going to the commercial manufacturer would be cut off. This is substantially the same ruling that has been in effect for some time, which permitted manufacturers to obtain a limited amount of magnesium for postwar experimentation. Now it is

designated for present commer-cial uses if the manufacturer meets the requirement. Nelson's order was announced

Areison's order was announced during the week end. A meeting of Defense Plants Corporation of-ficials in Washington was called early this week to interpret the effect on the production of magnesium. Their report to Case indicates the limitations still placed on the use of the metal in comNew York, N. Y. JUN I & 1964

WALL ST. JOURNAL

Business and Finance

NDUSTRIAL RECONVERSION plans. which were announced by W.P.B. Chairman Nelson over the week-end, met opposition in War Department quarters. Army procurement officials declared they were having difficulty in getting manpower, facilities and materials for expanded artillery and tank production. While their stand may necessitate some changes in the W.P.B. program, Mr. Nelson proposed two steps to help industry prepare for reconversion: (1) Manufacturers will be allowed to obtain materials for a single working model of any product planned for postwar output; (2) Starting July 1. they may place orders for machines, tools and dies needed for civilian production. Mr. Nelson also disclosed that restrictions on magnesium and aluminum were being lifted to permit the output of civilian goods from these metals.

> S. F., CAL, COMMERCIAL NEWS 11112 22 1944

-The Bureaucrats Must Go-· CARSON CITY, Nev. - Basic Magnesium, Inc., of Las Vegas, has been selected to receive the second National Security award given in Nevatia, Hugh Shamherger, state director of civilian defense, announced. +/

L.V.AGE 3/19/43

Girl Scouts Gather Lumber For Fence

A party of six Girl Scouts, in the troop under the direction of Miss Adelyn M. Rotholtz, climbed the USO "bone piles" at B.M.I. and gathered lumber for the fence which they are constructing at the Residence Club. A truck, donated by Robert Underhill, was loaded and brought the lumber to the

Girls participating in this activity were: Jean La Fran, 6-A-2; Marilyn Schofield, 6-A-2; Barbara Gardiner, 4-A-1; Carolyn Gardi-ner, 5-A-2; Donna Downey, 6-A-2; Darleen Snider, 5-B-2; Joann Dayton, 7-A-1; Corinne Jenni, 5-A-4; Kathleen Goldstrom, 7-A-1; Donna Lee Allan; Joan Underhill, cumnene Fitzgerald, Gladys Scott, rene Belmont and Kathleen p.rague.

L.V.R.J. 3/29/43 NEW UNIT NEAR Unit number seven of

Magnesium's Las Vegas plant will go into production on Wed-nesday or Thursday of this week, it was learned this morn-

L.V.AGE 4/2/43

Police Undertake Cleanup of Jungle

Chief of Police Don Borax, under direction of Police Commissioner C. R. Clark, undertook a general cleanup of undesirables in Las Vegas this week.

Approximately one hundred residents in "the Jungle" were picked up and given the edict of either working or fighting. Some-thing like 40 of them were sent out to Basic Magnesium in the expectation that they would find jobs and go to work.

At the same time bartenders and owners of taverns were given warning not to sell drinks to those who appeared intoxicated. The owners were congratulated on their action in closing bars at midnight. \$1

is making recommendations for better control of dogs in the community. All gardeners and residents interested in action on these proposals are urged to attend and vote. New Victory gardeners will be welcomed to membership in the club, it was stated. The general committee for the club is composed of the for the club is composed of the following members: Frederick Pingree, Boyd Weaver, Mrs. Morley, William Mann and Louis Barkley.

Mrs. Gwendolyn Wagner, of the University of Nevada at Reno, is conducting classes at the school auditorium for women of Basic Townsite. The first classes in nutrition and foods was held Tuesday morning from 9 to 11 and was well attended. The course is to cover many problems especially facing the housewife in wartime, as well

The local Red Cross war fund drive will start Friday in the Basic Townsite district. Thurs-good values. Meat substitutes, Basic Townsite district. Thurs-day evening at 8 p. m there will be a dinner and pep meeting at Anderson's dining room for all workers and their husbands or wires. Roland Seibert is gen-eral chairman, and Elmo Ells-worth is chairman of and Elmo Ellsworth is chairman of contribu-tions, be tomorrow morning at 9 a. m. in the school auditorium and

L.V.R.J. 4/1/43

Anaconda Chiefs

Arrive This Eve

A. J. Hobbins, president of

Anaconda Copper company and Basic Magnesium, Inc., and C. F.

Kelley, chairman of the board of

directors of Anaconda, will arrive

this evening from the east to

spend a few days inspecting the

Both executives are accompa-nied by their wives and will reg-ister at El Rancho Vegas.

local plant.

Substantial progress has been made by the Victory Garden club in the past week. Most mem-bers have nearly completed the bers have nearly completed the spading of garden plots and fer-tilizer is still being delivered to planned as well.

UAS VECAS, NEV., REVIEW-JOURNAL

MARCH 26, 1943

ANACONDA AND BASIC

Cornelius F. Kelly, chairman of the board of Anaconda Copper Company, and James R. Hobbins, president of that great organization, spoke reassuring words to a few of the leaders of Southern Nevada last Tuesday evening at a reception rendered them by Manager F. O. Case of Basic Magnesium, Inc.

LAS VEGAS AGE 4/9/43

Mr. Kelly, born in the old camp of Mineral Hill in Eureka County, Nevada, has had a notable career in the mining industry and his words carry the weight of authority.

"Basic Magnesium will not be a war baby if all the skill and science embodied in Anaconda Copper can prevent it," Mr. Kelly said. In this declaration he was seconded by President Hobbins.

"At this date the BMI plant is turning out more magnesium metal than its original planners dreamed possible. The results have been most gratifying," continued Mr. Kelly.

In the face of such optimism on the part of men who deal solely in the cold facts of finance and science, the pessimism we sometimes hear from uninformed sources is of little importance.

The post-war world will enter an era of light metal and plastic construction which probably will displace some other metals in many lines of industry. If Basic Magnesium shall be able to produce enough of the light metal to meet the demands of growing industries there is no danger of its post-war decline.



AMERICAN METAL MARKET "Leading Iron, Steel and Metal Newspape Recognized price and market authority." New York City

APR 2 1943

Recovery Of Magnesia From Dolomite Now **Possible By New Process**

WASHINGTON, April 1 .- As the result of many months of intensive research, the Bureau of Mines of the Department of the Interior announced today that it had developed a process whereby a 400,000,000-ton dolomite deposit near Las Vegas, Nev., in the Boulder Dam area, could be utilized to produce "many millions of tons' of magnesia which is a raw material of magnesium, the highly important lightweight metal used extensively in airplane construction.

The Bureau reported to Secretary Ickes that the recovery of high quality magnesia from the dolomite resulted from studies conducted at its aboratories and pilot plants at Boulder City, Nev. While one pilot plant turned out magnesia, another was operated to produce metallic magnesium by a new electrolytic process in which the oxide is added directly to the electrolytic bath.

Bureau engineers have pointed out that the dolomite deposit, which is at Sloan, 19 miles southwest of Las Vegas, could be developed to serve the new plant of Basic Magnesium, Inc., at Royson, Nev., near Las Vegas. This plant, destined to be the largest in the nation, now produces metallic magnesium from magnesia extracted from magnesite at its property in the Paradise Mountain Range, Nye County, Nev. This magnesite must be treated in a \$5,000,000 milling and calcining plant at Luning, Nev., and then transported more than 1,000 miles by rail to the magnesium plant of Basic Magnesium, Inc., at Royson, since there are no direct railroad connections between the main plant and Luning

The proposed small scale plant suggained by the Bureau would cost considerably less and could produce from 30 to 50 tons of magnesia daily. Such a plant if authorized, would be built and operated in cooperation with Basic Magnesium, Inc., with the United States Lime Products Corporation providing the raw material. The smaller plant could be the nucleus of any larger plant which might be constructed to treat the ore.

> PENO, NEV . IOURNAL APRIL 7, 1943

Anaconda Heads See Basic Plant



Above is shown a truck of the American Liquid Gas Corporation, which consists of four huge steel spheres of 250 pounds per squar inch designed working pressure, with a capacity of approximately 5.250 gallons net for the four. The rig is used to transport propan gas from Kern county, California, to the BMI plant here, a distance of approximately 300 miles, for use in the BMI refinery and is portable crucibles. This is said to be the first and only rig of this type put into service, insofar as capacity and pressure resistance are concerned.

Townsite addresses, with peat moss soon to follow. Prior to the Basic department store's opening, two of the club's committee are packaging the chemical fertilizers bought on ration. Vigoro, bone meal and chicken wire will be sold for vegetable garden use at the club's third meeting at the school this eve-ning at 7:30 in room 7. A com-mittee of gardeners, all of whom have owned or now own dogs,

BMI Notes

L.V.R.J. 4/1/43 **Anaconda Chiefs Arrive This Eve**

A. J. Hobbins, president of Anaconda Copper company and Basic Magnesium, Inc., and C. F. Kelley, chairman of the board of directors of Anaconda, will arrive this evening from the east to spend a few days inspecting the

local plant. Both executives are accompa-nied by their wives and will reg-ister at El Rancho Vegas.

El Centro, Cal., Deseri Magazine Cir. 6,448 APRIL 1943

Carson City, Nevada The Nevada state museum soon will house a standard ingot of magnesium produced at the Basic Magnesium plant near Las Vegas. The metal was presented to Lieutenant-Governor Vail Pittman of Nevada at ceremonies held February 9. The gift was made by F. O. Case, general man-

L.V.R.J. 4/8/43

Give Them A Hand

The lengthy interruption of power service Tuesday night was one of those things that, under the circumstances, could hardly have been avoided.

The cause was unique in the history of electric power transmission. So far as is known, it never happened anywhere else before. It was purely a combination of circum-stances that would probably be found here only.

The one comment we feel called upon to make is one of praise for the crew of workers, many of them volunteers from Basic and McNeil, who worked most of the night in a driving rain to restore service.

The average individual is inclined to cuss the power company and let it go at that. While we didn't like the black-out any better than the next fellow, the thought of those workers out there in the storm took all the anger and cuss-words out of our system.

A group of officials from the Anaconda Copper Mining Company, world famous holding company, arrived Thursday evening at El Rancho Vegas where they will stay during their visit to Las Vegas and the Basic Magnesium plant, recently acquired by Anaconda, the Review-Journal stated.

In the group are Mr. and Mrs. Cornelius (Con) Kelley, Mr. and Mrs. James R. Hobbins and T. H. O'Brien. Kelley is the chairman of the Anaconda board, Hobbins is president and O'Brien is vice-president of the Inspiration company, an Anaconda holding located at Inspiration, Arizona.

The Anaconda Copper Company was incorporated in 1895 in Montana and has since grown to be one of the outstanding companies of its kind in the world. Its holdings include mines, smelters, refineries and properties in many of the United States and several foreign countries. The head office of the concern is 25 Broadway, New York City.

Peter Edson

full sad story of Basic nesium. Inc., one of the r extravagances of the war ugh publication of a special sium report from the sen-Truman committee to inate the national defense

Final cost of this project is immated at \$1\$3,000,000, or twice the original esti-

The record goes back to 1936 The Basic Refractories, hes the Basic Refractories, headed by Howard Eells Jr. Cleveland, Ohio, leased desits of brucite and magnesite posits of brucite and magnesite pres in Nevada. The magnesium deposits were held by a sub-sidiary, Basic Ores, Inc., at a sidiary, Basic Ores, Inc., at a book value of \$25,000. This was book value of \$25,000. This was the egg. Later, DPC was to buy out the Eells interests in these ore deposits for \$450,000, on an argurated of \$1,500,000. appraisal of \$1,500,000.

On July 19, 1941, the under secretary of war "recommended that an agreement be negotiated that an agreement be negotiated between the war department, defense plant corporation and Basic Refractories for a project of a capacity of 112,000,000 pounds, to cost \$63,820,633."

Poinds, to call so, stored, and an anti-mittee," says the Truman re-port, "this was one of the most outrageous and unjustified con-

Daily News

Page Twelve

tracts proposed in connection with the war program and represented a wholly unwarranted gift of government funds by defense plant corporation to a newly organized corporation which had no financial resources and only the most meager ex-perience and talent."

The plant site was chosen near Basic properties at Luning, Nev., 300 miles from the mines near Gabbs, Nev., to which there was no transportation whatever. Ore had to be back-hauled from the minor to Ore hauled from the mines to Ogden, Utah, thence to Luning-950 miles at \$6 a ton.

A 40 inch pipeline over the mountains to Lake Meade and two power transmission lines to Boulder dam, estimated to cost \$8,000,000, actually cost over \$12,000,000,

There were numerous delays. Production of first metal was scheduled for May 1942 but was not achieved till Aug. 31.

There were minor extravagances, such as 700 executives, 100 of whom drew over \$5000 a year. Stenographers' desks

cost \$95. The ore contained greater im-purities than estimated. Con-struction and the mines at Gabbs, estimated to cost \$3,000,-000, actually cost \$7,000,000.

Highly inflammable peat used in the process had to be brought from British Columbia and stored in a \$900,000 wooden warehouse which had to be abandoned because of fire risk. Salt deposits, at first declared available, were found not to ex-ist and new sources of supply had to be developed in Death

Housing was supposed to be developed by private capital. Such as were built, at a cost valley Such as were built, at a cost of \$3000 per unit, were of flimsy construction which it is said will last only a few years, and defense plant corporation had to authorize expenditures of an additional \$6,000,000 for fa-cilities. Architects' fees of \$25,-000 were paid for identical de-signs on 1000 demountable houses at \$25 per house, and houses at \$25 per house, and

50 OD. The whole thing was so had that in October 1942 a deal was made whereby DPC brought in Anaconda Copper Mining Co. to buy 5234 per cent of Basic Magnesium's interest for \$75,-000 to build 000 to bring order out of the 000 to bring order out of chaos. New management, con-struction of a pilot plant for much needed research have re-sulted in saving of several mil-lions of dollars. The plant got to capacity production late last July.

LOS ANOTLES, DAL, IND. REVIEW MAY 10, 1944



albert Stanhope Barren. DEMOCRATIC WINNER! that sum was 10 times its average

<text><text><text><text><text> trenched interests supported your opponent,—perhaps more than you had reason to suspect; (not un-common for them to lay some "do-rey-me" on both sides. (4) The ubiquitous "haters of Roosevelt and the new deal" (whose venal mon-gering is a stench even to the im-perious ilk of capitalistic despots) helped in the sinking of your cambelowd in the sinking of your cam-paign,—or running it on the rocks. because you had perhaps too often and too volubly advocated and en-gain control, the more they are lit-gain control, the more they are litdorsed the great Commander in erally pushing people to stay clos-Chief; (5) The concentration of er to the greatest Chief Executive the spoils of corruption and grait and the smartest Commander in was poured into these primaries against every thing and every-body inimical to those of the en-tic! ALBERT S. BROWN trenched greed.

WHO ARE THEFT If you got the Truman report you'll know the names of firm and individuals that figure prominently in the prostitution of th federal treasury under the claims o contributing great supplies for the war effort. All you have to do i to write Senator Harry S. Trumat Senate Office Building, Washing-Senate Onlice Justitudes to a copy of the report of the Special Commit-tee Investigating the National De-fense Program. It will be sent to

you gratis. I wish I could show you so that I wish I could show you so that you could read with your own eyes the testimony given by Un-dersecretary of War, Patterson and General Lucius Clay, army di-rector of material, "A" company had averaged annual profits of \$2,-116,009, during 3 years before the war. In 1942 its profits jumped to nearly \$40 millions. Even after the war department lopped off a little war department lopped off a little more than \$35 millions leaving the company a mere \$4,972,000, that was a little more than twice as much as its annual average profits

just before the war. Have you read about the investi-Have you read about the income second the second se

ommittee this was one of the mos outrageous and unjustified con tracts proposed in connection with the war program and represented wholly unwarranted gift of govern ment funds by defense plant con poration to a newly organized cor-poration which had no financial resources and only the most meage experience and talent." (emphasis

If you'll become conversant with a lew of these "lush deals" of some of the most vitriolic of "Roosevelt haters." you'll be able to knock into a cockedhat the specious arguments they advance against the president: 100 companies are get ting 70% of the war contracts; only 9 of these were small enough not to be charged with excess profits in 1942 "11" aircraft company of Pennsylvania made no profit he-fore the war, but netaed \$11,400,000 in 1942. It was left \$3 million after

"C" company made a profit of sover."

war and lend-lease it made only 350,000, When it's profits were ashed by renegotiations to a me 3,796,000, how they howled, but

ALBERT S. BROWN.



ALY 25, 1994

Officials of vast desert industry forecast great postwar opportunity to follow temporary slump-Transportation business is expected to demand more and more of this lightest of fabricated metals.

> By Kimmis Hendrick Staf Correspondent of The Christian Science Monitor

HENDERSON, Nev. - Tre-mendous peacetime opportunity is financed and owns B. M. I. It is mendous peacetime opportunity is foreseen for one of the biggest magnesium plant in the world, war-born enterprise developed here near the middle of the vast American desert.

to be curtailed completely—and although many economic factors pertaining to its future seem prob-lematic rather than promising.

ness in less than a year.

Before the war, Germany was the in war-emergency terms. chief producer of magnesium.

war is estimated at 112,000,000 ship in America. Will the taxpaying public back The officials said that the state-And tomorrow, say men at B. M. L. the transportation field alone will need all this, plus all the that companies like Anaconda can mined to keep the plant in operarest the country's magnesium pro- buy B. M. 1.'s facilities at a nor- tion at its present capacity, even ducers can turn out. Ross A. Ross, statistician for B. M. I., says if the automobile industry decides to use just a hand the title over to Anaconda. if WMC regulation now in effect little more than 400 pounds of in return being paid in full by aluminum and magnesium a post-ity of every magnesium plant in the country, including B. M. Lis, will be required. Chiefty desired here in the des-

ert is some plan whereby B. M. I Price Is Big Factor 'The key to Mr. Ross' prediction, can enter the postwar light-metal f course, is "if." Magnesium is field to compete with private intill expensive. Price stands just dustries that already have a hold, above 20 cents a pound. That com- Men who have built this war giant pares most favorably, certainly, believe it will be crowded out only with the 1915 price of \$5 but not if interests already entrenched are favorably with steel's present price allowed to keep the magnesium monopoly in the years ahead. of about 3 cents a pound.

LAS VEGAS TRIBUNE 5 26 44

B. M. I. Workers Sign Petition of Protest Against Turning Over

Laboring men were hot under their collar yesterday as A. F. L., C. I. O. members and war veterans added signatures to a petition protesting government release of a men's dormitory and cafeteria at Victory Addition to Anderson Brothers.

a new move, just announced, they

Editorials and Features This page is a regular feature in the Las Vegas Evening Review-Journal and Boulder City Journal which are published evenings except Sunday in the Review-Journal Building. 113 South First Street, Las Vegas, Nevada, The Review-Journal is entered in the U.S. Postoffice at Las Vegas as second class matter. Subscription price \$1.09 per month by mail of carrier

April 1, 1944

Saturday, April 22, 1944

Member United Press, Associated Press, American News-paper Publishers Association. F. F. Gatside, Publisher Phone 5 A. E. Cahian, Managing Editor

Mr. Wilson Explains

Director Philip Wilson of the War Production Board's aluminum and magnesium division, is still alibiing for the proposed curtailment of the Las Vegas plant of Basic Magnesium, Inc., and attempting to explain away the charges made by Senator Pat McCarran that the shut-down is unwarranted and unsound.

The eminent Mr. Wilson, with all his explaining, reminds us of the fictional character who, faced with a similar situation, declared: "Methinks he protesteth too much.

His most recent statement was in the form of a letter to Representative Albert Engle of Michigan in which he gave two reasons for the decision to cut BMI's output 40 per cent by shutting down four of the ten production units.

First Wilson declared on his own authority, that this move would effect an annual saving of between 1,400,000 to 1,600,000 barrels of fuel oil which would help ease a daily deficit of 120,000 barrels on the west coast. The theory of that, of course, is that by cutting off four units, sufficient power will be saved to eliminate steam generating plants in southern California which burn oil.

To those not familiar with the facts, the Wilson explanation sounds quite plausible. It does NOT square with actualities, however, as Senator McCarran pointed out at a recent Washington hearing. First, the power to be saved at BMI cannot be transmitted to southern California regularly in that quantity. Second, the amount of oil which would be saved if the power could be transmitted is 1,300,000 barrels a year. Third, of that amount 900,000 MUST be used in the steam plants in regulation of peak loads AND operation of acy changers in the area served by the Los Angeles Bureau of Power and Light which operates on 50 cycles instead of the standard 60.

That leaves an ACTUAL saving, not of 1,300,000 barrels a year but 400,000 barrels which is LESS than one day's consumption in southern California. Quite a difference!

The WPB official then quotes a war manpower commission statement that 1,600 men will be released by the curtailment and that they would help alleviate the shortage in group 1 labor areas of Los Angeles, San Francisco and other centers.

That also would be a considerable factor IF 1,600 men would be released. However, the WMC is as right on that figure as it has been on most everything else so far. Comparison between the number of men needed to operate BMI's ten units by July first, and the number required to keep six units in production under the program outlined by management is NOT 1,600 but THREE HUNDRED.

The fact that Wilson persists in these two misments AFTER his error has been repeatedly and out to him by COMPETENT authority—in fact he MOST competent authority, fully justifies the icion that the real reason for the order is NOT as anced, but goes considerably deeper.

Organization of the Clark County members of the Institute of Mining and Metallurgical Engineers has been started, J. A. Carpenter, secretary and H. C. Lee, executive committee, of the Nevada section announced today. At a dinner meeting held re-cently at the BMI cafe, officers were appointed to act temporar-

ily until elections can be held at a later date. H. G. Satterthwaite will be acting chairman; A. A. Hoffman, vice chairman; and C. P. Keegel, secretary-treasurer.

A planning committee also was appointed to prepare for a meet-ing of the Nevada section to be held on May 17 and 18, when C. A. Fulton, president of the organ-ization and A. B. Parsons, secre-

tary will visit this area. Members of the planning com-mittee include: J. W. Wilson, chairman, B. D. Harden, A. T. Newell, J. H. Bradford, E. H. Clary, R G. Knickerbocker, A. L. Hagen, and E. E. Kinney. A large attendance is expected A large attendance is expected at the meeting, it was stated, and program plans will be announced

LAS VEGAS TRIBUNE

at a later date.

Doctor Wants Rolling Mill Here for BMI

5-6-44

Dr. Harold B. Foutz got himself all hot and bothered yesterday about Las Vegas' failure so far to do anything about making this city the "Pittsburgh of the West," then heard himself boomed for United States senator.

Speaking to the Lions Club yesterday noon, Dr. Foutz said the city was sitting collectively on its trousers and permitting Dow Chemical and the Aluminum Corporation of America to close down, mill by mill, the big Basic Magnesium plant here.

What we need here is a rolling mill to process airplane parts," the doctor said, "because mag-nesium is stronger and lighter than any other metal and because airplanes of magnesium can carry loads. heavier

Lloyd Tritle proposed forma-tion of a "Foutz for Senator" organization so the doctor could promote his plans to pub-licize the need of a rolling mill for B. M. L.

Engineering Unit Formed in Vegas

L.V.R. JOURNAL

5-5-44

Nevada Magnesium Plant **Looks Beyond War Boom**

Men responsible for running it because the War Production are maintaining this outlook al- Board has members who are trythough four of the plant's ten ing to determine "how the particugiant units have lately been shut lar enterprise which they served down-a signal that this entire in years past can be successful emergency war project is likely against its competitors in the post-

But these men are believers in thing like this large-scale industry magnesium, the lightest of the before, Senator McCarran's con-fabricated metals. They are also cern for B. M. I. is understandbelievers in Basic Magnesium, In- able. Yet it must be set against corporated. They call their plant the fact that the country seems "miracle of the desert." Large well stocked with magnesium for enough to cover the entire cen-tral business section of Los An- looker wonders how anything but geles, it was built in this wilder-a national emergency can justify tion this expensive undertaking.

for a period when the war de-mand for magnesium ceases, but they are hopeful the day will come when full production will be the order once again. Consider: The Government's capital outlay for B. M. 1. comes close to \$150,000,000, maybe more. The monthly pay roll, most com-servatively estimated, averages \$10,000. The electric bill is known They admit it may be liquidated Consider: The Government's craft parts, this plant has made placements, any reckoning based vital improvements in its produc-tion processes. It deserves honortion processes. It deserves honor-able mention as a prime contribu-tor to the arsenal of democracy.

Future Is Uncertain

capacity as just one American lation as to the future of the gov-plant producing the metal for this ernment-free enterprise relation-

LAB (+ 21 1944 RATE AT BMI IS ASSURED

RENO, NEV., IOURNA

'No Further Plans' WPB Wires Plant Officials

Definite assurance that no further slash in the production rate at Basic Magnesium Inc., is contemplated, was received by of-ficials of the company Thursday from Philip D. Wilson, director of the aluminum and magnesium branch of the war production board, says the Las Vegas Re-

Further than that, a determination to keep the plant operating on its present scale so that the war effort will not be impeded, was indicated when Wilson, in a wire to F. O. Case, general manager, reported that, if necessary changes in the manpower regula tions for this area might be made in insure sufficient labor to keep the plant at full production in the six units now operating.

Officials at the plant recently dispatched a wire to Wilson ask-ing the WPB for its stand on the future operation of the plant, and this morning a wire was received from Wilson giving that informa-

"In answer to your question regarding production at Basic Mag-nesium," the wire read, "the WPB has no plans to make further re-duction there. This advice should Plant Has Improved Methods Turning out magnesium for in-cendiary bombs, flares and air-craft parts, this plant has made decrease termination and stabilent scale of operations."

Officials at the plant were jubitelegraphic report, decelaring that chief producer of magnesium. Total world output was 68,355,000 pounds a year, B. M. I.'s yearly pounds a year, B. M. I.'s yearly pounds a year, B. M. I.'s yearly pounds a year. B. M. J.'s yearly pou the informataion in the wire pletely and the men now on the job left to seek new employment.



(Continued on page 16)

B. M. I. Workers Sign Petition of Protest has been operated by the Govern-

ment. "Since the B. M. I. plant has been established." reads a letter of protest filed yesterday. "this dormitory is the nearest thing to a home we have had." "If Andersons take over it will

mean the same conditions as at the camp," the letter added. More men will leave B. M. L. employ if the Government re-

linguishes control at Victory Addition, laboring men claimed last night, in protest to past practices said to have existed at Anderson's Camp, the subject of a recent column expose by Drew Pearson. Anderson Brothers. Anderson Brothers already op-erate a concession at Basic. Under (Continued on page 16) other sections attempting to recruit labor.

LAS VEGAS AGE 5-21-44

With No Further BMI Cut Situation Seems Clarified

days ago that magnesium pro- William Royle, division of war duction at BMI will not be further curtailed was received with gratification in this area and has gone far towards dispelling unfortunate rumors and clarifying the situation as regards the great plant. Four of the ten units have recently been shut down by board order and there were persistent reports that more units. or even the entire industry here. might be dispensed with.

In addressing the southern Nevada meeting of the American Institute of Mining and Metallurgical Engineers in the Basic cafeteria Perry D. Helser, Washington, chief of the WPB magnesium division, commended the BMI management on the increased efficiency and economy effected by new short cuts in the manufacturing processes.

It was disclosed at the chamber of commerce luncheon Tuesday, however, that a possible man- tions. power shortage confronts the plant, and a number of other local and state industries, through threat to remove this area from The chamber No. 1 priority. voted unanimously to protest

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The WPB statement a few such removal in a message to manpower commission for Ne-

> General Manager F. O. Case of BMI, Personnel Manager Carl L. Hyde, and Manager John P. Burns of the United States employment service, appeared before the chamber and explained employment conditions and urged stabilization,

Burns stated later that while California war construction project is drawing workers from here Nevada may not take any from there if the area is removed from war manpower commission's No. 1 list. He cites 14 industries, aside from BMI, that will be directly affected, including mining activities, lead, zinc, manganese, and products needed at BMI., transportation facilities from motor to train, bureau of reclamation, and even Las Vegas airfield civilian occupaarmy

IRON AGE Philadelphia, Pa. 1911 MAY 4

ary in times

of accelerated ore production.

For the Record

· · · Four of Basic Magnesium, Inc.'s 10 production units at Las Vegas, Nev., have been ordered closed, but kept in condition for resumption. No widespread layoffs are contemplated by the management however.

World's Greatest Magnesium Plant Is in Production While Being Built

Dangerous chlorine and molten metals controlled; Las Vegas plant is importing vast quantities of silver to replace copper.

LAS VEGAS, 1 ... V.—Indicative of the immense use that Basic Magnesium contemplates for insulation and similar uses, to take the place of copper, Magnesium has gathered to date 1,139,570 pounds of silver valued at approximately \$21,500,000. The total amount of silver to be used for nonconsumptive purposes is expected to be 2,500,000 pounds, worth approximately \$50,000,000.

The silver is loaned to the project by the government for the duration in lieu of copper, the silver to be returned when copper again becomes available after the war. Silver is one of Nevada's main products and like copper is a number 1 conductor of electricity.

By E. T. GREEN Chief Safety Engineer

The production of magnesium at Basic is accomplished by the electrolysis of anhydrous magnesium chloride. One of our important raw materials is chlorine, and we have built one of the world's largest chlorine plants here on the Nevada desert. We have had the advantage of many years of experience of Hooker Electrochemical Company in designing the chlorine plant and, with their help, have eliminated many of the hazards usually encountered in the production of chlorine.

Other raw materials are prepared for chlorination in the preparation plant, and the production of anhydrous magnesium chloride is accomplished by mixing these raw materials with chloride gas at high temperatures. The molten magnesium chloride is then electrolyzed in specially designed electrolytic cells, and the molten magnesium material is ladled off, cast, refined, and alloyed with other metals.

Some idea of the magnitude of the plant may be gained by recording that over four thousand tons of copper and a million and one-half pounds of silver have gone into the bus bars which carry the electric energy to the cells. Because of the magnitude of the plant, and the necessity of pioneering the process (no similar plant has ever been constructed in the United States), the safety problems of the preparation plant and the metals units have been a constant challenge to the resourcefulness and ingenuity of the safety department.

Further, because of the immediate urgency of producing metal for our armed forces, it frequently has been necessary to carry on operations simultaneously with construction work. The War Department has constantly impressed upon us the fact that one pound of magnesium produced during the month of December might conceivably be of far greater necessity to the successful prosecution of the war than 10 pounds produced a half year later. Consequently, many temporary hazards have had to be overcome which should not exist when construction is completed. Combining operations and construction activities has frequently caused leakage of chlorine and hydrochloric acid gases, and necessitated the require-

The second s

ment that all workers in the metal plant areas carry gas masks or respirators.

We have installed the airport type of wind direction socks on the roofs of all buildings to indicate wind direction, so that workers may quickly ascertain from which direction the wind is blowing, and seek refuge on the windward side if these leaks should occur.

The ladling off of the molten metal from the electrolytic cells can only be performed safely by equipping all cell attendants with face shields, asbestos gloves, and safety goggles. Likewise, all employes engaged in handling hot metal are urged to wear high top safety shoes. A division of the activities of the safety department will also include the fire-proofing of all workmen's clothing. The importance of thoroughly training cell attendants in the necessity of pre-heating all tools which come in contact with hot metal is constantly emphasized, and this practice is reducing accidents.

Production of metal began in the late summer of 1942, and daily production has constantly risen. This increased production has necessitated the training and educating of hundreds of new men, and it has been no simple task to allay the fears of these new workmen regarding the temporary effects of inhaling chlorine gas. It has been difficult to impress upon them the difference between a noxious odor and the real danger of actually coming in contact with a concentration of chlorine gas. Naturally,

(Continued on Page 57)

Industrial Safety Aids War Effort

Douglas Employes Receive a Thorough Safety Training Right at the Start

Company manuals, safety posters, explanations, inspections, help to make employes safetyconscious during every work hour.

> By WILLIAM S. RHODES Chief Safety Engineer, Douglas Aircraft Co., Inc.

A unique program has been established at the Douglas Aircraft Company, Inc., to bring about safety consciousness in Douglas employes. By following a typical Douglas worker from the time he makes application until he is on the job, an insight can be obtained which will show the value of such a safety program.

The typical Douglas employe, after making application and being accepted for the job, is given a complete physical examination, including an eyesight test, chest X-ray and examination, and a urine and blood test. Any defects that show up from the examination will guide the employment department in placing the applicant. If he is to do sandblast, foundry, or paint spray work, he will be given a physical recheck every six months which consists of a blood-count check and a chest X-ray.

After the pre-employment physical examination, the Douglas employe is shown a sound motion picture on safe practices which must be followed in the shop. He is then given a company manual containing a set of safety rules and regulations to guide him in performing his work safely.

As he clocks in to begin his first day on the job, he notices a safety poster over the clock station. Later, as his foreman explains the job, his attention is called to the guards placed on the machines for his protection and he is told that gloves for hand protection, goggles for eye protection, and any other personal protective equipment which is needed for his job can be obtained at his department tool crib. There is a two-color painting scheme on the machines-the sta-

tionary parts are painted a light gray and the moving parts a light buff to ing safety conditions in the different relieve eye strain and focus attention on the moving parts. These are all things that have been taken care of by the safety department.

In the afternoon, a departmental volunteer safety inspector calls on the employe and explains to him that he is one of the 300 volunteer inspectors

who have the responsibility of checkdepartments. Some time later, our employe may be doing a drilling operation without wearing his goggles. A light tap will come on his shoulder and one of the plant safety inspectors, who roams the plant continuously looking for just such incidents, will caution

EFis

(Continued on Page 57)



Various types of personal safety equipment used by Douglas, including safety shoes.

aued from Page 32)

PACIFIE FACTORY

some nervousness was encountered during the first few months of operations, but with proper education this misunderstanding has been corrected.

Each worker is supplied with respirators and instructed in the limitation and use of all breathing apparatus equipment. Each man is taught to obtain a new respirator or gas mask just as soon as he detects any taste of

As of January 1, no serious injuries or fatalities have occurred in connection with any of the company's operations in the production of magnesium. The severity figure for the year was 0.308, which is in contrast to a much higher nation-wide severity in the metals industry.

The scarcity of safety supplies, due to the enormous demands of the

country's war industries, has made it necessary for us to make our own asbestos gloves and establish an instrument repair department for the salvaging and repair of goggles, respirators, and other safety equipment.

Nevada has no specific Safety Orders for the Magnesium Industry, but we are operating strictly in accordance with all the safety codes in effect in California.

A SUMMARY of the

Mining Industry's Manpower Problems

MINING JR'L._ PHOENIX ARIX.

3/15/43

ON February 9, 1943, a 48-hour week for the metal mining industry, other than iron, throughout the nation was ordered by the War Manpower Commission. At the same time, Paul V. McNutt, WMC chairman, issued regulations granting broad discretionary authority to area and regional directors in putting the 48-hour week into effect in other industries.

In general, these regulations are designed to ease the transition to the longer week by providing that no firm which must release employes to go on the 48-hour basis shall start the longer week until the federal employment service finds "suitable employment" for the released workers.

Only a small proportion of western mining projects will be affected by the blanket ruling, since the majority of the companies shifted over to the longer work week last September when the War Production Board ordered that all workers in the mining and lumber industries in 12 western states be placed on a 48-hour week with time and one-half for work in excess of 40 hours. Subsequently, in certain instances, OPA raised ceiling levels or decreased quotas to compensate for the extra costs. The changes were largely individual and only covered those who showed themselves to be adversely affected.

Manpower has been a major problem of the mining industry throughout the war period and numerous steps have been taken by government agencies in an effort to alleviate the situation which, in many branches of the industry, has become extremely critical. The first of these steps was the labor "freezing" order, issued September 7, 1942, which applied to all nonferrous metal miners and runness markers in the 12 western states.

Under that order, workers desiring to change jobs were required to secure a certificate of separation from the U. S. Employment Service. The plan was designed to halt the "pirating" and migration of workers engaged in the production of war-essential raw materials, and the action was deemed necessary to prevent further decline in the production of copper and other nonferrous metals. A serious drop in copper production during July and August was the cause of the emergency order.

On October 8, 1942, the War Production Board issued Limitation Order L-208, halting production at all "non-essential" mines. According to WPB, the closing order was issued for the purpose of making manpower from those mines available for operations in more essential mining branches. The order encountered strong opposition from the West's gold-mining districts and estimates as to the number of men which the order would release for other mining projects varied in a wide range. Government officials had estimated that the order The 48-hour work-week order of the War Manpower Commission climaxes a series of steps which have been taken by federal agencies to alleviate the shortage of mine labor, particularly in the 12 western metal mining states. The manpower problem was recognized as being critical following a serious drop in copper production last summer.

would release 3,000 to 4,000 men, while opponents of the order estimated the number at nearer 250 to 300 and this figure proved to be more nearly correct.

In an effort to speed the transfer of miners from the gold mines and other industries to the war-metal mines, the U. S. Employment Service instituted a program under which transportation charges were paid for workers willing to go into the latter branches of the industry. Reports indicated that transportation expenses were provided for over 4,000 families who came orincipally from industries other than gold mining.

As a further inducement, the government, through its National Housing Agency, has sponsored the construction of numerous housing units for western mining projects, and most of these units already are under construction. About 2,500 houses have been made available in areas where facilities were inadequate.

In October 1942, the Army initiated a program of furloughs designed to release approximately 4,000 qualified hard-rock miners so that they might return to work in the strategic metal mines. It has been stated by mining officials, however, that this program has not worked out as originally planned, and that the majority of the men sent to the metal mines have been coal miners, while the coal mines have received principally hard-rock miners. However, this step did alleviate, to some extent, the manpower shortage in the mines.

In addition, Selective Service has issued several directives intended to aid in relieving the mine manpower shortage. The first of these provided for the reclassification of miners into the 1-A group in cases where they left the mines to take nonessential jobs. The purpose of this directive was to provide "teeth" for the initial "freezing" order.

Later, local draft boards were instructed to grant deferments to experienced men in



the mining and smelting industries, and a directive also was issued providing for the release of key men who had been taken into the services, in order that they might return to their positions in the mines. Release from the armed services of men over 38 who could give satisfactory proof of a prospective job in an essential industry also was initiated, but it has been found that the latter two programs have not provided many men in actual practice.

Basin long

NEW

IN SPITE of these measures, the labor needs of the mines, mills, and smelters remain acute. In commenting on the labor situation recently, Senator Carl Hayden of Arizona stated, "I feel that the primary problems in connection with mine labor supply revolve around maintenance of the present number of workers on the job, which can be done by proper administration of the Selective Service law and by the freezing order, administered by the War Manpower Commission."

There has been considerable agitation for the importation of large numbers of skilled mine workers from Mexico, but Senator Hayden declared that "on the basis of my own experience with this phase of the question, I feel that there is no great hope of securing large numbers of Mexican laborers, because of the attitude of the Mexican government and of our own federal agencies concerned."

It has been pointed out by those opposed to importation of Mexican miners that it would be inadvisable to take skilled men away from the mines of Mexico when the United States at present is consuming the bulk of the output of that country's mines. Organized labor is reported to be opposed to the bringing in of workers from Mexico.

The difficulty encountered in maintaining present nonferrous metal miners in their jobs is attributed by some to the unfavorable wage rates as compared with those of competing industries, many of which are on a cost-plus basis and government contracts. Other factors are the more favorable working and living conditions at the shipyards and aircraft plants which are located near large centers of population.

The more rigid hiring specifications of the mining industry, with regard to physical standards and experience, also are cited as stumbling blocks in the way of miner recruitment. It is stated that those mining companies which maintain only reasonable hiring standards, pay relatively good wages, provide adequate conditions, and train and up-grade workers as rapidly as is necessary to meet their needs, have been able to maintain their crews and have encountered less difficulty in recruiting additional men.

Wage increases have been granted from time to time by the War Labor Board in several of the mining districts in an effort to hold the miners in their jobs and



Igorot girl illustrating how ore was brought out of the Mankayan mine during the period of Spanish operation. The ore basket and ladder were found in old workings. The ladder still was serviceable when found although it had been abandoned in the stope nearly 70 years ago. The rungs were mortised into the side pieces and secured by wooden dowels in lieu of nails.

as for its part in the program of industrializing the Philippine nation. The enterprise was incorporated and its capital raised in the Philippines. Stockholders were predominantly American and Filipino, as were the directors. Engineering was American. Surveyors, assayers, clerks, miners, operators, medical personnel, subforemen, and other workers were Filipino. By far the larger number of these men acquired most of their skill and training at the Lepanto property. Most of the machinery and operating supplies were imported from the United States. In every sense of the word it could be classed as an enterprise in which the two nationalities were inter-dependent, and one which was conducted for the benefit of both. Such enterprises will be numerous throughout the world in the future if the declared objectives of the United Nations are really placed in effect as the result of our victory.

The Municipal District of Mankayan enloyed a feudal type of prosperity under the Spanish, replacing the head-hunting savagery which preceded. Under American guidance there was no feudalism. Instead, there was vigorous application of modern engineering knowledge, resulting in a prosperity and social progress never before dreamed of in this remote mountain community on an island off the coast of Asia.

We assure the "Levity Lode" that it need not wonder how the Filipinos like their present life under the lash of the Jap.

NEW MANAGERS NAMED FOR PHELPS DODGE MINE UNITS

NNOUNCEMENT has been made by A Harrison M. Lavender, general manager of the Phelps Dodge Corporation, of changes in the managerships of two of the corporation's branches, effective March 1, 1943.

Marth S. W.

J. H. Davis, manager for the past three years of the New Cornelia Branch of Phelps Dodge at Ajo, Arizona, has retired and is being succeeded by L. M. Barker. who formerly was general superintendent. J. F. Berry has been named the new manager of the Moctezuma Copper Company, Phelps Dodge subsidiary at Nacozari, Sonora, Mexico, to fill the vacancy caused by the death of A. B. Williams.

Davis' retirement, which was due to ill health, followed more than 30 years of service with the Phelps Dodge organization. He first entered the employ of the company at the Copper Queen Branch, Bisbee, Arizona, in 1911 following his graduation from Harvard University. In 1914, he became chief engineer for the Bunker Hill Mines Company at Tombstone, Arizona, then a Phelps Dodge subsidiary. He was appointed to the superintendency of the Tombstone property in 1919 and in 1923 was transferred to Douglas to take charge of the office of the general manager of Phelps Dodge. In 1940 he was named general manager of the New Cornelia Branch.

Barker, who succeeds Davis, majored in metallurgy at the Missouri School of Mines. He was employed as research chemist and metallurgist by the Nevada Consolidated Copper Company and by Utah Copper Company before going as mill superintendent to the United Verde Copper Company at Clarkdale, Arizona, in 1927. Ten years later he was transferred to a similar position at the New Cornelia mill. In July of 1942, when Davis was granted a leave of absence, Barker was appointed general superintendent of Ajo mining and milling operations.

LARGEST SHIP LAUNCHED

One of the largest ships ever built in this country, in significance if not in size, is one built by the California Shipbuilding Company and christened the S. S. Absentee. Unlike other ships. this one, made of pasteboard, represents every industry and every individual in these United States. Company figures show that although their employes' record for building a ship is 29 days under the current rate of lost man-hours due to absenteeism, the record would have been 27 days if every one had stuck to his job like the man on the lighting front does.

The company states that the man who takes time off to spend his overtime pay isn't a bad guy. Only they have never seen or smelled the corpses rotting in the jungles, or had the blood and guts of their buddies spilled on them, or seen white women herded like cattle by the Japs. They don't mean to help Hitler, they just want to have a good time.

Berry, a graduate of the New Mexico School of Mines, has been active in mining in Mexico for over 40 years. During the years 1905 to 1914, he was employed by the American Smelting and Refining Company in various capacities, finally becoming head mine foreman of the company's Angangueo unit. For the next 20 years Berry was employed by Cia, Minera de Santa Gertrudis, S. A., Pachuca, Hidalgo, Mexico, serving as general superintendent for several years. He returned to American Smelting and Refining in 1936 and was made superintendent of the Teziutlan unit, where he remained until his appointment as general superintendent of the San Carlos property of Phelps Dodge Corporation in Chihuahua, Mexico, in 1989. He continued to serve as general superintendent of that property, after its sale in December 1941 to American Smelting and Refining Company, until his acceptance of the position as manager of the Phelps Dodge Nacozari branch,

DECENTRALIZATION OF WPB

IS INDICATED IN NEW ORDER DROVISIONS for further decentralization of War Production Board activities are

contained in a new WPB administrative order which directs that after March 1 applications for priority assistance on Form PD-1A be filed with the nearest of the 131 WPB district offices, and authorizes the 12 regional offices, beginning March 15, to assign preference ratings on PD-1A certificates to deliveries of materials valued at \$100 or less. According to Chairman Donald M. Nelson, the preliminary value limitation of \$100 will be stepped up progressively as the field offices assume greater responsibilities and it is hoped that within six weeks more than 80 per cent of all PD-1A applications will be handled entirely by the regional offices.

Under the new procedure, designed to simplify the problems of businessmen and others needing occasional priority assist-ance, WPB's field offices will be respon-sible for seeing that all PD-IA applications are properly filled out and will forward them to Washington, or to regional offices if they fall within the value limitations.

In the early days of the priorities system, Form PD-1, later supplanted by PD-1A, was the principal instrument in the assignment of preference ratings to orders for scarce materials. Later, the Production Requirement Plan, now being superseded by Controlled Materials Plan, provided the means for distribution of the great bulk of material required for primary and essential civilian production. Receipt of the PD-1A forms has dropped from a one-time peak of more than 60,000 a week to a little more than one-half that number. The fact that CMP provides central control over the distribution of scarce materials to claimant agencies makes it possible to decentralize handling of PD-1A's.

Ratings on PD-1A certificates are known as "single-shotters," since the priority assistance they provide is applicable only to the particular delivery for which help is requested. They do not establish the continuing assistance provided by PRP and CMP, and by orders in the "P" series covering specified industries.

Page 5

to prevent their migration to war plant jobs with higher pay. However, ceiling prices of metals have been kept at low · levels and thus effectively prevent material wage inducements.

NUMBER of the mining companies A NUMBER of the mining programs for have instituted training programs withtheir workers, one known as Training Within Industry, and another as Apprenticeship Training Service. Among the western mining companies which have instituted both types of training programs are the Bisbee and Ajo branches of the Phelps Dodge Corporation in Arizona; the Ray Mines Division of Kennecott Copper Corporation at Ray, Arizona; the Inspiration Consolidated Copper Company at Inspiration, Arizona; the Shattuck Denn Copper Corporation at Lowell, Arizona; Miami Copper Company at Miami, Arizona; and the Anaconda Copper Mining Company at Butte, Montana.

Apprenticeship Training Service programs have been instituted by the following mining companies in the western region: Copper Canyon Lease of International Smelting and Refining Company, Battle Mountain, Nevada; Basic Magnesium, Inc., Las Vegas, Novada; Nevada Mines Division of Kennecott Copper Corporation at McGill, Nevada; Mountain City Copper Company, Mountain City, Nevada; Amalagamated Pioche Mines and Smelting Corporation, Bristol Silver Mines Company, Combined Metals Reduction Company, and Prince Consolidated Mining Company, all at Pioche, Nevada; Chino Mines Division, Kennecott Copper Corporation, Hurley and Santa Rita, New Mexico; Tintic Standard Mining Company, Eureka, Utah; and Utah Copper Company, Bingham Canyon, Utah.

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It is estimated that the current labor needs of the nonferrous metal mines and smelters total 6,000, of which approximately 40 per cent should be skilled workers and 60 per cent, unskilled. The major copper companies would absorb approximately 2,500 of this total, while another s, 000 are needed in the tungsten, molybde-num, vanadium, and chrome unner

At the present time the Anaconda Copper Mining Company is working out an over-all training program which is expected to serve as a basis for similar programs in other mines. The plan involves an organized method for training new workers, a special program for up-grading and on-the-job training, and a continuing program for training foremen and shift bosses. Anaconda is reported to be training about 350 beginning miners under this plan at present.

The training of beginning workers is carried on underground, except for a twohour initial period of demonstrations above ground. This demonstration includes an explanation of the various types of mining equipment and mining operations together with instructions on mine safety. Several student stopes have been established underground and groups of four or five beginning miners are assigned to an experienced minstructor for the training period.

. It is believed that when this program has been perfected and put into operation by other large mining firms, it will aid in alleviating the critical manpower situation now facing the industry.

THE MINING JOURNAL for MARCH 15, 1943

H. A. Wright is superintendent at Sunrise, and W. A. Maxwell, Jr., Continental Oil Building, Denver, is president of Colorado Fuel and Iron.

NEW concern has been organized to A operate the old Silver Dyke group of 13 lode claims near Mina, Nevada. Known as the Nevada-Silver Dyke Tungsten Company and headed by M. G. Thomle of 255 California Street, San Francisco, California, the company has reconditioned and put into production the old 25-ton plant at the mine. The 75-ton Marcy mill unit is being worked over and is expected to be ready for operation by mid-April. The mine, originally a silver producer, has been rated by Metals Reserve Company as a new tungsten producer and eligible for the increased price.

The Silver Dyke is located in the Gold

in the event of termination of the pre-Range district of Mineral County near the mium program prior to July 31, 1945. Southern Pacific railroad and was operated Metals Reserve Company will function until a few years ago by the Nevadathese additional premium payments through Massachusetts Company. The mills are at Sodaville Springs on the railroad and the same channels and under the same Highway 95, nine miles below the mine. procedure as heretofore followed in the Complete mining equipment will be inpremium payment program. Inquiries constalled and ore will be trucked to the mill. cerning eligibility for additional premium The connecting road is said to be a good payments on lead and zinc mine producone. Over two miles of underground tion should be directed to Landon F. workings have been driven in the prop-Strobel, executive secretary, Quota Comerty, attaining a maximum depth of 500 mittee, Premium Price Plan for Copper, feet. Ore will be handled by gravity to Lead, and Zinc, War Production Board, Room 2047, Temporary "R" Building. Washington, D. C. the main transportation tunnel on the 500foot level.

ABSENTEEISM

Development of a plan for solving the problem of absenteeism among war workers has been announced jointly by the War Production Board and the War Manpower Commission. However. details of the plan will not be revealed until it has been placed before other government units whose cooperation will be asked in making it effective. The joint announcement indicated that virtually every government agency will be asked to assist in policing the plan.

C. F. & I. STARTS IRON PRODUCTION FROM NEW UTAH MINE HOLDINGS

TTAH Construction Company holds the mining contract for the removal of ore from the Iron Mountain property near Cedar City, Utah, recently acquired by the Colorado Fuel and Iron Corporation. The iron ore is being shipped to C. F. & I.'s Minnequa steel plant near Pueblo, Colorado. Hitherto, the steel plant has been supplied solely by the company's iron mines at Sunrise, Wyoming.

Production from the Sunrise mines has been somewhat hampered this winter by the installation of new hoisting equipment. Besides the open-pit workings, the company has underground operations about one mile away. This production is hauled to the pit for removal to the surface. Plans call for sinking a 1,250-foot shaft. Colorado Fuel normally produces about 3,000 tons of ore daily, all of which is sent to its steel plant at Pueblo.

SILVER DYKE MINE BEING RETURNED TO PRODUCTION

Other officials in the company are A. N. Torkelson of Los Angeles, secretary; James J. Lynch of New York, vice-president; and W. K. Greer of Auburn, California, consulting engineer. At Mina the staff includes J. Lindeberg, general manager; Herman Crowell, assistant general manager and mill superintendent; and Richard Crowell, master mechanic. George F. Beckerley of San Francisco is chief mine and construction engineer. A crew of about 40 men is expected by the time the company is ready for full production.

INCREASED LEAD AND ZINC PREMIUM PRICES ANNOUNCED

TESSE JONES, secretary of commerce, has announced officially that the scope .1 of Metals Reserve Company's premium payment program covering over-quota production of domestic copper, lead, and zinc has been broadened to afford an additional premium for lead and an additional premium or premiums for zinc in cases where such additional premiums are considered essential to insure maximum necessary mine production. Information on the expanded premium payment program was carried in the January 30, 1943, issue of The Mining Journal.

Each case is to be considered independently by the WPB-OPA quota committee, and payment of an additional premium or premiums will be recommended to Metals Reserve Company if deemed necessary in the particular case.

These premium payments are made on production in excess of monthly production quotas established by the quota committee, with the highest premium payable on overquota production of lead reflecting the difference between the ceiling price and 12 cents per pound, New York basis, and the highest premium payable on over-quota production of zinc reflecting the difference between the ceiling price and 13% cents per pound, East St. Louis basis, or 161/2 cents per pound, East St. Louis basis, depending on the quotas assigned to the particular zinc mine.

Copper is not eligible for any additional premiums; only one additional premium is available for lead, and whether a zinc producer receives one or both of the additional premiums available for that metal is determined by the quota committee.

The quotas on which the additional premiums are based may be increased at any time or may be revoked at any time upon 30 days notice. Metals Reserve Company will not effect any settlement with producers based on the additional premiums

PHOTOGRAPH PASSED BY CENSOR-COURTESY OF TELENEWS NEWSREEL THEATRES

WANTED: CRITICAL MINERALS

What are they? Here is latest grouping of many critical minerals: (1) Chromium, cobalt, copper, copper scrap, magnesium, nickel, nickel scrap, tin, tungsten, zinc, corundum, graphite, and mica; (2) Antimony, lead, lithium, manganese, molybdenum, bismuth, phosphate, potash, bauxite, fluorspar, magnesite, rutil, and zircon; (3) Silver, coal, feldspar, silica sand, sulphur, and vermiculite. Increased production of these critical minerals is essential and the entire output of Denver Equipment Company has been devoted to manufacturing machines to speed recovery of these minerals.

Such a plant is the one above ... 400 Denver "Sub-A" Type Flotation Cells in this mill, operating "24 hours per day," produce a critical mineral in a United Nation country that turned back the Axis.

How may we be of help to you in increasing your production of critical minerals as soon as possible?

USE OUR BATCH AND CONTINUOUS ORE TESTING SERVICE



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Washington Procrastinates

The people of the United States have built-a magnesium plant near Las Vegas which is being operated by Basic Magnesium Incorporated as an agency of their government. That plant is almost completed. It is now producing

more than fifty per cent of capacity, and the product from this plant is being shipped to England where it is being made into incendiary bombs now being showered on Germany

That plant has proved its right to the title frequently conferred during construction days, as America's number one defense industry-number one, because of the important need for incendiary bombs and the shortage of necessary materials which was the greatest shortage of any of the metals vital to the war effort.

There can be no question now that the local plant is making possible the most successful, round-the-clock bombing raids on Europe which are now shaking the axis to the very foundation. There is no doubt that the great fires now razing whole sections of Berlin are being started by mag-nesium produced at BMI's plant here—produced through the daily efforts of the 5,000 or more men and women who comprise the operating and construction forces.

It would seem that, considering the goal ahead—the important role being played—the results which are daily visible—nothing, NOTHING should be allowed to interfere with the continued flow of magnesium from mine to Berlin.

If a piece of important machinery were to fail suddenly, the war department would move heaven and earth to replace whatever parts were involved. When fire destroyed a portion of the plant and with it the telephone system, the country was turned upside down to get things going again. Everyone remembers the story.

Contrast this speed with that being displayed by the same government in ironing out the labor situation at the big plant.

For months workers have been the piece de resistance in a struggle for union members between AFL crafts which hold a contract with BMI, and CIO which is attempting to force an election in the hope of taking the contract over themselves.

There have been all sorts of meetings-membership campaigns involving a little violence at times-a continued tirring up of the workers themselves by demands upon AFL members to join CIO, CIO members to join AFL, and

taking every advantage those rules give means ... of moving in rapidly whenever there's a flare-up, that same government procrastinates, dilly-dallies, and stalls hoping against hope it won't have to move in and make anybody sore

The rank and file of labor is as concerned with winning this war as any other American. And most of them have sons at the front who stand in danger of injury or death every day the conflict is prolonged. They would much prefer to have any disputes settled immediately, so they ban get on with the job.

This particular issue has been dragging since last Oc-tober. The hearing on the CIO demand for an election was held a month ago, and still there's no decision. War Labor Board was asked to get someone in here in a hurry to straighten out the situation, and agreed to do the best it could which might mean most anything.

An understandable set of rules, with prompt, impartial and firm enforcement, would eliminate all this monkeybusiness which is having a serious effect on the whole war effort, not only here but all over the land.

It's our conviction that the workers themselves and their leaders would much prefer that kind of a situation. Nobody knows just what the government policy is.

L.V.R.J. 4/6/43

BMI Plant Not To Be War Baby--Kelley

a war haby if the metallurgical skill and management of Anaconda Copper Company can gratifying. help it.

plant as viewed by the chief conda president declared. mining concern now operating in conceiving and building this B.M.L

Many Problems

Kelley explained there were Refrey explained there were mistakes made, bany before this could be real-ized, but pledged that all the scientific brains of Anaconda would be turned to the job of main thing now is that we're producing Metal making the plant work completi-tively. tively.

side, but when you see it from honored guests the inside and realize the intri-cate mechanical electro-metallurgical and technical installa-tions, you gain some appreciation of its magnitude.

"A truly marvelous job has been done in the conception, design and construction of this project."

Lauds Mining

Paying tribute to the mining Industry generally, the industry that has been his life, Kelley de-clared: "The only enduring things which stand as a monument to man's scientific advance-ment in this world came from the mines and the quarries.

In conversation during the evening, Kelley praised the work done by Nevada senators down through the years for the mining industry.

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"The Nevada delegation," he said," has done more for mining than the rest of the western groups combined."

He then referred specifically to Senators Jones, Stewart, New-lands, Pittman, McCarran and Scrugham.

Nevada Praised

"Nevada has given the nation some truly great statesmen who have been of tremendous aid to the mining industry," Kelley

commented. The Anaconda chief thanked the group for the "splendid cooperation given our company since we came in" and urged its continuance "to the common goal of a successful enterprise." James R. Hobbins, president of Anaconda, paid compliment to Kelley as one of the nation's out-standing mining men, and dis-cused some of the problems that must be solved to assure the future of BML. "We are making progress steadily," he declared. "We are giving this project the best scientific brains the mining industry affords, and we are producing magnesium in ever mounting quantities.

"It has always been my am-bition to build permanently. Basic Magnesium will NOT be with the company ever hoped for. The results have been most

Hobbins outlined the manner "I am a born optimist and it in which Anaconda came into is my sincere hope that in the the company originally, and said is my sincere hope that in the light metal era that is to follow the war, our plant will take its place competitively." This statement by Cornelius F. Basic Refractories and the Eng-lish syndicate." "Con" Kelley, chairman of the board of directors of Anaconda Company originally, and said ment officials, Howard Eells of Basic Refractories and the Eng-lish syndicate."

Copper Company, made last erative, and we must never for-night to a group of southern get that it was his vision, energy Nevadans, told the story of the and determination that brought future of the great light metal this project into being," the Ana-

plant from the grass roots to its present stage of near-completion.

Producing Metal

tively. A native Nevadan, who made his way to the top from the ranks, Kelley revealed a warm spot in his heart for the place of his birth, and referred feelingly to his early days in Eureka county. Commenting on his company's operation here, Kelley said: "Driving by you see a definitely huge plant out there on the hill-side, but when you see it from

THE MINING JOURNAL. Phoenix, Arizona, proposes to publish the following item of news in an early issue. Is it accurately stated? If not, please give us the cor-rect facts. Additional information will be appreciated.

It is reported that Basic Magnesium, Inc., has reached 50 per cent production with the operation of its first refinery unit early in March. Haif of the metals plants near Las Vegas, Nevada, are in operation; the tuniel and rotary kilns are both in 50 per cent operation; and the chlorine plant has passed the half-way mark. F.

O. Case, Box 8, Las Vegas, is general manager.

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THE MINING JOURNAL is the only mining magazine which extends the courtesy of an opportunity to check news before publication. It desires to be accurate and complete and will appreciate your cooperation in keeping it so MANY THANKS

Henry Kaiser thought he knew, and signed a contract with AFL. He is now being prosecuted by NLRB for unfair labor practices.

BMI officials though they knew, signed a contract with AFL, and look what happened and is still happening.

Saturday, some 200 husky workers descended on the trouble-makers and demanded they get off the job or get back to work, and they weren't fooling. It is understood two or three ring-leaders were tossed over the eight-foot fence in the process.

While we decry mob action, we glory in the spunk of these workers who took matters into their own hands while NLRB, WLB and Madame Perkins & Co., sat back in Washington twiddling their thumbs.

Talk about Nero fiddling while Rome burned. Washington is a symphony orchestra in comparison, so far as any definite labor

symphony orchestra in comparison, so far as any definite labor policy is concerned. Labor leaders OUGHT to agree on a definite program, that's true—but when they don't, and they certainly haven't, then it's up to Uncle Sam to do the job and do it QUICKLY. If the food shortage is the most serious blunder of the war, then the labor policy (or lack of a labor policy) is a close second. We imagine even the workers themselves will agree.

Producing Fast

"Right now, the process is mak-ing more magnesium than its designers ever dreamed it would.



6/15/44 SENATOR MCCARRAN FIGHTS

TO KEEP BASIC AT CAPACITY g proposal to close down four units of Basic Magnesium, Inc., plant at derson, Nevada, is meeting with conble opposition in Nevada, the fight lead by Nevada's Senator Pat Mc-After hearing that such an order drafted and awaiting the final apof the War Production Board, Mcran interviewed Philip Wilson, chief of minum and magnesium section of wPB, to ascertain the reasons given hutting down these units. McCarran investigated, got the facts, and couned each argument.

The shortage of oil in the West and ally in Los Angeles was advanced as in for closing the four B. M. I. units diverting Boulder Dam power to Los Petroleum Administrator Ickes, Ingeles. ver, states that little or no saving of would be accomplished by such a move; supply of oil in the West is increasing; that soon gas will be available to and the two Los Angeles steam plants, operate of for lack of oil, making all oil

ecessary. The charge that 1,500 men could be re-The from Basic by shutting down these and used in Los Angeles, where labor sance, was shot by War Manpower alssioner McNutt who stated that is no housing for additional workn or about the Los Angeles area and there is no opportunity to utilize the 1500 men from Basic.

The third reason was that the transporof magnesium from Basic to the created a bottleneck and that trans-East dream of peat moss from Canada to the ation Henderson was a further waste of and facilities. But the Union Pacific Office of Defense Transportation and that 600 cars pass eastward through Vegas daily in 10 trains of 60 cars each are empties. Basic requires five cars Between 60 and 70 per cent of a day ion to the East Incide the output of a day to the East. Investigating the

BOSTON NEWS BUREAU The only daily financial newspaper published in New England. Boston, Mass.

APR 28 1944

METRO, GE, LOWERTEL

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BASIC MAGNESIUM CURTAILMENT ORDERED

New York-Basic Magnesium, Inc., Las Vegas, Nev., the world's largest magnesium plant, has been ordered to switch out four of its 10 production units but to keep them in condition for resumption. Management says there should be no widespread

One Magnesium Unit Reported Shut Down

SALT LAKE CITY UTAH TELEGRAM

AFRIL 15: 1966

LAS VEGAS, Nev., April 15 (UP)-Shutting down of one unit of the huge Basic Magneslum, Inc., plant was reported Friday. and it was understood that a total of four of the plant's ten units will be idle by May 31. Superintendent Frank O. Case refused to confirm or deny the report. B M I has been operated by the Anaconda company for the Defense Plant corporation. Senator Pat McCarran (D., Nev.) declared if a shut-down order has been issued, "I and the members of the U.S. senate committee I head will fight to have such an order revoked."

peat moss question, it was discovered that when the Anaconda Copper Mining Company took over the management of B. M. I. the plant process was changed so as to dispense with 40 per cent of the peat moss originally required and that within the next few months all use of peat moss will be abandoned.

"The whole thing," Senator McCarran is quoted as saying, "is brought about by the Dow Chemical Company and the American Aluminum company for shutting off a threatened competitor." He estimated that if the four units were closed, it would cost \$625,000 per unit to rehabilitate them in the event the plant were purchased by private interests. The four units cost \$53, 000,000. The senator further says, "It would be cheaper to store all the magnesium that will be produced by Basic for the next year in facilities that are available at the plant, than to shut down the four units. Magnesium does not deteriorate in that climate."



Four Units at Great Nevada Magnesium Project in Controversy.

Las Vegas, Nev. - The War Production Board in a "secret order" is reported to have ordered the closing of four units of the huge BMI magnesium plant near here. The order, according to best information in the capital, is to be effective as soon as practicable, which may mean one week or several weeks, it was said.

It was understood that the WPB handed its secret order to the Defense Plants Corp. in Washington, requesting that no publicity be given for the present. However, news sources ran down the story and brought a portion of it into the open, Washington advices said, The order is the result of a campaign

started several months ago by WPB officials to close a portion of the BMI plant, it is alleged, in an effort to more equitably distribute manpower on the Pacific Coast and to save oil for the fleet in the Pacific. It was explained that war industries in southern California could use some of the electricity now being absorbed by BMI, thereby eliminating some of the steam plants

and thus saving oil. Officials at the BMI plant had received no official word regariling the closure of the four units, but did say they understood it is on the way.

Senator Pat McCarran of Nevada accused members of the WPB with seeking to close the BMI plant to advance the interests of competing plants with which they were formerly associated. Said McCarran: "It is an outrage and a shame that men in this country have lent themselves to this procedure." He said the WPB recommended closing of the BMI despite the fact that it is the largest producer of magnesium in the

world. P. D. Wilson, chief of the WPB's aluminum-magnesium branch, categorically denied charges made by Senator Mc-Carran and said it was as "amazing a blast as I ever heard."

Wilson said that to his knowledge nobody in his division has ever been connected with the chief competitor of the BMI plant. He identified the unnamed plant referred to by McCarran as "probably the Dow Chemical Co." WINDIEMUGCA NEV STAR B STATE

WPB DEFENDS BMI CUTTING BACK ORDER Says Manpower, Fuel Will Be Saved for Other Areas

The War Production Board's order cutting back production at the Las Vegas, Nev., Basic Magnesium Corp. plant by 40 per cent was defended yesterday on the grounds that it would make manpower and fuel oil thus saved available in other areas where they are urgently needed.

Director Philip Wilson of the WPB's aluminum and magnesium division said in a letter to Rep. Albert Engle, R., Mich., that the cutback would effect an annual saving of 1,400,000 to 1,600,000 barrels of fuel oil with which to help ease a daily deficit of 120,000 barrels on the west coast. Wilson quoted a war manpower

commission statement to the effect that "the 1,600 men who might be released in Nevada could be used most effectively in group 1 labor areas of Los Angeles, San Francisco and other centers of labor shortage."

The WPB official denied charge by Sen, Pat McCarran, D., Nev., that the cutback decision was influenced by former Dow Chemical Corp. employes now in WPB. Wilson said neither he nor any other WPB official had ever worked for Dow Chemical or for any "prospective competitors" of Basic Magnesium.

SALT LAKE TELEGRAM 4-14-44 **Magnesium Plant Cut-Back Probed**

WASHINGTON, April 14 (UP) -Representative Engle (R., Mich.) Friday called on the war production board for the "complete factual background" of its decision to cut back magnesium production at the Las Vegas, Nev., plant of the Basic Magnesium, Inc.

Engle said he had written to Phillp Wilson, director of WPB's aluminum and magnesium division. for the information, which he said he expects to use in answering charges voiced by Senator McCar-ran (D., Nev.) that the cutback decision had been prompted by in-fluence of the Dow Chemical corporation, a Michigan company.



法预定 1998

U. S. Senator Pat McCarran is giving a great deal of time trying to save the Basic Magnesium plant, located near Las Vegas, from a shutdown. He sees in the struggle, the West's success or failure of bringing substantial industries out bere.

Senator Rebuffs WLB

Recently the War Production Board ordered a 25% reduction in output at the big plant, which produces over a third of the light war metal. McCarran asked for the rensons and then knocked them down one by one.

"The government needs the cars required to transport the metal to the east," the WPB said. The Senator investigated and found it took five cars to transport the metal whereas around 400 empty cara were passing through Las Vegas each day on their eastward trip.

"The electricity is needed in the Los Angeles area." The Senator investigated and found there is no power shortage there.

"The 1500 workmen are needed in the Los Angeles war areas." The Manpower Board informed the Senator that there would be no housing accommodations for the men if they went there.

"The peat moss required is needed elsewhere." Investigation showed that the use of peat moss, brought from Michigan, had been cut 50%, would soon be cut 90%, and eventually would be done away with altogether.

"The fuel oil used is needed." Senator McCarran found that the fuel oil position had greatly eased in the West and that the company had cut its requirements an eighth by burning hydrogen that had formerly been wasted.

Senator McCarran claims that former employees of old-established companies are in control at Washington and don't want to see a competitor in the field when the war is over.

"This is a battle of the West against those interests that seek to curtail the development of the west," he said. "We are going forward with the battle to the bitter end. We intend to fight for the preservation of substantial industries that have come into the west. knowing what their retention means to the future economy of the west."

BMI Must Cut Production **40 Per Cent** Four of Ten Units Are to Be Shut Down

A. BOIL 17. 1964

Acting on orders from the war production board, the Defense Plant corporation has instructed the management of Basic Magnesium, Inc., at Las Vegas, world's largest producer of the light metal, to shut down four units of the plant within the next two months.

The plant, constructed at a cost in excess of \$125,000,000, has ten units, and when the WPB order is fully effective, the plant will continue operation at 60 per cent of rated capacity.

Shutdown of each unit it estimated to require two weeks. The work of closing down the first unit is now under way and com pliance with the WPB order w be accomplished by June 1.

During the shutdown period. was reported in Las Vegas, er ployment at BMI may be eve larger than now. The four unit which are being closed down wi be maintained on a stand-by bas and it is believed that there will be no large reduction in emplo ment at BMI even when opering on a 60 per cent basis

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Wilson denies that the cut-back was influenced by former

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WPB Defends Cutback Of Magnesium Plant

APR. 21, 1944 SWIETWATER, TEX. REPORTS

WASHINGTON - (UP)-The WPB has defended its production cut-back at the Las Vegas. Nevada, basic magnesium plant. Director Philip Wilson of the

MINING RECORD DENVER COLO. 5/11/44

BASIC MAGNESIUM CURTAILS OUTPUT

Las Vegas, Nev .- Gov. E. P. Carville says he has been officially informed that one of the 10 units of the Basic Magnesium plant here has been closed and that three more will be closed before May 31.

It is also reported that the War Production Board has also ordered the closing of units of the Dow Chemical

J. R. Hobbins, president; G. E. Wood, vice president, and W. H. Hoover, counsel of the Anaconda Copper Mining company at New York City, accompanied by T. H. O'Brien, vice president and gen-eral manager of the Inspiration opper company at Inspiratio Ariz, last week were visiting with F. O. Case, at BMI, the Review Journal reported.

In the Daily News

Senator Pat McCarran will find a solid backing in the state of Nevada and throughout the west in his championing the cause of Basic Magnesium at Las Vegas. There is

SURPLUS OF MAGNESIUM SAID SHUTDOWN REASON

ADRIL 18 1984

Saving of Labor, Transportation and Fuel Is Cited by WPB Official

· · ·

WASHINGTON, April 26. 429- and at the mines at Gabbs, Nev., Curtailment of operations at Basic Magnesium, Inc., at Las Vegas, re- Francisco "and other centers of sulted from a surplus production of magnesium and the possible sav-Save between 120,000 and 135,-

al magnitude of labor, transportation, fuel oil, coal of other essential materi-als, declares Philip D. Wilson, di-used by basic to California plants rector of the aluminum and operating on power from oil. magnesium division of the war magnesium division of the war magnesium division of the war volved in bringing 1,200 tons of

wilson's statement, written to Representative Engel (R-Mich.)

and published in the Congressional Record today, was intended as a Record today, was intended as a reply to assertions made by Sena-reply to assertions made by Sena-tor McCarran (D-Nev.) in a sen-tor McCarran (D-Nev.) in a senate speech April 1.

These savings were greater, he you have particularly called my said, than could be made by a 50 attention to the senator's charges, directly and by repeated inference, wille, Mich., plant operated by Dow that the WPBe decision to make Chemical company.

the cut-back at the Las Vegas plant was influenced by the fact that perhaps certain officials of the WPB were former employes of Dow (Dow Chemical comany, also a producer of magnesium) and thus partial to Dow interests, Wil-

He said that neither himself nor any member of his division nor. his knowledge any member of the WPB ever had worked for Dow r been directors of any present or rospective competitors of Basic farneslum.

Curtailment of operations at Basic by 40 per cent, he said, was xpected to accomplish the folwing results: Release 1,500 men at Las Vegas

no dcubt but that the money interests of the east are trying to stifle competition in the west. The same reasoning can be applied to the Geneva steel plant in Utah. And let no me make a mistake about the influence these easterners possess. The entire west will have to gird itself for the fight to come. Of course in the world after the war, Basic Magresium and other western plants will have to rise or fall on their own ability to meet competition. It is this very thing which worries the eastern interests, says McCarran, as the western plants are beginning to cut production costs. The unfair part of the deal is that men are holding government bureaucratic jobs who are not interested in the government's welfare, but are in fact representing some large, private interests of the east. And these men are shrewd, hard fighters and care not where the blows fall so long as they win their point. Men of the west must awaken if they are to fulfill their true destinies after the war. The great markets across the Pacific beckon to the west, but they will not be ours unless we are willing to fight for them.

-ELKO FREE PRESS

Co.'s magnesium plant in Texas and units of the Permanente plant in California which produce magnesium.

Annerson, talla Se AFRIL 13, 1944

A strategetic mineral plant was erected at Las Vegas, Nevada some months ago. It was financed by federal money. The plant cost over nine billions of dollars. Recently a 52 percent interest in the corporation was purchased by big business for \$75,000. This is just another reason why bureaucratic government now in control should be thrown out.

PHOEMIX ARIZ. 5/15/44 acquired it in 1914. EVAD

MINING JR'L

According to reports, one unit of the Basic Magnesium plant at Henderson, Nevada, has been closed and three others will be closed by May 31, 1944. This will reduce capacity output of the plant 40 per cent. When in full operation BMI produces about 160 tons of magnesium daily, employing approximately 5,400 persons. F. O. Case, Box 1150, Las Vegas, is general manager.

REND MEV. CAJETTE

Dolomite from Southern Nevada

New Process Said Developed By Government

Present Material Source at Gabbs Means Long Haul

With the perfection of a new process to utilize dolomite in the manufacture of magnesium metal, as announced this week by Secretary Ickes, secretary of the interior, it appeared probable that a large deposit of the non-metallic situated at Sloan, Nev., nineteen miles southwest of Las Vegas might be used as a source of supply for the newly constructed Basic Magnesium Inc., plant at Las Vegas, according to an Associated Press dispatch.

An estimated 400,000,000 tons of dolomite is available at the Sloan deposit. Ickes said, and extensive research during the last few months has resulted in a process which will permit the substitution of dolomite for magnesium oxide in the manufacture of magnesium metal, a product essential to the war effort.

At the present time, the magnesium plant in southern Clark county is supplied with raw material from the huge deposits located near the Nye-Mineral county line in Gabbs valley, northeast of Luning. Magnesite, quarried at Gabbs, is reduced to a highly concentrated magnesium oxide through a process of flotation and calcining. The product is transported by truck to railhead at Luning, a distance of thirty-three miles, and shipped by rail to the BMI plant by way of Salt Lake City. It was primarily because of the long haul involved in transporting the raw material to the manufacturing plant in Southern Nevada that work on the dolomite process was undertaken, company officials intimated.

Dolomite, commonly used in combination with brucite, also a magnesium non-metallic, in the manufacture of hearth linings for steel mills, is to be found in abundance in Nevada, especially in the southern part of the state. It is usually found in close contact with limestone formations.

Since 1927 the dolomite deposit at Sloan has been worked intermittently with the calcined product being shipped east for the manufacture of refractory products. The asserted perfection of a process utilizing dolomite as the base product for the manufacture of L.V.R.J. 4/7/43

FROM WHERE I SIT

Cornelius F. "Con" Kelley, one of the most famous of the west's great mining figures, is proud of the fact he was born in Nevada, and was deeply moved the other evening during the course of an informal talk when he said:

"There's always a tender spot in one's heart for the place of his birth." His eyes grew moist, his voice became husky and he was unable to speak for a second or two. There was no mistaking the sudden surge of emotion which swept over him as memorives came back of other days.

Kelley was born in Mineral Hills, Nevada, about fifty miles north of Eureka in the days that historic old camp was the greatest city between Salt Lake and San Francisco. Eureka was the county seat of a vast territory that included all of eastern Nevada—now divided into White Pine, Elko and Eureka counties and part of Nye. It was a city of approximately 20,000 petsons when Con Kelley's parents were there.

Mineral Hills was a camp of approximately 1,000 persons and existed for only a few years. Today it is just a dot on the map —Eureka, still the county seat of a muchly abbreviated area, has perhaps 800 persons within Hs confines.

You gather, talking with Kelley, that part of his ambition to make BMI a permanent industrial institution is as his own personal contribution to his native state. And Con Kelley has failed in few things he has ever set his mind to.

Three well-known Las Vegas old-timers are natives of Eureka from the hey-dey of the camp. A. S. Henderson was district atturney there in the dim. distant past. Mrs. Walter R. Bracken was born there, later graduated from the University of Nevada. Leo A. McNamee likewise first viewed the world from his parent's home in the once-great mining camp.

L.V.A. 4/16/43 OBSERVATIONS By CHARLES P. SQUIRES

THE PRICE OF INDUSTRY Las Vegas recently had a night of darkness which came as a small item in the price of industry.

When the great Basic Magnesium, Inc., plant came to us, we we were all elated and none of us gave thought to possible disadvantages it might bring.

So it came as sort of a surprise when we were told that chlorine gas permeating the effluent from the BMI plant is deposited on the power line insulators in the form of hydrochloric acid. This film, when dampened by a drizzle of rain, provides an almost perfect conductor of electricity, leading the high tension current to jump the inuslators and burn out the supporting structures. In that way, I am told by those supposed to know, nine poles of the Southern Nevada Power Company line were burned leaving Basic Townsite as well as Las Vegas and vicinity in darkness through the night

L.V.R.J. 4/13/43

May be Magnesium Supply

Nevada Mines, Employing 20,000 Men Continue Short of Workers

CARSON CITY, Nev., Apr. 12 (UP)--Nevada's mines, mills and smelters, now employing more than 20,000 men, still are short of workers, Matt Murphy, state mine inspector said today. Murphy said the 20,000 men employed in the mines, mills and smelters of the state represented an increase of approximately 11,500 within the last year.

The greater part of those additional 11,500 men are working in the gigantic Basic Magnesium, Inc., projects—the majority in the Las Vegas area.

The state mine inspector estimated the Basic Magneisum operations have placed an additional 9,000 workers under the supervision of his department. The remainder, Murphy said, are in the copper mines in the Ely area, the lead and zinc operations in the vicinity of Pioche and in the Nevada-Massachusetts tungsten workings. In discussing the increased

number of men now working in

L.V.R.J. 4/30/43

Basic Promotes Bond Sales Today

Bond sales at Basic Magnesium, Inc., boomed today, reaching a point estimated at \$350,000 in the second victory Ioan drive, is an intensive last-minute campaign was in progress to meet the \$400,000 quota set as the Basic part of Clark county's drive.

The bond sales were to be in progress at the close of every shift, and a big rally was staged this morning with the Las Vegas army gunnery school band playing, two big turret trucks on display, and young women from the BMI staff acting as bond salesS. F. CAL, WALL STREET IOURNAL

AQUEDUCT AIDS WAR PRODUCTION

Southern California Industry Draws Heavily on Supply of Metro District

Originally conceived only for the purpose of delivering water to Southern California in quantities sufficient to assure its industrial growth and support the growing population for many years in the future, the Colorado River aqueduct of the Metropolitan Water District of California, completed only last year, has made possible the participation of this area in war industries to an extent which could not have been achieved without this great volume of additional water.

One of the first requisites to the establishment of the Henry J. Kaiser steel plant at Fontana was an adequate supply of water for which arrangements were made with the Metropolitan Water District. Several large synthetic rubber plants are under construction in the Los Angeles area. These plants require enormous amounts of water, and again it was the Metropolitan District which was able to assure them of an adequate supply.

Because of the great industrial growth throughout the Southland, the Los Angeles municipal water system last summer was forced to call for water deliveries from the Colorado River to meet the demands of its consumers. Long Beach found it necessary to supplement its regular supply and other district cities found it necessary to augment their regular supplies with water from the great aqueduct.

However, it is not only by having an ample supply of water for all purposes that the district has made direct contribution to the war effort. Early last year it completed negotiations by which its surplus Boulder Dam power was released to the War Production Board for operation of the Basic Magnesium Inc., plant near Las Vegas, Nev. Without this available power establishment of this plant at its present location would not have been feasible.

In December the first hydro-electric generating unit at Parker Dam was put into operation and energy from this source has been available to the war industries of the Southwest.

Thus the great Colorado River aqueduct, conceived only as a peacetime project and built only with the idea of assuring the peaceful progress of the cities within its district, has been able to supply this area with the great quantities of water so necessary if the maximum war effort of its industries is to be attained.

The project now has 110 miles of tunnels, most of which are 16 feet in diameter; 63 miles of concrete-lined tunnels; 54 miles off covered conduits; 29 miles of inverted siphons; 142 miles of concrete and steel pipe lines; dams and related works for six reservoirs; five of the world's greatest pumping plants to lift the water 1,617 feet over mountain barriers; 237 miles of transmission lines delivering power from Boulder Dam to the pumping plants; and a huge modern water softening and filtration plant. It is the longest and largest domestic

wa'er supply line in the United States. In addition, used in the construction and maintenance of the huge system there are more than 160 miles of surfaced roads and a complete communications system including 460 miles of telephone lines.

Actual work on the aqueduct was started on Christmas Day, 1932. In the summer of 1941 the concrete and steel links of the vast system were joined together into one unified system extending 398 miles from the Colorado River to the cities it serves.

BMI Will Not Be 'War Baby' Says Official

"It has always been my ambition to build permanently. Basic Magnesium will not be a war baby if the metallurgical skill and management of Anaconda Copper company can help it," this was the statement made by Cornelius F. "Con" Kelley, chairman of the board of directors of Anaconda Copper company last week to a group of southern Nevadans, the Review-Journal reported.

"I am a born optimist and it is my sincere hope that in the light metal era that is to follow the war, our plant will take its place competitively," Kelley said.

MANY PROBLEMS

He explained there were many problems facing the company before this could be realized, but pledged that all the scientific brains of Anaconda would be turned to the job of making the plant work completitively.

A native Nevadan who made his way to the top from the ranks, Kelley revealed a warm spot in his heart for the place of his birth, and referred feelingly to his early days in Eureka.

Paying tribute to the mining industry generally, Kelley declared: "The only enduring things which stand as a monument to man's scientific advancement in this world came from the mines and the quarries." In conversation during the evening, Kelley praised the work done by Nevada senators down through the years for the mining indu James R. Hobbins, president of Anaconda, at the meeting paid compliment to Kelley as one of the nation's outstanding mining men, and discussed some of the problems that must be solved to assure the future of BML "We are making progress steadily," he declared, "We are giving this project the best scientific brains the mining industry affords, and we are producing magnesium in ever mounting quantities. "Right now, the process is making more magnesium than its designers ever dremaed it would. The units now in operation are producing more magnesium per unit than anybody connected with the company ever hope for. The results have been most gratifying." The reception for the two Anaconda executives was arranged by F. O. Case, general manager for BMI, who introduced the honored guests.

magnesium metal will effect a tremendous savings in the over-all manufacturing cost, it was reported.

> MINING JR'I PHOMMIX ARIZ. 4/18/43

It is reported that Basic Magnesium, Inc., has reached 50 per<u>cent production</u> with the operation of its first refinery unit early in March. Half of the metals plants near Las Vegas, Nevada, are in operation; the tunnel and rotary kilns are both in 50 per cent operation; and the chlorine plant has passed the half-way mark. F. O. Case, Box 8, Las Vegas, is general manager. Kelley went to Butte from Eureka and worked his way from the ranks to the top of the nution's greatest copper producing company.

This is the time of year when even your best friends CANT fell you. Remember this when you walk along the street and an acquaintance of years takes a look and sweeps right on by. It isn't that they've suddenly gone high-brow—that you've insulted 'em or something and they don't like you any more. It's the scason and dark glasses,

Strange how much like somebody you don't know, your most intimate acquaintance appears Nevada in connection with the mining industry called attention to the fact "every gold and silver mine operator who has applied for reinstatement of his mine has been granted that permission with one exception." The Silver Hills operations on the Comstock lode have not reopened, Murphy said.

A platform, gaily decorated with patriotic bunting, was set up between the booth where men received their checks and the booth where they cashed them. Many responded to the patriotic drive and purchased bonds of large amounts. The gunnery school band was at the field from 6:30 until 9:30

at the field from 6:30 until 9:30 to catch the midnight shift as the workmen reported for their checks.

Hal Grayson's band, currently featured at El Rancho Vegas, was scheduled to present a show from 3 until 5:30 o'clock this afternoon to catch the day and afternoon shifts. A report on the success of the drive will be made tomorrow. The Anaconda Copper company and L. G. McNeil, president of the McNeil Construction company, have purchased \$25,-000 worth of bonds each in the drive at Basic. Fred Hodge, president of the Nevada Consolidated Fast Freight, bought \$6,000 worth of bonds yesterday. Dave Wolzinger, owner of the

Pony Express company, purchased a \$1,000 bond at Basic.



JR'L OF COMMERCE NEW YORK 3/14/44

-Release of More MagnesiumAsked

to corrosion. Some of the agencies concerned, the report states, are of the opinion that all facilities should be completed and that production should be continued at present lev-els and requests for non-military use of magnesium be denied until a stockpile equal to a two months supply has been accumulated.

Dow Praises Report

MIDLAND, Mich., March 13. The report of the Truman Commit tee on magnesium completely re-futes and destroys the smear that The Dow Chemical Co. is or ever was a member of any international cartel controlling magnesium, said Willard H. Dow, head of the company, today.

The Truman report said that the magnesium plants owned or oper-ated by Dow Chemical, and those for which it acted as consultant of adviser, reached 100 per cent pro-duction within five to seven months from the start of operations.

"It was a great satisfaction," said Dr. Dow today, "to know that the company has been officially commended for the work it has done over the years in maintaining a magnesium industry in the United States that served this country when the war came." Last week, Dr. Dow had charged the Justice Department with falsely linking his firm with a German cartel.

The chemical manufacturer declared, however, that he was unable to follow the committee's criticism that the company should have provided the United States with as much magnesium as the German Government provided that nation. In this connection, he said:

German Industry

There was no discussion of any importance in the Truman Commitimportance about whether any company in the United States should match the German produc-Germany and the countries preparing for war, as opposed to the United States operating entirely for peace, represent two entirely tion. different modes of living, two en- nesium chloride, Dow would have tirely different approaches to the had to incur the expense of dump development of markets, and in no ing into and polluting the river. It sense is there any comparison be also said the loss on magnesium tween the two."

even make statements "as quoted" However, the report continues, by Senator M. C. Wallgren (Dem., "the scientific interest displayed by Wasti,), chairman of a subcommit- Dow Chemical in the future com-

Dow had not produced from mag- could be safely used.

SALT LAKE GITY UTAH, TRIBUME

Magnesium Unit

Reported Closed

LAS VEGAS, Nev., April 15

(UP)-Shutting down of one unit

of the huge Basic Magnesium,

Inc., plant was reported Friday,

and it was understood that a total

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port.

APRIL 16, 1966

MAR. 22. 1944 468 MEXIA TEX MORN NEWS

WASHINGTON COLUMN

BY PETER EDSON NEA Staff Correspondent

THE full sad story of Basic Magnesium, Inc., one of the larger ex-travagances of the war production effort, is finally revealed through publication of a new, special magnesium report from the Senate's Truman Committee to Investigate the National Defense Program.



Final cost of this project is estimated at \$133,-000,000, or nearly twice the original estimates. "In presenting the complete details regarding the construction of the Basic Magnesium project," summarizes the Truman report, "the committee fully realizes that what has been done is a part of the past and, although vast sums of the taxpayers' money have been wasted, no specific recovery can be constructively suggested at this time. The record goes back to 1936 when Basic Re-

Edson Interfectora goes back to hose when haste ne-fractories, Inc., headed by Howard Eells Jr. of Cleveland, O., leased deposits of bruchte and mag-nesite ores in Nevada. The magnesium deposits were held by a subsidiary, Basic Ores, Inc., st a book value of \$25,000. This was the egg. Later, DPC was to buy out the Eells interests in these ores deposite to \$25,000. these ore deposits for \$450,000, on an appraisal of \$1,500,000.

On July 19, 1941, the under secretary of war "recommended that an agreement be negotiated between the War Department, Defense Plant Corporation and Basic Refractories for a project of a capacity of 112,000,000 pounds, to cost \$63,820,633."

"In the opinion of the committee," says the Truman report, "this was one of the most outrageous and unjustified contracts proposed in connection with the war program and represented a wholly unwar-ranted gift of government funds by Defense Plant Corporation to a newly organized corporation which had no financial resources and only the most meager experience and talent."

HOW justified this comment may be is best illustrated by the com-

mittee's long and detailed report on the progress of construction. The plant site was chosen near Basic properties at Luning, Nev., 300 miles from the mines near Gabbs, Nev., to which there was no transportation whatever. Ore had to be backhauled from the mines to Ogden, Utah, thence to Luning-950 miles at \$6 a ton. A 40-inch pipeline over the mountains to Lake Meade and two

power transmission lines to Boulder Dam, estimated to cost \$8,000,-000, actually cost over \$12,000,000. By 1945, new power sources will have to be developed to supply

the plant's capacity requirements of 1,500,000,000 kwh. There were numerous delays. Production of first metal was sched-

uled for May, 1942, but was not achieved till Aug. 31. There were minor extravagances, such as 700 executives. 100 of

whom drew over \$5000 a year. Stenographers' desks cost \$95. The ore contained greater impurities than estimated. Construction and the mines at Gabbs, estimated to cost \$3,000,000. actually cost \$7.000.000.

Highly inflar mable peat used in the process had to be prought from British Columbia and stored in a \$900,000 wooden warehouse which had to be abandoned because of fire risk.

BOSTON NEWS BUREAU

Boston, Mass.

MAC T & LORA

Magnesium Cutbacks

Principal cutbacks in mag-

nesium production, expected to

be ordered within next few days

by WPB, will be made in those

plants farthest removed from

processors, says Washington special. WPB estimates of pros-

pective cutbacks in magnesium

production are now under review

by Defense Plant Corp., with

probability that they will be

approved and orders issued be-

fore the end of the week. It is

believed largest single cutback

will be ordered in the govern-

ment-owned plant at La Vegas,

Nev., operated by Basic Re-

fractories Corp., which has a

production capacity of 112,000,-

000 pounds of basic magnesium

annually, and it is further be-

lieved such action will result in

criticism from the western bloc

in Congress, headed by Senator

SAN FRANCISCO CAL NEWS

BASIC MAGNESIUM UNIT CLOSES

understood a total of 4 of plant's 10 units will be idle by May 31.

McCarran of Nevada.

APRIL 15, 1944

was deducted from the profit made was deducted from the profit made on other products such as bromine, diced individual, not willing to ad mit differences in conditions, would which taxes had to be paid.

tee on light metals. "Regarding lack of production." Dr. Dow continued, "this was all brought about by attempting in a period of emergency to develop magnesium in the United States new, untried and expensive proc-new, untried and expensive proc-esses, all of which did not come up to the very optimistic expectations mental and development work of their sponsors. Dow Chemical, under handicaps, and together with with its proven processes, made an Alcoa, has pointed out that the outstanding record in every assign-ment it had. The cost of construc-ment it had. The cost of construc-Navy, were unwilling to use magtion as well as production costs, nesium until Dow Chemical and is ample proof of this statement." Alcoa had borne the burden of The Truman report stated that if proving beyond question that it

> Lodi, Cal., News-Scatlar! Cir. 4,250 APRIL 15, 1944

MAGNESIUM PLANT CLOSING UNITS

LAS VEGAS, Nev, April 14 -(UP)-One unit of the huge Basic Magnesium, Inc., plant was reported to have shut down today and it was understood that by May 31st a total of four of the plant's ten units will be idle. BMJ has been operated by Anaconda Co. for the Defense Plant Corporation.

Superintendent Frank O. Case refused to confirm or deny the newed and determined effort" to report, but Sen. Pat McCarran, see that "none of this great indus-Nevada, said he will make a "re- try be closed." ,

MAR. 20, 1944 4-6 8 822

Basic Magnesium PA Tale of Waste By PETER EDSON

WASHINGTON, March 19.-The full, sad story of Basic Magnesium, Inc., one of the larger extravagances of the war production effort, is being finally revealed through publication of a new, special magnesium report from the Senate's Truman Committee to Investigate the

National Defense Program. Final cost of this project is estimated at 133 million dollars, or nearly twice the original esti-

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taxpayers' money have been Edson wasted, no specific recovery can be constructively suggested at this time.'

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Waste, Mistakes, Waste

How justified this comment may be is best illustrated by the committee's long and detailed report on the progress of construction. The plant site was chosen near Basic properties at Luning, Nev., 300 miles from the mines near Gabbs, Nev., to which there was no transportation whatever Ore had to be backhauled from the mines to Ogden, Utah, thence to Luning-950 miles at \$6 a ton.

A 40-inch pipeline over the mountains to Lake "feade and two power transmission lines der Dam, estimated to cost eight million ctually cost over 12 million dollars.

"The only daily financial newspaper published in New England." 945, new power sources will have to be ments of one and one-half billion kwh. There were numerous delays. Production of first metal was scheduled for May, 1942, but was

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The ore contained greater impurities than esti-mated. Construction and the mines at Gabbs, estimated to cost three million dollars, actually cost seven million dollars.

Highly-inflammable peat used in the process had to be brought from British Columbia and stored in a \$900,000 wooden warehouse which had to be abandoned because of fire risk.

So They Called for Help

Salt deposits, at first declared available, were found not to exist and new sources of supply had to be developed in Death Valley.

Housing was supposed to be developed by private capital. Such as were built, at a cost of \$3,000 per unit, were of flimsy construction which, it is said, will last only a few years, and Defense Plant Corporation had to authorize expenditures of an additional six million dollars for facilities. Architects' fees of \$25,000 were paid for identical designs on 1,000 demountable houses at \$25 per house, and so on.

The whole thing was so had that in October, 1942, a deal was made whereby DPC brought in Anaconda Copper Mining Co. to buy 521/2 percent of Basic Magnesium's interest for \$75,000 to bring order out of the chaos. New management, construction of a pilot plant for much-needed research have resulted in saving of several millions of dollars. The plant got to capacity production rate last July.

CARLAND, CALLA, TRISUME

Magnesium Plant Closes

be idle

LAS NECAS Nev., April 15.--(U.P. -Shutting down of one unit of the huge Basic Magnesium, Inc., plant was reported yesterday, and it was understood that a total of four of the plant's ten units will be idle by May 31.

Reports have been recurrent here that production at the B.M.I plant, largest in the world, would be curtailed because production of mag-sium has exceeded requirements.

LANTERD, CALIL, SUNTINEL APPIL 14. 1914

HE DEMANDS FACTS HE DEMANDS FACTS Washington, April 14—(UP)— Rep. Albert Engle, R., Mich., today called on the War Production board for the "complete factual background" of its decision to cut back magnesium production at the Las Vegas, Nev., plant of the Basic Magnesium, Inc.

SAN FRANCISCO CAL NEWS NARIL 15, TER

Magnesium Plant Closed in Nevada

LAS VEGAS, Nev. April 15-Shutting down of one unit of the huge Basic Magnesium, Inc., plant was reported yesterday, and it was understood four of the plant's 10 units will be idle by May 31. Senator McCarran (Nev.) declared a shutdown order has been issued,

I and the members of the U. S. Senate committee I head will fight to have such an order revoked."

Seattle (Wn) Star April 15, 1944

Mrs. J. A. P. Cavan. MAGNESIUM OUTPUT CUT LAS VEGAS, Nev.--(UP)-Shutting down of one unit of the huge Basic Magnesium, Inc., plant huge Basic Magnesium, Inc., plant was reported yesterday, and it was understood that a total of four of the plant's 10 units will be idle by May 31. Production is re-ported to have exceeded require-ments. Supt. Frank O. Case re-fused to confirm or deny the de-port. BMI has been operated by the Anaconda company for the de-fanse plant corporation.

Cleveland Flain Dealer

APR 1 5 1944

BASIC MAGNESIUM UNIT SHUT Three More Expected to Be Closed

Down by May 31 LAS VEGAS, Nev., April 14-(UP)—One unit of the huge Basic Magnesium, Inc., plant was report-ed to have shut down today and it was understood that by May 31 a total of four of the plant's 10 units will be idle, B. M. I, has been operated by Anaconda Co., for the Defense Plant Corp.

Clavelana +--

APR 1 5 1844

Basic Magnesium Shuts

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One Plant, 3 More Due

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Anaconda Copper Co. for the De-Superintendent Frank O. Case

It was learned in Washington that the War Production Board as recommended to the Defense Plant Corp. that operations be cur tailed at four units of the Las Vegas, Nev., magnesium plant.

> PASADENA, CAL. STAR-NEWS Cir. 22,420 APRIL 15, 1944

LAS VEGAS, Nev., April 15, 10.89 -One unit of the huge basic Magnesium, Inc., plant was reported to have shut down today and it was understood that by May 31 a total of sour of the plant's 10 units will be idle.

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RAN BERNARDINO, CALIF, SUN Unit at B.M.I.



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The Sun Chicago, Ill.

APR 1 6 1944

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LONG BEACH, CAL., SUN ARRIL 15, 1955

McCarran to Fight **Closure** of Nevada **Magnesium Plant**

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a "renewed and determined ef-fort" to see that "none of this great industry will be closed." "If such an order has been issued," said McCarran, "I and the members of the United States Senate committee I head will fight to have such an order reMagnesium Plant Unit Shut Down

San Diene, Calif.

April 15, 1944

Daily Journal

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magnesium has exceeded requirements The plant reportedly has anticipated the action by not replacing drafted employes.

Francis Cal Rose Corner 12.34 APRIL 15 1944

Shutdown Of Magnesium Unit Is Reported

Unit is Reported LAS VEGAS (New.), Andi 15-me Shutting down of one unit of the huge Baals Magneshim line, plant was reported y-strends, and it is understood four of the plant's to units will be idle by May 31st. Superintendent Frank O. Case feissed to confirm or deny the report. BMI has been operated by the Anaconda Company for the de-ter of the confirm or deny the report. BMI has been operated by the Anaconda Company for the de-mere that production at the BMI be curtailed because production of magnesium has exceeded require-ments. The plant reportedly has anticipated the action by not re-placing drafted employes.

Scattle (Wn) Times April 16, 1944

Magnesium Unit Shut Down LAS VEGAS, Nev., April 15-Shutting down of one unit of the huge Basic Magnesium, Inc., plant was reported yesterday, and it was understood that a total of four of the plant's ten units will be idle by May 31.

APR. 16, 1944 OLAHA, MEB. MORN. WORLD

One Basic Magnesium Plant Is Shut Down Las Vegas, Nev. (IP)—Shutting lown of one unit of the huge Basic Magnesium, Inc., plant was re-ported Saturday, and it was under-stood that a total of four of the plant's 10 units will be idle by

MINING JR'L PHOENIX ARIZ. 4/15/44



nesium, Inc., in Nevada, largest light-metal producer in the country. BMI operations at the mine and mill at Gabbs and the plant at Henderson are on a capacity basis. Each month the company has been increasing output and decreasing cost per pound of metal. F. O. Case, Box 1150, Las Vegas, is general manager.

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ELECTRICAL WORLD The Weekly Journal of the Man interested in the Generation. Transmission and Industrial Applica-tion of Electrical Power." McGraw-Hill, 330 W. 42nd St., New York City

APR 101943

Sales Opportunities

IDANO-Idaho Power Co., Boise, has plans maturing for now 110-mile transmis-sion line and power substation. Proposed to begin work soon.

MICHICAN-Murray Corp. of America, Inc., 7700 Russell Ave., Detroit, manufacturer of heavy metal stampings, steel automobile bodies, etc., has contracted with government for expansion in plant, includabout \$1,400,000, with financing by De-fense Plant Corp.

ALABAMA—Civil Aeronautics Authority, Washington, D. C., has plans in progress for new airport, including hangars, shops and other structures, with electrical equip-ment installation. Also, electrical distribution system, with power substation, lighting system and other operating facilities. En-tire project is estimated to cost about \$700,000.

CALIFORNIA-U. S. District Engineer Of-fice, 4550 Brazil St., Los Angeles, has asked bids for construction of an electrical distribution system at army air forces supply depot, and will make award at early date (Solicitation No. 1174).

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CALIFORNIA-Douglas Aircraft Co., Santa Monica, will carry out expansion in plant for production for government, including machinery and electrical equipment in-stallation. Cost close to \$200,000, with financing by Defense Plant Corp.

SOUTH CAROLINA-Bureau of Yards and Docks, Navy Department, Washington, D. C., plans installation of new condenser cooling water system at central power plant at navy yard. Cost estimated about \$175,-000. Proposed to carry out work at early date, Appropriation has been authorized.

RHODE ISLAND Walsh-Kaiser Co., Providence, operating a local shipvard for construction of government vessels, plans exstruction of government vessels, plans ex-pansion in plant, comprising group of about 12 new buildings, including resin assem-bling shop, 300x600 ft.; machine shop, pipe shop, boiler erection shop, paint shop and other units. Also lines for compressed air system. Machinery and electrical equip-ment will be installed in industrial struc-tures. Entire project is reported to cost over \$1,000,000.

Missount-City Council, Neosho, is ar-ranging early call for hids for motor-driven pumping machinery and auxiliary equipment in connection with expansion and improvements in municipal water system. Entire project will cost about \$280,000, H. T. Lawrence, 3244 N.W. 14th St., Okla-homa City, Okla., is consulting engineer.

GEORGIA- War Department has plans under way for new hospital buildings, com-prising a group of one and multi-story prising a group of one and multi-story structures, with power substation, boiler house, cold storage and refrigerating plant, and miscellaneous buildings. Cost reported over \$1.000.000. William N. Parsons, Jr., S.F.C. Building, Augusta, is architect. Project will be supervised by U. S. District Engineer Office, Savannah.

FLORIDA-Civil Aeronautics Authority, Washington, D. C., has approved plans for expansion in airport, including hangars, shops and other operating structures, with machinery and electrical equipment. Also, extensions in electrical distribution lines, lighting facilities, etc. Entire project will cost approximately \$943,000, and will begin at early date.

WASHINGTON-Puget Sound Power & Light Co., Seattle, has plans nearing com-pletion for addition to power substation, with installation of equipment for increased capacity. Cost reported close to \$75,000. Work is scheduled to be carried out soon.

NEVADA—Basic Magnesium Co., Las Ve-gas, has approved plans for additions to mill for production for government, com-prising number of steel structures, with machinery and electrical equipment. Pro-posed to begin work at early date. Cost re-ported in excess of \$1,000,000.

ILLINOIS-War Emergency Pipe Lines, Inc., 1429 Enquirer Building, Cincinnati, Ohio, plans series of about 18 motor-driven pumping stations in connection with oil transmission line, to be used primarily for booster service. No estimate of cost an-nounced. Project will be carried out soon.

TEXAS—Civil Aeronautics Authority, Washington, D. C., and Municipal Airport Department. El Paso, plan expansion in municipal airport, including hangars, shops and other buildings, with electrical equip-ment installation. Also will make extensions in lighting system, control house and other operating facilities. Entire project will cost about \$1,000,000, with fund to be furnished by federal agency noted.

INDIANA-U. S. District Engineer Office. Federal Building, Louisville, Ky., plans im-provements in army hospital, including construction of new brick stack. No estimate of cost announced.

FLORIDA-Navy Department. Washington. D. C., plans expansion in naval air station, including hancars, shops, warehouses and other industrial buildings, with installation of machinery and electrical equipment. Also, will make extensions in distribution system and other electrical facilities for light and power service. Appropriation of about \$1.000.000 is being arranged for project, which will be carried out by Bureau of Yards and Docks.

ILLINOIS—Interstate Aircraft & Engineer-ing Corp., El Segundo, Calif., plans exten-sions in branch plant for production for government, including new building and machinery and electrical equipment for con-iderable increased converts. Cost about siderable increased capacity. Cost about \$220.000, with financing through Defense Plant Corp, Work is scheduled to be carried out soon.

ORECON-Civil Aeronautics Authority, Washington, D. C., plans new airport, including hangars, shops and other buildings, with machinery and electrical equipment. Also, electrical distribution system with power substation, lighting system and other facilities. Cost estimated at \$865,000. Work will begin this spring.

NORTH DAKOTA-R.S.R. Electric Cooper-ative, Inc., Milnor, has engaged Banister Engineering Co., 1586 University Ave., St. Paul, Minn., consulting engineer, to prepare plans and make surveys for primary and secondary lines in parts of three counties. totaling over 200 miles, with substation fa-cilities, service connections, etc. Cost re-ported close to \$200,000, with financing through REA.

L.V.R.J. 4/16/43

FROM WHERE I SIT By A. E. CAHLAN

Production at Basic Magnesium is now more than 100 tons tum is now more than 100 tons per day. It hit the century mark during the visit here of Chair-man Con Kelley and President Hobbins of Anaconda. Next milestone they're shooting at out there on the hillside, is to hit the mark that will make PMU the meatest producer of BMI the greatest producer of magnesium in the world.

At the moment, Dow Chemi-cal's Texas plant, built by the government, is turning out 7,-400,000 pounds per month. BMI is running between 6,000,000 and 7,000,000 pounds with only six of the ten units in production. It will be a gala occasion when the local plant pushes ahead of Dow, and it won't be long now. You'll hear more about this later.

There are two things going on out there at the moment that bave the utmost significance. Before very long the chlorine problem will be history. That there ever was such a problem goes back to the moments of hysteria surrounding the dis-covery, shortly after the out-break of the war, of an impending steel shortage. Orders were issued to cut the use of steel by a certain percentage, and it was up to the engineers in the field to figure out where,

The army took a pot shot at the magnesium plant and knockthe magnesium plant and knock-ed out 4 tons of steel in each of the ten electrolysis units. With this steel went the ventilating system. It is now being re-stored, just as rapidly as criti-cal materials will permit. Air now changed once every ten or fifteen minutes, will be changed overy sixty seconds. In addiovery sixty seconds. In addi-tion, all the gases at the plant will be neutralized. This will all be completed shortly, and you'll hear no more about chlorine trouble.

That's good news, for it means vastly improved working conditions, elimination of the only menace to health of workers now present in the plant. Many of the workmen now on the job are numbered among the unsung heroes of this war, risking as much as the men in the front lines, that the production of magnesium might go on.

Off in one corner of the vast area is a modest little building in which from outward appearances isn't at all impressive. There are only two or three men at work there, and considered alongside the vast machinery of production, the little unit doesn't amount to much. No towering walls, no great electrical in-stallations, no scurry and bustle of motion that marks most of the rest of the plant. But-

What goes on in there right now, may determine the future of the magnesium industry in

Release of More MagnesiumAsked

Grants to Civilians Would Stimulate Use, Says Truman Committee

(Bureau of Journal of Commerce) WASHINGTON, March 13 .- Convinced of the potential postwar value of magnesium development, the Truman Committee today urged that all programs having for their objective the wide use of the metal be inaugurated promptly, and suggested at the same time p that the War Production Board e give immediate consideration to the elimination of its M-2 order restricting its use to war and essential civilian items.

The committee's report, which I was released here today, declared that since the Government is the largest investor and operator in producing magnesium, for which the future demand is unknown and problematical, prompt and courageous action in all phases of its development "is vitally needed."

Commenting upon its recommen-dation to eliminate M-2, the com-mittee said that such action would constitute an important first step in carrying out its principal recom-mendation that surplus materials should be made available to all who want to use them in areas where there is no manpower short-age, providing the users are not refusing war contracts.

New Ideas Essential

"If the United States is to make the advances in magnesium techniques necessary to insure world pre-eminence in light metals, it is assential that serious consideration be given to all new ideas put orth." the committee said. "The merits of the particular ideas should be explored at least to a point where a full determination of the advantages or difficulties can be made idovarances accessed the advantages or difficulties can be made. Government agencies should not block private enterprise from proceeding at its own expense to develop new scientific methods for producing materials." As a result of the war, the com-mittee pointed out, new uses re-quired large quantities of magne-sium immediately developed, and it has been necessary to expand pro-

has been necessary to expand producing facilities to meet the phe-nomenal demands. The committee declared that civilian industry must be made fully cognizant of

ELECTRICAL WORLD . April 10, 1943

these parts after the war. They're making castings in that building—castings from magnesium produced at the plant. There are all sorts of molds, large v heels, pulleys and such, all of which will be thoroughly tested to determine what this metal will do in the industrial field.

Magnesium is new in this country, and its qualities are far superior in strength and lightness, to aluminum which has a general usage. The latter metal is well established as monarch of the light metal field. Magnesium is an interloper. It must force its way in and prove itself against all the opposition the mighty King Aluminum can muster.

This process is just barely get-ting under way. It will take spared to knock bar token are picture as soon as the war is over.

It is my prediction that the local plant will come through this on e successfully, too. But there'll be a fight in which Ne-vada's Congressional delegation will have a major part.

the advantages of magnesium and familiarized with the techniques involved in its use. Such a program, the committee said, would tend to protect the Government's investment in magnesium facilities, as the present operators would be more inclined to acquire the plans for individual operation if an increased market can be developed.

The report revealed that at the present time there are in this cous-try two privately owned plants and thirteen plants for which the Gov-ernment has spent to date \$370-000,000. An additional expenditure of some few million will still be made for process improvements, etc., the report said. In the opera-tion of twelve of the Government-owned plants, \$116,000,000 has been advanced for operation expenses from which the Government has received to date through the deliv-sty of magnesium a return of present time there are in this counbry of magnesium a return of \$58,000,000.

Since 1943, the Truman report points out, production of magnesium has increased to the point that Government agencies are experi-encing difficulties in locating storage space for the metal. In ingot form magnesium is slightly subject

CAL, WALLSTREEP DURNAL

War Shoots West's Industrial Growth Ahead50Years, CommerceStudyFinds; and turning out huge quantities of ammonialmenter care and causing into our factories and causing ining trains across the tracks with little head-way between sections. The length of trains has pending upon truck transportation may file Change From Agricultural Economy

Labor, Transportation Major ity, it is recalled, "Yet at the end of the war Problems for Solution in Pacific Coast Area

the Far West. For example, the second most using different methods, is the Permanente's alreraft plant employs more people than all of of magnesium, on the average, going into every steel plant is in full blast where an orange industry represents at the minimum an imporgrove existed a few months ago. Wages are tant sector of an integrated airplane bodyswirling into workers' pockets at a fantastic building industry for the region. "At a post-war rate. One shipyard advertises continually for maximum, magnesium may add a great deal men or women to accept 'at least \$49.50 a week more to the growth of the Far West," says the while you learn welding'.

In these words, Raymond Reeves, regional The \$100 million Kaiser steel mill at Fontana Trained. business advisor of the Department of Com- and the Geneva and Provo, Utah, furnaces have merce in San Francisco, introduces a new gen- probably had a great deal more publicity than eral examination of war effects upon affairs of the other new metal producing plants in the the Far West. The subsequent study represents region. However, it is by no means certain that pick up for a large expansion in face of such a one of the broadest examinations of trends and their ultimate significance matches the publicity manpower problem.

economy. Factories, raw materials, power, labor country," the report considers. supply, and management which might take 50 years of normal development to obtain have Steel Requires Caution all been thrust suddenly upon the Far West.

informed talk."

Two Prime Developments

be of prime long-run importance. First: busi- of that contribution still remains to be deter- problem. ness has gained prodigiously in public respect. mined," it is added. With this has been a cascading resentment Private business is showing an increasing willingness to accept responsibility for post-war the "new" lumber industry. Symbol of this Absenteeism Not Simple Issue

war the Far West was gaining a larger share of the national population and income each de-cade. However, the area lacked basic metal cade. However, the area lacked basic metal child of the lumber industry, it is declared. The producing plants, and this retarded heavy inproducing plants, and this retarded heavy in-dustry. Thus it is that the new iron, steel. Industry in the new iron, steel. Industry is declared. The industry is declared. The have done more to cloud the situation and higher if so many cars did not have to return have done more to cloud the situation and higher if so many cars did not have to return dustry. Thus it is that the new iron, steel, magnesium, and aluminum plants in this area nities for mod magnesium, and aluminum plants in this area nilies for wood. are not just additional factories, they mean

basis for post-war existence. One of the chief B'g Things Ahead in Lumber costs in producing aluminum is electric power. "In short, war has opened the door and given The lowest—no exceptions—cost hydroelectric power available anywhere in the country is in the Facific Northwest. Bonneville, Grand Coulee and other dams are now releasing a gigantic charge of power into these regions so large that it is estimated at 40% of the nation's total water power. This electric power is itself a new fac-tor added by the war," it is stated. Since last May, the dehydrated vegetable in tor added to the region since the war started, dustry has increased from 20 to 187 plants with

Another sound support for the new aluminum plants is their nearness to aircraft production centers. Finally, the availability of low cost water transportation for ores and finished goods pack 100 pounds of cabbage, for example, in a

"Optimism regarding the future of these 'war babies' and their value to the region seems well are equally enthusiastic about the long-term significance of this industry. If they are right, founded," it is declared.

Emergence of Magnesium

petitively into an important peacetime market mains to be proved about this important bustling position. As late as the last San Francisco fair industry war has brought to the region. on Treasure Island, small pocket-piece samples' Representative of the old established basic

of this metal were being distributed as curios- this region. the nation's capacity for producing magnesium in the opening paragraphs of this report that will be more than double our aluminum output perhaps 50 years of industrial development have in 1939.

Basic Magnesium plant at Las Vegas re- since the war started. garded as well situated from an economic stand-"War has brought spectacular changes to point near Boulder Dam. Another producer,

Referring to his opening words, Mr. Reeves costs are still determined in large part by the points out however, that "the real story of what availability of high grade iron ores, an ample planned schedules and a sickening loss of thouthe war is doing to this region is not found coal supply, and a large volume of production. in such items as these," He says that "the It is factors such as these that have kept the change is deep and basic, for the area is being fron and steel industry well centralized in a few shifted from an agricultural to an industrial areas rather than scattered throughout the highest it has ever been.

ises of such change as to warrant speaking of plants. advance is the laboratory now being built at The body of the report is divided into a Longview, Wash, to be the largest privately assession of three main war-born problems: owned wood products laboration in the Ban ceiving serious attention by the labor unions by the lab

Progress also has been made in rendering

Since last May, the dehydrated vegetable in- major one. It is an enemy of our war success, of transportation than any other area,

an estimated annual capacity of 200,000,000

five-pound can is obvious. There are those who the Far West might witness a major upheaval in its basic canning, preserving, fresh fruit and Magnesium has yet to shoulder its way com- vegetable industries. Nevertheless, much reindustries of the region which have, under war it must be solved, but that solution must be fornia last year, trucks accounted for an esti- stated that about 25% of their busses are laid up stimulus brought forth whole new industries to arrived at through removing some of the bad mated two-thirds of all freight traffic. the region is petroleum. The oil companies inhousing, some of the poor transportation condi-Railroads cannot do the job. Only single This problem is bad now, but as so many this area are now producing synthetic rubber, tions, alleviating food distribution, inadequate lines of rails link most large centers of popu- careful observers have pointed out, it is growand turning out huge quantities of ammonia medical care and other problems which are lation and supply. The railroads are now shut- ing progressively worse. Soon isolated small converting crude petroleum into glycerine and Reports From Coast Centers

vitamins. From the same barrel of crude oil has stimulated scores of such developments in

That is one of the reasons for the statement been compressed and poured into this region

Examination of Manpower

Last year in one California shipyard, house to show on any maps. It was built in 110 days, exerted an important influence in changing the never before seen a shipyard, turned out a at this: but has 40,000 inhabitants. One new Los Angeles economy of the region. With almost a half-ton million tons of shipping. What is meant by a million tons of shipping might best be explained the Hollywood studios put together. A giant large American fighting plane that is built, this by the fact that it would require a motorcade f ten-ton trucks 1.150 miles long to provide the same cargo capacity.

> one development has been the breakdown of char interest by labor itself. It is additional or other transportation agencies. At the time requiring long periods of training into simple evidence that the unions are not attempting to of the freeze last year there were less than tasks for which thousands can be quekly whitewash this problem but are seriously and 200,000 new trucks ready to go into civilian us

Plants in one industry in the San Francisco region hired 3,100 new workers during a ricent week, while 2,900 quit. The plant was trying to

developments which has been issued by the they have received. department. "Unfortunately for this area, iron and steel over was 14% recently. Loss of expensive training, loss of time in training, disruption of sands and thousands of man-hours of work are

Official statistics show that labor turnover is

Last year 178,000 California acres were planted in sugar beets. This year, it was requested that this be raised to 204,000 acres. "Any appraisal of the post-war value of these Present preliminary reports of plantings indi- without question, from absolutely inexcusab "But all is not well. Small towns and farm- particular plants to the Far West must be cau- cate 85,000 have been planted. Much of this in- sources. This part can and must be corrected ing areas are losing population at an unhealthy licus to be realistic. There appear to be several dicated 52% decline is due to the shortage of Management which hoards labor and knowingly rate. A truck transportation breakdown threat- serious problems which will ultimately have to farm labor, for sugar beets, like tomatoes, take keeps men in semi-idleness does itself a great two-ton trucks. ens. Manpower shortage menaces farm produc- be faced, and not least among these is cost of a very high amount of labor, and most of that disservice and aggrevates the problem. Labor tion. 'Absenteeism' is the subject of much ill- production. This does not mean that these plants is hard, uncomfortable stoop work. Growers which takes time off to keep social engage will not be successful. There are scores of op- attest that delays in announcing prices, doubts ments, indulges in after-payday absences, portunities into which they may fit very well as to availability of machinery, etc., all had a suffers from 'war prosperity' and hangovers and make a real contribution to the further in- part in bringing about this situation. Yet labor doing the war and the cause of labor a great "Two developments although intangible may of prime long-run importance. First, husing a real contribution to the further in- part in bringing about this situation. First and grave disservice," says the report.

Lumber has long been a major economic supof alleged governmental inefficiency. Second: Private business is showing an increasing will.

discussion of three main war-born problems: new industries, manpower and transportation. States It will be devoted to devote the gravest impending crisis" is seen in States. It will be devoted to developing new themselves as well as by management and got of the gravest impending crisis" is seen in uses for wood and wood products of the gravest impending crisis" is seen in Of new industries it is noted that before the uses for wood and wood products, particularly judgment to leap to the unwarranted conclusion transportation. the problem

that a new industrial frontier has been opened. Outlook for Aluminum Plants

Trogress also has been made in rendering wood fire-resistant. Several hundred million feet
One segment of a much bigger problem—the 60% of the national export tonbage was handled one segment of a much bigger problem—the former labor through San Francisco alone in that abnorma of treated lumber are being produced for war more effective utilization of the existing labor through San Francisco alone in that abnorma more effective utilization of the existing herear period. At the present time, Pacific Coast ports The new Pacific Coast aluminum plants have a capacity which exceeds the pre-war total of the entire nation. Not an ounce of aluminum for civilian needs At pressure treating plants. After the war this supply will be available to revenue to a pressure treating plants. Scheduling, better training. For example, a compared with 12% a year ago, the report finds the entire nation. Not an ounce of atuminum for civilian needs. At present a great deal of westerner enrolled in a training class which compared with 12% a year ago, the report finds was produced in the great Troutdale plant near Portland or the Central Valley plant in Califor-nia before the war started for the plants them-Eats to house patrol blimps ruct 20-story han-ball finished the course he was put to work as the plants them-bad finished the course he was put to work as the plants them-work of huge inland warehouses where was nia before the war started, for the plants them-selves didn't exist. By the end of 1943 it is esti-shore line and other labor turnover causes resulted in this goods are received, stored and reassembled for in a before the war static, by the end of 1943 it is esti-mated that cur national production of aluminum will be at a rate almost seven times greater than the 327 million pounds in 1939. The Pacific Court aluminum being the war which, if fully developed, could add greatly to the prosperity and importance Court aluminum being made a foreman one day with a blue-print and requested help. "Sorry," said the fore-print and requested help. "Sorry," and the satisfies the source of the fore-print and requested help. "Sorry," said the fore-print and requested help. "Sorry," and the satisfies the source of the fore-print and requested help. "Sorry," and the fore-print and requested help." Sorry, "said the fore-the source the source t man, "I can't even read these things-never Jearned how."

Senttle to San Diego will show. Here is a press goes release from Boeing, builder of the Flying For-Company officials tonight revealed that more than one-third of the workers em-

ployed at Boeing aircraft plants failed to report back to work after a Christmas hollday. An official report showed that absentee workers aggregated 341/2% of all personnel on the Boeing pay rolls,

populous city in Oregon. Vanport, is too new plant in California. These plants already have wives, farmers, and people, many of whom hal a bit of personal opinion to a fact and arrives shortage. They say: "Farm transportation wi

One steel working plant with 12,000 workers has a daily average absence of 1,350some sick but most spending bountiful paychecks.

One development has been the breakdown of cial interest because the data was assembled of the problem lie beyond the control of ODT constructively tackling it. The report says:

The California CIO Council today charged absenteeism and improper utilization of labor in San Francisco Bay area shipyards are causing a daily loss of 20,000 man-days of labor. In a survey submitted to the War Manpower Commission, the council reported turnover and absenteeism in some local war plants amounts to 20%. The average loss of all plants studied was 12% From Southern California:

Consolidated Aircraft is now reported to have 19% absent daily except pay days, when the absenteeism is 2% or less. Those absences amount to 700,000 man hours of labor per month, equal to 36 hombers.

"Some of the absenteeism problem springs, isn't done to relieve the parts situation."

"The more efficient use of labor-and that The problem is doubly acute in this region includes better scheduling, and less flabby man longer."

Big Transportation Problem

Immediately after Pearl Harbor a great bur-Essentially absenteeism is held to be only den was thrust upon port and harbor facilities;

of increased military shipments to the South "Absenteeism must make sense to a shipyard Pacific area are found in the sprawling semi-

in 1943. Our present truck breakdowns are the Far West and be written June 23. increasing at an alarming rate, with no prospect / "War has brought many opportunities and The Agricultural War Board has warned that

A press despatch from Portland, Ore., adds the war could be prolonged by transportation lead that phase of failure and therefore may be considered the nation's and California's most vital single impediment of the year."

At present this trucking problem is being ackled largely on a "patch and pray" basis. From San Francisco comes a report of spe- This is partially-necessitated because the root Normal peacetime replacements were about 400. 000 a year.

Relief Held Badly Needed

Shortages of mechanics, shortages of truck rivers, and above all, shortages of parts have ontributed to the present problem. The restricons on speed have naturally cut down the volme of work a truck can do. All of these have arried truck operators at the same time the emand for their services has multiplied many

Alabam Freight Lines, Phoenix, Ariz, reort: "About 25% of our equipment is out of ervice.... There will be a complete breakown of the trucking industry if something J. J. Dunn in San Luis Oblspo says farm

ruck operators in his area are having extreme difficulty getting parts for their one-half and

In Sacramento; "Trucks in this vicinity are in dire need of replacement parts' Axle gears and electrical equipment are re-

orted almost impossible to obtain in Santa Ana and Orange Counties. The Pacific Northwest furnishes equally pessimistic reports. Spencer Hawley of the Auto Interurban Co of Spokane says: "Operators are experiencing an average of three road failures per day."

Motor coach transportation in cities with auge defense plants is snarled by the same problem. The San Diego Street Railway Co. re-Absenteeism is a serious problem and is re-

been increased. There is very Hitle hope for the they have crops harvested, but . . . because the elimination of "non-essential" traffic since vital transportation problem is so vital, the Departnow come chemicals used in the manufacture of the problem is not commed to one city of military supplies, troops, wat materials and ment of consultant in each area to issue a spe-foodstuffs constitute most of the present carmilitary supplies, troops, war materials and ment of Commerce has asked the Regional cial report on these problems. The first of these Trucks, it is declared, must carry the burden. dealing with the situation in New England will Yet widespread breakdowns already are here be available about May 1. Each week there even though the traffic peak is months away. A after an additional report covering transportaregional ODT official has said: "Commercial tion in another section of the nation will be trucking in the Far West faces a grave crisis available. The last of this series will deal with

> uny headaches to a skyrocketing Far Westeconomy. Not the least of these problems the immediate horizon is transportation," the rvey says in conclusion.

TALENI, ITH STATISTICAN



Dire. 9,700

Secretary Ickes hit on a novel idea when he suggested giving the war plants to the returning veterans. He draws on the example of homesteads following the Civil war, and he could have gone clear back to the Revolution when its soldiers shared in grant lands being opened up in the west.

But wouldn't the veterans of this war be tempted to cash in on this stock by selling it as quickly as they could, so that soon control would pass to speculators or competitors for a song? If the government attempted to operate the plants what assurance would the veterans have of success of the enterprise? If one veteran got 10 theres of stock in an aluminum that succeeded while another got shares in a synthetic rubber plant that fizzled, would there be a complaint of discrimination? Or if all the war plants are to be operated under one orgnization would there be any profits to divide?

I have a feeling that probably most veterans would follow that line in Omar Khayyam: "Take the cash and let the credit go." They would prefer the money to buy a home or a farm or a business-or a car or a tractor, or some of them just to squander.

The Ickes idea is original, however, and should not be discarded merely because some obstacles appear. They might be what Jevons in his "Logic" calls the "fallacy of objections." Certainly the men who have fought in the war are more deserving of the plants than the ones who stayed home and made money in operating them.

An important thing to keep in mind, however, is not merely ownership of the plants but emoyment in their (Continued on

operation and production of goods that are needed by consumers. If veteran ownership can provide employment and produce goods economically, then those are strong factors in favor of the Ickes proposal.

There can be no single rule laid down that will fit the disposal of war plants and machinery. Some can swing easily into civilian production. But I certainly wouldn't want to wish on a group of veterans the ownership and operation of that vas ship and operation of that vas pile of Basic Magnesium, Inc at Las Vegas at anything like the amount of money the govhas sunk in the plant This whole subject will rise in interest and public concern as the war draws to an end and the question of plant disposa becomes acute.

A STREETAS, NEV REVIEW OURNAN A#811 22 944

F. F Garsido, Publisher Phone

Mr. Wilson Explains

Director Philip Wilson of the War Production Board's aluminum and magnesium division, is still alibiing for the proposed curtailment of the Las Vegas plant of Basic Magnesium, Inc., and attempting to explain away the charges made by Senator Pat McCarran that the shut-down is unwarranted and unsound.

The eminent Mr. Wilson, with all his explaining, reminds us of the fictional character who, faced with a similar situation, declared: "Methinks he protesteth too much."

His most recent statement was in the form of a letter to Representative Albert Engle of Michigan in which he gave two reasons for the decision to cut BMI's output 40 per cent by shutting down four of the ten production units.

First Wilson declared on his own authority, that this move would effect an annual saving of between 1,400,000 to 1,600,000 barrels of fuel oil which would help ease a daily deficit of 120,000 barrels on the west coast. The theory of that, of course, is that by cutting off four units, sufficient power will be saved to eliminate steam generating plants in southern California which burn oil.

To those not familiar with the facts, the Wilson explanation sounds quite plausible. It does NOT square with actualities, however, as Senator McCarran pointed out at a recent Washington hearing. First, the power to be saved at BMI cannot be transmitted to southern California regularly in that quantity. Second, the amount of oil which would be saved if the power could be transmitted is 1.300,000 barrels a year. Third, of that amount 900,000 MUST be used in the steam plants in regulation of peak loads AND operation of the frequency changers in the area served by the Los Angeles Bureau of Power and Light which operates on 50 cycles instead of the standard 60.

That leaves an ACTUAL saving, not of 1,300,000 barrels a year but 400,000 barrels which is LESS than one day's consumption in southern California. Quite a difference!

The WPB official then quotes a war manpower commission statement that 1.600 men will be released by the curtailment and that they would help alleviate the shortage in group 1 labor areas of Los Angeles, San Francisco and other centers.

That also would be a considerable factor IF 1,600 men would be released. However, the WMC is as right on that figure as it has been on most everything else so far. Comparison between the number of men needed to operate BMI's ten units by July first, and the number required to keep six units in production under the program outlined by management is NOT 1,600 but THREE HUNDRED.

The fact that Wilson persists in these two mis-statements AFTER his error has been repeatedly pointed out to him by COMPETENT authority-in fact by the MOST competent authority, fully justifies the suspicion that the real reason for the order is NOT as announced, but goes considerably deeper.

MARCH 22. 198

BMI Plant is Not Affected by WPB **Curtailment Rule**

LAS VEGAS, Mar. 18-The Basic Magnesium plant at Las Vegas was unaffected by a war production board order issued late yesterday afternoon calling for curtailment in the production of magnesium ranging from 35 to 100 per cent in five plants located in various parts of the country.

According to the United agency nalted production entirely at the Dearborn, Michigan, plant of the Ford Motor company and at the Mathieson alkali works at Lake Charles, Louisiana.

Fifty per cent cuts were ordered for the Electro Metallurgical company at Spokane, Permanente and Metals Cor ation, Manteca, California p 35 per cent reduction goes effect at the Amco Magne Corporation plant at Wing New York.

WPB said the rated cap of all magnesium plants ir country is 586,000,000 pc a year, and added the cu ment will amount to about 000,000 pounds per year, than six per cent of the c try's capacity.

The agency said produc currently is running between 8,000,000 and 10,000,000 pounds a month in excess of requirements.

LAS VEGAS TRIBUNE 4-30-44

Oversupply of Magnesium Sole Cause of Curtailing B.M.I., WPB Head Reiterates; Flays McCarran

In the nation's capital last night Philip D. Wilson. WPB official, had reiterated by a letter to a Michigan congressman ordered printed in the Congressional Record that Senator Pat McCarran of Nevada was making a political springboard out of the curtailment of Basic Magnesium's war plant.

Curtailment of operations at the huge magnesium plant here was not at all the result of interference by Dow Chemical or any other firm seeking a monopoly in the trade, nor was it result of employment of former Dow men among the officialdom of WPB, the War Production Board official insisted.

Instead, the order, already received here and in process of fulfillment in chopping four mills out of 10 at Basic, "resulted from a surplus of magnesium and the desire for saving of labor, transportation, fuel oil, coal and other essential materials."

essential materials." Mr. Wilson, director of the aluminum and magnesium di-vision of WPB, had filed his answer to Senator McCarran's charges by a letter to Representa-tive Clair Engle. Senator Mc-Carran had made his charges in a Sanata speach on April 1 and a Senate speech on April I, and in various talks and newspaper interviews during a week spent in Southern Nevada in mid-April. "You have particularly called my attention to the senator's charges, directly and by repeated inference, that the WPB's decision to make the cut-back at the Las Vegas plant was influenced by the fact that perhaps certain of-ficials of WPB were former employes of Dow Chemical Com-pany, also a producer of mag-nesium," Wilson wrote. He said that neither himself

nor any member of his division nor, to his knowledge, any member of WPB ever had worked for Dow or been directors of any present or prospect-ive competitors of Basic Magnesium.

Curtailment of operations at Basic by 40 per cent, he said, was expected to accomplish the fol-

expected to accomplish the fol-lowing results: Release 1500 men at Las Vegas and at the mines at Gabbs, for work in Los Angeles and San Francisco "and other centers of labor shortage."

Save between 120,000 and 135,000 barrels of fuel oil month-ly through release of electric power used by Basic to California plants operating on power from

oil. Saving of the transportation in-volved in bringing 1200 tons of peat moss monthly from Van-couver, B. C., to Las Vegas. Saving of transportation re-quired to bring about 5700 tons of raw magnesia 350 miles by truck from Gabbs.

truck from Gabbs.

These savings were greater, he said, than could be made by a 50 per cent curtailment of the Marysville, Mich., plant operated by Dow Chemical Company.

\$300,000 ASKED FOR BMI

A recommendation to the Reconstruction Finance corporation that the sum of \$300,000 be appropriated by the Defense Plant corporation and allocated to the Basic Magnesium, Incorporated, plant, specifically for a research program on the

chemical and electrometallurgical output at that place, was made by Senator J. G. Scrugham on March 14th. "The amount requested represents less than one-fourth of one per cent of the amount involved", the Nevada senator said, "and there is no doubt

that this will be the means of making large savings for the government, for otherwise the plant is likely to be junked." During the past year Senator Scrugham has corresponded with officials of the Defense Plant corporation regarding

such a research program, and his views are similar to those contained in a Truman com mittee report on the plant which in part, contains the foil lowing recommendation: "Further research should be undertaken at once to develop magnesium for such uses as the making of photoengraving plates, automotive parts, portable tools conveyors, vacuum cleaners, typewriters and business machines.' "Basic Magnesium, Incorpor-

ated has the potential of be-coming one of the greatest chemical plants preparing organic and inorganic synthetics in the west. It is conceivable that products from this plant will become a chief source of chemical supply to the rapidly expanding west coast industries, the post war Orient, and other foreign markets. Electri-



Finds No Reason Supporting WPB in Curtailment by Harry J. Brown

WASHINGTON, March 18 -Fighting with his back to the wall, Senator Pat McCarran is doing everything in his power to head off issuance of an order by the war production board closing down four units of the Basic Magnesium plant at Las Vegas.

Such an order has been drafted; it was ready for promulgation when the senator got wind of it; it is now on Donald Nelson's desk, held there while the aluminum and magnesium section of WPB digests a written protest filed by McCarren, backing up verbal protests which he had made to everyone in WPB having anything to do with the magnesium program. Earlier Order Given

This followed Thursday's order of the WPB curtailing production capacity of five of six ferrosilicon plants operating in various sections of the nation.

Being chairman of a special senate committee to promote decentralization of heavy industries, and to preserve industries of that class that have been set up in the west to produce for war, Senator McCarran sent for Philip Wilson, chief of the aluminum and magnesium section. and got from him the admission that an order closing four units at basic had been drafted. Insisted on Reasons

"Why?" inquired McCarran, and insisted on having all the reasons. Wilson filed the reasons, whereupon the senator proceeded to shoot them full of holes; to prove that the grounds of the contemplated order were not sound.

He then demanded that WPB and its light metals division reconsider the whole matter and reach a decision based on facts and not on fancy or prejudice. Where he will come out, (Continued on Page Two)

cal power, coal, chloride and ty of Las Vegas. The purchase products. caustic are available," Senator of a few common raw materials "I am hopeful that a worth-Scrugham stated, "and raw ma- and the installation of suitable while research program can be terials necessary for the expan- equipment would make possible worked out," the Nevada senasion of the chemical industry the manufacture of approxi- tor said, "and I intend to press are within reasonable proximi- mately eighty new chemical the matter most vigorously."

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U. S. Sen. Pat McCarran

NEVADA STATE JOURNAL RENO. NEVADA

APRIL H. THIS

Nevada ourna ESTABLISHED NOW 21 HITO FURLISHED EVE

Bus Bars Are Na Part of a Bus; Are Unrelated to Bar Equipment



Bureau Director Presents Picture of Nevada Mining

terday's U. S. senate committee heaving in the Read of Commerce auditorium president over hy Senator Semulaan. The following revealing summer of min-tion in Nevada, as they are affected by the way was by Jay A. Carpenter, director of the Nevad Sias Mores and suffering engineer in this state for the IoU

BASIC PROJECT NOW EXCEEDING HALF CAPACITY

Output of Magnesium Metal Now Over 100 Tons





Con F. Kelley, Company Head, Says Permanency Is Anaconda Goal.

DENVER MINING RECORD & MACHINERY JOURNAL

MINING JR'L PHOENIX ARIZ. 4/30/43

ut Basie

L.V.R.J. 4/20/48

Lumber Supplied By BMI for Army



much as the men in the front lines that the production of magnesium might go on.

Off in one corner of the vast area is a modest little building which from outward appearances isn't at all impressive. There are only two or three men at work there, and considered alongside the vast machinery of production, the little unit doesn't amount to much. No towering walls, no great electrical installations, no scurry and bustle of motion that marks most of the rest of the plant.

What goes on in there may determine the future of the magnesium industry in these parts after the war. They're making castings in that building—castings from magnesium produced at the plant. There are all sorts of molds, large wheels, pulleys and such, all of which will be thoroughly tested to determine what this metal will do in the industrial field.

Magnesium is new in this country and its qualities are far superior in strength and lightness to aluminum which has a general usage. The latter metal is well established as monarch of the light metal field. Magnesium is an interloper. It must force its way in and prove itself against all the opposition the mighty King Aluminum can muster.

And this—the BMI plant—will be the proving ground. The men working in this little building are doing the job right now. They'll continue, and as time goes on, their work will be expanded. They're pioneering in a new field and the results attained have been quite satisfactory.

The big battle for BMI's existence will not be fought along this front, important as it is—but with the aluminum trust and the great international cartel which still seeks world control of industry and markets. There are indications on every hand right now Cahlan concludes, that no effor will be spared to knock BMI out of the picture as soon as the war ja over. MATE ANIA, CALIF., REGISTER

VPB Defends

Basie Magnesium 40 per cent will on the grounds d make manpower and saved available in there they are urg-

philip Wilson of the ninum and magnesium id in a letter to Rep. Mich, that the ald effect in annust 400,000 to 1,600,000 el oil with which to ally deficit of 120,000 the west coast. statement that "the the might be released ould be used most efgroup I labor areas m San Francisco and ters of labor shortage. PB official denied a Sen. Pat McCarran, D., hat the cutback decision usenced by former Dow Corp. employes now in Wilson said neither he nor WPB official had gven r Dow chemical

LONG BEACH, CAL, NUN

Magnesium Plant Output Cut Sharply #6

ed today are manpower and fuel would make manpower and fuel il thus saved available in other where they are urgently

Director Phillip Wilson of the Director Finip Wilson of the WPB's aluminum and magne-sium division said in a letter to Representative Albert Engle (Re-publican, Michigan), that the publican, mould effect an encode utback would effect an annual aving of 1,400,000 to 1,600,000 barrels of fuel oll with which to barrels of fuel on with which to elp ease a daily deficit of 120,-00 barrels on the west coast. Wilson quoted a War Manpow-Commission statement that the 1600 men who might be re-

leased in Nevada could be used ibor shortage

Democrat. ion employes now in WPB. said neither he nor any Ison "prospective competitors" of isic Magnesium.

STEEL

F. F. CAL, COMMERCIAL NEWS

BARIE 17. 1940

Metals," says:

capacity.

capacity will be obtained.

fell slightly below 100 per cent

Cut-Back Ordered

Co: plant near Spokane, Wash.

S. F. CAL. COMMERCIAL NEWS

APRIL 21, 1946

Editor Of "Western Metals" Summarizes Conditions In Ferrous And Non-Ferrous Markets Of Eleven Western States.

In summarizing the condition for the first quarter totaled 608. of the ferrous and non-ferrous \$47 tons as compared with only markets in the 11 Westren states 298,561 tons for the correspondfor the month of March, Don ing period in 1943. Partridge, editor of "Western

Private Projects

"Structural fabricators report "Despite previous reports that the structural mill of the Geneva demand for private projects is at Steel Co., Geneva, Utah, would a low ebb with little new husiness not be completed during the du- in sight. The Pacific Fruit Express ration, definite orders have been received to complete and operate the mill as soon as possible. On the mill as soon as possible. On March 22 the first plates were rolled at this plant, and within a few weeks it is expected that full capacity will be obtained. "The production of open hearth with \$1,111 tons for March, 1943." Bookings for the first quarter of steel ingots in the West is steadily being stepped up, but the Na. the year aggregated 178,450 tons. tion's production figures, due pris as against 62,952 tons for the marily to needed fornace repairs, same period in 1943.

"Demand for cast iron pipe for private interests is more pronounced than it has been in over "The War Production Board two years, Awards included 1,500 has ordered cut-backs, nationally, tons for the improvement of Airin the production of magnesium. port Way, Seattle; 1,200 tons for A is understood that no curtail. Phoenix, Airz.; 800 tons for the ment will occur at Basic Magne. Beacon Hill reservoir, Scattle, and sium, Inc., plant at Las Vegas, 600 tons for Bremerton., Wash., Nev., or at Electroc Metallurgical all placed with the United States Pipe & Foundry Co. Burbank, "Demand for plates continues Calif., placed 259 tons each with to hold the spotlight. Only two United States Pipe & Foundry Co. large awards were reported. Kals. and American Cast Iron Pipe Co., er Co., Vancouver, Wash., booked and 222 tons with National Cast 60 CI-M-AV-1 cargo vessels in. Iron Pipe Co. Bids have been volving 168,000 tons of plates and opened on 1,500 tons for the East 60,000 tons of shapes, Consolidat. Bay Municipal Utility District, ed Steel Corp., Wilmington, Calif., Oakland. and on 550 tons for The War Production Board's order cutting back pro-duction at the Las Vegas, Nev, duction Magneshim Corporation Basic Magneshim Corporation blant by 40 per cent was defend-plant by 40 per cent was defend

LAS VEGAS TRIBUNE

Basic Magnesium's giant

war plant has added to its

staff, rather than decreasing,

since the Government ordered

creased by between 20 and 30

sistant to General Manager Frank

of Commerce Rumor Clinic at El

to operate all 10 units at Basic

with only 300 more employes than

normally required for the six units

plained by the necessity of using

operate it

four units.

An increase in staff was ex-

The official governmental

curtailment order has been re-

ceived, Mr. Frazer said, and

one mill is now being dis-mantled. Two weeks are re-

quired to dismantle each of the

which are to remain operating.

Guernsey Frazer, executive as-

4-26-44 ORDER REDUCING **BMI Begins NEV. MAGNESIUM Dismantling of OUTPUT DEFENDED One of 4 Mills** WASHINGTON, April 20 (U.P)-

The War Production Board's order leased in Nevida could be used and requirement board's order cutting back production at the Las rest areas of Los Angeles, San Vegas, Nev., Basic Magnesium ancisco and other centers of Corp. plant by 40 per cent was dewPB official denied a fended today on the grounds that The WPB senator Pat McCarran it would make manpower and fuel a shutdown of four of the ten oil thus saved arounds that fuel emocrat. Nevauar, that end areas where they are urgently are finally down the employed needed.

Director Philip Wilson of the WPB official had ever WPB's aluminum and magnesium per cent. ther WPB office of the division said in a letter to Representative Albert Engle (R., Mich.) O. Case, told the Junior Chamber that the cutback would effect an annual saving of 1,400,000 to 1,600,. Rancho Vegas that it was possible 000 barrels of fuel oil with which to help ease a daily deficit of 120,-000 barrels on the West Coast.

Manpower Needed

Wilson quoted a War Manpower Commission statement that "the mantle a unit than required to 1,600 men who might be released in Nevada could be used most effectively in Group 1 labor areas of Los Angeles, San Francisco and other centers of labor shortage."

The WPB official denied a charge by Senator Pat McCarran (D., Nev.) that the cutback decision was influenced by former Dow Chemical Corp. employees now in WPB.

NINEMUCCA NEW STAR D STATE A 57 1 19, 1944

Four Basic Magnesium Units Will Be Closed On or Before May 31

McCarran Said He Was Returning To Washington to Renew Fight Against WPB Order to Shut Down

Governor E. P. Carville announced Saturday that he had been officially informed that one of the 10 units of the Basic Magnesium. plant at Las Vegas had been closed and that three more will be closed before May 31.

It was also reported Friday night that the war production board had also ordered the closing of units of the Dow Chemical company's magnesium plant in Texas and units of the Permanente plant. in California which produces magnesium.

LAS VEGAS-Part of one unit of the huge Basic Magnesium plant here already has been closed and 40 percent of the world's largest magnesium plant will have ceased operation by May 31. it as learned reliably Saturday.

Frank O. Case, superintendent of the great plant, refused to confirm or deny the report.

United States Senator Patrick A. McCarran, who has led a fight to prevent the closing of any of

closing order, but added: "I am returning to Washing- nesium plant in the face of oppoton immediately to put forth a sition from politicians, organized

dustry be closed." here. McCarran said if the war pro. President of the Basic Refracduction board had issued a clos. tories, Inc., Cleveland, which oring order, he and the United ganized the Basic Magnesium, States senate committee he heads Eells said the company "could will "fight to have such an order no longer ignore the unfair findrevoked."

Stational warmpit minum company of America," Basic Magnesium had "only the McCarran charged.

FROM WASHINGTON

tive Albert Engle, R., Mich., Fri- leal company was the only comday called on the war production pany experienced in the manuboard for the "complete factual facture of the vitally needed war background" of its decision to cut metal and that it had been given back magnesium production at all it could handle, the Cleveland the Las Vegas, Nevada, plant of industrialist said: the Basic Magnesium, Inc.

Director Philip Wilson of WPB's nesium Elektron Ltd., an Engaluminum and magnesium divi- lish company which had magnession for the information, which ium production experience, with he said he expects to use in an- the resources of Basic Refracswering charges voiced by Sen- tories to give the United States ator Pat McCarran, D., Nevada, the magnesium it needed to fight that the cutback decision had the war. Thus, there came into been prompted by influence of being Basic Magnesium, Inc., the the Dow Chemical corporation, company which under our mana Michigan company.

"any remarks you care to make the very extensive project near regarding McCarran's charges Las Vegas, Nevada." that personalities entered into In making the charge of "no the decision" and "any further financial resources" the senate pertinent information." McCARRAN'S VIEW

thin ice."

great interests can dictate that in taxes, After such taxes, Basic such a western plant be closed Magnesium stood to net not up it is time the west fold up in \$840,000, as the Truman com-its fight for industrialization," mittee charged, but perhaps as McCarran said, adding, "I'm not much as \$100,000, he said. willing to admit we are ready to "By the fall of 1942 were fold up."

hoodwink the people."

TRUMAN UNEAIR

CLEVELAND-A "public whipping at the hands of the Truman THROW YOUR SCRAP INTO committee is the reward of Basic

the plant said he had seen no Magnesium, Inc., for successfully completing the Las Vegas magrenewed and determined effort to gambling interests and fixers," see that none of this great in Howard P. Eells, jr., charged

ings of the Truman committee," It was stressed here closing which chose to overlook the facts in its March 13 report, declaring most meager experience . . . no financial resources . . stood to net \$840,000 yearly"

WASHINGTON - Representa- Pointing out that Dow Chem-

"We conceived the idea of Engle said he had written to merging the know-how of Magagement designed, in major part Engle specifically asked for built and brought into operation

investigating committee neglected to observe that the govern-Recently in Reno McCarran ad- ment wanted it that way, Eells mitted the fight to keep the big said. In this way, 80 percent of plant here in operation was "on whatever was paid in management fees would automatically "If the time has come when the be returned to the government

so hampered by many-sided in-One report here today was that terference, largely inspired by officials of the WPB in issuing continual political attacks," Eells the closing order had requested said, "that we were glad to turn no public announcement be made. the responsibility over to able To that rumor McCarran said: Anaconda Copper Mining com-"There is no reason for secrecy pany, whose president James R. if such an order has been tssued Hobbins, has since been kind unless an effort is being made to enough to say that 'a remarkable job was done in conceiving and building this plant from the grass roots."

THE FIGHT'

APRIL 2" INAL

One of the nation's leading here's one crisis you won't have aviation experts predicts that air to worry about A-tall transportation will accomplish what no other means of travel has been able to - the develop- Philadelphia, which for six China. He says rail and highway -not synthetic rubber, has rescale, are impractical because of to fold up. Although only a minranges covering the entire coun-try. Mountains don't bother air-tall and cost \$150,000. It was detances. Hence, he forecasts, China to American conditions a Russian war.

-which is that we're able to pry agriculture. China loose from the grasp of Japan. When a news item appeared not long ago quoting way anese leaders as stating the war would last 100 years and Japan would for such a lengthy successful, and that in overcom-

ler warned the other day that ment and is now to be sabotaged. the Japanese are now driving by curtailment. through the heart of China with a view of dividing the north and the south, destroying communica- ator Pat McCarran to eastern intions systems between the two, and forging a ring of steel around sirous of eliminating post-war the forces of Generalissim o Chiang Kai Shek. If this is suc-field. The plight of the Philadelcessful, says Chandler, we must phia rubber plant is charged by be prepared for a LONG war the press of Philadelphia as which MAY last 100 years, unless chargeable to the big oil compan-

A New York store, advertising its fur storage facilities in the newspapers, rhapsodizes: "Oh-h-h, Mairzy doats but touched off by the belated dis-mothzeat coats 'n' mothsull nib-closure that 23 American transble foxes - moth'llmunch sable port planes were shot down by

find out ere long.

From Where 9 Sit

around the corner - maybe we'll

By A E Cahlan

A government pilot plant, near ment of the sleeping giant that is months has been producing real construction on any sizeable ceived orders from Washington the numerous rugged mountain lature of apparatus required for planes - neither do great dis- signed exclusively for adapting will come into her own after the process of producing rubber from latex of the Russian dandelion. kok-saghyz, the work being car-There's an IF in there of course ried out under the department of

Laboratory officials say the would last 100 years and Japan was prepared for such a lengthy siege, most of us here in the United States laughed right out loud at the effrontery of the Nips. But ernment a profit on the invest-

BMI's plight is charged by Sendustrial interests which are dewe in the United States decide to quit short of final victory. ies, interested in protecting the synthetic rubber industry from post-war c ompetition. So where's the Truman Committee?

to, wouldn't you?" NOW we've seen everything! Then there's the headline in the New York Herald Tribune: "Backs Must Be As Well Groom-ed as Faces to Do Justice to the New Uncovered Look." Omigosh, what do you suppose THAT what do you suppose THAT harmful to military security. means? Summertime's just

That's a grand idea, but it seems we've heard it before, not once but many times. But then, And here's something for the perhaps, the UMTEENTH time tipplers to moan about, as if they may prove a charm. Here's The synthetic rubber program is using up alcohol at the rate of War Production Board e x p ert calculates. So — if you don't indulge you should be happy — $\frac{1}{100}$ perhaps, the UMTEENTH time may prove a charm. Here's hoping. Hoping also it will apply to the campaign in Burma and India where British censorship has been so complete we haven't heard many of the actual facts of late according to cables British newsmen have sent their home papers.

> E.F. CAL, WALL STREET HOURNAL APRIL 27, 1946

Basic Magnesium Cutback

LAS VEGAS Nev.-Basic Magnesium, Inc. it is disclosed, has received orders to take four of its ten production units out of service, but to keep the units ready for immediate resumption when and if ordered. Basic's officials believe that selective service removals and runoff will care for the employment situation and employes have been advised that "the switchout is not going to cause any widespread

Cutbacks of 50% for Electro-Metallurgical Co., Spokane, and Permanente Metals, Mantecor Calif., were ordered in March.

BASIC PROJECT WILL CONTINUE, KELLEY STATES

PENO, NEV., MINING PRESS

MAY.

'It's No War Baby,' Head of Anaconda Declares

Cornelius F. "Con" Kelley, outstanding figure for many years in the mining world and chairman of the board of Anaconda Copper Mining Co., world's largest copper producing and fabricating enterprise, accompanied by James R. Hobbins, president of Anaconda, lately inspected the huge Basic Magnesium Inc. plant near Boulder dam, now controlled and operated by Anaconda.

Chairman Kelley, who made many acquaintances at Goldfield during visits to that camp during the boom period, was born at Mineral Hill in Eureka county, Nevada, 40 miles north of the town of Eureka.

During the seventies Mineral Hill was one of the most productive districts in the state, with output of lead, zinc, silver and gold placed by the Directory of Nevada Mines at \$6,600,000. Old producers in the district are now owned by Senator James G. Scrugham of Nevada. (Continued on Page 6)
BASIC PROJECT WILL CONTINU **KELLEY STAT**

(Continued from Page 1)

Quoting the heads of the great metal producing corporation during a reception tendered them at Las Vegas, the Review-Journal of that town published the following report:

'It has always been my ambition to build permanently. Basic Mag-nesium will not be a war baby if the metallurgical skill and management of Anaconda Copper can help

"I am a born optimist and it is my sincere hope that in the light metal era that is to follow the war, our plant will take its place com-petitively."

This statement by "Con" Kelley, made to a group of southern Ne-vadans, told the story of the future of the great light metal plant as viewed by the chief executive of the vast western mining concern now operating BMI.

Kelley explained there were many problems facing the company be-fore this could be realized, but pledged that all the scientific brains of Anaconda would be turned to the job of making the plant work

competitively. A native Nevadan, who made his way to the top from the ranks, Kelley revealed a warm spot in his heart for the state of his birth, and re-ferred feelingly to his early days in Eureka county.

Commenting on his company's operation here, Kelley said: "Driving by you see a definite huge plant out there on the hillside, but when you see it from the inside and realize the intricate mechanical electro-metallurgical and technical installations, you gain some appreciation of its magnitude. "A truly marvelous job has been

done in the conception, design and construction of this project."

Paying tribute to the mining industry generally, the industry that has been his life, Kelley declared: "The only enduring things which stand as a monument to man's scientific advancement in this world came from the mines and the quarries.

The Anaconda chief thanked the group for the "splendid cooperation given our company since we came in'' in" and urged its continuance "to the common goal of a successful enterprise.

James R. Hobbins, president of Anaconda, paid compliment to Kel-ley as one of the nation's outstanding mining men, and discussed some of the problems that must be solved to assure the future of BMI.

"We are making progress stead-ily," he declared. "We are giving this project the best scientific brains the mining industry affords, and we are producing magnesium in ever-

Right now, the process is mak-ing more magnesium than its de-signers ever dreamed it would. The ing more more more produced the honored ing more magnesium per unit than anybody connected with the company ever hoped for. The results have been most gratifying."

Hobbins outlined the manner in which Anaconda came into the company originally, and said it was by invitation "of government officials,

Howard Eells of Basic Refractories effort.

"During the negotiations and since, Eells has been most cooperative, and we must never forget that it was his vision, energy and deter-mination that brought this project into being," the Anaconda president declared.

"A remarkable job was done in conceiving and building this plant from the grass roots to its present stage of near-completion.

"There were mistakes made, that is true, but they will all be rectified as time goes on. The main thing now is that we're producing magnesium in quantity for the nation's war

feeder belt. A Dorr duplex classifier Hobbins likewise praised the spirit of cooperation his company had found among the people of Nevada and said it had been an important factor in "making things go,

The reception for the two Ana-

CIT CAE PACIFIC FACTORY

MAGNESIUM

Highly critical material is reaching toward its maximum production in Nevada desert

The vast Basic Magnesium plant at Las Vegas, which has been producing while still under construction, is now approaching its full 100 per cent output.

Less than two years ago, the site was just a desert mesa. In April of 1941, H. P. Eells Jr., of Cleveland, and Major Charles Ball of London, England, proposed that OPM build a sizeable plant to be built by the Government and operated by Basic Magnesium, Inc. The project was financed by the Defense Plant Corporation. Immediately, 14,000 carloads of material and 77,000 tons of material brought by truck were assembled on that lonely desert site, and now there is a \$100,000,000 production plant whose capacity is said to be many times the capacity of magnesium plants in the whole United States in 1941, only two years ago.

The site for the plant was chosen because there was ample electrical power, an unlimited water supply and an unlimited deposit of magnesium ore

PACIFIC FACTORY

Giant silos, of teet nigh, for the storage of raw materials (basic magnesium).

plant is a direct offspring of Boulder a bed of carbon bricks upon which Dam, with its water and electricity the pellets are melted. As they melt, ready to be put to use.

Magnesium, with various alloys, is used for many purposes. It is used in the construction of castings, wheels, aircraft engines, sheet forgings and many other things where lightness and strength are necessary. Blended with other materials it is also used for flares, tracer bullets or incendiaries.

The production method is explained by the company as follows:

The ore is mined, concentrated and calcined at the mine. The resulting magnesium oxide is then shipped to Basic Magnesium. This material is ground up, mixed with coal dust and other substances and formed into little pellets about the size of walnuts, or into small bricks. The pellets or bricks are placed into kilns and are subjected to considerable heat which dehydrates them. The bricks or pellets are then placed in a chlorinator, a large cylindrical furnace heated to 800 or 900

22

within a reasonable distance. The degrees Fahrenheit. This furnace has

conditioned dwellings fer the workers. This "city" is now in use and this former lonely desert mesa is one of the great centers of industry.



A NEVADA PYRAMID - Peat storage building, built in this form to hold spreading peat poured in from top.

PACIFIC FACTORY



Giant silos, 84 feet high, for the storage of raw materials (basic magnesium).

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within a reasonable distance. The degrees Fahrenheit. This furnace has



A NEVADA PYRAMID - Peat storage building, built in this form to hold spreading peat poured in from top.

a stream of pure chlorine gas passes through the furnace.

The result is a molten mass of magnesium chloride which is tapped off and placed in an electrolytic cell which looks almost exactly like a large tiled bathtub. In these bathtubs a strong electric current is passed through the molten magnesium chloride. This current causes the molten magnesium to separate from the chlorine and come to the surface, just as cream comes to the surface of milk. This "cream" is ladled out of the bathtub" by hand.

The liquid metal looks like water and pours like water. It quickly hardens, like molten lead, when poured into bar molds.

The chlorine is returned by pipe to the chlorinators. The magnesium is sent to the shippers or alloyed with manganese or other materials.

The unusual shapes of furnaces and cells at the plant required 2400 different shapes of bricks during construction. Because of the dry climate, the mortar used in construction had to be mixed in small quantities and kept on ice until used; otherwise it would set too quickly.

The builders had plenty of construction problems and they incidentally had to build 1000 pre-fabricated, airconditioned dwellings for the workers. This "city" is now in use and this former lonely desert mesa is one of the great centers of industry.

PACIFIC FACTORY

former secondary to the cast copper shaft housing can be brought down through the shaft. The circular copper alloy short circuiting bar, the upper face of which is contoured to fit the inside of the tank, is mounted horizontally below the two welding wheels.

When the two wheels contact the tank skin the welding circuit is closed by the short circuiting bar. Since the welding current flows through the sheets at two points, two welds are made simultaneously and the 360 degrees of welding is completed in approximately 185 degrees actual rotation of the upper heads.

Bulkheads are then welded to both the left and right hand skins, seven to each shell. This is done in two special semi-automatic welding machines, also designed by Lockheed, the first of which welds three bulkheads in place, the second the remaining four.

The half shell is placed in the machine, where it is supported at the bulkhead stations by copper alloy electrode bars which are machined to exactly fit the outside contour of the (Continued on Page 34)



TRANSPORTATION TO TOKIO - Finished product, ready to put aboard warplanes.

MAGNESIUM

Highly critical material is reaching toward its maximum production in Nevada desert

The vast Basic Magnesium plant at England, proposed that OPM build a is a \$100,000,000 production plant Las Vegas, which has been producing sizeable plant to be built by the Gov- whose capacity is said to be many sizeable plant to be built by the Gov- whose capacity of magnesium

while still under construction, is now ernment and operated by Basic Mag times the capacity of magnesium times the capacity of times times the capacity of times times the capacity of times times times the capacity of times approaching its full 100 per cent out nesium, Inc. The project was financed Less than two years ago, the site Immediately, 14,000 carloads of mateby the Defense Plant Corporation. was just a desert mesa. In April of rial and 77,000 tons of material because there was ample electrical 1941, H. P. Eells Jr., of Cleveland, brought by truck were assembled on power, an unlimited water supply and and Major Charles Ball of London.

plants in the whole United States in

and Major Charles Ball of London, that lonely desert site, and now there an unlimited deposit of magnesium ore

Los Angeles

Casual consideration of the changes which have dustrial area to second place in total value of war come over Pacific coast industrial areas since Pearl goods production. It is exceeded only by Detroit, Harbor might lead one to the conclusion that full but has the advantage of far wider spread in benecredit belongs to government officials who planned fits because here is much more variety in industrial our war production program. plants.

But most of the men, materials, machines, and One outstanding thing about the area's war money we have stacked on the boards throughout effort, which gives unmistakable evidence that the this western country during the past year and more western pioneering spirit yet prevails on the Pacific were there before the government called for them. coast, is the fact that, although ranking second in Some of them were there before officials in Wash- war production for the nation, the Los Angeles in-

ington knew we had them, and some we were compelled to ballyhoo vigorously before they would believe our claims.

Uncle Sam has demanded production for total war. We are giving it to him. Everywhere in the whole of these Pacific coast states where necessary materials are at hand or can be brought from anywhere in the world, men have been and are now



CITY HALL'S tall tower rises above buildings of the Los Angeles civic center. Los Angeles River viaducts are in the foreground.

busy at the job of production for total victory.

The industrial area around Los Angeles, while exceeding in magnitude any other such area on the Pacific coast, is typical of all other areas. A few highlights of achievements here and of future prospects are, therefore, only reflections of the work of free men throughout this great western empire, value of 1940 by a wide margin, because much of Southern California's varied inforests, and fields all over the west.

throughout southern California, since Pearl Har- it had to be a military secret.

21

INDUSTRIAL GIANT OF THE

many's and be four times greater than Japan's.

In dollar value, 1942 aircraft made here equalled two-thirds of the total automobile passenger car production value of the United States and Canada in the best auto year. In 1943, this county's aircraft production will exceed all automobile passenger

The Los Angeles County aviation industry alone dustry is supplied with materials from mines, mills, would support an entire city the size of Cleveland, Ohio. There were four major aircraft companies Today there are 500,000 people employed in all here in 1939, with 16,000 workmen. In 1940, Deindustries of Los Angeles County. Another 100,- troit employed 191,000 in automobile production, 000 are expected to be employed within six months. but by the end of 1942 the major aircraft compan-More than 6.000 factories are listed in the county. ies, parts suppliers and subcontractors in this area How rapid has been the expansion and change employed so many more workers than Detroit that

bor, may be partially glimpsed in the change of The only way to compare airplane production is Los Angeles County from the nation's fifth in- by weight. One Flying Fortress is equal to 10 basic

dustrial area has accomplished its record with less government financial aid than any other industrial area of the country.

Outproducing The Axis

During 1942 the aircraft companies of Los Angeles County outproduced all of Germany and more than doubled the entire Japanese output, and this year's production will double GerMay, 1943

PACIFIC COAST REVIEW

May, 1943

PACIFIC COAST REVI

"CAN'T HOLD BACK on the boys in our Armed Forces!"

You betchal Our boys deserve the best of everything. That's why the majority of C·H·B Quality Foods now go to the Army, Navy, Marines, Air Corps and Coast Guard.

"CHB is working hard to fill your grocer's orders for these delicious foods, tool But remember ... we Can't Hold Back on Uncle Sam's boys, and you wouldn't want us to!

"So if your grocer is temporarily out of the C:H-B item you are looking for, why not try some C:H-B variety you haven't tasted before ? They're all grand!"

CAN'T HOLD BACK

War Bonds & Stamps, either

ttle Miss Pickle Puss

ICKIES

Reproduction of advertisement "CAN'T HOLD

Just a little Better ... but what a difference

CATSUP - PICKLES

CONDIMENTS

Thank vou. Mr. Dealer!

CROWE-ROBERTS CO., INC., 114 Sansor BERT LEVI BROKERAGE CO., 1340 East é O. B. GUFLER CO., 203 S.E. Alderir everybody. Here at C·H·B we've O. B. GUFLER CO., 3010 Western ; your orders and orders for "the ans "CAN'T HAVE BOTH." But UNITED STATES PRODUCTS CORPORATION, hey come first and we want you to ration and 100% patriotism. And you all the C:H·B Products we can. Thursday, May 20, 1943

MAY 21 1943 **Dolomite Process Termed Success By Mines Bureau**

tensive research, the United States bureau of mines announc-ed that it had developed a pro-ded that it had developed a pro-cess whereby a 400,000,000-ton dolomite deposit near Las Vegas, in the Boulder dam area, could be utilized to produce "many millions of tons" of magnesia which is a raw material of mag-nesium, the highly-important lightweight metal used exten-sively in airplane construction.

In describing its successful quest of a method for extracting magnesia from the dolomite, the bureau at the same time dis-closed that it also had developed a new electrolytic process for turning this magnesia into metal-lic magnesium. lic magnesium

Secretary Harold L. Ickes, who characterized the bureau's dis-coveries as "noted contributions coveries as "noted contributions to the department's program of providing needed war metals," stated that the bureau has suf-ficient data to operate a small commercial-scale plant to process the dolomite and thus pave the way for development of the im-mense deposit by private inter-ests ests

The bureau reported that the recovery of high-quality magne-sia from the dolomite resulted from studies conducted at its lab-

aia from the dolomite resulted from studies conducted at its lab-oratories and pilot plants at Boul-der City. While one pilot plant turned out magnesia, another was oper-ated to produce metallic magne-ium by a new electrolytic pro-cess in which the oxide is added directly to the electrolytic bath. Bureau engineers have pointed out that the dolomite deposit, which is at Sloan, 19 miles southwest of Las Vegas, could be developed to serve the new plant of Basic Magnesium, Inc., at Roy-son, near Las Vegas. This plant, destined to be the largest in the nation, now pro-duces metallic magnesium from magnesia extracted from magne-

duces metaint magnesium from magnesia extracted from magne-site at its property in the Para-dise range, Nye county. This magnesite must be treated in a \$5,000,000 milling and cal-cining plant 32 miles from Lun-ing, and then transported more than 1,000 miles by rail to the than 1,000 miles by rail to the magnesium plant of Basic Mag-nesium, Inc., at Royson, since there is no direct railroad con-pection between the main plant and Luning.

In seeking to eliminate the need for such a long haul, the bureau launched its experiments in the Sloan dolomite and also is conducting research on the pos-sible utilization of low-grade magnesite deposits which are

magnesite deposits which are closer to the magnesium plant. Owned by the United States Lime Products corporation, a portion of the Sloan dolomite-deposit has been worked by that company since 1927. Calcined delomite and limestone produced by the company are sold princi-pally to steel mills for flux. The instant underlies the dolomite in the information the docuntion.

RENO, May 19 (Special)—As cost considerably less and could the result of many months of in-produce from 30 to 50 tons of tensive research, the United magnesia daily. Such a plant, if

Banc Magnesium, Inc., which is scheduled to produce even-insity 112,000,000 pounds of mag-nesium metal annually, will re-quire about 300 tons of magnesia daily when it reaches full ca-pacity, the bureau has been in-formed.

Bureau engineers have found that a processing plant to handle aufficient dolomite to produce 300 tons of high-quality magnesia daily could be built for about \$2,500,000.

The proposed small-scale plant suggested by the bureau would

Las Vegas, Nevada · · With the first refinery unit going into operation, Basic Magnesium, Inc., reached the point of 50 percent production in March March, it was announced. . .



"Labor Freeze" or Else. Spare Tanks for Planes.

MAY

1943

INDUSTRIAL PLANT SECTION (Page 25) Read, check (~) + passon PRESIDENT GENERAL MANAGER PURCHASING AGENT PLANT MANAGER PLANT ENGINEERS SHOP

May, 1943 468 FOUNDED 1910

BMI Production To Be Cut 40 Per Cent By May 31st

Part of Unit Said Closed Already; McCarran to Renew Fight Against WPB's Order

Gov. E. P. Carville announced last night that he had been officially informed that one of the ten units of the Basic Magnesium plant at Las Vegas had been closed and that three more will be closed before May 31,

It was also reported last night that the War Production Board had also ordered the closing of units of the Dow Chemical company's magnesium plant in Texas and units of the Permanente plant in California which produces magnesium.

LAS VEGAS, Nev., April 14. (UP)-Part of one unit of the huge Basic Magnesium plant here already has been closed and 40 per cent of the world's largest magnesium plant will have ceased operation by May 31, it was learned reliably today. Frank O. Case, superintendent of the great plant, refused to

onfirm or deny the report. U. S. Patrick A. McCarran, who has led a fight to prevent closing any of the plant said he had seen no closing order, but

LOS ANGELES CALIF. TIMES OF. 200,000, Sunt Cir. 530,000 APRIL 12, 1944

New Industries

Aid Need Urged

The industrial East does not

Jay Carpenter, director of the

State Mining Bureau of Nevada,

made this statement yesterday

at a meeting of the Mining As-

sociation of the Southwest. Ha

said he thought the big indus-

trial centers east of the Mis-

sissippi would gladly see the

West's gigantic new industries

He pointed to the great steel

plants in Utah and at Fontana,

the Basic Magnesium plant at

Las Vegas, and the Permanente

plant in the Bay district, He

declared these should be kept

permanently active, if for no other reason than that of sup-

porting the mines which supply

their raw materials, so the peo-

ple who operate the mines can

The association voted to join

with other mining organizations

of Western States in urging State

mining bureaus to insist that

Congress give careful thought

to the mining industry phase of

postwar planning, in order to

avoid the creation of a large

crop of new ghost towns in the

APRIL 14, 1944

RIVERSIDE, CAL, PRESS

Facts Sought in Cut Back

WASHINGTON, April 14. (IP)

WASHINGTON, April 14. (19) -Rep. Albert Engie, R., Mich., to-day called on the War Produc-tion board for the "complete fact-nal background" of its decision to out back magnesium production at the Las Vegas, Nev., plant of the Basic Magnesium, Inc. Engle said be had written to Director Phillp Wilson of WPB's alumbum apel magnesium division

Director Philip Wilson of WFB's aluminum and magnesium division for the information, which he said he expects to use in answering charges voiced by Sen. Pat McCar-ran, D. Nev., that the cutback de-cision had been prompted by in-fluence of the Dow Chemical cor-position of the Dow Chemical cor-

poration, a Michigan company

At Basic Magnesium

survive.

West.

languish after the war.

think new industries in the West

will long survive the war.

"I am returning to Washington added: mmediately to put forth a resee that none of this great indus-

McCarran said if the War Pro-duction Board had issued a closing try be closed." order he, and the U.S. senate committee he heads, will "fight to have

mittee he heats, will tight to have such an order revoked." It was stressed here closing of the plant will not result in "a great exodus of workers." It was ex-plained the B. M. I. organization for months "has been preparing for such an eventuality," and in many instances has not replaced men in the 26-year-old and under wage group as they are called into serv-

When in full operation B. M. I. was producing approximately 160 was producing approximately 160 tons of magnesium daily from the ten units of the plant. At one time more than 10,000 men were emyed, but normal employment

as opproximately 5,400. Was approximately 3,300. Since it was first rumored the War Production would order clos-ing of part of the B. M. L plant McCarran has led a determined ight against such edict.

Nevada's senator has claimed repeatedly the order is based on influence of the Dow Chemical Co., a competitor of B. M. I. in the projuction of the vital metal.

"There are representatives of competing companies on the War Production Board who desire to protect the interests of the Dow Chemical Co. and the Aluminum Co. of America," McCarran charged.

Mich., today called on the War Production Board for the "complete factual background" of its decision to cut back magnesium production at the Las Vegas, Nev., plant of the Basic Magneslum, Inc.

Engle said he had written to Director Philip Wilson of WPB's aluminum and magnesium division for the information, which he said he expects to use in anering charges volced by Sen. Pat McCarran, D., Nev., that the cutback decision had been prompted by influence of the Dow Chemical Corp., a Michigan company.

Engle specifically asked for "any remarks you care to make regarding McCarran's charges that personalities entered into the decision" and "any further pertinent information."

Recently in Reno McCarran adnitted the fight to keep the big plant here in operation was "on

"If the time has come when the great interests can dictate that uch a western plant be closed up at is time the west fold up in its light for industrialization," Mc-Carran said, adding, "I am not illing to admit we are ready to

hat rumor McCarran said: "There is no reason for secrecy such an order has been issued mless an effort is being made to oodwink the people."



BMI were shooting the breeze after a Las Vegas newspaper the Review Journal - scooped the country with the story about the partial shut-down at the world's largest magnesium plant.

"Seems as how this free country under government of, by and for the people," one grimy chap was saying, "is taking an awful beating because some of the 'bythe-people' gang are letting us

The group edged their lunch puckets over the sand and shuffled closer to the speaker. "Yea," went on the war-worker, "even I remember how a native Nevadan — or did he, too, migrate from the East — not so long ago in the senate at Washington discredited this plant and every-thing connected with it. This guy was a senator from this state and purportedly represented all the people of Nevada for awhile. He planted the seed that created doubt in the minds of the Washington chair-warmers who run the nation and rule the people.

"Jim Scrugham licked him at the last election but a lot of dam-age had been done. Pat McCarran and Jim have had a hell of a time trying to undo all the harm this bird did," resumed the speaker, flushing slightly as he warmed to his topic. "Is it any wonder, then, that the WPB and various powerful directing bur-eaus, perhaps egged on by the mighty influence of Dow and Alcoa, as suggested in Senator Consent provide the senator Consent provide the senator Truman's report, make no bones general manager to sign for the bout their attitude toward stuff.

Others joined the discussion and soon many overalled partici- Clare Cameron, president of pants were exchanging impres- the student body council at Basic

payers money be buttoned up by

about it?

ince with headquarters somewhere in Australia, writes under a month-old date line: "I hear there are rumors of BMI being put on the shelf. Too bat the dol-lar-a-year plane rider, of the hand-made bureaus can't spend a little time over here. They should have been on that first hair-raising trip of mine to Bougainville and Munda. They'd open a dozen more magnesium plants bigger than BML."

Chuckles greet the yarn Bob Shuler, surplus stores sales, tells about the fellow who came to the DPC sales warehouse to buy a couple of garden tools. Charges came to slightly over \$4. Bob had no change. "Come back when you get the right change," said Bob to his customer. "Can I sign for it and pay later?" inquired the man. "Nothing doing," says Bob, "no dough, no tools

L.V.R. JOURNAL 4-20-44 BMI Cut Defended By WPB Chief in

Statement Today WASHINGTON, Apr. 20, (UP) The war war production board's order cutting back production at the Las Vegas, Nevada, Basic

Magnesium corporation plant by 40 per cent was defended today on the grounds that it would make manpower and fuel oil thus saved available in other areas where they are urgently

needed. Director Philip Wilson of the WPB's aluminum and magnesium division said in a letter to Representative Albert Engle, repub-lican, Michigan, that the cutback would effect an annual saving of 1,400,000 to 1,600,000 barrels of fuel oil with which to help case a daily deficit of 120,000 barrels on the west coast.

Wilson quoted a war manpower commission statement that "the 1,600 men who might be released in Nevada could be used most effectively in group 1 labor areas of Los Angeles, San Francisco and other centers of labor shortage

The WPB official denied a charge by Senator Pat McCarran, democrat, Nevada, that the cutback decision was influenced by former Dow Chemical corporation employes now in WPB, Wilson said neither he nor any other. WPB official had ever worked for Dow Chemical or for any "prospective competitors" of Ba-sic Magnesium.

pants were exchanging impres-sions as only American working-men can at their noon meal. The trend of expression seemed to be for an adjustment that would permit the voice of Mr. Average Man to be heard by official gov-ernment. Many wanted to know how, all of a sudden, such agencies as ap-pear in the alphabetical align-ment had been given such over-whelming power as to even sug-gest that an entity involving many millions of dollars of tax-payers money be buttoned up hy

a snap of the finger. The group appeared to believe that Nevadans, from the gover-nor on down, should make their bioticare known to the press. Scores of friends of genial, white-haired John L. von Elon, former managing editor of BMI's BOMBARDIER (plant publicanor on down, should make then objections known to the presi-dent and WPB. Workers at BMI accept the story of the partial shut-down as a challenge. What is Nevada going to do heat is 2 will be missed around the books and corners of the big plant.

APRIL 15. 1944

BMI Gets Order **To Cut Production** Four of Ten Units at Las Vegas Plant

Acting on orders from the war production board, the Defense Plant corporation has instructed the management of Basic Magnesium, inc., at Las Vegas, world's largest producer of the light metal, to shut down four units of the plant within the next two months.

The plant, constructed at a cost in excess of \$125,000,000, has ten units, and when the WPB order is fully effective, the plant will continue operation at sixty per cent of rated capacity.

Shutdown of each unit is estimated to require two weeks. The work of closing down the first unit is now under way and compliance with the WPB order will be accomplished by June 1.

During the shutdown period, it was reported in Las Vegas, employment at BMI may be even larger than now. The four units which

are being closed down will be !maintained on a stand-by basis and it is believed that there will be no arge reduction in employment at BMI even when operating on a sixty per cent basis.

No change in the employment level at Gabbs valley, where the magnesite is mined, is anticipated for 90 to 120 days as a large stockpile of the raw material is to be built up at the Las Vegas plant.

The WPB order curtailing production was not unexpected as a number of other producers of the light metal have previously been closed down. It was reported in Las Vegas today that the magne-sium plants at Dearborn, Mich., and Lake Charles, La., have been completely shut down, while those at Spokane, Wash., and Manteca, Calif., are operating at fifty per cent of capacity and a New York plant has been reduced to thirtyfive per cent capacity.

Management of the BMI plant, which is owned by the Defense Plant corporation, has been in the hands of Anaconda Copper Mining company for the last year and a Under Anaconda managehalf. ment, the plant reached its rated capacity July 1, 1943, and since that time has been operating above its original estimates.

Cost of the finished metal has steadily declined, although no major plant changes have been made. In March, 1943, cost per pound was reported at 53 cents while in March, 1944, this figure had been reduced to 22.5 cents pound. Gov. E. P. Carville said today

that although he had received no official notification, he had heard from a reliable source that four units of the basic magnesium plan at Las Vegas would be closed by June 1

Carville said that in view of the fact that closing of the units of the plant not only affected the southern part of the state but the whole of Nevada, he folt it his duty to inform the entire state of the contemplated action

hemselves accordingly.

1.500 men from Basic.

unnecessary.

The third reason was that the transportation of magnesium from Basic to the East created a bottleneck and that transportation of peat moss from Canada to the plant at Henderson was a further waste of railroad facilities. But the Union Pacific and the Office of Defense Transportation report that 600 cars pass eastward through Las Vegas daily in 10 trains of 60 cars each. Between 60 and 70 per cent of these are empties. Basic requires five cars a day to transport its capacity output of

magnesium to the East. Investigating the

Bill Streek, formerly in time-keeping, now in Army intelli-board send 73.

Bill presents a new light on

"Will you be kind enough to

"what's your name and

Will Be Shut Down by Order of Agency

L.V.R.JOURNAL

Ore as vice-chairman.

About 60 men were in attendance at a banquet at the BMI cafeteria Saturday evening, from Basic, Manganese Ore and Boulder City. The meeting was for the purpose of starting a preliminary organization of the American Institute of Mining Engineers in this area. Jay Carpen-ter, secretary of the Nevada sec-tion of the AIME, from Reno, was the speaker of the evening and told of the history of mining in the state of Nevada. He also ex-plained the benefits of becoming a member of AIME and urged those not belonging to join. A temporary set of officers were elected which include H. G. Sat-terthwaite of BMI as chairman and A. J. Hoffman of Manganese

> PHOENIX, ASIZ., MINING JOURNAL A2811 15, 1944

SENATOR McCARRAN FIGHTS THE proposal to close down four units of the Basic Magnesium, Inc., plant at Henderson, Nevada, is meeting with considerable opposition in Nevada, the fight being lead by Nevada's Senator Pat Mc-Carran. After hearing that such an order was drafted and awaiting the final ap-

proval of the War Production Board, Mc-Carran interviewed Philip Wilson, chief of the aluminum and magnesium section of the WPB, to ascertain the reasons given for shutting down these units. McCarran then investigated, got the facts, and countered each argument.

The shortage of oil in the West and especially in Los Angeles was advanced as a reason for closing the four B. M. I. units and diverting Boulder Dam power to Los Angeles. Petroleum Administrator Ickes, however, states that little or no saving of oil would be accomplished by such a move; the supply of oil in the West is increasing; and that soon gas will be available to operate the two Los Angeles steam plants, now closed for lack of oil, making all oil

The charge that 1,500 men could be released from Basic by shutting down these units and used in Los Angeles, where labor is scarce, was shot by War Manpower Commissioner McNutt who stated that there is no housing for additional workers in or about the Los Angeles area and so there is no opportunity to utilize the

L.V.R. JOURNAL Aslanda.

4 BMI Units Said Ordered Closed

RENO, Nev., Apr. 14. (Special) It was reliably reported here in official circles that a WPB order has been issued to BMI to close one unit of the plant immediately and three others by May 1. The order, it was understood,

is the same one which was issued by WPB several days ago, but never has been seen by anyone in official capacity outside of WPB,

LAS VEGAS AGE 4-16-44

Passing Thought: Wonder why Assistant Secretary of War Pat-terson hasn't officially entered the battle for BMI? Remember the telegrams he dispatched to the thousands of war workers here when the first cheese of magnealum was ladled in August

General Motors Corporation has been begging WPB for more magnesium for their diesel engines. So have several other big parts manufacturers. In the face of this need for the lighter metal it appears that a fabricating plant at the BMI site is a war necessity. It is quite plaus-ible that WFB thinks the war is over, but they'll have a hell of a

job juying to convince the mere in uniform in the south Pacific and Italy that such is the case.

An old timer in Las Vegas business circles says that with proper leadership fifty thousand signatures of Nevadans could be obtained on petitions demanding that the proper government authorities provide a rolling mill at BML This, he says, will relieve the bottle nec't caused by the failure of fabrication to keep up with production.

What's a thousand tons of magnesium in reserve compared to the nation's war time needs It took three days for BMI to replace the magnesium that our airmen dropped over the side in two hours when they "Coventried" Cologne.

And we haven't started yet on Japan!

Magnesium Maggie says she sees where Berkeley Bunker is going to run for congress against Maurice Sullivan for a seat in the lower house.

In the same breath she mumbles something about the shock to Howard Eells. Wonder what she meant?

peat moss question, it was discovered that when the Anaconda Copper Mining Con pany took over the management of B. M. the plant process was changed to as to dispense with 40 per cent of the peat mos originally required and that within the next few months all use of peat moss will be abandoned.

"The whole thing," Senator McCarran is quoted as saying, "is brought about by the Dow Chemical Company and the American Aluminum company for shutting off a threatened competitor." He estimated that if the four units were closed, it would cost \$625,000 per unit to rehabilitate them in the event the plant were purchased by private interests. The four units cost \$53, 000,000. The senator further says, "It would be cheaper to store all the magnesium that will be produced by Basic for the next year in facilities that are available at the plant, than to shut down the four units. Magnesium does not deteriorate in that climate."

6 F. CAL. CHRONICLE MAY 5, 1943

THE SECOND GOLD RUSH IN THE WEST Magnesium Plants Have Big Role in Post-War Plans

Union Carbide and Carbon," at

It, like Basic Magnesium, sepa-

Grand Coulee, and it, too, is run-

Kaiser plants in California-one

at Permanente, which may last,

and one at Manteca, which won't.

Trefethen, "makes magnesium by

the ferrosilicon process. It works, but it's too expensive. The Gov-

ernment asked us to run it dur-

ing the war, but afterward we'll

Of the three plants which re-

main-Basic Magnesium, Electro-

metallurgical and Permanente-

drop it,"

"The Manteca plant," says

The third and fourth are the

ning on a Government lease.

By MILTON SILVERMAN

There is a small but distanguished group of sour-pusses who are now convinced that if Henry J. Kaiser has anything to do with anything, it must be overrated. All his ships, they will assure you, fall apart.

His iron mill isn't making any tron.

And his magnesium plant at Permanente is producing no magnestum-just corpses of victimized workers.

"Confidentially," one of these embittered souls tells me, "production is only about 7 per cent of capacity. And I understand about 50 men have been killed down there."

The Permanente plant, he teels, is a secret weapon installed here by the Japs to kill, maim and waste money.

Unless somebody is trying to fool both the U.S. Government and the Coroner of Santa Clara county, the actual figures tell an entirely different story,

Five men have been killed at Permanente. Three of these deaths occurred when a workman tried to run a grinding machine with high-pressure natural gas.

And although actual production figures are not released for publication, Permanente officials say they are now up to "about three quarters" of capacity. That is not good, but it has been worse -much worse.

There were times when the very mysterious "Fritz Hansgirg" method," which Kaiser bought for about \$100,000, looked like a patented process to produce nothing but bottlenecks. The pysterious Dr. Hansgirg, however, no longer with us-thanks to the FHI and a subsequent reprieve which placed him on an East Coast college faculty-and Permanente has modified its procedure

All this is much more than historical rambling. It means, first, that Kaiser's

men have learned about magnesium the hard way - they've learned it. They have a process which works. They have a factory which will now sit up and say

"I think we've got the thing

CAR PECKS NEV., REVIEW-DURINAL TEAT 12, 1953

We've Made A Friend

Senator Mon C. Walgren, chairman of the Truman subcommittee on light metals, came here this week as a friend of the Basic Magnesium plant, assuring all who discussed the matter with him of a determination to do all in his power to the end that the plant would continue in operation beyond the necessities of the war era.

The senator is quite a student of the possibilities of

About Your Share in Tomorrow (Editor's Note: The war-ore- man on a two-months' roving ated industrial empire of the assignment, during which he West is dotted with new factraveled from Mexico to Cantories and teems with new ada, talked to industrialists, laworkers. To find out what will

happen to those plants and people after victory, The Chronicle sent Milton Silverlicked," says Gene Trefethen of Permanente. "It still isn't perfect, but we're getting better and better, We're sure enough now to tell you on the record that we can. operate after the war and compete with anybody."

That is what we wanted to find

end of the war will find the West Coast with four magnesium plants of which three seem to have postwar importance

which saparates magnesium elecder Dam.

Magnesium had its dark days, It, toe, changed its process and even its management (it's now being run by Anaconda Copper under a Defense Plant Corporation contract), but today the factory is working.

1100 mile haul to bring magneslum ore to the factory, # 300 mile haul to bring the magnesium to the nearest industrial center at Los Angeles, and the Las Vagas climate, which is not conducive to development of a booming industrial center right at the spot.

"This plant," says James Bone of the Los Angeles Chamber of Commerce, "definitely figures in the post-war economy of Southern California.

pend on the cost of production compared with the Dow plant us-

bor leaders, scientists, bankers, and public officials. (This is the eleventh in his series of reports.) ing the sea-water process at Texas City, Texas, and the two plants in

worthern California operated by Henry Kaiser." The second plant on the Coast which looks like a post-war certainty is operated by Electrometallurgical Company, a subsidiary of

Spokane, Wash. It means, therefore, that the rates its magnesium by electricity obtained from Bonneville and

The biggest of these is Basic Magnesium at Las Vegas, Nev., trically with the power from Boul-

Like the Kaiser group, Basic

It has one great advantagechcap electric power.

It has three disadvantages-an

that it can produce more than twice the magnesium that the

"Its successful operation will de-

That is a lot of magnesiumand who's going to use it? When the war ends and nobody wants any more magnesium incendiary bombs, there will be a

few buyers who will need magneslum for gadgets-maybe a few thousand pounds a year. To find a market that will take magnesium by the millions of pounds. Kaiser and Dow and all the rest of them are looking at something much more important-automobiles and airplanes.

whole country turned out in 1939.

Magnesium, two-thirds the weight of aluminum, is already being used for special parts of airplanes. Kaiser has already announced plans to build a 175,000pound air cargo vessel almost entirely out of magnesium. "On the regular market," he

says, "a pound of magnesium is

L.V.R.J. 5/4/43

Shifted To Monday

A shift in schedule will bring

Senators Mons C. Walgren of

Washington and Harley M. Kil-

Walgren Visit Is

worth only about 20 cents. But in an airplane, when it saves weight that can go into cargo or fuel, a pound of magnesium is worth \$400.2

Furthermore, a considerable number of engineers are talking about automobiles made out of magnesium-and some expirimental models have already been built.

They are lightweight cars that can use lightweight engines. They are easy on the purse and easy on gasoline. And anything that goes casy on gasoline will be triply important after the war-for strange things are happening in the petroleum business.

(Tomorrow, in the 12th of his series, Silverman reports on the "strange things in petroleum"-the inside story of a California revolution.

MAY 7, 1943

"It has always been my ambiion to build permanently. Basic Magneslum will not be a war baby if the metallurgical skill and management of Anaconda Copper Co. can help it. I am a born optimist and it is my sincore hope that in the light metal era that is to follow the war, our plant will take its place competitively.

PREDICTS BIG FUTURE

FOR STATE'S BMI PLANT

This statement by Con F. Kelley chairman of the board of directors of Anaconda Copper Co., and echoed by James R. Hobbins, president of the company which now holds control and is operating the big plant at Las Vegas, just about charts its future so far as is possible at the present moment.

These two men know, if anyone does, just what can be expected from the magnesium industry in southern Nevada. And both expressed a determination to make it go-make it worthy of the invetsment the nation's taxpayers have made, and worthy of the faith its founders had when the gigantic project was originally launched.

Of course, as Kelley says, no one can say what the future holds for any nation or any human endeavor. There will be many changes in the economic structure of the world and of the United States. What these changes will mean, no man may say today.

After talking to Kelley and Hobbins, you have no doubt at all but that the great western mining company whose chief ex-

L.V.R.J. 5/3/43

New Department Started at BMI

To speed up employment processes at the Basic Magnesium, Inc., plant, Dr. Roy W Martin has been selected to head a department whose duties will be confined to preliminary physican examination of all male employes, it was announced to-

Men who are accepted by the personnel department will be sent directly to Dr. Martin's office in Basic Hospital, where they will have a complete physical examination prior to final acceptance and actual start of work.

The establishment of this new department of the BMI organization was worked out after conferences between BMI management and A. F. of L., it was reported.

L.V.R.J. 5/8/43

Pat McCarran Is In Las Vegas to

Meet Senators

Senator Pat McCarran arrived in Las Vegas on the U. P. Streamliner this morning to be present when Senator Mon C. Walgren of the Truman committee arrives. to inspect the magnesium plant and confer with company officials.

Upon his arrival here, Senator McCarran announced that most recent word from the Federal Works Administration was that everything possible is being done to expedite approval of the addition to the Clark County Hospital which contemplates using the old building to the fullest extent possible and constructing a new 75 hed addition at an approximate cost of \$485,000.

"I am advised," the senator said, "that because of the scope of the project it is necessary to take time for thorough develop-ment of all phases, But I feel cer-tain it will be realized before long. I intend to keep constantly in touch with this project and to do all in my power to hurry it along."

Senator McCarran also revealed that he had been successful in gaining approval by Defense Plants Corporation for leasing quarters for the post-office at Basic Magnesium, and that he was now turning his attention to get an okeh from the War Production Board for authority to begin construction, secure priorities, etc.

Senator McCarran will remain in Las Vegas until Wednesday when he will take the streamliner back to Washington.

HILLS INCELING CALL WESTWOOD

L.V.A. 5/4/43

Rotarians to See Big Magnesium Plant

Manager Frank O. Case of **BMI Will Be Luncheon Host** at Plant Next Tuesday

Rotarians of the Boulder City and Las Vegas Rotary clubs have been invited by General Manager Frank O. Case of BMI, to be his guests next Tuesday for luncheon and a tour of the great plant. The occasion will commemorate the pouring of the "kettle" of molten magnesium metal which will, mark the plant's advance to the largest producer of magnesium of any plant in the world.

The guests must report to gate I at the plant Tuesday at II a. m. Passes and badges have been arranged for by Mr. Case and guides will be ready to conduct the guests through the plant.

At 12:30 the kettle of magnesium marking the entry of BMI into the world leadership in production of magnesium, will be poured in the presence of the guests

Following the pouring ceremony the Rotarians will be luncheon guests of Mr. Case at Anderson's mess hall.

L.V.R.J. 5/10/43

Senator Walgren In Vegas Today

Senator Mon C. Walgren of Washington, chairman of the light-metals sub-committee of the Truman committee, arrived this morning from Los Angeles for an inspection of the magneplant, and a conference sium with BMI officials regarding the problems facing their organization

Senator Walgren was met by Senator Pat McCarran of Nevada who arrived here Saturday morning to meet his colleague, and the morning was spent on a tour of the plant with F. O. Case, BMI general manager, and Hugh Fulton, chief counsel for the Truman committee who accompanied the Washington solon. Resting this afternoon, Senator Walgren will be the guest of Senator McCarran at a dinner to be held at the Last Frontier tonight, and will then spend tomorrow at BMI, hearing various witnesses discuss the production of magnesium at the plant.

The two senators and Fulton will leave Wednesday morning washington.





Those who have been concern-ced about Senator Pat McCarran's health, will be pleased to know he's feeling fine, in fighting trim, determined to stay on the firing line as long as there's anything of importance to get done. This week, he was forced to choose between two matters he considers most vital: (1) The success of the magnesium plant (2) Adoption by the senate of a pay-as-you-go tax plan. He chose the former and was here

committee members inspecting

gore of West Virginia to Las Veonly the last is privately owned. gas and the magnesium plant Kaiser put his own money at next Monday, according to word stake in that one, and he won't let it crash without some strenreceived here today from Senuous efforts. ator Pat McCarran. On the optimistic side, all three plants may continue.

Senator McCarran is leaving Washington tomorrow to join On the pessimistic, only Perhis colleagues when they visit EMI for a conference with commanente may operate after the pany officials and an inspection of the plant for the Truman war. But, even though it is the smallest of the three, it is so big committee

> Senator McCarran expects to arrive in Las Vegas on the Union Pacific streamliner Saturday morning and will be here to greet the other senators Mon-

FROM WHERE I SIT

- By A. E. CAHLAN

chose the former and was here from Saturday to Wednesday in

order to work with the Truman

nesium. He believes the metal possesses bilities in the world of tomorrow which are not known or understood today. He is proud of the part he has played in the development of magnesium throughout the west, and foresees the day when it will be one of the most important industries out here.

He understands the necessity for getting the cost of production down to a competitive figure and has pledged his good offices to do whatever he can to this end.

He was very generous in his tribute to F. O. Case, general manager, and the entire staff at Basic for the splendid. job being done at the plant, and, while making no predictions, says he's very hopeful about the future of BMI and wants to see it go for Nevada's sake, realizing how much such an industry will mean to the future of this area.

The senator is a westerner-comes from the state of Washington. He is interested in all the west, realizes that to achieve the development possible here, it's necessary to stick together.

Those in touch with the senator during his visit here feel we've made a friend-a valuable friend and a sincere one.

the progress made in production of magnesium.

The senator has placed the magnesium plant number one on his list and is determined noth-ing shall stand in the way of its permanent operation. He and Senator Jim Scrugham are working shoulder to shoulder in this field, and are constantly on the alert for anything that might threaten the plant's future ex-istence. They're a grand fight-ing team, these two, and we're fortunate to have them both in the senate right now.

Announced sometime ago (before the country got up in arms on the subject) as favorable to a pay-as-you-go tax plan, Sen-ator McCarran wants to get back to the capital in time to cast his vote in that direction. He believes it's essential that income laxes be placed on a current oasis and will go along with the senate finance committee in its modification of the Carlson plan, defeated in the house by the narrow margin of four votes.

ecutives they are, will leave no possibility unexplored to bring this big plant into a favorable competitive position in the industrial world after the war,

Already strides have been taken to cut costs of production and Anaconda's staff, headed by F. O. Case and H. G. Satterthwaite, have been in Las Vegas but a few months. That they will succeed in their ambition It is difficult to doubt when you've partaken of the enthusiasm of the men who direct the conpany's destinies.

COME'N GET IF 300,000 pounds of food is required to fuel the bodies of the Basic Mag-nesium Industry project workers each week at Las Vegas, and is one of the commitments of our WVBA member, H. S. Anderson. subsistence contractor of 1063 Gayley av. Here is a break-down of this total:-- a BMI day on the desert starts with eggs for breakfast, 6,000 of them, 'sunny side up'; a staff of 350 KPs go into action to prepare 20,000 meals which is the day's task. The drawdown on the coffee bin is 260 pounds, and the sugar require; ments are 1,500 pounds. For lunch, 5,000 sandwiches are prepared: 9,000 bottled pints of milk, plus 500 gallons in bulk goes with the daily bread. Ice cream for dinner calls for 450 gallons; 12,000 bottles of soft drinks are quaffed in 24 hours. The half-acre dining room accomodates 2,000 at one sitting. Thus we have a U.S.A. version of the miracle "manna the wilderness."

IRON AGE Philadelphia, Pa. APR 6 1944

NON-FERROUS METALS

. . News and Market Activities

OPA Increase Brass Ingot Prices

••• Increases of 0.75c. a lb. in the principal grades of 85-5-5-5 group of brass and bronze alloy ingot and 1½c. a lb. in the principal grades of the 80-10-10 group were announced March 31 by OPA in amendment 4 to MPR 202 to become effective April 1.

The higher prices are authorized, OPA said, because producers are unable to absorb the higher cost of virgin metal and higher grade scrap which now have to be used in the production of these groups of ingot, because of insufficient supplies of obsolete scrap normally used, such as old automobile radiators.

The 85-5-5-5 group is used in a wide variety of products, including valves and a number of marine castings, while the 80-10-10 group is used primarily for journal bearings, such as are used in railway cars and locomotives.

The new ceilings for the 85-5-5-5 group range from 12.00 to 13.75c. a lb., according to alloy content, while those for the 80-10-10 group range from 13 to 20c. a lb. These prices are for sales in carload lots, including an allowance for transportation not to exceed 25c. per hundredweight.

Increased ingot prices will mean somewhat higher costs to the foundries which use the grades in question. However, the OPA has discussed this matter with its Industry Advisory Subcommittee and is engaged in studying the impact of these increased costs on foundries selling castings subject to RMPR 125. It may be that some modification of that regulation will be required.

Charges Answered Cleveland

••• Victims of a smear campaign is the position Basic Magnesium, Inc., Cleveland, find themselves in, according to the comments of H. B. Eells, Jr., president of the company. This unhappy position has resulted, according to Mr. Eells, from the Truman Committee report of March 13, in which he said the committee had second-guessed enlarged on, exaggerated, and twisted actions of the company in building its huge Las Vegas magnesium plant so as to place every possible sinister light upon the company's procedure. The Truman Committee, in brief, accused Basic Magnesium of accepting a contract to build a huge magnesium plant with "only the most meager experience ... no financial resources ... standing to net \$840,000 yearly."

Mr. Eells told by way of rebuttal that so far as these charges were concerned Basic Magnesium had called upon Magnesium Electron, Ltd., an English company with magnesium production experience, to supply the know-how which Basic did not have. From the standpoint of finances, Basic Magnesium was merely a management instrument requiring no financial resources by government request and according to this set-up, taxes would have removed 80 per cent of whatever was paid in management fees; thus automatically reducing the \$840,000 profits charged by the Truman Committee to something like \$100,000.

The plant itself, which was designed and rated to provide only 18 per cent of the total magnesium production required by the nation, actually proved in 1943 to have produced approximately 39 per cent of all the magnesium produced in all plants.

As a result of the many faceted attacks during the planning and construction of this plant, according to Mr. Eells, confidence in Basic Magnesium's management was so undermined at Washington that the plant was finally turned over to Anaconda Copper Mining Co. Mr. Eells' remarks are plainly keyed to not only salvage industry's opinions of Basic Magnesium, Inc., but also to protect the valued reputation of Basic Refractories, Inc., the parent company.

Brass Mill Products Critical Washington

••• About 98 per cent of total brass rod production is used by the screw machine products industry, WPB said on March 29, and brass mill products are still critical despite adequate mill facilities. Manpower shortages prevent full utilization of facilities.

The supply situation for brass rod and other materials was discussed at

the recent Screw Machine Products Industry Advisory Committee meeting. Aluminum is not highly critical, the committee was informed by WPB officials, but conservation for essential uses is desirable. With the exception of magnesium and calcium, most alloying metals cannot be removed readily from aluminum and for this reason aluminum scrap should be carefully segregated.

Advisory committee members said the industry believes it will be able to meet 1944 requirements for screw machine products for the truck production program, if orders are placed well in advance.

The monthly average production of brass mills has increased by approximately 246 per cent over 1940. A maximum production of 93,000,000 lb. was reached in March, 1943. It is estimated that the industry has capacity for approximately 100,000,000 lb. In recent months production has dropped to a level of around 73,000,-000. However, increased military requirements have brought about a scheduling of 82,000,000 lb, monthly, the highest rate of the last six months. The Division hopes that one to 2,000,000 lb. brass mill products monthly will be received from Canada. It is apparent, however, that there can be no relaxation of control on the use of brass rod.

E. D. Lucas, Aluminum and Magnesium Division, pointed out that only six companies of the screw machine products industry are now reporting aluminum scrap generation. A company is required to segregate aluminum scrap if it generates in excess of 1000 lb. a month. If it generates over 10,000,000 lb., it is required to file a special report. Several committee members commented that aluminum scrap generation has been reduced to a low rate.

During 1943, smelters received and reprocessed into ingots approximately 400,000,000 lb. of scrap, Mr. Lucas said. January reports show that a larger amount was processed than was received during the month. It is believed that scrap generators, dealers and others have approximately a 2-months' supply on hand.

W.P.B. Not To Close BMI

L.V.R. Journal 4-7-44

Won't Change WPB'S Mind

Small plant operators in southern California apparently have won their battle to convince the War Manpower Commission that Los Angeles should no longer be designated as a No. 1 critical labor shortage area, and the ban is expected to be lifted shortly.

Authority for the statement is the regional WMC director in Los Angeles who is convinced there is no longer a critical shortage of workers in that section.

That's an extremely interesting development since the last stand of the War Production Board in curtailing operations at BMI was on the ground that the men who would be released were badly needed in the south-

ern California war plants, Of course the fact that conditions have changed won't cause WPB to change its mind, for one of the fundamental tenets of bureaucracy is: Never Admit a Mistake.

NEVADA INDUS-TRY DEFENDED BY McCARRAN

AUSTAN, NEV. REVENCED SUM

APRIL 9. 1984

Vigorous Protest Against Closing Units of Las Vegas Manganese Plant

When the W.P.B. late last month prepared an order closing down four units of the Basic Magnesium plant at Las Vegas and laid it on Donald Nelson's desk for promulgation, Senator Pat McCarran rushed to the rescue with immediate verbal protests followed by the filing of a written protest and a demand for the reasons for such proposed action.

The intervention of Nevada's super-active senior Senator was all the more fitting and powerful in this case as he is the chairman of a special senate committee to promote the decentralization of heavy industry and to preserve such industries which have been set up in the west for war production.

Senator McCarran succeeded in getting from the W.P.B. a statement of the reasons for the proposed order which would throw 1500 men out of employment. The statement upon examination is found to be wholly misleading as a statement of fact and in no manner justifying the pro-posed crippling of the Las Vegas plant.

Senator McCarran prepared and presented an analysis of these reasons refuting them completely and charging that they were merely a subterfuge for action in the interests of competitors in magnesium production who seek to eliminate the Las Vegas plant from that field.

Monday Sen. McCarran addressed the United States Senate on this subject ventilating the whole matter and attacking the proposed action of the W.P.B. as an outrage and a shame.

How this entire matter will turn out remains to be seen but it is another example of the rapidity and energy with which Sen. McCarran rushes to the defense of Nevada interests whenever they are imperilled L. V.R. Journal 4-5-44

KPRIL 12, 3944

yesterday.

BMI FUTURE

IS EXPLAINED

Touching upon the possibilities of maintaining the Basic Magne-sium plant in Las Vegas as a per-manent private industry after the

war, and on the necessity for the members of Congress from the

western states to guard against

possible attempts to set aside by

federal law the doctrine of appro-

priations in the distribution of water, Senator Pat McCarran spoke

at the meeting of the directors of the Chamber of Commerce

Answering a question on the present rivers and harbors bill, now

in the Senate, which was asked by Chairman Charles Merrill of the

legislative committee of the Cham-

ber of Commerce, Senator McCar-ran said the bill, which passed the

House several weeks ago, is in the commerce committee of the Senate

and will remain there until it is

straightened out by amendment so

that it will not endanger the use of

water for irrigation in the west if

the senators from the west have

Asserting that it was his hope that the federal government would not enter competition with

private industry after the war,

Senator McCarran said that the

present attempts of the War Pro-duction Board to close down four

of the 10 units of Basic Magne-

sium stemmed from the fact that

there are representatives of com-

peting companies on the War Pro-duction Board who desire to pro-

tect the interests of the Dow

Chemical company and the Alumi-num company of America. He cit-

ed figures to show that Basic,

Magnesium would be able to com-

magnesium and said the movement

to close four units of the plant

was a step toward placing the en-

tire operation in a condition that

it would be impossible when the war ended to sell it to private in-

"We have not lost the fight yet to keep the plant running at capacity, but we are on thin ice,"

Ernest Brooks, president, pre-

sided at the session. Officials of the Reno Army Air

Base were special guests and Col.

Andre J. Decheane, commander at the base made a short talk.

said McCarran.

ction of

pete in the open market with Dow

BY M'CARRAN

4 Units at BMI To be Shut Down "Secret Order" Is Issued by WPB

Edict Is Not Received Here But Is Said "On the Way"

The war production board, in a "secret order" today ordered the closing of four units of the huge BMI plant near Las Vegas, it was learned from an unimpeach-able source in Washington,

The order, according to best information in the capital, is to be effective "as soon as prac-ticable," which may mean one, week or several weeks, it was

Given To DPC It was understood that the WPB handed its "secret order" to the Defense Plants Corporation in Washington yesterday, requesting that no publicity be given for the present. However, news sources ran the story down and brought a portion of it into the open. Washington advices

The order is the result of a campaign, started several months ago by WPB officials, to close a portion of the BMI plant in an effort to more equitably distribute manpower on the Pacific coast and to save oil for the

fleet in the Pacific. It was explained that war industries in southern California could use some of the electricity now being absorbed by BMI, thereby eliminating some of the steam plants, thus saving oil. No Official Word

Officials at the BMI plant re-ported today they had received no official word regarding the closure of the four units, but did say they "understood it is on

the way". The WPB order follows by about a week, the charges lodged against officials of the bureau by Senator Pat McCarran who, in a senate speech claimed the move against BMI was fostered by former employes of "firms in competition with BMI" who now are on the WPB.

APRIL 12, 1944

Carpenter Urges West

Keep Plants Open LOS ANGELES (P)-Eastern In-dustrialists expect the Pacific Coast's war-miniured program of

distributes to be a series of the series of ation "if for no other reason that that of supporting the mines which supply their raw materials."

McCarran Blasts WPB For Plan to **Close BMI Plant**

WASHINGTON (Special) - BMI Stays Open, vada, today accused members of the war production board of seeking to close Basic Magnesium, huge ore plant near Las Vegas, to advance the interests of competing plants with which

APP/L 6. 1944

they formerly were associated. McCarran, in a speech in the senate, said it was "an outrage and a shame that we have men in this country who will lend P. D. Wilson, chief of the war

themselves to this procedure." The WPB, McCarran said, magnesium branch, today caterecommended that Basic Magnesium be closed despite the by Senator Pat McCarran (D), fact that it is the largest pro- Nevada, and said it was as ducer of magnesium in the "amazing a blast as I ever world.

"This is being done," he Wilson said that to his knowl-shouted, "because there are on edge nobody in his division has the war production board, mem- ever been connected with "the bers who are former members chief competitor" of the Basic of the board of Basic Magnesium's chief competitor."

Some WPB members, he said, "sit on the WPB to serve their ably the Dow Chemical com own interests and not to serve pany." their country's." Wils

"In some countries I could considering closure of the Bamention," he added, "such mem- sic Magnesium plant but said bers of such a board would not that curtailment of its produconly be fired but would be stood tion was under consideration up against a wall and shot at because of several factors, the sunrise.

McCarran said that Basic over-production of the metal. Magnesium was built at a cost Secondary factors for conof \$133,000,000. The plant now sideration of cutting down the is producing 160 to 165 tons of Las Vegas plant's output is the

itself unable to obtain brucite 135,000 barrels of fuel oil a or magnesite from which to month, he said. produce magnesium, and He said that a cutback in brought to the United States magnesium production of the blueprints and plans for set- Dow Chemical company was alting up the British production so under consideration by WPB. system.

Nevada was found to have ly-owned capacity of Dow toquantities of ore and power and taled only 36,000,000 pounds anthe government appropriated nually compared with Basic's about \$133,000,000 to the con- 112,000,000 pounds, which he struction of the Basic Magnesi- said "would hardly make Dow um plant at Las Vegas, near a competitor of Basic. Boulder dam. Each day up to date it has

en producing at the rate of 160 to 165 tons of magnesium. he said. (Continued on Page Eight)

magnesium a day. At the outset of the war the United States found itself ex-geles shortage area and would fact that it would make availceedingly short of magnesium, also put at the disposal of the McCarran said. Britain found navy in that area an additional

He pointed out that the private-

Magnesium Plant

WASHINGTON, April 14 (VP) -Representative Engle (R., Mich.) Friday called on the war production board for the "complete factual background" of its decision to cut back magnesium production at the Las Vegas, Nev., plant of the Basic Magnesium, Inc. Engle said he had written to Philip Wilson, director of WPB's aluminum and magnesium division, for the information, which he said he expects to use in answering charges voiced by Senator McCarran (D., Nev.) that the cutback decision had been prompted by in-fluence of the Dow Chemical corporation, a Michigan company.

TOWDOD COTY ON TRIBUNS

Some Production Cut

WPB Says

Is Being Sifted,

Wilson Says

heard.'

WASHINGTON (Special) production board's aluminum gorically denied charges made

Magnesium plant. Wilson identified the unnamed plant re-

Wilson denied that WPB was most important being present

TALT LARE CITY OTAB. TELEGRAM

Cut-Back Probed

"The question now seems to be whether or not there shall be a curtailment of the production of magnesium at Basic Magnesium, in Nevada, and whether or not other plants shall be permitted to operate, notwith-standing the fact that the cost of producion is either equal to or greater than the cost of production at Basic Magnesium,' he declared.

McCarran said he was "not alone" in protesting against the proposed curtailment of Basic Magnesium's operations and charging WPB members with "outside interests."

"I am not alone," he said, "in proclaiming that in the war production board as it now is constituted, there appear to be men who, in years past, have been active members of the board of great industrial activities, and who, when they came to the war production board, were on the payrolls of their respective institutions; some of them receiving salaries as high

as \$65,000 a year. "It is not to be supposed that these men, many of them geniuses in their respective lines, would lay aside their first love, served in years past, and for-get the interests of these institutions while serving on WPB.

"To exercise for private advantage any power given to a member of the war production board is unconscionable at this hour when the nation is struggling for its existence."

Basic Magnesium, he continued, had demands for 11,000,-000 pounds of magnesium this month. These needs of war agencies, he said, cannot be met if the plant is closed down or curtailed.

He told the senate that both he and his committe had made these charges to WPB itself this week.

"After that, the intimation was given out that notwithstanding the fact that we had met every single argument which they had made and had knocked out every thought they had relative to shutting down of this plant," McCarran said, "the plant will be curtailed in its operations."

Nevada Magnesium Plant 'On Thin Ice'

PLANFORD, CALIFORN

APTH 12 19941

Reno, April 12- (UP) -The fight to keep the huge basic magnesium plant operating at capacity has not been lost but "is on thin ice," U. S. Senator Patrick A. Mc-Carran, D., Nev., said here today. McCarran said it was his hope the federal government would not enter into competition with private industry after the war.

He charged present attempts of the War Production Board to close down four of the ten operating units at BMI at Las Vegas are a "step toward placing the entire operation in a condition which would make it impossible to sell the plant to private industry" at the end of the war.

GENO NEV MURLUL APRIL 7, 1944



SALT LAKE CITY, April 8, 01.8) -James L. Head, representative of the WPB aluminum-magnesium division, asserted here last night that the government "is no longer concerned about production of either magnesium or aluminum." "Both minerals are now plenti-

ful," Head said, "although the gov-ernment definitely was concarned. about them a year ago." Head visited Salt Lake City

yesterday while en route from Washington, D. C., to Las Vegus, Nev., where he was to inspect the huge Basic Magnesium ore plant. THE MENTREVIEW- CORNAL

to see the second second second

Senator Walgren Sees Big Future For Plant At BMI

Senator Mons C. Walgren, democrat from Washington, last night envisioned a great future for the Basic Magnesium plant and thanked the citizens for their fine choure of future and Las Vegas in a speech made fine show of friendship.

at the Hotel Last Frontier at a banquet in his honor staged by his colleague, Senator Pat Mc-Carran, of Nevada.

Before a representative crowd of Clark county residents, Wal-gren discussed the future of the light metals industry, its affect on Las Vegas and BMI and praised the Anaconda Copper company officials for the job

company officials for the job they have done since taking over. "I can't go into a complete dis-cussion of magnesium," Walgren said last night, "but I can tell you that it will be the magic metal of the future. "We don't know much about ufactured much of it in the United States. However, now we are embarked on a program calling for huge amounts and we are erecting plants all over the country.

"There is a plant in Spokane, one at Permanente, one at Stockton and the BMI plant problem," McCarran said, "and here. The BMI plant is using we want them to see how we do the English process and is manu- it. The nation is seeing that we

at the Hotel Last Frontier at a Before the banquet, Walgren

Before a representative crowd before he went to the dinner,

facturing magnesium in large are putting out in Nevada and from Nevada mines. Nevada "We are here to investigate matters which have to do with the war effort. We have seen that is so vital to the war effort.

the war effort. We have seen many plants and are anxious to see the job done. It is important to the war effort, that we do a good job. "You have a chance in Nevada to do a magnificent job, but it is a tough job. We are pulling for you. We are not here to criticize but try to assist in every way we can.

"Magnesium is a badly needed metal and Frank Case and his assistants are doing a fine job In producing it." the battle-born state, and in the freedom of the great west." Besides the honored guest and bis host, those attending the party included: Hugh Fulton, counsel for the Truman committee; Colonel Douglas Keeney, of the gunner, school; Captain Bar-rett, of the U. S. engineers; C. S. Wengert, Claire Sutherland, Art Phillips, Dr. J. D. Smith, Mike Gordon, Lloyd S. Payne,

Expressing the opinion that the entire west should pull together to see that production of light metals should continue after the war, Senator Mons C. Walgren last evening paid high tribute to BMI officials for

the "grand job" they are doing at the local plant. "Manufacture of light metals in vast quantities is something new to all of us," the Washington senator said. Naturally there have been some mistakes made, However, this plant in Las Vegas should pull through, for you have excellent leadership - and good management.

Many Problems

He said that there were many problems confronting those in charge at BMI, but that the officials were working to correct them.

"If anyone can put this thing over, they can," he said. He traced the history of the process being used in Las Vegas and said that great secrecy surrounded the process when it first

was initiated into America. "The English got the process from the Germans, so I can't very well see any reason for the secrecy. Perhaps we would have been far ahead had we not shrouded the process in so much secrecy.'

Turning to the war effort in general, the Washington senator said he was utterly amazed at the expansions that had been made all over the country.

"We're Tops" "We're tops today," he said, "and it has been because of American ingenuity and brains that we have been able to reach these proportions."

He told of watching implements of war being tested and said that the world never has known anything like them.

"The ordnance department of the army has done a marvelous job," he said, "Yhu wouldn't be-lieve me if I told you some of the things I have seen. I didn't believe them until I saw them myself.

"It is a pity that we are forced to make these instruments of death, but now that we have the job, we're doing it exceedingly well."

He discussed the present postwar planning conferences and said that he believed too much emphasis was being placed on them, rather than on winning the wa

"The war is a long way from being over. We've got a big job ahead. Too much emphasis on a post-war program might create a false impression of optimism. It is all right to discuss a tentative program-this should be done and the groundwork laid. However, we should not lose sight of our immediate goal, that of winning the war.

Grand News "Our victory in Tunisia is encouraging and it is grand news. However, it is just the close of one phase of the war. When in-

RENO EVE. GAZETTE 5/17/43

Magnesium Plant's **Immensity** Told

The immensity of the construc-tion job which was entailed in the building of Basic Magnesium at Las Vegas was outlined by Guernsey Frazer, administrative assistant to the general manager of BMI, at the Rotary luncheon today at the Golden hotel.

The Las Vegas project was the second largest structural steel job in the history of the world and the first in size in plumbing, sheet metal, brick and electrical usage. At its peak employment it had more than sixteen thousand on the weekly payroll, which exceeded \$1,100,000 a week. Boulder dam, at its peak, had 5250 workers with a monthly payroll of \$750,000 The magnesium plant is now

the second largest industrial user of electricity in the world, its daily consumption of electricity being as much as that of Los Angeles. The plant required the largest copper installation for electrical purposes on record, with many of the great copper bus bars now being replaced by silver. Since copper is more essential for general war purposes, the federal government has loaned BMI \$25,-000,000 of silver for this replacement program

Frazer outlined the BMI project in three stages, the promotional phase to which he gave Howard Eels of Cleveland credit; the construction phase in which Howard Mann of Los Angeles was general manager, and now the operation and production stage, under the management of Anaconda Copper. The capacity of the plant is

now 120 tons of magnesium a day and within sixty days will be up to 150 tons a day. Frazer said that the unit production cost has gone down steadily since the plant started operation, adding that its operation in peacetime depends upon ability to meet other plants in the competitive market. Forest Lovelock was program

chairman. President Ray Jefferson presided.

LAS MEGAS, NEW, REVIEW- OLIRINAL MAY-50, 1943

Immensity Of BMI Told To Reno Club By Guernsey Frazer

RENO, May 20. (Special-The immensity of the construction job which was entailed in the building of Basic Magnesium at Las Vegas was outlined by Guernsey Frazer, administrative assistant to the general manager of BMI, at the Rotary luncheon Monday at the Golden hotel in

The Las Vegas project was the second largest structural steel job in the history of the world and the first in size in plumbing, sheet metal, brick and electrical usage. At its peak employment it had more than 16,000 on the

RENO EVE. CAZETTE 5/17/43

All Nevada Is Interested

WITH THE world's largest magnesium plant at Las Vogas, all Nevada has an interest in the possibility of the operation of this yar-time project when peace comes. If Basic Magnesium can operate profitably during peacetime, Clark county can be a major center for the light metal industry. An indication favorable to after-war operation of BMI was contained in a highly interesting story on the Saturday mining page of the Gazette.

This story chronicled the progress which has been made by scientists of the bureau of mines in working out a process through which BMI could obtain magnesia, the raw material for magnesium, from a great deposit of dolomite at Sloan, which is less than twenty miles southwest of Las Vegas. This deposit is reported in excess of 400,000,000 tons of dolomite, sufficient raw material to supply the Las Vegas plant for a long period of peacetime operation.

At the present time, the raw material source for the BMI plant is magnesite in the Paradise range in Nye county. A calcining plant has been constructed in Gabbs valley and the magnesite is treated and reduced to magnesia, which is then trucked to Luning, where it is loaded in freight cars. Since there is no rail connection between Goldfield and Las Vegas, the raw material is then hauled by rail to Hazen, on the main line of the Southern Pacific, then to Ogden, where it is transferred to the Union Pacific, and on through Salt Lake to Las Vegas, a railroad trip in excess of one thousand miles. If highway transportation were available for a direct haul through Tonopah and Goldfield, the distance from Gabbs to the GMI plant would still be in excess of three hundred miles. This condition alone is a handicap to competitive peacetime operation of BMI, which after the war must face competition from some of the highly successful salt water plants operated by Dow Chemical,

If the new process developed through research at the bureau of mines can be adapted later to the BMI production, it would eliminate the long and costly haul from Gabbs valley, automatically reducing production costs. Nye county would suffer the loss of the now lusty mining camp at Gabbs, and this would be regrettable, but the larger interest must be in the successful after-war production of magnesium.

If the scientists of the bureau of mines have found a process through which BMI can be assured a place in the competitive light metal field after the war, they will have the gratitude of all Nevada,

CACD WHEN DY M one of the commitments of our WVBA member, H. S. Anderson. subsistence contractor of 1063 Gayley av. Here is a break-down of this total :--- a BMI day on the desert starts with eggs for breakfast, 6,000 of them, 'sunny side up'; a staff of 350 KPs go into action to prepare 20,000 meals which is the day's task. The drawdown on the coffee bin is 260 ds. and the sugar requirements are 1,500 pounds. For lunch, 5,000 sandwiches are prepared; 9,000 bottled pints of milk. plus 500 gallons in bulk goes with the daily bread. Ice cream for dinner calls for 450 gallons; 12.000 bottles of soft drinks are quaffed in 24 hours. The half-acre dining room accomodates 2,000 at one sitting. Thus we have a U.S.A. version of the miracle "manna in the wilderness."

New State Journal 5-18-43 **Rotarians Hear Problems of BMI**

Case, Guernsey Frazer, H. A. Nichols, Charles Black, C. R. Rogers, Father Peter Moran. Rogers, Father Peter Moran, Ford Carswell, and Nolan Rust

Frank Devinney, Laurie McNeil, Bruce McNeil, Walter Bracken, C. P. Squires, A. E. Cahlan, Ed. W. Clark, George Marshall, V. Gray Gubler, E. W. Cragin, James H. Down, Sr., James Cash-man, A. C. Grant, John F. Cah-lan, Ragnald Fyhen, Peter Jank, Wulliam Payle, Peter Burke, William Royle, Peter erson, Jack Eagan, Bill Burke, Charles DeArmond, John Trusel,

ley King, Tony Saunders, James Ryan, Mike Laux, Lloyd Tritle, Harve Perry, O. A. Kimball, J. K. Houssels, Hugh Richardson, A. H. Harrington, Frank Hanra-han, H. G. Satterthwaite, F. O. Case Guarges, F.



Lauded By Walgren

BMI Officials Are

MAY 13, 3443

A UNCAS NEW, REVIEW OURNAL

with a murket now for all the magnesium metal it can produce. Basic Magnesium, Inc., of Clark county, is looking to the future when the war is over to find a market for its products in industrial developments, Gurnsey Frazer, assistant to the general manager of the company told members of the Reno Rotary Club yesterday. Producing 120 tons of magnesium daily at a cost that has been reduced to 20 cents per pound as compared with 60 cents per pound when production first started Mr. Frazer said work was being carried on continually to bring down costs. He described many of the difficulties encountered in bringing the plant through the various stages from planning, building to producing and said that difficulties were still encountered but that the production is increasing rapidly and would soon he 150 tons per day. Forest Lovelock was program chulrman and Ray Jefferson, president, presided, H. C. Heidtman won me war bond

we will see what is in slore for us,

"Right now, however, we must fight against undue optimism. It will affect the entire war effort if it is nurtured too richly. We have not wen the war yet. although we have been doing a good job thus far, and if our efforts continue on the same scale, the outcome can never be in doubt, However, let's win the

in doubt, However, let's win the war first." The senator expressed a little discomfort over the Japanese ac-tivities in the Aleutians. He said he had received first hand knowl-edge of the Japs in the Alaskan area, and that he frankly was worried about them. "We'll have a tough job root-ing them out of there, although our new bases will help. We must keep vigilant watch or they may surprise us again," the sen-ator concluded.

n 1nterest by the guests as well as by a large number of diners in the Ramona Room of Hotel Last Frontier.

L.V.A. 5/14/43

MCarran Is Host

At Notable Dinner

Senator Pat McCarran was the

gracious host at a notable dinner

given at Hotel Last Frontier in

honor of Senator Mons C. Wal-

gren of the State of Washington,

a member of the Truman investi-

gating committee who was here

looking over affairs at Basic Mag-

nesium, Inc., and Hugh Fulton,

that he is not a member of the

committee but is sitting on the

side lines in hopes of being able

to assist his colleage. He expressed

the belief that here at the great

plant of Basic Magnesium, we are

Nevada, from Nevada mines, Ne-

vada workmen and Nevada in-

dustry, we art turning out the

magnesium so vital to the war

"We hope to put out more mag-

nesium than any other plant in

America and by September that

goal will have been achieved.'

Senator McCarran said in intro-

Replying to the welcome of his colleague, Senator Walgren said,

"I can't go into a complete dis-

"We don't know much about

cussion of magnesium, but I can

tell you that it will be the magic

its uses, for we have never man-

ufactured much of it in the

United States, However, now

we are embarked on a program

calling for huge amounts and we

are erecting plants all over the

"There is a plant in Spokane, one at Permanente, one at

Stockton and the BMI plant here.

The BMI plant is using the Eng-

lish process and is manufacturing

matters which have to do with the war effort. We have seen

many plants and are anxious to

see the job done. It is important

to the war effort, that we do a

You have a chance in Nevada

to do a magnificent job, but it

is a tough job. We are pulling for

you. We are not here to criticize

but try to assist in every way we

assistants are doing a fine job

pleasing personality and his words were listened to with keen in-

Senator Walgren is a man of

"Magnesium is a badly needed metal and Frank Case and his

"We are here to investigate

magnesium in large quantities.

ducing the guest of honor.

metal of the future.

"The nation is seeing that in

overcoming every difficulty.

effort.

in part:

country.

good job.

in producing it,"

Senator McCarran declared

council for the committee.

AND I LAND " HALLAND THE

weekly payroll, which exceeded \$1,100,000 a week. Boulder dam, at its peak, had 5250 workers with a monthly payroll of \$750,000.

The magnesium plant is now the second largest industrial user of electricity in the world, its daily consumption of electricity being as much as that of Los Angeles. The plant required the largest copper installation for electrical purposes on record, with many of the great copper bus bars now being replaced by silver. Since copper is more essential for general war purposes, the federal government has loan ed BMI \$25,000,000 of silver for

The capacity of the plant is this replacement program. The capacity of the plant is Frazer outlined the BMI pro- now 120 tons of magnesium a day fect in three stages, the promo- and within 60 days will be up tional phase to which he gave to 150 tons a day. Frazer said Howard Eels of Cleveland credit; that the unit production cost has the construction phase in which the late Howard Mann of Los Angeles was general manager, and now the operation and pro-duction stage, under the manage-ment of Anaconda Copper.

AMERICAN METAL MARKET "Leading Iron, Sieel and Metal Newspaper Recognized price and market authority." New York City

TOPT

President Of Basic Magnesium, Inc. Challenges The Findings Of The **Truman** Committee

CLEVELAND, Mar. 31 .- The following statement challenging the findings of the Truman Committee as published in its report entitled MAGNESIUM, dated March 13, 1944, was made on Tuesday, March 28th, by H. P. Eells, Jr., president, Basic Refractories, Inc., which, in 1941, established Basic Magnesium, Inc., a company which has since become a major producer of this war-time metal:

In 1941, the United States needed magnesium desperately. Only one company in this country (Dow Chemical) was experienced in the manufacture of the metal and that company was given all it could do. Incidentally, it has discharged magnificently a tremendous undertaking, Basic Refractories, of Cleveland, thought it could help in this emer-Basic had ore deposits in gency. Nevada and it had working relations with Magnesium Elektron, Ltd., an English company which had magnesium production experience comparable to Dow's.

We conceived the idea of merging the "know-how" of Magnesium Elektron, Ltd., with the resources of Basic Refractories to give the United States the magnesium it needed to fight the war. Thus, there came into being Basic Magnesium, Inc., the company which under our management designed, in major part built and brought (Continued on page 4)

Saturday, April 1, 1944

President Of Basic Magnesium, Inc., Challenges The Findings Of The Truman Committee

(Continued from first page)

ject near Las Vegas, Nevada.

this undertaking, our experience has been an eye opener. The little group of men who set out on this mighty undertaking had to fight their way through a jungle of opposition and obstruction based on selfish interests, and at every step were hampered by politicians, fixers, organized gambling interests, and other parasites. We wanted to get a job done; they want-ed something else. We knew the ed something else. risks involved in not playing ball with these interests, but we took them. We are now reaping our reward-a public whipping at the hands of the Truman Committee.

In making its report, the Committee had the choice of second-guessing us to death, of enlarging on and exaggerating every mistake, of twisting decisions to put them in a sinister light, etc. Or, it could have made a report based on an appreciation of our motives, of the incredible magnitude of the job, and the fact that we did in a year what the Germans had taken over a decade or more to do. The Committee chose to smear us.

Organization of Basic Magnesium brought to the United States the only and the best available experience with the metal among the United Nations. It immediately filled a big gap. Instead of commending us for this initiative, the Truman Committee "charged" that Basic Magnesium had "only the most meager experience" thus creating the impression that the contract for the project should have gone to some company with equal or more experience. Such companies, of course, were non-existent, except for overloaded Dow Chemical.

The public is informed that we had "no financial resources" and that we "stood to net \$840,000 yearly". The facts: Basic Magnesium, like Dow Magnesium, Diamond Magnesium, etc.; were management instruments requiring no financial resources. The Government wanted it that way Secreary Jones wisely provided that these companies should not have such resources or earning records. In this way, 80% of whatever was paid in fees would automatically be returned to the Government in taxes. After such taxes, Basic Magnesium stood to net not \$840,000, but perhaps as much as \$100,000.

The Truman Committee does not point out that Basic Magnesium originally was delegated a project onetenth of the final size. A smaller project would have been far more favorable to us, for it would have left us a position in the magnesium field after the war. When the Government

into operation the very extensive pro- incidentally with the building of it and therefore no estimate worthy to be From the day the Defense Plant called such was possible until the job Corporation gave the green light to was well on toward completion. There is no doubt that a conventional procedure would have saved many millions of dollars but at the expense of time. We assume the War Department weighed these factors before

> prescribing the more clostly method. The important fact which the report takes pains to conceal is that Basic Magnesium met fully the requirements of the War Department in respect to time and production. Rated to provide 18% of the total production for which plants have been built, "in 1943 it produced about 39% of all the magnesium produced in all plants in the United States". So much for our "demonstrated incompetence"

> To this day there is not any scientific comparison of the capital costs of this job with others. A figure of \$1.81 has been reported per pound of magnesium capacity. If one must make a "shirt cuff" comparison, a more accurate figure would be nearer \$0.97.

> By the Fall of 1942, we were so hampered by many-sided interference, largely inspired by continual political attacks, that we were glad to turn the responsibility over to able Anaconda Copper Mining Company, whose president, James R. Hobbins, has since been kind enough to say that "a remarkable job was done in conceiving and building this plant from the grass roots".

> For information and as documentation of the above comments, Mr. Eells submitted copy, a memorandum of which was presented to the Truman Committee before it made its findings public, which he maintains specifically disposes of a few of the more glaring Truman inaccuracies.

> Owing to space limitations we are unable to print this memorandum. Editor, AMERICAN METAL MARKET.

multiplied the size by ten it: (1). practically eliminated the possibilities for a reward to us through post-war activities; and (2), increased many times our responsibilities. We did not complain.

Our instructions from the War Department were to design a plant co-

TE, CALTE.

Peter The full and story of Basic Magnesium, Inc., one of the Marger extravagances of the war production effort, is revealed through publication of a special through publication of a special through report from the sen-series the national defense program.

program. Final cost of this project is estimated at \$133,000,000, or nearly twice the original esti-

nearly time to the matter that the the terms of terms of the terms of the terms of terms

ore deposite \$1,500,000. appraisal of \$1,500,000. On July 19, 1941, the under secretary of war "recommended that an agreement be negotiated between the war department, defense plant corporation and Basic Refractories for a project of \$ capacity of \$12,000,000 pounds, to cost \$63,820,633.'' "In the opinion of the com-mittee," says the Truman re-port, "this was one of the most outrageous and unjustified con-

STAR

Washington, D. C.

APR 2 1944

McCarran Opposes Cut

In Magnesium Output;

Raps 'Selfish Interests'

Senator McCarran, Democrat, of Nevada accused some members of the War Production Board of serv-

ing "selfish interests" of their former

companies in ordering a curtail-ment of production at the huge Basic

Magnesium Plant near Las Vegas,

A scheduled cut in the plant's pro-duction. Senator McCarran said in a Senate speech, would be "an outrage and a shame," brought on by influ-

ences of private companies on the

"This is no time," Senator Me-

Carran declared, "for men to sit on the War Production Board and de-

termine how their former interests can be served. That appears to me

to be the policy of some WPB men

Fails to Specify Members.

The Senator did not specify which members of the WPB he had in

War plants are asking the Gov-ernment for 11,000,000 pounds of magnesium, Senator McCarran said,

"yet there are plans to cut down this Nevada plant, the greatest pro-

this Nevada plant, the greatest pro-ducer of magnesium in the world." He cited reasons given by WPB. for the curtailment and declared, "They all fall by the wayside in the

A WPB explanation that oil would

be saved by a production cut at the plant brought from Senator Mc-

istrator Ickes had said that further

savings of oil are "wholly unneces-

The Basic Magnesium plant was constructed. Senator McCarran said,

with an expenditure of \$133,000,000

by the Reconstruction Finance Corp.

P. D. Wilson, director of WPB's

aluminum and magnesium division, promptly said WPB had no in-

tention to close the Basic Magnesium plant and added that Senator McCarran's charges were "as amaz-ing a blast as I have ever heard."

Study Reduction in Output.

A reduction in output at Basic is under consideration, Mr. Wilson said, as is a cut back in operations

"To my knowledge nobody in the WPB aluminum and magnesium di-vision has been connected with Dow

made available for Navy use on the

of the Dow Chemical Co.

Chemical Co."

West Coast.

Carran the reply that Fuel Ad

face of facts.

By the Associated Press.

WPB.

From

Edson tracts proposed in connection with the war program and rep-resented a wholly unwarranted gift of government funds by defense plant corporation to a

newly organized corporation which had no financial resources and only the most meager ex-perience and talent." The plant site was chosen near Basic properties at Luning, Nev., 300 miles from the mines near Gabbs, Nev., to which there was no transportation whatever. Ore had to be backhauled from the mines to Og-den, Utah, thence to Luning-

950 miles at \$6 a ton. A 40 inch pipeline over the mountains to Lake Meade and two power transmission lines to Boulder dam, estimated to cost \$8,000,000, actually cost over \$12,000,000.

There were numerous delays. Production of first metal was scheduled for May 1942 but was not achieved till Aug. 31.

There were minor extrava-gances, such as 700 executives, 100 of whom drew over \$5000 a year. Stenographers' desks cost \$95. The ore contained greater impurities than estimated. Con-

struction and the mines at Gabbs, estimated to cost \$3,000,-000, actually cost \$7,000,000.

Highly inflammable peat used in the process had to be brought from British Columbia and stored in a \$900,000 wooden warehouse which had to be

abandoned because of fire risk. Salt deposits, at first declared available, were found not to ex-ist and new sources of supply had to be developed in Death valley.

Housing was supposed to be developed by private capital. Such as were built, at a cost of \$3000 per unit, were of flimsy construction which it is said will last only a few years, and defense plant corporation, had to authorize expenditures of an additional \$6,000,000 for facilities. Architects' fees of \$25,-000 were paid for identical de-signs on 1000 demountable houses at \$25 per house, and

The whole thing was so bad that in October 1942 a deal was made whereby DPC brought in So on. made whereby DPC brought in Anaconda Copper Mining Co. to buy 52½ per cent of Basic Magneaium's interest for \$75,-000 to bring order out of the chaos. New management, con-struction of a pilot plant for much needed research have re-suited in saving of several mil-lions of dollars. The plant 50 to capacity production late last July. July.

L.V.R. Journal 4-3-44

Editorials and Features This page is a regular feature in the Las Vegas Evening Review-Journal and Bouldar City Journal which are published evenings except Sunday in the Review-Journal Building. His South First Street, Las Vegas, Nevada. The Review-Journal is entered in the U S Postoffice at Las Vegas as second class matter. Subscription price \$1.09 per month by mail or carrier. Member United Press, Associated Press, American News-paper Publishers Association. F. F. Garnide, Publisher Phone 6 A. E. Cahlan, Managing Editor

A Valiant But Losing Battle

The War Production Board's "surprise" at Senator McCarran's charge Saturday that the BMI plant here is scheduled for a complete shut-down, is understandable. The executives of WPB thought they were the only ones who knew the plan.

WPB proposes to shut down four of the ten units now. A variety of reasons have been advanced, but NOT ONE has stood up under the test of truth. First it was to save power for more important industries in southern California. That was knocked out when it was established existing transmission facilities are loaded.

Next it was transportation required to get the raw material here from Gabbs. WPB thought the ore was still being shipped by rail.

Then it was a lot of other things, each one of which was knocked in the head when the facts came through.

Latest, of course, was the manpower situation with WPB insisting the 1000 men who would be laid off if four units were to be closed, were badly needed elsewhere. This was the last leg WPB had to stand on, and

that was kicked out from under last Saturday when the War Manpower Commission reported there were no plans for using BMI workers elsewhere that the question of picking up 1000 workers here had never been discussed and wasn't contemplated.

BUT-like the rest of the Washington bureaus, WPB goes right ahead with the plan to cut the local plant forty per cent on the basis of the fictitious case 11 indications, are built up by its experts who, from a NOT interested in facts, only in putting the closing order into effect. In short, WPB conceived the idea of hitting BMI hard, and manufactured reasons afterward. WHY? Senator McCarran provided the answer to

that last Saturday, when he charged that high ranking officials-in fact two of those most concerned with curtailing BMI production, are connected (or have been in the very recent past) with eastern industrial interests which have fought BMI from the start BECAUSE they saw in the success of the plant a threat to their control of the light metal industry.

WPB countered with the declaration-the BENEV-OLENT declaration-that there was no intent to close

the plant, only curtail it 40 per cent. The effect, however, is the same, a fact Senator McCarran and a lot of others concerned, have realized from the start.

BMI's place in the post-war picture depends on the ability of the management to get the cost of production DOWN. Left alone for another 60-90 days, that job would have been accomplished AND BMI's product would have been accompliance many other magnesium martid he scarolich, openation of all ten units as long as there are sufficient orders ahead, WPB is determined to bring about the closing of four. And since WPB apparently has the power, that appears to be what's in store.

468 427 APR. 2, 1944 SWEETWATER, TEX, REPORTER

Removal Of Tugwell As Governor Of Puerto Rico Sought

WASHINGTON - (UP) -The chief of the war production board's aluminum - magnesium branch denies charges made by Senator Pat McCarran of Neva-da. The WPB official, P. W. Wilson, says the Nevada democrat's statement is "as 'amazing a blast as I have ever heard." Wilson says that to his knowledge nobody in his division has ever been connected with the chief competitor of the basic magnesium plant. Wilson identi-fied the unnamed plant referred to by McCarran as "probably the Dow Chemical Company."

The WPB official denied closure of the basic mag-nesium plant was being considered. But he said that curtailment of its production was under consideration be-cause of several factors, the most important being pres-ent over-production of the metal. He added:

"Secondary factors for consideration of cutting down the Las Vegas plant's output is the fact that it would make available manpower in the Los Angeles shortage area and would also put at the disposal of the navy in that area an additional 135,000 barrels of fuel oil a

Wilson said that a cutback hi month. magnesium production of the Dow Chemical Company was also under consideration by WPB. He pointed out that the privately-owned capacity of Dow totals only 36,000,000 pounds annually, compared with basic's 112,000, 000 pounds. Wilson said: "That would hardly make Dow a competitor of Basic,"

In the Senate President Roosevelt's nomination of Democrat Senator Homer Bone of Washington, to be Judge of the Ninth United States Circuit Court was confirmed unanimously. The Senate confirmed Bone even without referring his nomination to a committee for inves-gation. The Ninth Circuit includes California, Oregon, Nevada, Montana, Washington, Idaho, Arizona and Territories of

Alaska, Hawaii and China. Mean while, Representative Dan McGehee of Mississippi, has introduced a resolution calling on President Roosevelt to ramove Rexford Guy Tugwell, former presidential adviser, as governor of Puerto Rico. McGehee charged that there is, what he calls, "a deep-seated fear" in the minds of thinking Puerto Ricans that unless Tugwell is re-moved, it will be impossible to have free and impartial elections there this year

The War Department has

announced that the Army air forces air crew training program at 10 universities and colleges will be terminated June 30th. This new action affects only air crew students and does not alter the status of AAF personnel currently undergoing other types of college training. Air crew training operated under 11 civilian flying schools will be ended by August 4th.

On the food front, President Roosevelt has urged Americans to grow Victory gardens again See REMOVAL, Page 4

L.V.R. Journal 4-5-44 From Where I Sit

Eleanor's Fair Labor Practices is more interested in causing Committee has been in Las Vegas trouble than in straightening out and vicinity for the past week, an alleged condition. trying to dig up something to complain about in the treatment of negroes (1) in the community itself and (2) at BMI.

We have been doing very nicely here for some weeks, without any labor or other strife -'twas evidently too good to last much longer, for the gentlemen Washington's bureaucracy is paying to go round the country and tell the negroes how poorly they're being treated, and to convince them they're being discriminated against, are with us in force.

I have made it a point to keep in touch with this particular situation here for many months, in the hope that through proper cooperation and understanding racial issues would be avoided. Only trouble there has been at all, except for that caused by troops here on a week end jamboree from the Desert area, was stirred up by outsiders for a very definite purpose.

I have talked with many colored workers at BMI and have yet war bonds, and occupying priority to hear any complaint at all space on airplanes that could be against management. Only criticism any one had to offer was directed toward the practice of a particular labor union which did NOT originate here. Most of them told me they were CON-STANTLY being approached and besieged by agitators trying to convince them they were being badly treated and urging them to do something about it. They told me also that some of the younger workers were impressed, but that the majority felt they were earning more money, under better conditions (both w or k ing and housing) than they ever had be-

fore and were satisfied. But the Fair Practices Com-mittee has other ideas. They're convinced there ARE a lot of things wrong in this area and so things wrong in this area and so help them Hanna, come Hell and High Water, they're going to prove it and see that something's done. And so they're here, done. And so they're here, largely, they say, upon com-plaints of the CIO which recently lost an election at BMI and which, so a few of my colored friends tell me, were responsible for the only flare-up we've had.

Management states there have been NO complaints concerning discrimination lodged with them, except the CIO sit-down strike several months ago. If there were emblazoned in my office that 1 may show it to all and sundry the workers, it would seem the who come out of the east to infirst place to object would be to struct us in the manner of conthe boss. When that procedure is NOT followed, it is indicative of one of .vo things, probably both: (1) that there is no basis for any such charges, or (2) that someone

SAN TRANSISCO FAL NEWS APRIL 3. 1244

New Magnesium Cutback Due The News Washington Europ

WASHINGTON, April 3 .- Another stiff cutback of magnesium production will be announced soon by the

tion will be announced soon by the War Production Board, it was indi-cated here this week. Basic Magnesium at Las Vegas, Nev. is expected to take the heaviest cut unless Nevada senators and House members are able to halt the proposal now under considera-tion. Present plans call for reducing Basic Magnesium's output from 135 million pounds of magnesium an-nually to 95 million pounds. Plants of the Dow Chemical Co.

Plants of the Dow Chemical Co. are also scheduled for reduction. Apparently WPB intends to keep all plants in operation, even though some have reduced schedules, so that magnesium production could be stepped up rapidly in case of need.

By A. E. Cahlan

We have never had any racial strife in this community. Negroes and whites have dwelt together in peace and understanding. And it's MY feeling, and I'm sure it's also that of most everybody who KNOWS conditions in this area, that if there IS any difficulty hereafter, it will be traceable di-rectly to the Fair Practices Committee AND others who use the negro issue to serve political. union, or other ends.

To my way of thinking, the gravest langer to the future of he republic does NOT arise from Hitler or Tojo's ambitions to con-trol the world, but the busy-bodies in our midst who run around the country looking for something to stir up trouble about so they can save somebody from the trouble thus stirred up thereby carning their undying gratitude and all that goes with it.

If that sounds a bit involved, what I'm trying to say is that these gentlemen, paid out of the funds we scimp and save to buy used to much better advantage by returning soldiers and sailors in a hurry to get home for a few days, remind me of someone who sets fire to a house in the middle of the night in order to rescue the family in the nick of time and gather whatever emoluments may be the product of the resulting gratitude.

Gruff, two-fisted old Bill Jeffers expressed the sentiments of the west about this and a lot more similar irritants when he took the breath out of the whole Truman committee and almost broke up a mutual admiration banquet in Los Angeles the other evening. Jeffers, back in the sad-dle as President of the Union Pacific Railroad after trying to get along with Washington's bureau-"go back to Washington, just let us alone, and we on the west coast will do a hell of a good job."

I call attention of the Fair Practices Committee to Jeffers' remarks and adopt them as our own with all the cheers, huzzas, hurrahs and amens my one small voice can muster. And I'm having the Jeffers declaration

Scrugham Seeks Research Fund for Basic

ELY NEX TIME

ATRIL 3. 1944

WASHINGTON (Special) - A recommendation to the Reconstruction Finance Corporation that the sum of \$300,000.00 be appropriated by the Defense Plant Corporation and allocated to the Basic Magnesium, Incorporated plant, specifically for a research program on the chemical and electrometallurgical output at that place, was made by Senator J. G. Scrugham on March 14th.

"The amount requested represents less than 14 of 1 per cent of the amount involved", the Nevada Senator said, "and there is no doubt that this will be the means of making large savings for the Government, for otherwise the plant is likely to be junked."

During the past year Senator Scrugham has corresponded with officials of the Defense Plant Corporation regarding such a program, and his views are similar to those contained in a Truman Committee report on the plant, which in part contains the following recommendation "Further research should be undertaken at once to develop magne sium for such uses as the making of photoengraving plates, automotive parts, portable tools, conveyors, vacuum cleaners, typewriters and business machines." "Basic Magnesium, Incorporated has the potential of becoming one of the greatest chemical plants preparing organic and inorganic synthetics in the west. It is conceivable that products from this plant will become a chief source of chemical supply to the rapidly expanding West Coast industries, the post-war Orient, and other foreign markets. Electrical power, coal, chlorine and caustic are available," Senator Scrugham stated, "and raw materials necessary for the expansion of the chemical industry are within reasonable proximity of Las Vegas. The purchase of a few common. raw materials and the installation of suitable equipment would make possible the manufacture of approximately eighty new chemical products."

"I am hopeful that a worthwhile research program can be worked out", the Nevada Senator said, "and I intend to press the matter most vigorously."

ber 1 and March 1, 9.5 million come of were shipped the Soviet. Of 8,800 planes sent the Red Army, 4,000 ferried over were not in-Juded in the tonnage total.

Basic Magnesium, Inc., production cutback is being considered by WPB, P. D. Wilson, chief of aluminum-magnesium division, confirmed. Dow operations also may be reduced. Basic has 112 million pounds annual capacity, Dow about 35 million. Wilson denied charges by Senstor McCarran of Nevada that any WPB executives had over been connected with Dow.

this year. He says that even the smallest gardens helped make the difference between scarcity and abundance last year. Department of Agriculture surveys show that 42 per cent of the fresh vegetables consumed in 1943 came from Victory gardens.

Senator Pat McCarran of Nevada, has made a grave charge against members of the War Production Board. He accuses them of seeking to close Basic Magnesium, a huge ore plant near Las Vegas, to advance the interests oi competing plants with which they formerly were associated.

McCa, ran said in a Senate speech that the WPB recommended that the plant be closed despite the fact it is the largest producer of magnesium in the world. And he shouted that this was done because some board members formerly were officials of Basic Magnesium's chief competitors. He claimed that they sit on the WPB to serve their own interests and not to serve their country's. However, he did not name the men whom he accuses.

Basic Magnesium was built at a cost of \$133,000,000 and is now producing 160' to 165 tons of magnesium a day.

BOOM TOWN with a SOMBRERO

LI BERTY

5/8/48 York City

First Boulder Dam, then the tourists, and now the biggest magnesium plant in the world have made Las Vegas depression-proof and a gambling heaven

BY ALYCE CANFIELD

SHOT rings out. Through the gray morning a tall figure runs from the doorway of a hotel and down an alley. In the hotel lobby blazing lights shine down on the still figure of the night clerk. The safe has been jimmied. The killer is gone. Perhaps he already is casually mingling with the crowds on Fremont Street, a block away, where all-night cales blare canned music to the dawn-gray street. For this is wild and woolly Las Vegas, Nevada -1943 edition!

Sure, murders happen in every

state in the Union. But not with a carnival backdrop. Not to the whir of roulette wheels and the clink of silver dollars. Not under a jewelstudded night which mocks the tinsel splendor of neon lights.

Although Las Vegas has much of the old West about it, something new has been added. It is incredibly prosperous, high-keyed, and fastpaced. Bars and gambling casinos line its streets. Where sweat-begrimed miners in dust-caked boots once watched the chips fall and the croupier rake them away, newly

A plant guard in a watchtower looks out over the thousand-unit housing development.

rich construction workers now stand beside young divorcees in silver-fox capes and together watch the magic wheel go round.

Because Las Vegas was building Boulder Dam, it never felt the Great Depression. Townspeople expected a slump at its completion, but were swamped with an avalanche of 600,-000 tourists a year who came to see the highest dam in the world. With the war, the \$10,000,000 Las Vegas Gunnery School brought the wives and sweethearts of thousands of soldiers to Las Vegas and jammed to capacity all housing.

Then came the giant, dwarfing everything that had gone beforethe history-making No. 1 wartime project-\$125,000,000 Basic Magnesium, Inc., largest magnesium plant in the world. Breathing gold dust and spouting dollars, it dumped into the city of Las Vegas every week its fabulous \$1,000,000 pay roll. Overnight its 13,500 workers tripled the population.

Basic Magnesium is using money as men use air. It has built a huge plant. Its workers have fought and licked the desert, mountains, and searing sun to get water from Lake





At zero hour, American ground crews line up on their bikes to wave good luck to the bomber's crew as it takes off.

UNFORGETTABLE B-17

operational training work together at Sarasota, Florida. Small-featured, blond, with blue eyes from which radiate a tiny network of wrinkles, Sammons-or "Sammy," as he is called-is a drawling, slow-spoken Kentuckian who planned to be a teacher. The only place he sits erect is in his pilot's seat. Elsewhere he is likely to lounge or sprawl, with one long leg crossed over the other, while he talks about "that little old ship." He gestures with one hand as he talks. All these crewmen gesture with their hands when they talk about planes-and they talk about planes most of the time. "She came in like this," they'll say, their open palms weaving and then swooping upward, "and all of a sudden she turned in and . . ."

The particular raid Lieutenant Sammons described was the last from which the Dinah Mite made a successful return-it was over Lille, on October 10, 1942. But he spoke, too, of the six raids which had preceded it, especially his first, on Rouen. That was also the first raid for the other squadrons in the group.

"When I was a little kid," he said, "I had a cousin, and I used to hear him tell about the last war and how, when a bunch of men were asked to volunteer for overseas duty, the whole damn line stepped forward like one person. I used to think that sure was fine, but I thought that if it was me I'd have been scared. And

MAY 8, 1943

when we went out to Rouen that first time I expected to be scared plenty.

"Well, sir, it was a funny thing. When we got over the Channel and sighted the French coast, I kept thinking, Well, here it starts. But nothing happened-just a little flak that never even touched us. Then, as we got to the target and went into the bombing run, I thought, All right. This is where it starts. But it didn't start there either, because we just dropped our load and turned around and headed back without being bothered by a single fighter. A lot of other ships were, but ours wasn't. Not on that first trip, any-way. So I never have been scared."

THAT is what Lieutenant Sammons says, and you can believe him. But other members of his crew admit to being scared. But they are scared only in retrospect. They think back and say, "I sure was scared there for a minute," but they never speak of being scared beforehand. After Rouen, for Lieutenant Sammons and the crew of the Dinah Mite, came Rotterdam, St. Omer and some others-and then Lille. Lieutenant Sammons preferred to talk about Lille because, in the first place, it was fresh in his memory, and also because from his point of view it was the most successful operation in which he had participated, as well as the most exciting.

It was highly successful because the most damage was done to the target, and it was the most exciting because the ship had its largest number of enemy encounters on the

return. They all knew the evening before they all knew the evening before that there was to be a raid and that they were to go on it-but they didn't know where. They were awakened at four-thirty in the morning on that Saturday, last October 10, and after they had breakfasted they went to the briefing room at group headquarters. There the crews of the squadrons which were to participate in the raid were assembled, and there, behind locked doors and with armed guards stationed outside, they learned for the first time that the primary target was to be the Lille Steel and Engineering Works.

That half-hour session in the briefing room was as accurate and as complete a forecast of the Lille raid as was humanly possible. The crews were told the rendezvous at which the bombers would meet their fighter escort, at what time and what altitude. They were given information on the weather they would encounter, the location of antiaircraft batteries and of enemy airdromes adjacent to their reate, they were shown enlarged reconnaissance photographs of the target and its surrounding territory; they were (Continued on page 44)

Mead (backwater of Boulder Dam and largest artificial lake in the world) to the plant. Company construction men straddled the bleak hills with towers and strung them with copper to bring electricity to the job. Flood-control works, storm drains, and a whole sanitary sewer and sewage-disposal system were also designed and constructed. It's a herculean job. Big, tough-and expensive. But by May the plant will be equipped to produce in excess of a hundred million pounds of magnesium a year.

Why this speed for magnesium? Because thousands upon thousands of tons of magnesium is needed by every aircraft factory in the world, because it is lighter than aluminum and just as strong. The lighter the plane the faster it is. Moreover, every fifth bullet from an airplane machine gun is a tracer-made of magnesium. We need them by the millions-to help our gunners see their targets. And when an American bomber swoops down over a blacked-out Jap city, he drops a flare so he can see where to "lower the tailgate." Those flares are made of magnesium. Our flyers need tons of them. When Tokyo goes up in flames, incendiary bombs will start the conflagration. Incendiary bombs



MAY 8, 1943



The revenue from gambling in Las Vegas runs into millions.

are made from magnesium. That's why the hurry, that's why the \$125,000,000 push behind Basic Magnesium, Inc.

Wherever big money rolls in, boom-town conditions exist, and with the advent of a pay roll which zigzagged from \$750,000 to \$1,000,000 every Friday night, living conditions unprecedented in our history have been created in Las Vegas.

The personnel of Basic Magnesium plus families of soldiers from Camp McCarran and Camp Williston skyrocketed rents, and there they stay, rent ceilings to the contrary. Girls are still living in auto courts and splitting rents of \$170 a month for three people. Single rooms with community baths and no cooking facilities range from sixty to ninety dollars a month, and they are at a premium. People live in camps, in trailers, in caves and makeshift sheet-metal lean-tos. Men earning \$100 a week live in shacks. One year after the start of construction, living conditions are still so crowded that public health is menaced.

And, in spite of this, public health officials say that there is no bed in any hospital in Las Vegas for communicable diseases. It would seem the city of Las Vegas is sitting on a keg of dynamite.

The citizens claim the locust-like population was dumped on them; that because the Basic Magnesium workers and the soldiers do not own property, there is no way to tax them for facilities which would relieve the situation.

Nevada has no sales tax, no inheritance or income tax; the state has no bonded indebtedness, and by constitutional amendment the tax rate is never over five dollars. This is a bonanza for big capital, a boon to the small home owner, but it doesn't pay for schools, hospitals, or other public works to care for the increase in population.

A SHINING new \$283,000 hospital, the best equipped of its kind in the United States, is Basic's way of taking care of its own. Supervised by Josephine Cunningham Lacey, the hospital has forty-two beds, ten bassinets. Twenty-four nurses live in the Nurses' Home.

There are eight grammar and four high-school classrooms at Basic, overcrowded in spite of the fact that classes are doubled up, half the children attending school in the morning, the balance in the afternoon. Facilities now in course of construction will double school capacity.

The new population feels that many local landlords and merchants are taking advantage of the situation and are basking in the profits of cutthroat prices. "One thing you can depend on," said a defense worker bitterly: "the city may not be taxing us, but we'll never leave the state with a dollar we've earned. It all goes just to live!"

Combating the living conditions for Basic workers, the companythrough the Defense Plant Corporation-has already built one thousand 100-per-cent electrically equipped homes across from the plant. These houses were called "demountables," to get by local opposition, but are really permanent structures. Rent, unfurnished, ranges from forty-four to fifty-two dollars a month, including all utilities.

A huge camp housing 4,000 men in dormitories and tents has gone up near the plant, Here 20,000 meals a day are served in a dining room that covers half an acre, with a kitchen and service crew of 350. Over 200 trailer camps have mushroomed overnight, and some camps have as many as 600 trailers. More "demountables" are in construction; more trailers are ordered. Basic could use 1,000 more men tomorrow if it could provide living accommodations for them.

More fair than many local longtime residents (who in some instances saw a chance to pay for their homes in a few months because of the terrific housing shortage) is square-shooting Tom Oakey, realestate man, who built Huntridge, a suburb of 4,000 homes. His houses cost \$5,000. There is no down payment. The purchaser signs a rental option to pay fifty dollars a month. Any time within thirty months the renter can declare his intention to purchase and meanwhile can build up his equity.

A conscientious effort is being made by the Las Vegas Chamber of Commerce to win over newcomers, to acquaint them with the part Nevada is playing in the war effort. Emphasizing the role the new great white metal is playing in winning this war, Las Vegas recalls that it was the silver of the Comstock Lode, the greatest strike in the history of

I SERVED ON BATAAN

By Juanita Redmond

is an army nurse's own story of her experiences in the Philippines from the day of the first Jap bombing. There are no deliberate dramatics in her account of what happened at Manila, on Bataan and Corregidor, yet drama is there in the facts as she sets them down. Here is a book you must not miss.

Next Week in Liberty

Abridged to one evening's reading time

the world, that saved the Union during the Civil War.

Moving in to share the wealth is outside capital which has built palatial resort hotels. First on the scene was Tom Hull's \$425,000 El Rancho Vegas, which boasts of a swimming pool, dining room, bar, casino, and cottages. Smart divorcees like Martha Mature made this swank spot their headquarters. And local Basic Magnesium workers jammed the dining room to see the floor show.

A hotel in the heart of the business district came next. Leonard Hicks' \$180,000 El Cortez, which immediately became the meeting place of local business men.

Bob Brooks, coining money in two night spots in Beverly Hills and Hollywood, invested \$400,000 in a hotel, complete with swimming pool, night club, casino, bar, and café. And, in addition, he put up two-bedroom bungalows that look like a whole suburb, facing a paved street with lawns and landscaping. He called the whole thing Bob Brooks' Nevada Biltmore.

R. E. Griffith, who owns and operates some 200 theaters in the Western states, has hired top ar-

chitect Bill Moore to outdistance the pack. His Hotel Last Frontier, a \$550,000 layout, hits every tourist in the eye. Here are hotel rooms, outside cottages, a dining room with orchestra, two bars, and a casino, swimming pools, lush green lawns, and a field where rodeos are held every Sunday.

Definitely, big outside capital does not believe Las Vogas' prospanita- a lash in the pan. Too much money has been invested in permanent industry to have Las Vegas collapse after the war. The city is on the crest of a boom that will last a hundred years and may go on from there. That is the prediction of the president of the telephone company, Ed Clark, who came to Las Vegas in a stagecoach in his mother's arms.

First there was \$212,000,000 Boulder Dam transforming a snowflake in the Colorado mountains to a kilowatt in Los Angeles. Its power is the life blood of the entire Southwest.

Then came the Las Vegas Gunnery School and McCarran Airport, at a construction cost of \$10,000,000. United States Senator Jim Scrugham of Nevada fathered a pilot manganese plant at Boulder City, a \$1,000,000 investment. From this has sprung the \$8,000,000 plant of the Manganese Ore Company. Two roads, one costing \$6,500,000 and the other \$175,000 lead from Basic Magnesium to the manganese plant d to Las Ve

Next year Las Vegas will have the \$43,000,000 Davis Dam. And Boulder Dam, usually thought of as completed, is now installing sixteen of the largest generators ever built, at a cost of \$2,225,000 each.

THERE is the \$2,000,000 Shoemaker Wallboard Company, mining gyp-

sum; the Blue Diamond Mine, a \$4,500,000 investment. Add to this a group of men who are dreaming dreams of irrigation for the desert, to tap the enormous agricultural resources, and you have good solid industry that has come to stay.

Basic Magnesium, once its war job is done, is expected to revolutionize the light-metal industry by producing magnesium for the manufacture of autos, ships, refrigerators, kitchen equipment, and many other articles.

The liberal laws will always bring tourists. The revenue from gambling goes into the millions. There are slot machines even in grocery stores. Nevada's quick marriage and di vorce laws brought 22,500 people to Las Vegas last year, and the Justice of the Peace made more money than the Chief Justice of the United States Supreme Court. THE END



L.V.R.J. 5/21/43

All Nevada Is Interested

(Reno Gazette)

(Reno Gazette) With the world's largest magnesium plant at Las Vegas, all Nevada has an interest in the possibility of the operation of this war-time project when peace comes. If Basic Magnesium can be provided by during peacetime, Clark county can be a major atter war operation of BMI was contained in a high interesting story on the Saturday mining page of the Gazette. This story chronicled the progress which has been made by hich BMI could obtain magnesia, the raw material for mags than twenty miles southwest of Las Vegas. This deposit is reported in excess of 400,000,000 tons of dolomite, sufficient raw material to supply the Las Vegas plant for a long period of peacetime or attor. operation

At the present time, the raw material source for the BMI plant is magnesite in the Paradise range in Nye county. A calcining plant has been constructed in Gabbs valley and the magnesite is treated and reduced to magnesia, which is then trucked to Luning, where it is loaded in freight cars. Since there is no rail connection between Goldfield and Las Vegas, the raw material is then hauled by rail to Hazen, on the main line of the Southern Pacific, then to Ogden, where it is transferred to the Union Pacific, and on through Salt Lake to Las Vegas, a railroad trip in excess of one thousand miles. If highway transportation were available for a direct hau through Tonopah and Goldfield, the distance from Gabbs to the BMI plant would still be in excess of three hundred miles. This condition alone is a handicap to competitive peacetime operation of BMI, which after the war must face competition from some of the highly successful salt water plants operated by Dow Chemical. If the new process developed through research at the bureau of mines can be adapted later to the BMI production, it would eliminate the long and costly haul from Gabbs valley, automatically reducing production costs. Nye county would suffer for the loss of the now lusty mining camp at Gabbs, and this would be regrettable, but the larger interest must be in the successful after-war produc-tion of magnesium. At the present time, the raw material source for the BMI plant

tion of magnesium. If the scientists of the bureau of mines have found a process through which BMI can be assured a place in the competitive light metal field after the war, they will have the gratitude of all Nevada.

L.V.TRIBUNE 5/23/43

Governor Praises Progress at BMI

Governor E. P. Carville expressed amazement at the tremendous progress that has been made at the Basic Magnesium plant during the last few months. The chief executive visited the gigantic project last Tuesday afternoon and was guided through the plant by Bruce McNeil, of the McNeil Construction company. builders of the plant.

After inspecting the various units and processing plants, the governor learned many interest ing facts about the magnesium project from F. O. Case, general manager for BMI.

At the end of the inspection tour, the governor gave much praise to the men responsible for the development of the magne. sium plant. "The McNeil Construction company deserves much credit for a magnificent job.' Carville said. "The builders of the plant have done what many believed to be impossible. The operators of the project. Basic Magnesium, Incorporated, are now doing a Herculean job, not only to manufacture magnesium metal which is so vitally needed in our war effort, but the management of BMI is already looking into the post war future and is endeavoring to assure the peacetime permanency of the Basic Magnesium plant by studying production methods that will en-

L.V.A. 5/21/43



tribution toward winning the war there are not many enterprises of more value to the nation than that of producing the "magic metal," mag-

plant of Basic Magnesium is the product of master minds and great executives, working with materials produced mostly within the state of Nevada. The great deposits of magnesium in Gabbs valley form the essential basis on which the entire enterprise is founded.

So it comes about naturally that Nevada, having the great ore deposits in Gabbs Valley and the vast power from Boulder Dam, should be the site of the vast and important Basic Magnesium plant which is probably contributing as much toward bringing victory to the Allied Nations as any other enterprise in the country.

WHERE MAGNESIUM GOES

Where the magnesium goes and how it is used is considerable of a mystery to most of us. This much we assume when we see the carefully wrapped bars of the metal packed in cases-it is going overseas, most of it to plants in Great Britain. There it is used to make the fiery filling of in-cendiary bombs, of which the British and American forces are dropping hundreds of tons overy week on the industrial plants of Germany

From Las Vegas carloads of the metal go by rail to Boston or Galveston or New Orleans or Baltimore or New York or wherever ships are being loaded to form convoyed fleets across the seas.

But not all goes toward the Atlantic. Recently orders were received from the government to ship a trainload of magnesium metal to a Pacific coast seaport. There it was loaded into a Russian ship and taken across the sea to a Russian port on the Pacific, probably Vladivostock, and thence by the Trans-Siberian railroad more than six thousand miles overland to Russia to be used against the Nazis on that front. It is said that Russian ships carrying magnesium or any other war materiels are perfectly safe from Jap submarines because Japan and Russia are still making believe they are at peace with each other and neither desires to provide an excuse just now for an

L.V.A. 5/21/43

Governor Pleased **By Plant Progress**

Governor E. P. Carville, here to participate in the Las Vegas Helldorado, on Wednesday visited the Basic Magnesium, Inc., plant. He was accompanied by Art Revert, purchasing agent for the State Highway Department, and Charles DeArmond, member of the Nevada Colorado River Com-mission. They were shown through the plant under supervision of Tommy Bellis of the project police force

To Bruce McNeill, Governor Carville expressed amazement at the rapid progress made by the plant and satisfaction that the project was so rapidly advancing toward completion.

L.V.A. 5/21/43

HENDERSON POST OFFICE

It is very fitting that former United States Senator Charles B. Henderson should be honored by having the post office and city near the plant of BMI named after him.

About thirty years ago Charlie Henderson of Elko, served Nevada ably as United States Senator. Although for many years since then he has been in the service of the government he has never lost touch with his native state and as chairman of the board of Reconstruction Finance Corporation, he has always turned an attentive car to the cries of the state for aid.

The main thing just now seems to be to get a building built to house the proposed post office. It is reported that a conflict between government bureaus as to whether the new building should have wooden or concrete floors is holding up the beginning of construction.

LAS VECAS NEV. REVIEW-JOURNAL MAY 25, 1943 **BMI Plant Now** World's Largest Metal Producer

The Basic Magnesium plant, operating on an 85 per cent capacity, today became the world's largest producer of magnesium in a single plant. Eight and a half units, out of a final total of 10 proposed, are now in operation. Censorship restrictions do not permit the disclosure of the total production work but it is not production now, but it is well above that of the Dow Chemical company s largest plant.

able the Las Vegas plant to compete with other magnesium manutacturers after the war.

"The men and women working at BMI are to be congratulated for their endurance, for their courage and for their patriotism. Their work is vital to the war of_ fort. They are doing a fine job on a project which already shows promise of becoming the pillar of Nevada's industry."

attack by the other.

Which leads to another anomaly which at first glance is most puz-zling, but which is quite under-have been shipped to various war centers over the world and stored

(Continued on Page 4)

OBSERVATIONS

(Continued from Page 1) ready for instant use in case Germany and Japan again resort to poison gas.

Perhaps you may have noticed those peculiar railroad cars — round ended steel tanks standing on railroad sidings near the BMI plant. Those cars are used to transport approximately 35 tons a day of liquid gas to where it will be ready for instant use in case of necessity.

Yes, Nevada is really contributing a vital part to the task of winning the war-just as in 1864 Nevada's gold and silver saved the credit of the nation and was an important factor in winning the Civil war and preserving the Union.

SALT LAKE CITY, UTAH, TRIBUNI

Basic Magnesium Plant Heads Above Criticism

The recent comments in this column on the Dow testimony By the Shift Boss before the Truman committee have been misinterpeted in some quarters as intended as criticism of the plant of the Basic Magnesium plant at Las Vegas, Nev., so important to the future

economy of the west. The Dow testimony compared with results obtained by plants which took advantage of Dow "know how" with the government which took with the government "know how" with the government financed plants which employed other methods, but it was not spe-clific as to the processes used. Among the plants employing other than Dow methods was the other than Dow methods was the tas Vegas plant. At the time Las Vegas plant. At the time Las vegas plant. At the time Las vegas plant at the time base the Basic Magnesium op-to have the Basic Magnesium op-eration shut down."

to have the Basic Magnesium op-eration shut down." In fairness to the present op-erators, capable western metal-ingists, who had nothing to do hurgists, who had nothing to do with the design and construc-with the design and construc-tion at Las Vegas, and who have how a beinging down costs despite with the design and who have been bringing fown costs despite the distance from the plant of its raw magnesium-bearing material, it must be pointed out that the plant was included generally with other government financed ther-mal process plants which have not been entirely successful in the matter of costs and output. Since the Las Vegas plant is of great importance to the west and potential supplier of magnesium chloride to Basic Magnesium. It is of interest to note that, although no official figures have been pre-

is of interest to note that, although no official figures have been pre-sented to the public, it is gener-ally understood that the metallur-gists who operate the refinery have gists who cost of magnesium far out the figure they considered below the figure they considered below the time time they assumed Possible it and for results, responsibility for results, Future peacetime operation at

Las Vegas would seem to depend Les Vegas would seem to depend to a great degree upon the ob-taining of its raw magnesium-hearing material from sources closer to the plant and the use of a raw material which does not require the double treatment of conversion into the oxide followed require the double treatment of conversion into the oxide followed by conversion to the chloride for

by conversion to the chloride for processing to the metal. It is said that such new sources of raw material are being con-sidered and are under investiga-tion. Since this seems to be an accepted fact, Utah would appear accepted fact, up applier of mar. accepted fact, truth would appear to be a potential supplier of mag-nesium chloride for Basic Mag-nesium because of the rich carnal-lite beds in the Crescent district at found county attested to be of Grand county, attested to by the U. S. bureau of mines and the the U. S. bureau of mines and the U. S. geological survey in connec-tion with the cores recovered in the Defense Plant corporation well drilled by the bureau of

well drilled by the bureau of mines in 1942. The failure to test this well and the sudden withdrawal of 3,000,000 acres of land in and about the vicinity of the well are subjects of wide discussion as well as being still under investigation by a spe-

still under investigation by a spe-cial senate land committee. The operators of Basic Magnes-fum, Inc., cannot be criticized for using the raw material made svallable, but it is to be hoped the carnallite beds of Utah will the carnallite beds of Utah will not be overlooked as a potential source of raw material for the Las Vegas plant.

interest the fight now being waged in Washington by Senator Pat Mc-Carran, of Nevada, to stop the issuance of an order by the war production board to close down four units of the Basic Magnesium plant at Las Vegas, Nevada. . .

The fight will be of particular interest to Californians because it appears to be the first of a coming series of moves by eastern indus-trialists to throttle the industrial development of the West, accelerated by the war, because of their fear of competition. . .

We had a letter yesterday from an old friend, Guernsey "Doc" Frazer, giving us an interesting angle on the battle which we are passing on to you. Frazer made many friends in Merced while serving as public relations representative for the Santa Fe during their successful battle to obtain their bus franchise with interchangeable tickets. . .

Says Frazer, in part:

"Attached find clipping from the "Las Vegas Evening Review-Journal" dated Thursday, March 23rd, being a reprint of an article which uppeared in the "Salt Lake Tribune."

"I forward it to you in order that ou may be conversant with certain levelopments which appear to be aking concrete form in Washington nd indicate that western industry nay well be on guard to prevent urtailment of developments brought bout by the war.

"As you know, I have been af-liated with Basic Magnesium, Inprporated as one of the assistants the general manager since the ception of the project and, therere, have some intimate knowledge the developments and the facts.



Californians will watch with keen

Las Vegas plant. At the time the testimony was released, allegations were being made that "Dow and Alcoa were endeavoring to have the Basic Magnesium operation shut down."

In fairness to the present operators, capable western metallurgists, who had nothing to do with the design and construction at Las Vegas, and who have been bringing down costs despite the distance from the plant of its raw magnesium-bearing material, it must be pointed out that the

plant was included generally with other government financed thermal process plants which have not been entirely successful in the matter of costs and output.

Since the Las Vegas plant is of great importance to the west and because Utah may be considered a potential supplier of magnesium, chloride to Basic Magnesium, it is of interest to note that, although no official figures have been pre-sented to the public, it is gener-ally understood that the metallurgists who operate the refinery have cut the cost of magnesium far below the figure they considered possible at the time they assumed responsibility for results.

Future peacetime operation at Las Vegas would seem to depend to a great degree upon the ob-taining of its raw magnesiumbearing material from sources closer to the plant and the use of a raw material which does not require the double treatment of conversion into the oxide followed by conversion to the chloride for processing to the metal.

It is said that such new sources of raw material are being considered and are under investigation. Since this seems to be an accepted fact, Utah would appear accepted fact, of an would appear to be a potential supplier of mag-nesium chloride for Basic Mag-nesium because of the rich carnal-lite beds in the Crescent district of Grand county, attested to by the U. S. bureau of mines and the U. S. geological survey in connec-tion with the cores recovered in the Defense Plant corporation well drilled by the bureau of mines in 1942.

The failure to test this well and the sudden withdrawal of 3,000,000 acres of land in and about the vicinity of the well are subjects of wide discussion as well as being still under investigation by a special senate land committee.

The operators of Basic Magnesjum, Inc., cannot be criticized for using the raw material made available, but it is to be the carnallite beds of Utah will not be overlooked as a potential source of raw material for the Las Vegas plant.

From JOURNAL OF COMMERCE New York, N.Y.

MAR 3 1 1944

Basic Magnesium Defends Record

(Special to Journal of Commerce) CLEVELAND, Ohlo, March 30.-Easic Refractories, Inc., through its president, H. P. Eels, Jr. charged today that the Truman Committee had distored the record of Basic Magnesium in its recent report on domestic production of the light metal.

The statement pointed out that Basic conceived the idea of merg-ing the know-how of Magnesium Elktron, Inc., an English company which has magnesium production experience comparable to Dow Chemical, with the resources of Basic Refractories to expedite the production of magnesium. "Organization of Basic Mag-nesium brought to the United

States the only and the best available experience with the metal among the United Nations," ac-

cording to Eels. The statement follows in part: "The public is informed that we had 'no financial resources' and that we 'stood to net \$840,000 yearly.' The facts: Basic Magnesium, like Dow Magnesium, Diamond Magnesium, etc., were management instruments requiring no financial resources. The Govern-ment wanted it that way. Secretary Jones wisely provided that these companies should not have such resources or earning records. In this way, 80 per cent of whatever was paid in fees would automatically be returned to the Government taxes. After such taxes, Basic Magnesium stood to net not \$840,-000, but perhaps as much as \$100,-

"The Truman Committee does not point out that Basic Magnesium originally- was delegated a project one-tenth of the final size. A smaller project would have been far more favorable to us, for it would havt left us a position in the magnesium field after the war. When the Government multiplied the size by ten it: (1) Practically eliminated the possibilities for a reward to us through postwar activities; and (2) increased many times our responsibilities. We did not complain."

SILICATE P's &

SILICATE P'S & Q'S

PHILADELPHIA PA.

4/44

A message to those who use silicates of soda or could use them

N UNUSUALLY thought-provoking address was recently given before the Virginia Section of the American Chemical Society by Walter Murphy, editor of Industrial & Engineering Chemistry, in which he called on scientists (and that includes chemists) to take a more active part in public affairs. In the words of the speaker "we have provided the basic sinews of modern war. . . . Will we have a voice in how these tools are converted into instruments of peace?"

There is no reason to believe that the scientist is not capable of thinking about problems of peace with as much vigor and determination as he tackles problems involved in the war effort. Nor is there any reason, as Mr. Murphy so ably points out, why the chemist should not have a sense of responsibility toward society similar to that held by the physician. That should be a part of his professional training. It should be a part of the "rights and privileges appertaining thereto" with which degrees in science are customarily granted. It is a right and a privilege-and an obligation, but most of us hesitate because we feel inadequate, or we fall back on the old argument "what can one person accomplish?"

We forget the many examples about us of the effect of single but continued effort. Stand beside a weaver at a loom and watch the shuttle fly, laying one single thread between the warps. The heddle frames drop, the beater bangs against the fabric pushing the weft into place, the treadles pull the frames into a new position; back goes the shuttle. It is only one thread at a time that is laid down but continue the operation for an hour and you have a foot or more of fabric, strong and useful.

I am only one; (writes an anonymous author) But I am one; I cannot do everything But I can do something.

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mt Centre, Col. Desert Magasias APRIL 1944

Mines and Mining ..

Henderson, Nevada . . .

One hundred million pounds of magnesium, enough for 50 million incendiary fires in Berlin or Tokyo, had been produced at Basic magnesium plant here by February 10 it is reported. This amount is said to be more magnesium than total output of US for 27 years preceding March 1, 1942, and more magnesium than world production total for 1940. . . .

The Salt Lake Tribune____ Thursday Morning, March 30, 1944 20

Basic Magnesium Plant Heads Above Criticism

By the Shift Boss

The Dow testimony compared with results obtained by plants

which took advantage of Dow

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cific as to the processes used. Among the plants employing other than Dow methods was the

The recent comments in this column on the Dow testimony before the Truman committee have been misinterpeted in some quarters as intended as criticism of the plant of the Basic Magnesium plant at Las Vegas, Nev., so important to the future economy of the west.



Vol. 24 No. 4 Fourth Month, 1944

Magning 1

What I can do I ought to do And what I ought to do, By the grace of God, I will do.

It is fortunate that in industry scientists and technologists do not hesitate to play their small roles in working out details of elaborate processes. Think, for instance, of the vast amount of study in many fields of science that must have gone into the design and building of some of the huge new magnesium plants which have sprung into production in the last few years. The operations of Basic Magnesium, Inc. in southern Nevada, are typical. It is the biggest magnesium producing unit in the world. To use the words of Chemical & Metallurgical Engineering "it uses all the peat moss Canada can supply, all the power Boulder Dam can spare, all the men it can get, all the electrical equipment three or four of our largest companies could manufacture, and it is still growing. At its full capacity it produces over twice as much volume of metal as one of our largest open-pit copper mines."

The process by which this tremendous production is accomplished is fairly simple in outline, High grade magnesite ore is roasted in Herreschoff



furnaces to reduce it to the oxide and is then mixed with peat (for porosity) and coal and heated to 850°C in an atmosphere of chlorine to form anhydrous magnesium chloride. Next it is transferred in two ton ladles to a battery of electrolytic cells where metallic magnesium is released and removed in molten form, ready for final refining and casting in pigs. These operations require vast buildings and equipment but in addition there are many extra units, as for example a chlorine plant, one of the largest ever built; it has a daily capacity of 200 tons.

The electrolytic cells in which the metal is finally released are of especial interest to us. The photograph shows one row of cells; there are a total of eight rows, eleven cells to a row, each about twice the size of a bath tub. Six steel cathodes and three graphite anodes carry the 20,000 ampere current. Examination of the photo showing the heavy copper bus bars helps to explain why our pennies are now made of steel. Toward the end of the project silver was substituted for the precious copper and eight hundred tons of silver went into that service. Pulled by the heavy current, molten magnesium collects in a pool at the cathode area and once a day is dipped out by hand and cast into "cheeses", later to be refined and recast.

These cells, as well as the eighty chlorinators and the acid scrubbing towers, were protected from attack of the corrosive fluid by enormous quantities of acid resistant tile. Linings twenty inches thick were necessary in the chlorinators, each one of which required some 12,000 pieces, varying in size up to 110 pounds. Joints were precision ground to 1/64" in order to insure complete protection of the metal shells.

Silicate cements were used for setting the tile and over three million pounds of soluble silicates, both sodium and potassium, went into the project. These cements set rapidly but in that very hot and dry climate the reaction was so rapid that it was necessary to resort to an unusual device. A battery of ten ice-cream freezers was set up and into this went chilled silicate, feldspar and other ingredients. The mixed cement was transferred to metal hods set in tubs of ice, from which the bricks were "buttered", one by one, as used. It took over a hundred and fifteen carloads of ice for the job. Even with this extreme care the cement life was only twenty minutes. One can imagine the careful timing necessary to prevent waste of manpower and material.

The blue-grey magnesite ore (chiefly magnesium carbonate) is taken from the earth some 300 miles north of the plant we have been discussing. It is of high grade but for this process it must not contain more than 4% insoluble, 4.5% CaO, 2% Fe₂O₃ and Al₂O₃; the MgO content should be about 40%. To maintain this standard the talc, sericite, serpentine and quartz which are present in the ore are removed by a flotation process. As in most operations of this type a complex series of reagents is required. Aluminum sulfate, sodium metaphosphate, napthenic acid and sodium sili cate are included, each for a special purpose.

Sodium silicate is very commonly used in ore flotation, chiefly to depress the siliceous gangue slimes thereby permitting the valuable metallic particles to be floated off in the froth. "N" brand is preferred and, except for dilution, it is used as received in amounts of one-half to three pounds per ton of ore. At Basic Magnesium, however, a different technique is used. They find it preferable to form a metastable sol by diluting with water and neutralizing with sulfuric acid to a pH of 2.4. A definite aging period follows to promote growth of the silicate micelle and it is then added to the ground ore pulp. In this flotation process its particular purpose is to disperse the slimes and to modify the froth so that the ore particles high in undesired insolubles are rejected to tailings. It has also alleviated a serious froth pumping problem and eliminated the need for a mechanical separation of slimes which existed prior to the adoption of the silica sol.

In this new industry of magnesium production are other interesting uses of the soluble silicates. We hope to be able to tell you more about them in a future issue of P's & Q's. * * *

We are correcting our mailing list. Won't you please check the enclosed card and drop it in the mail promptly. Thank you.

Philadelphia Quartz Company

General Offices and Laboratory 121 S. Third Street Philadelphia 6 Chicago Sales Office; 205 W. Wacker Drive Nine plants and distributors in over 60 cities

Printed in U. S. A.





Photo courtesy Westingbouse Electric & Manufacturing Company

MAGNESIUM "CHEESES," WHICH WEIGH ABOUT 100 POUNDS EACH, are taken from the electrochemical processing buildings and lowered in crucibles into alloying furnaces, where two-ton charges are combined with other metals at Basic Magnesium, Inc., Las Vegas, Nevada. At present, numerous alloy combinations have been made at this plant, although only about a dozen are in constant production demand. The alloyed magnesium is poured into ingots to be used for incendiary bombs; formed into billets for castings for airplanes and ships; rolled into sheets or slabs to be used for stampings for many war products; or extruded into wire, rod, or tube for special uses.

L.V.R. JOURNAL 4-1-44

McCarran Blasts WPB For Plan To Close BMI Plant

(Continued from Page One) of magnesium in the world. "This is being done," he shout-ed, "because there are on the war production board, members who are former members of the board of Basic Magnesium's chief competitor."

Some WPB members, he said, "sit on the WPB to serve their own interests and not to serve their country's."

"In some countries I could men-tion," he added, "such members of such a board would not only be fired but would be stood up against a wall and shot at sunrise

McCarran said that Basic Mag-nesium was built at a cost of \$133,000,000. The plant now is producing 160 to 165 tons of magnesium a day.

At the outset of the war- the United States found itself exceedingly short of magnesium, Mc-Carran said, Britain found itself unable to obtain brucite or magnesite from which to produce magnesium, and brought to the United States blueprints and plans for setting up the British production system.

Nevada was found to have quantities of ore and power and the government appropriated about \$133,000,000 to the con-struction of the Basic Magnesium plant at Las Vegas, near Boulder

Each day up to date it has been producing at the rate of 160 to 165 tons of magnesium, he said.

"The question now seems to be whether or not there shall be a curtailment of the production of curtailment of the production of magnesium at Basic Magnesium, in Nevada, and whether or not other plants shall be permitted to operate, notwithstanding the fact that the cost of production is either equal to or greater than the cost of production at Basic

either equal to or greater than the cost of production at Basic Magnesium," he declared. McCarran said he was "not alone" in protesting against the proposed curtailment of Basic Magnesium's operations and charging WPB members with "outside interests."

"I am not alone," he said, "in proclaiming that in the war production board as it now is constituted, there appear to be men who, in years past, have been ac-tive members of the board of great industrial activities, and who, when they came to the war accountion heard ware on the

who, when they came to the war production board, were on the payrol's of their respective insti-tutions, some of them receiving salaries as high as \$65,00. a year. "It is not to be supposed that these men, many of them ge-niuses in their respective lines, would lay aside their first love, namely, the institutions they served in years past, and forget the interests of these institutions while serving on WPB.

the interests of these institutions while serving on WPB. "To exercise for private ad-vantage any power given to a member of the war production board is unconscionable at this hour when the nation is strug-gling for its existence." Basic Magnesium, he contin-ued, had demands for 11,000,000 pounds of magnesium this month. These needs of war agencies, he

These needs of war agencies, he said, cannot be met if the plant is closed down or curtailed. He told the senate that both he and his committee had made these charges to WPB itself this week. "After that, the intimation was given out that notwithstanding the fact that we had met ever single argument which they had made and had knocked out every hought they had relative to shutting down of this plant,' McCarran said, "the plant will be curtailed in its operations. WADDINGTON, APT. I LUT P Senator Pat McCarran, demo-crat, of Nevada, today accused members of the war production board of seeking to close Basic Magnesium, huge ore plant near Las Vegas, to advance the inrecommended the inat it is the largest producer (Continued on Page Three), that

Truman Charges Denied by BMI

The following statement challenging the findings of the Tru-man committee as published in its report entitled "Magnesium," dated March 13, 1944, was made today, Tuesday, March 28, 1944, by H. P. Eells, jr., president of Basic Refractories, Inc., Cleveland, Ohlo, which, in 1941, established Basic Magnesium, Inc., a company which has since become a major producer of this war-vital metal.

CLEVELAND — In 1941, the United States needed magnesium desperately. Only one company in this country (Dow Chemical) was experienced in the manufac-ture of the metal and that one was experienced in the manuac-ture of the metal and that com-pany was given all it could do. In-cidentally, it has discharged mag-nificently a tremendous undertaking. Basic Refractories of Cleveland, thought it could help in this emergency. Basic had are deposits in Nevada and it had working relations with Magnesium Elektron, Ltd., an English company which had magnesium production experi-ence comparable to Dow's.

APRIL 1, 1944

We conceived the idea of merg-ing the "know-how" of Magnesium Elektron, Ltd. with the resources of Basic Refractories to give the United States the magnesium It need to fight the war. Thus, there came into being Basic Magnesium. inc., the company which under our management designed, in major part built and brought into operation the very extensive project near Las Vegas.

From the day the defense plant corporation gave the green light corporation gave the green light to this undertaking, our experi-ence has been an eye opener. The little group of men who set out on this mighty undertaking had to fight their way through a jungle of opposition and obstruction based on selfish interests, and at every step were hampered by politicians, fixed extended armbling interstep were hampered by politicians, fixers, organized gambling inter-ests, and other parasites. We wanted to get a job done; they wanted something else. We knew the risks involved in not playing ball with these interests, but we took them. We are now reaping our reward—a public whipping at the hands of the Truman commit-tee. tee.

In making its report, the com-mittee had the choice of second-guessing us to death, of enlarging on and exaggerating every mis-take, of twisting decisions to put them in a sinister light, etc. Or, it could have made a report based on an appreciation of our motives, of the incredible magnitude of the of the incredible magnitude of the job, and the fact that we did in a year what the Germans had taken a decade or more to do. The committee chose to smear us.

Organization of Basic Magne-sium brought to the United States the only and the best available experience with the metal among the United Nations. It immediately filled a big gap. Instead of com-mending us for this initiative, the Truman committee "charged" that Basic Magnesium had "only the most meager experience," thus creating the impression that the contract for the project should have gone to some company with equal or more experience. Such companies, of course, were nonexistent, except for overloaded Dow Chemical. The public is informed that we had "no financial resources" and that we "stood to net \$840,000 yearly." The facts: Basic Magne-sium, like Dow Magnesium, Diamond Magnesium, etc., were man-

such resources or earning records. In this way, 80 per cent of whatever was paid in fees would auto-matically be returned to the government in taxes. After such taxes, Basic Magnesium stood to net not \$840,000, but perhaps as much as \$100,000.

The Truman committee does not point out that Basic Magnesium originally was delegated a project one-tenth of the final size. A smaller project would have been smaller project would have been far more favorable to us, for it would have left us a position in the magnesium field after the war. When the government multiplied the size by ten it; (1) practically eliminated the possibilities for a reward to us through post-war ac-tivities; and (2) increased many times our responsibilities. We did not complain. not complain.

Our instructions from the war department were to design a plant coincidentally with the building of it and therefore no estimate worthy to be called such was pos-sible until the job was well on to-ward completion. There is no doubt that a conventional wo doubt that a conventional pro-codure would have saved many millions of dollars hut at the ex-pense of time. We assume the war department weighed these factors before prescribing the more costly method. The important fact which the report takes pains to conceal is

that Basic Magnesium met fully the requirements of the war dethe requirements of the war de-partment in respect to time and production. Rated to provide 18 per cent of the total production for which plants have been built, "in 1943 it produced about 39 per cent of all the magnesium produc-ed in all plants of the United States."—So much for our "dem-onstrated incompetence." onstrated incompetence."

To this day there is not any sciof this day there is not any sci-entific comparison of the capital costs of this job with others. A figure of \$1.81 has been reported per pound of magnesium capacity. If one must make a "shirt cuff" comparison, a more accurate fig-ure would be nearer \$0.97.

By the fall of 1942, we were so by the fall of 1942, we were so hampered by many-sided interfer-ence, largely inspired by continual political attacks, that we were glad to turn the responsibility over to the able Anaconda Copper Mining company, whose president, James R. Hobbins, has since been kind enough to say that "a remarkable job was done in conceiving and building this plant from the grass roots.3

L.V.R.J. 5/24/43

Permanency Of BMI Is Sifted

Here On Survey



AL VICARIANY / MUREN COBRINES MAY 29, 1943.

McNeil Company Celebrates End Of Metal Unit 10

Completion of the tenth metal unit by the McNeil Construction company, which turned the plant over to the Basic Magnesium, Inc., yesterday, was celebrated last night by a banquet held at the Hotel Last Frontier. Bruce W. McNeil, general manager of the McNeil Construction company, which built the big war plant, was host at the party. In keeping with the tradition of the McNeil Construction company, the dinner last evening honored its department heads,

under whose guidance the plant was brought to a completion inexactly 18 months and six days from the time the first mass con-

Scrugham Is Here **To Conduct Survey**

DPC Anxious To Keep **Plant Operating** After War

A determination on the part of Defense Plants Corporation to keep Basic Magnesium's Las Vegas plant in operation after the war if at all feasible from an economic standpoint, was revealed here today by U. S. Senator James G. Scrugham who arrived Saturday night for a conference with BMI officials.

Senator Scrugham has been hard at work on this problem for he past two years, and plans are beginning to take definite form, the said.

"I spent a day in conference with C. B. Henderson, former Nevada senator, now head of the R. F. C., and a member of the Defense Plants board," Scrug-ham explained, "He is in perfect

Senator James G. Scrugham, of accord with the idea that the Nevada, who is spending a day government's huge investment or two here studying plans at the magnesium plant with a view toward making it a per-manent industry after the war. with recommendations, and that is my purpose here at this time."

Envisions Future The senator said he envision-

ed a plant here to manufacture sheet magnesium and magnesium plastics for use in the development of the larger airplanes of the future, and had authority to bring the bureau of mines into the picture in any way they can be of help.

The bureau, he pointed out, already has rendered important service in perfecting a process for use of the vast deposits of dolomite at Sloan, and this will aid materially in cutting operat-

ing costs. Senator Scrugham also is greatly interested in the development of the many by-products which can be produced in con-junction with the magnesium itself, and plans to push this part of the program also,

"We have a big job ahead, but with proper cooperation on the part of all concerned, I am sure we can get it done," the senator declared

Scrugham is spending the day (Continued on page three)

at the plant with General Man-ager F. O. Case and other BMI officials.

Sees Compromise

The Nevada senator predicts a compromise tax plan somewhat along the line of the house proposal which forgives 75 per cent of 1942 taxes and inaugurates a per cent withholding pro

LAS YEGAS, NEV., REVIEW-JOURNAL MAY 26, 1943

Another Milestone At BMI

Basic Magnesium Inc.'s big plant in Las Vegas valley passed another milestone yesterday when production reached a point where it can now truthfully be called the largest producer of the metal in the world.

Wartime censorship makes it impossible to discuss this achievement in terms of pounds of magnesium, but it is possible to state that BMI's production is now substantially ahead of Dow Chemical's largest plant.

This is a long stride ahead for the operation that was supposedly predestined to failure, operating through a process critics said would never work. It is a long stride ahead for any project of this magnitude which, less than two years ago, was just a dream.

The first BMI unit came into production just nine months ago. Each month another has come along on schedule and before long, the entire plant will be in operation. At present eight full units are operating and half of the ninth.

A lot of things have happened since the project started. It has been under fire almost continuously. It is still being eyed most critically from Washington, although, because of the progress made, on a much more sympathetic basis.

From close contact and intimate observation from the very beginning, it is our studied opinion that, all things considered, a remarkable job has been done-by McNeil Construction Company's forces in a time and precision record, by Basic Magnesium Incorporated in bringing the plant into production on such a large scale so quickly when the obstacles were so great.

The first phase of the job is rapidly nearing completion. Unit number ten will be turned over to BMI Friday. There are alterations and changes yet to be made, but the plant will be in full production before long.

Then comes the more difficult and technical job of getting that production on a basis where the local plant can compete successfully in the post-war market.

That problem is in the hands of BMI's highly capable staff of engineers and executives, headed by F. O. Case, Defense Plants Corporation and Nevada's congressional delegation.

All three are working together in harmony toward the same goal, justification of the huge expenditure here through PERMANENT operation of the plant. We feel confident they will succeed.

L.V. TRIBUNE 5/30/43

BMI America's Magnesium

Leader

This week, Basic Magnesium, Incorporated, producers of mag. nesium metal, near Las Vegas, completed another unit and is now operating at 85 per cent capacity. It is said that BMI is now the largest manufacturer of magnesium in America, in a single plant. Out of a total of ten units planned eight and one-half units are now in operation.

While censorship regulations do not permit detailed information about the production of this vital war metal, it is known that BMI's production is larger than the output of Dow's Chemical plants. considered until recently the world's largest magnesium producer.

L.V.A. 5/28/43

MORE ABOUT BMI

Fear has been expressed by some that the government may, following the war, abandon its investment of more than one hundred million dollars in the great magnestum plant just nearing completion.

With Anaconda Copper Company, one of the greatest organizations in the world dealing with the production of metals, with unlimited capital and the best scientific brains of the world on the job, there is no danger whatever that the production of magnesium will either be abandoned or allowed to decline to any considerable extent.

There may be some temporary dislocation of business following the war and some changes in the production and marketing of magnesium metal. Nevertheless, the fact is evident that the demonstrated ability to produce magnesium commercially will create many uses for this strange, new product, and build new markets for it where there were none before.

The chief necessity for putting the use of magnesium on a sure and permanent basis is the ability to produce it in quantity. In small quantity production, magnesium might not be used to any great extent in peacetime industries. But with the great production already rolling out of the plant at the rate of many tons a day, its absorption and use in industries is as certain as anything of a commercial nature can be. And, while it is essential that the price be within reason, its chief recommendation will be the myriad new uses being found for this strange metal which has qualities which no other metal can hope to duplicate.

If other plants are able to produce magnesium economically, so much the better. Its availability in quantity will create new demands as was the case of aluminum when first brought into common use.

Those who have been privileged to witness at close range the success with which the complicated processes in the manufacture of magnesium have been combined into a working system, have no misgivings for the future.

Basic Magnesium, Inc., under the genius of Anaconda, has produced results better than the early hopes for the project. They are producing magnesium in larger quantities and cheaper than was at first thought possible.

The present great plant, now nearing full production, may be considered the first nucleus of a great "light metals" industry which, as soon as the war is over, will cluster about Las Vegas.

L.V.A. 6/25/43

Improvised Refinery **Completes Fine Job**

Concluding the remarkable production record of more than 8,000,-000 pounds of bomb-alloy magnesium ingots in approximately 200 days, the last metal has just been poured in Temporary Refinery No. 1 and operations transferred to the new facilities, says er of June 180 The final pouring was witnessed by Supt. John M. Casteras and Asst. Supt. W. B. Griffin, after which the plant vanished overnight, even as it had come into existence. Translated into figures that mean more to the world than simply the vast poundage of this light metal, it amounts to over 6,000,-000 incendiary bombs, which bring as many fiery messages of destruction to our enemies. The magnesium was turned out at an opportune time in prosecuting the war. Its value to the Allied Cause is inestimable. No question of its dreaded effectiveness in this form. During a period when immense numbers of "cheeses" were coming from the Metal Units and there was a large accumulation with no means of handling them. the temporary refinery was conceived, put on paper in two hours. and set up ready for business in an incredibly short time. And the makeshift proved its worth by the output of an average 40,000 pounds daily, and on some days attaining 65,000 pounds. Refinery J-2 was opened early this week.

tion disclosed that the rolling stock belonged to Basic Magnesium, Inc. (Broadcast Music, Inc., is an Ascap competitor.) . Entire cast of Kay Kyser's 'Around the World' at RKO are using their own names for char-acter parts in picture. Kay and his ork always have made use of own cognomens, but now remainder of cast, including such names as Joan Davis, Mischa Auer, Marcy Mc-Guire, Rosemary La Planche, Georgia Carroll, Margie Stewart and others will play themselves. . . Dedication in foreword of Metro's 'Lassie Come Home' to Major Eric Knight, the author, lost during flight on duty, marks first time an individual has marks first time an individual has been so singled out in present world conflict. Major Knight was in the British army in World War 1.... Cast of Rudy Vallee show tossed a surprise farewell party for producer Dick Mack at his valley home last night. Mack checked off the show after two and a half vers to devote after two and a half years to devote

HOLLYWOOD, CAL.

LEE HARRIS, field man for Ascap,

blinked in wonderment at the procession of BMI trucks as he mo-tored into Las Vegas. Closer inspec-

full time to producing the Groucha Basic Magnesium, Inc., has recently presented the Mackay School of Mines at Reno with an attractive board panel labelled "Magnesium

CONTRACT MINING PRESS 山井川道 3943 MACKAY MUSEUM HAS MAGNESIUM METAL EXHIBIT

e Dig Jo Honored guests at the party last night were officials of BMI, including F. O. Case, general manager; V. E. MacDonnel, chief engineer; R. E. Thomas, construc-tion engineer; and H. G. Satter-thweite assidered manager

thwaite, assistant manager. More than 100 McNeil employes and their ladies and special guests attended the party, which was held in the Ramona Room at the Hotel Last Frontier. The tables at which guests were seated were decorated with bouquets of summer flowers, Corsages were provided for women guests. The Radio Rogues, currently featured at the hotel, dedicated their program to the party and featured several items con-cerning the McNeil company.

ion beginning July 1. The Ruml plan, as approved by the senate was blocked by the administration which favors the house modification, the senator said. Scrugham will leave tonight for Washington on the U. P. Streamliner.

LOS ANGELES, CALIF. TIMES, Cir. STY, Std., Sun, Cir. 407,674 MRV 27, 1943

Basic Magnesium 469 **Speeds Production**

LAS VEGAS (Nev.) May 26 (U.R)-Basic Magnesium plant is now the world's largest single producer of magneshim, operating at 85 per cent of capacity, company officials announced to day. Army censorship did not disclose total production figures, but said eight and a half units of a final total of 10 were now in production. Officials said this record was well over that of Dow Chemical Co.'s largest plant,

AT VERY S NEW SEVIEW- CREWNAL JUNE 51 1941 **BMI to Aid Men** In Tax Problems

Officials at BMI announced today that they had worked out a plan whereby assistance will be given to workmen at the plant in figuring out the new withholding tax which goes into effect on July I.

Beginning Monday, Interview-ers from the office, including tax experts, will circulate through the plant to contact workmen to assist them in making out exemp-tion certificates and aid in any other way possible in unraveling problems regarding the tax.

SAN FRANCISCO, CAL, NEWS 107,082 UVINE & THAY

Marx program.

Mining In its new "West Coast Department." the magazine "Iron Age reports that Hasic Magnesium's Nevada plant has become the world's largest single producer of the metal and is operating at 85 per cent of capacity.

Transportation The Pullexpects 1943 to be the heaviest transportation year in its history. In a special survey, the company predicts that the summer vacation season will bring a critical trans-

portation problem. Discussing Pullman troop carry-ing operations, the survey notes that the company is moving 56 per cent of all troops in sleeping cars. (In World War I, only 25 per cent were carried in sleeping cars.) Between Pearl Harbor and May 1, Pullman transported nearly 11 million troops. A new monthly high of 840,000 was established in Process," carrying on its face samples of all the crude products entering into the manufacture of magnesium along with in sequence the intermediate and final products.

Along with the board is a half of one of the magnesium ingots or bars, as sent to England. This material has been added to the display case of magnesium minerals and products.

This is but one of the many special cases arranged for display by the curator, Prof. Walter S. Palmer, in addition to cases devoted to the minerals of certain metals, and to the ores of the counties of Nevada.

LAS MELAS, NOV REVIEW-WOLSTERATE MARSH 22 1944 McCarran's Fight to Save BMI Described posed transferring 1500 workers

By HARRY J. BROWN Washington Correspondent for the Salt Lake Tribune

WASHINGTON, Mai. 22-Fighting with his back to the wall, Senator Pat McCarran of Nevadu is doing everything in his power to head off issuance of an order by the war production board

Such an order has been diante mere is no lack of transportation; ed; it was ready for promulga-no bottleneck. The Anaconda Copper com-pany, now operating Basic, has of it; it is now on Donald Nelson's pany, now operating Basic, has of it; it is now on pointer the alum- so revised its process as to dis-desk, held there while the alum- so revised its process as to dis-

nesium program. Earlier Order Given This followed Thursday's order of the WPB curtailing production of the WPB curtailing production capacity of five or six ferro-silicon plants operating in various settions of the nation.

consider decision based on facts reach a decision based on facts and not on fancy or prejudice. Where he will come out, Senator Where he will come out, Senator McCarran does not profess to know, but he is determined to know, but he is determined to first would result from closing down four units at Basic, Senator McCarran said: "It would cost \$625,000 per unit to rehability for the preservation of substantial industries that have come into the west, anyone seeking to purchase this plant to operate privately would have to expend \$2,500,000 per units."

will stand up. Oil Shortage a Factor

Wilson assigned several reasons for wanting to close down four closed. This means, of course, units at Basic. 1. A shortage of oil in the west. He said two steam power plants He said two steam poedlessly

He said two steam are needlessly cluding housing, has cost near He said two sees were needlessly at Los Angeles were needlessly to state consuming oil that could be saved if they could have diverted to if they could have diverted to them the Boulder dam power that. 2. By closing down four units 1500 men would be released and 1500 men would be released and to additional workers. for additional workers.

from Basic Magnesium. There would be no opportunity for utiltransferred, he added. 3. There are 10 trains of 60 cars

each passing eastward through Las Vegas every day, and 60 to 70 per cent of them are empties, according of the Union Pacific and ODT. Five cars per day would move from Las Vegas to closing down four units of the Basic Magnesium plant at Las Vegas, Nevada. Such an order has been draft-Such an order has been draft-such an produced at the Basic Magnesium plant. Therefore, no bottleneck

are active. Basic Ores is shipping brucht daily to its plant in Maple Grove, O., for manufacture of fire brick, fur-nace lining and other industrial re-fractories. A vase tonnage of high ounparatively shallow workings. The company is reported to be planning the construction of a large calcining plant near its properties this year. The proposed unit would remove most of the moisture from the ore, materially reducing freight costs. A steady demand for brucht is expected by the management after the War. Bruchte was discov-ered in the Mammoth region about 1925 by the late Herry E. Springer, long associated with gold mining he the Douglas district and other Ne-vada fields. desk, near mere white are many as revised as process as to dis-inum and magnesium section of pense with 40 per cent of the wPB digests a written protest peat moss ore and within 60 to WPB digests a written protest pear moss ore and within 60 to filed by McCarran, backing up verbal protests which he had made to everyone in WPB having made to everyone in WPB having case in a brief filed with De the made to everyone in WPB naving senator incomfair emission and anything to do with the mag-negative in a brief filed with Donald Nelson, head of the war produc-

Mining Company, which social social distribution of the matter of the mat

CHARTER CAL SEE

Much Brucite Is

Shipped From

Mammoth Area

LUNING (Nev.), March 28 .- The

LUNING (Nev.), March 28.—Ine Mammoth district, developed from a barren desert region into one of Nevada's foremost mineral producers within the last five years, is the scene of growing activity. Heavy shipments of bruche and magnesite are going out from properties of Basic Ores, Inc., and Basic Mag-nesium Company, other operators are active.

vada fields. mining engineers to be the largest developed in the United States with much of the ore of excellent com-mercial grade. Operations are di-rected by the Anaconda Copper Mining Company, which acquired control of Basic Magnesium in 1942

KA2CH 23, 1944

are active.

before those four units could be



ieteriorate in that climate." happy plans of many is for word Senator McCarran was quoted to come from the Great White



Will Bring Total Production Slash to 20 P. C.

(Bureau of Journal of Commerce) WASHINGTON, March 27. - A further drastic cutback in production of magnesium is planned by the War Productoin Board, it was learned here today.

In addition to the recently announced eutback which reduced magnesium production about 6 per cent, it is understood the WPB will order production cut another 14 per cent in the near future, bringing the total cutback to 20 per cent of all magnesium produced in this

country annually. While the percentage of the re-duction to be ordered in individual plants has not yet been determined, it was learned that it is primarily contingent on the cutback to be ordered at the Las Vegas, Nev., plant of the Basic Magnesium Corporation, owned by the Defense Plant Corporation and operated for the Government now by the Ana-

conda Copper Co. It was helieved that Senator Pat McCarran (Dem., Nev.), stanch ad-vocate of expansion of Western industry, will oppose any cutback at the Las Vegas plant and that the WPB hesitancy over assigning the cutback percentages was largely due to uncertainty over what Senator McCarran's attitude would be. It is known that the inclination is to assign the largest reduction to the Las Vegas plant, largest single producer in the country. But if it is decided to order a small reduction in the output of the Nevada plant in an effort to appease Senator McCarran, other plants win

have to bear the brunt of the overit- all outback. The recently announced cutback

he reduced total production by about er- 3,000,000 pounds a month and the re goal is a reduction of \$,000,000 he pounds per month. It is believed that no producers

will be shut down completely in the forthcoming cutback, the WPB having taken the attitude that some production should be maintained in all plants from now on in rd order to get peak production ill quickly in case of emergency.

Months' Stockpile on Hand

The stockpile of prime mag-OE. nesium now totals about 70,000,000 nd pounds, the equivalent of about the amount produced in two months te under the new schedule. Peak pro d duction is estimated at about 600 .-000,000 pounds annually and re-quirements now do not call for nel st production of more than 500,000,000

t- pounds per year. b- In addition to the question of f Senator McCarran's attitude, the is power situation will be an important factor in the final determination of the extent of the reduction to be ordered at the Las Vegas plant, it was said. Conservation of power for West Coast industrial purposes would be accomplished by a drastic cut in the output of the 8-Nevada plant.

it The Western plant produces ap-at proximately 135,000,000 pounds of magnesium annually. WPB authornities believe that this production

MAR 29 1944 **Eells Hits Report on Basic Magnesium** Charges Public Whipping Is Reward for Good Job

A "public whipping at the hands of the Truman Committee is the reward of Basic Magnesium Inc. for successfully completing the Las Vegas (Nev.) magnesium plant in the face of opposition from poli-ticians, organized gambling inter-ests and fixers," Howard P. Eella charged today.

Cinveland Press

President of the Basic Reiractories Inc., Cleveland, which organ-ized the Basic Magnesium, Mr Eells said the company "could no longer ignore the unfair finding of the Truman Committee," which hose to overlook the facts in its March 13 report, declaring Basit Magnesium had "only the most meager experience . resources . .. stood to net \$840,000 vearly.

Pointing out that Dow Chemical Co, was the only company experi-enced in the manufacture of the vitally needed war metal and that it had been given all it could handle, the Cleveland industrialist said:

"We conceived the idea of merg-ing the know-how of Magnesium Elektron Ltd., an English company which had magnesium production experience, with the resources of Basic Refractories to give the United States the magnesium it needed to fight the war. Thus, there came into being Basic Magnesium Inc., the company which under our management designed, in major part built and brought into operation the very extensive project near Las Vegas

In making the charge of "no financial resources" the Senate in-vestigating committee neglected to observe that the Government wanted it that way, Mr. Eells said In this way, 80 per cent of whatever was paid in management fees would automatically be returned to the Government in taxes. After such taxes, Basic Magnesium stood to net not \$840,000, as the Truman Committee charged, but perhaps as

much as \$100,000, he maid. "By the fall of 1942 we were so hampered by many-sided interference, largely inspired by con-tinual political attacks," Mr. Eells said, "that we were glad to turn the responsibility over to able Anaconda Copper Mining Co., whose president James R. Hobbins, has since been kind enough to say that 'a remarkable job was done in conceiving and building this plant from the grass roots.

Bellefontaine. O. Examiner.

MAR 29 1944

CLEVELAND FIRM CRITICIZES TRUMAN COMMITTEE.

Reaping Reward For Not Playing Ball," Cleveland Firm Reports.

Cleveland, March 29 .- Criticism in a report by the Truman Senate Investigating Committee of its management of a large magnesium



Truman Committee

BY GEORGE E. CONDON In a sharply-worded rejoinder to a recent critical report by the Truman investigating committee con-cerning the vast magnesium plant established near Las Vegas, Nev., by the Basic Refractories. Inc., of Clevelarid, through a subsidiary, H. P. Eells, jr., president of the parent company, here last night charged the congressional commit tee with a deliberate "smear" at-

tempt. "From the day the Defense Plant Corp. gave the green light to this undertaking, our experience has been an eye-opener." Eells asserted. "The little group of men who set out on this mighty undertaking had to fight their way through a jungle of computing and abstraction hand of opposition and obstruction based on selfish interest and at every step were hampered by policians. fixers, organized gambling interests and other parasites."

"We knew the risks involved in not playing ball with these terests, but we took them. We are now reaping our reward—a public whipping at the hands of the Truman committee."

Cites "Second-Guessing"

Eells charged that the committee was induced to investigate the activities of Basic Magnesium, Inc. the subsidiary established to build and operate the Nevada plant, through the influence of United States Senator Berkeley L. Bunker of Nevada.

In its tour of investigation, he continued, the committee visited Las Vegas for two days, but did not bother to visit the magnesium property 15 miles distant.

"In making its report, the com-mittee had the choice of second-guessing us to death, of enlarging on and exaggerating every mistake, of twisting decisions to put them in a sinister light, or it could have made a report based on an appreciation of our motives of the incredible magnitude of the job and the fact that we did in a year what the Germans had taken over a decade or more to do." Eells said. The committee chose to smear us. Turning to charges of the Tru-man committee that Basic Magnesium "stood to net \$840,000 yearly," the Cleveland financier assert-ed that after taxes the company stood to net perhaps as much as \$100,000, not \$840,000.

Eells admitted that expense of construction of the western plant The second se

was excessive, but he laid this to the speed with which the plant was built under orders issued by the War Department

The Nevada plant's management was transferred to the Anaconda Copper Mining Co. in the fall of

1943 Eells charged that the Truman report took pains "to conceal" the fact that Basic Magnesium met fully requirements of the War Depart-

2/-9/49 **Eells Hits Report on Basic Magnesium** Charges Public Whipping Is Reward for Good Job

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President of the Basic Refractories Inc., Cleveland, which organized the Basic Magnesium, Mr. Eells said the company "could no longer ignore the unfair findings of the Truman Committee," which chose to overlook the facts in its March 13 report, declaring Basic Magnesium had "only the most meager experience . . . no finacial resources . . . stood to net \$940,000

Pointing out that Dow Chemical Co, was the only company experi-enced in the manufacture of the vitally needed war metal and that it had been given all it could handle. the Cleveland industrialist said:

"We conceived the idea of merging the know-how of Magneslum Elektron Ltd., an English company which had magnesium production experience, with the resources of Basic Refractories to give the United States the magnesium it needed to fight the war. Thus, there came into being Basic Magnesium Inc., the company which under our management designed, in major part built and brought into operation the very extensive project near Las Vegas,

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OF ALTES, CAL NEWS

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MAGNESIUM SLASH DOES NOT EFFECT LOCAL PLANT

While the government announced this week that production in five magnesium plants throughout the country has been curtailed, Peris operating at full capacity, according to company spokesmen. Permanente, "The largest privately owned magnesium plant in the west," announced this week that its magnesium plant has contributed 19,000,000 pounds of magnesium to the war effort and is now increasing its production role through the manufacture of vital parts for the aircraft industry. Company officials disclosed that the new Permanente sandcasting foundry produced 18,673 magnesium airplane parts in January in addition to its other products.

nesium from Basic to the east is Spectrate Senator Investigates On hearing that explanation, ended that the second Housing Shortage 2. War Manpower Commis-sioner McNutt wrote the senator saying there is no housing for additional workers in or about Los Angeles where WPB had pro-

nesium from Basic to the Cast of an economic loss and is creating a bottleneck: That transportation is wasted hauling peat moss from Canada to the Basic plant. Canada to the Basic plant. Canada to the Basic plant. companies to help pull their

ALE CALL WALL STREET HOURDAL

MARCEL 29, 1944

BASIC MAGNESIUM, Inc., Las Vegas, Nev., is now using hydrogen gas, by-product of its large chlorine plant, as boller fuel with a saving of about 12% in fuel oil requirements which formerly ran to around 120,000 barrels a month. Until nearly the end of last year, by-product hydrogen was waste but in January, use for the three large steam boilers used for heating steam at the plant ran to 121 tons of the gas. The plant recently took off production for rebuilding the first electric furnace cell put in operation at the plant. The cell, started on Ary, 1, 1942, operated continuously for 562 days pounds with a resulting important saving in power, transportation and manpower.

It is also expected that there will be reductions in the output of sev-eral plants owned by the Dow Chemical Co.

Principal factors in allocation of le cutback percentages will be con-of servation of manpower, transportat- tion facilities, power and type of production.

-General Aniline Unit

drew a sharp rejoiner from H. P. Eells, jr., President of Basic Refractories, Inc.

The Cleveland concern is the parent company of Basic Magnesium. Inc., which built and put into operation the Nevada project.

"The Truman committee was led into the deal." Eells charged. "only to support some of the politicians in Nevada.

"From the day the Defense Plant Corporation gave the green light to this undertaking, our experience has been an eye opener. The little group of men who set out on this undertaking had to fight their way through a jungle of opposition and obstruction based on selfish interests, and at every step were hampered by politicians, fixers, orminited gambling attenue to and the knew the risks involved in not playing ball with these interests, but we took them. We are now reaping our reward-a public whipping at the hands of the Truman Commitduction and, in 1943, produced about 39 per cent of all magnesium produced in United States plantsin comparison with the 18 per cent of total production which was its goal

Truman Praises Plant

Permanente, which is also 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 Truman 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 ulso reported that Permanente has future possibilities."

This article was clipped from

LINK-BELT NEWS Chicago, Ill. 6-7/43

> LINK-BELT NEWS Devoted to the Application of Materials Handling and Power Transmitting Machinery for Solving the Modern Problems of Industry

> > Published by LINK-BELT COMPANY

Vol. 10, No. 6

LIBERTY SHIP CHARLES PIEZ

HOW L-B HELPS DRY EGGS FOR **BOYS OVERSEAS**

Conveyors Move Powdered Egg to Shipping Barrel

Dallas, Texas-When the war started, and Uncle Sam signed up to feed not only his own fighting men but much of the armies, navies and civilian population of the world, he needed eggs badly. Humpty-Dumpty, however, was too fat and too fragile for shipment to the distant corners of the world in the volume needed, and, in too many cases, because of lack of refrigeration, the eggs so shipped had to be thrown overboard after a journey of thousands of miles.

American ingenuity pitched in to help Uncle Sam in this phase of the battle for food. As a result, Texas and several other states now have a brand new industry-Drying Whole Eggs. Just another example of how America has drawn from its resources to' provide American troops abroad and their allies with scrambled eggs for breakfast!

Processing the Eggs

The processing of the eggs is very simple, yet important Girls take them from the crates, and candle them. Next, they are placed, in large bucketfuls, alongside a long row of girls who swiftly grab four eggs in each hand, break the shells, and hold them aloft while the yolks and whites splash into a container below. When the containers are filled with eggs, they are dumped into huge vats from which pumps then draw them into stainless steel tanks.

They are thoroughly mixed, and then, by high pressure pumps, sprayed through tiny openings into the drying chamber. Depending upon the size of drying chamber, there are 4 to 8 spray guns working together at one time.

Serving the drying chamber is a furnace which feeds hot air into it through a large duct. At the far end of the chamber is a fan which pulls the air through the furnace



This 117th Liberty ship to be launched from the Bethlehem-Fairfield Shipyard at Fairfield, Md., was named in honor of Charles Piez, executive head of Link-Belt Com-pany from 1906 until his death in 1933. Mr. Piez was vice-president & general man-ager, and later director general, of the U. S. Shipping Board Emergency Fleet Corporation during World War I.

Wood-Furniture Plant Now Making Army Truck Bodies

Specially Designed Conveyor Facilitates Two-Stage Paint Dipping, and Drying, of Wooden Parts

Portland, Ore .- To save steel, the U. S. Army Ordnance Department has re-designed its motor truck bodies, and is now building them of wood reinforced with pressed and formed steel parts.

This change required switching production from steel fabricating shops to woodworking plants; and firms already equipped with modern woodworking facilities for producing furniture and similar articles, were naturally able to convert promptly and smoothly to the new work.

Production Problem

In addition to milling the varied shapes of the unit parts of the redesigned body, all such wood parts must be properly painted for military use. And as some of the pieces are as large as 2-in. thick, 8-in. wide, 13-ft, long, they present 13-ft. wide, quite a problem of handling them through the various operations. The B. P. John Furniture Corp., a Portland, Ore, manufacturer, secured a large contract for these wood bodies, and immediately saw possibilities for improving production by dipping the longer and heavier parts. Instead of spraying, or laboriously handling them into and out of tanks for two coats of paint, the plant is now making use of a conveyor that has been specially designed for this work. Fundamentally, no new principles are involved, but the following were among the problems to be solved: (1) Dip in two stages, (2) Allow adequate time between coats, and after second coat, for drying, (3) Do it without re-handling before final delivery at the desired discharge point.

\$7.85 SPENT ON 125-H.P. DRIVE IN 21 YEARS



Mammoth Basic Magnesium Plant Is Now in Operation

You'd Never Know the Old Desert Land on Which Enormous BMI Plant Stands, at Las Vegas, Nevada

Los Angeles, Calif .- Las Vegas (Spanish for "flat lowlands") came into being as a town in Nevada in 1905, when the new railroad connecting Los Angeles and Salt Lake founded it as a division point.

Located in hot, dusty, desert land, it was a town of 2500 before Boulder Dam was built on the Colorado River nearby. Came the Boulder Dam boom, and after the dam had been completed, there

arrived thousands of tourists annually to see the dam, spending more money than the construction workers ever did.

Becomes Second Reno

Thus, Las Vegas settled down as Nevada's second Reno, living on tourists and professional gambling (legal in Nevada), and meanwhile increasing its population to 8400 by 1940.

Since then the population has more than doubled, exclusive of two Army camps, for today's Las Vegas is not only producing waressential magnesium but frontier night life as well. And it has well been said that a visit to this overgrown "last frontier town" is a liberal education in itself.

(Continued on page 2)

• We eat and drink lots of magnesium. About 2.24 per cent of the earth's crust is composed of magnesium. Among the ele-ments, it stands eighth in abundance. Of the salts in the ocean, about 10.88 per cent is magnesium chloride; 4.74 per cent magnesium sulphate; 77.76 per cent sodium chloride or common salt. In the Dead Sea, though, there is more magnesium chloride than there is sodium chloride. The same thing is true of a lake in Russia. Magnesium is everywhere. It is in plants. Ashes of plants contain more calcium than magnesium, but seeds contain more magnesium. Of all the wines, Malaga contains the most magnesium-about .04 per cent. When you eat an oyster, 2.58 per cent of your gulp is magnesium. But when you eat a crab or lobster the magnesium content of your meal may be as high as 16 per cent.



June-July, 1943

Handles Hot Tear-Drop **Direct from Furnace**

Philadelphia, Pa .- About three years ago, the Armstrong Cork Co. installed at their glass container manufacturing plant in Millville, N. J., a Link-Belt screw conveyor system under each of two melting furnaces, to facilitate disposal of the hot tear-drop gobs of glass that are shunted aside in the process of feeding the molten glass to the molding machines.

Proving highly successful, a third furnace was similarly equipped in 1941, and still another in 1942. These four units, to the best of our knowledge, are the only ones of their kind anywhere, serving this purpose.

How It Works

Each conveyor system consists of a horizontal screw conveyor operating very slowly, completely immersed in cold water, in a water-tight flared steel trough, delivering at far end to a fastermoving screw conveyor of larger diameter, inclined sufficiently to discharge the shrended glass to a box of suitable size, mounted on skids.

Each conveyor of each conveyor system is separately driven from an electric motor through a herringbone-gear speed reducer and enclosed chain drive.

The seventeen chutes from each (Continued on page 6)



The Conveyor

In cooperation with B. P. John's plant staff, the Link-Belt Pacific Division engineering department developed the conveyor arrangement shown in the accompanying sketch and photographs. This conveyor assures continuous output (Continued on page 6)

Link-Belt Silverstreak silent chain drive Link-Belt Silverstreak silent chain drive from 125-h.p., 720 r.p.m. electric motor to 144 r.p.m. main drive shaft of wire-drawing bench in mill of Frost Steel & Wire Co. Ltd., Hamilton, Ont. Upper half of casing removed before photo was made, to show the chain and wheels.

Hamilton, Ont.-Back in 1916, the Frost Steel & Wire Company Limited, of Hamilton, installed a 125-h.p. Link-Belt Silverstreak silent chain drive on a wire-drawing bench. This drive was in operation until 1937, when it was removed because a change was made in the manufacturing process.

During the 21 years in which this chain drive was in operation, the total expense incurred for repairs was \$7.85, and it is not surprising that this impressive performance has been responsible for the installation of many other silent chain drives in this plant.

There is a 125-h.p. silent chain drive in operation on another draw bench, and another silent chain drive on a draw bench driven by a 100-h.p. motor. A variety of chain drives have been furnished this (Continued on page 3)



This picture was taken on Sept. 15, 1941. It's the BMI plant site. A few minutes later, a fleet of bulldozers began clearing the landscape, and from that moment, things have hummed. Sorry we can't show you the enormous plant that now stands there, turning out vital magnesium metal.

(Continued from page 2)

tron, Ltd., of England, and Basic Refractories, Inc., of Cleveland, Ohio. While Basic Refractories were looking around for a market for their rich brucite (magnesium rock) and magnesite deposits near Luning, Nevada, they learned that the British organization planned to build a plant in Canada.

Thus the two ventures came to be joined, with the Americans contributing the ore, and the British the technical knowledge of a complex electrolytic process bought from Germany.

from Germany. Washington, D. C. (we, the people) provided the money for building the plant, 1³/₄-mi. long, ³/₄-mi. wide. The British sent a group of experts to Nevada, and the Americans sent 45 technicians to England to study the method.

In more recent months the operational activities of the company have been transferred to the Anaconda Copper Mining Company.

Of the various plants built, and being built, in the United States, for the production of magnesium, several are using the electrochemical process; others a ferro-silicon process, newly developed.

Making Magnesium Metal

The magnesium ore is concentrated at the mine into magnesium oxide (MgO), as fine as flour, and shipped in this form, either by railroad car or in specially-designed airtight trailers, to the Las Vegas plant, where it is unloaded into huge storage silos.

At BMI, the MgO is mixed and ground up with coal and other substances, and formed either into little pellets ranging as large as a walnut, or into small bricks. These are dehydrated in kilns and then placed in a chlorinator.

This results in a molten mass of magnesium chloride, which is tapped off and placed in electrolytic cells.

A strong electric current passed through the molten mixture causes the magnesium to separate from the chlorine and come to the surface in much the same way as cream comes to the surface of milk.

Recovery of the magnesium metal is done by simply ladling it out of the cell by hand.

Mechanical Handling

To facilitate handling and speed up production under the aforesaid (Continued on page 7) (Continued from page 5) process, so briefly described, Link-Belt has had the privilege of furnishing the following types of equipment (quantities purposely omitted);

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1. Peat bale conveyors from R.R. cars to breaker.

2. Belt conveyors for handling peat.

3. Pellet trailer conveyors for handling small cars.

4. Harrop ceramic dryer conveyors for handling bricks on edge through kilns for dehydration.

5. Harrop ceramic breaker conveyors.

6. The Link-Belt Roto-Louvre dryer for reducing moisture content of various inorganic salts.

7. Ladle tilting mechanisms.

8. Power transmission equipment, including the Link-Belt P.I.V. Gear speed variator.

9. Discharge gates for storage bins.

ROTARIANS VISIT BMI PLANT AS GUESTS OF MANAGER CASE

Approximately 100 Guests From Boulder City and Las Vegas Shown Inside Workings of Great Enterprise, Now World's Greatest

Boulder City and Las Vegas dinner provided by Manager Jack Rotarians to the number of ap-

proximately one hundred, were Manager Frank Case opened guests of Rotarian Frank O. Case the after-dinner speaking, exat the great plant of Basic Mag- pressing his appreciation of the nesium, Inc., Tuesday last.

The occasion was a notable one membership of Boulder City and for Mr. Case and BMI as well as Las Vegas Rotary clubs as guests. for their guests, the day marking the date when this great plant definitely took its place as the largest producer of magnesium of esting and appropriate address, any single plant in America, prob- reviewing the interest of Las Veably in the whole world.

plant area, the preparation plant and some of the ten mighty Inc., and to Mr. Case and his asstreams of the molten metal are communities. fed into the chlorination cells, the party was conducted to the re- Guernsey Frazer who was away, finery.

13AY 28, 1962

of molten magnesium which Practically the entire staff of marked the "over the top" point experts at the head of the various departments of the gigantic enterswinging down the line dangling prise, assisted in showing and exfrom the traveling crane, and poured its glowing stream into the automatic ingot casting machine.

chain of moulds came dumping Basic Magnesium, Inc.: its silvery white ingots of magnesium metal into the carrier for transportation to the packing department.

There in the midst of vast stacks of similar ingots, the bars were packed by girls into cartons, bound with steel tape and moved down the runway to be stacked ready for loading on freight cars to start on its way to its ultimate destination in Berlin, Tokyo, Rome and the thousand other en-emy objectives which already are suffering severely from the effects of magnesium bombs from this, the greatest producer of magnesium metal in the world.

It was a thrilling and inspiring experience for every one of the Rotarians present, many of whom had never before had the opportunity of coming into such inti-mate contact with the inmost workings of this "Giant Magnesium.'

It also gave the visitors some new and definite ideas of the problems which are constantly arisen in developmnet of the process, and which have been so successfully and completely solved. For example, it was learned that, although employment has been declining on the construction work, much of which thas been completed, there are still 8,500 names on the payrolls. It was also a revelation to see the women, especially in the packing department, operating those small power trucks carrying loads on intricate routes through the works, as skillfully and as sure as men operatives could do. It was learned that something like 850 women are on the payrolls,

presence of practically the total gas since the earliest conception After a rather hasty tour of the of the Boulder Dam project and

chlorinator buildings, each of sistants personally, the continued wholehearted assistance and coelectrical furnaces out of which operation of the southern Nevada

Bill Burke, in the absence of provided some excellent music There the great, red hot kettle and other clever entertainment.

In a few moments an endless Among them were the following:

F. O. Case H. G. Satterthwaite J. R. Charles S. J. Fletcher S. W. Stockdale A. T. Newell J. G. Boddy J. M. Casteras B. D. Harden M. G. Coghlan F. W. Woodman J. Mair T. P. Turchan W. B. Griffin R. Lamie W. D. Holland R. E. Shinkoskey M. G. McGrath J. R. Coulter F. A. Hills V. E. MacDonell D. W. Stewart A. J. Boyle H. H. Gillings W. B. Dyer M. W. Kelch T. W. Harris R. A. Ross R. E. Thomas R. Sweet W. Mawdsley J. J. Broz F. W. Switzer J. P. Cunningham W. Hoover W. J. Hoesch L. A. Harris A. C. Heilman F. R. Hanrahan W. H. Kingsley C. J. Parkinson P. B. Levengood F. Wetherill K. P. Deline L. R. Camp H. W. Smith



Conflict Between Congress and OPA Shifts to Growing Gasoline Shortage

(Reprinted From Vesterday's Late Editions.) BY JOHN S. PIPER The News Financial Editor

The growing conflict between Congress and the Office of Price Administration shifted to petroleum production and price problems today. With the gasoline shortage spreading, and with a nationwide pleasure driving ban imminent, Rep. Wesley E Disney (D., Okla.) introduced a bill to increase the

price of crude oil by 70c a barrel. He contended that it is necessary to avert a "fast approaching national disaster in petroleum supply." Mr. Disney's proposed law would

CAN PRANCISCO, CAL. NEWS

transfer oil price control from the OPA to the Office of Petroleum Ada

ministration for War. Recalling that Petroleum Admr Ickes recommended a 35c increase April 7, the Oklahoma congressment

"The OPA stands alone in the assertion that there is no need for higher crude prices."

Petroleum Dow - Jones predicts that occurrence of gasoline shortages in areas outside the Eastern scaboard may be a forerunner of stricter ra-tioning regulations. Service stations in western Nebraska and in parts of Kansas have been running out of fuel. Supply sources for these areas have been low on gasoline for some

time. Governmental restrictions on re-finery operations account for the new Midwest scarcity. Until re-cently, refineries were limited to 75 per cent of last year's output. To alleviate the crisis, the PAW has au-thorized refineries to operate at 90 per cent of normal (the period from July 1, 1941, to Dec. 31, 1942). Overall gasoline stocks in the United States today total 85 million barrels—a supply for 50 days. A year barrels—a supply for 50 days. A year ago stocks totaled 95 million barrels.

By increasing refinery output of gasoline, the PAW order will auto-matically reduce fuel oil supplies.

Agriculture In its annual eling peach survey, the Canning Peach Advisory Board estimates that California peach growers will deliver 350,000 tons to cameries this year. Last year deliveries totaled 386,000 tons. After meetings at Visalia, Modesto EUrvey comr reported that the proportion of No. 1 grade peaches appears to be higher than usual and that size of the fruit is above normal. While large size usually indicates split pits, there is no indication of abnormal splitting at this time.

Mining In its new "West Coast Department." the magazine "Iron Age" reports that Basic Magnesium's Nevada plant hat become the world's larg-est single producer of the metal and is operating at 85 per cent of ca-

U N A large hunk of hell's half acre, near Las Vegas, Nev., a gargantuan monster reaches out giant tentacles into every state in the Union for supplies to build the No. 1 war job of the world, \$125,000,000 Basic Magnesium, Inc.

BY ALYCE CANFIELD

Friday night, when the weekly payroll of \$1,000,000 spews forth from the throat of the monster, Las Vegas waits with croupier and dice, bright lights shining and music pulsing, a Mona Lisa smile on her lips. Like a girl in a spangled dress with promises in her eyes.

Silver dollars gleam in stacks, the wheel goes 'round, dice blow hot or cold, smooth hands experily deal out smooth cardswhile crowds come and go in waves to exchange silver for a golden hope. Presenting Las Vegas, ga

plus the families of more thousands of soldiers from Camp McCarran and Camp Williston. A town of 8,000 population suddenly found itself flush and bursting with 35,000 people, exclusive of the two Army camps.

Basic made even Boulder Dam look penny ante. Boulder's peak payroll had been \$750,000 a month, Basic's is \$1,000,-000 a week. After the great dam's completion, 600,000 tourists a year kept the city alive. With the advent of B.M.I., however, the town's population was tripled, not just with visitors who came for the week end, but with long time residents.

A whole way of living passed into history. Las Vegas was the last of the old true Western towns, the story book West, where gambling is legal, quick marriages and

each woman worker releasing for more vital duty a man needed by their country in some other field. It was interesting to know also that the enterprise is approximately at 85 per cent of designed production only units eight and nine remaining uncompleted. Also that the efficiency and improvements in methods of operation have brought the production of magnesium considerably above the figure originally estimated and hoped for. Following the visit to the plant

son's Camp where they had

ravenous appetites for an excel-

lent roast turkey and dressing

J. W. Hildred F. Gale C. L. Hyde W. Burke G. Frazer F. A. Unsworth R. Douthit T. M. Swift A. B. Crandall H. M. Garner J. Eaton J. Ruiz W. B. Dyer McNeil Construction Company Bruce McNeil the visitors were taken to Ander- Defense Plant Corporation: Hugh Richardson Paul Zimmerman Frank Harrington

L. H. Freeman

the West! For into this sleepy village, overnight

came the thousands of employees of B.M.I.,

divorces are profitable, cowboys ride down the main street on horseback, where millionaires go around in overalls and shirt sleeves, and a man could borrow money on his word. All this took on new impetus, received a transfusion of fresh blood. Las Vegas became fast-paced and high-powered. The cowboys are still there, the jack pots and the overalls, but the siesta is over. Las Vegas is on a no-doze jag, and the easy life of the old-timers has gone with the wind.

The cause of it all-Basic Magnesium, Inc .- moves ahead in spite of every kind of obstacle with a relentless drive that focuses the attention of two continents on the biggest, most difficult war time job in the history of the world.

Huge machines bit into the dirt gouging the landscape and scarring the earth to lay the groundwork for The Big Job. B. M. I. had to bring water across the

eels, winter skiing and a sleek substitute for the old nming hole - and behind ering mask, day and night, Las Vegas toils unceas ngly for Victory.

(Company on Later

What can bargent This happened. On Manh 6, 1942, 60,000 har of build-

decorrow pair and pair stup 4g parachille Task opposite and pair stup 4g parachille task opposite and the stup stup pair and task opposite an

Any market of the sector burdle of any more and the sector and the

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Nuah Webster Bay KFI--S 4:45 Little Blue Playhou KECA--S Uncle Bam Series KNX--S Watch the Warld G By KECA-MTWTF Fred Waring KFI-MTWTF KNX--B Overseast Roport KHJ---S Cocktails for You KMPC--S Boddy KFI---Th & Boy Boouts of America KFI---S Twilight Tales KECA--F America's Home Front KNX—F Anita Carol Orga KNX—S Boston Boston Symphony KECA-S KEC Night Edit Bill Her W Th F Singing Sam KHJ-T & Th Red Cross March of Mercy KFI-5 Nr. a arts treat Nr. a arts treat John Freedom KECA-W Point Sublime KFI-W Aldrich Family KFI-Th Kats Smith KNX-F Purtough Fun KFI-F Hit Parade KNX-S Meet Year Navy KECA-S Gionn Hardy News KHJ-B Defense Cosnoli KFWB-F S:20 Erskins Johnson KECA-MY Bridge KFI-Th Grapevine Ranchu KNX-Tues Elley Quason KFI-Th Grapevine Ranchu KNX-T Puton Lawle, Jr. Futon Lawle, Jr. Futon Lawle, Jr. Puton Lawle, Jr. KHJ-MYF 10:00 Matem KYJ-F 10:00 Haten KYJ-F NGCA-Tues Raff Radio Forum KECA-Th C. Polyzoides KHJ-MYF Bridge to Drasmland KECA-S MYWF, KNX-M M. Lerner Orcheatro KFWB-MTWTF District Attents KFI--W Milt, Beris KNX--W Stags Door Cantoon KNX--Th Bob Burns KFI--Th Bob Burns KFI--Th People Are Funny KFI--F Can You Top This? Can You Top This? KFI-S Guiz of Two Cittee KECA-MTWTF KECA-MTWTF 7:00 Carnation Hour KFI--M Screen Guild KNX--M Ray Clapper KHJ--M Bob Hope KFI--Tune Inglewood Park Cancert KNX-Tues Kay Kyser KFI--W John Gunther KECA-F&B Carnel Caravan KNX--F Betty Lou & B Riggs Cannel Caravan KNX--F Betty Lou & Ruggs KFI--F John B. Hughes KHJ--TWS Sports Newsreei KFI--S T:35-Gracis Fields KEC--MTWTP Buildog Drummond KHJ--Tuss Campans Serenade KFI--3 Blue Ribbon Town KNX--6 Baturday. Night Bandwagen KHJ--5 7:30 Information Please KFI--M Bionés KNX--Night Bandwagen KHJ--5 7:30 Information Please KFI--M Bionés KNX--Night Bandié KNX--Ni Alos Tempieton KGC--4WF Red Skatton KFI--The Bah Ripley KECA--F Creats Blands Carnical KRM--W Buildets for Truth KNX--Thurs 2:45 Frasier Huut KNX--T To 5 AFWB-MTWTF Bance Tenight KFWB-MTWTF Uncle Sam Presents KFJ-8 NFI-5 Nows KNX & KPI-MTWTFS Philharmonia &ECA-MTWTF We the War Worksra KHJ-W 11:30 Musical Masterworks KNX-MWF 7:45 Frazier Hunt KNX-T Th 5 e broadcasters. We assume no responsibility for changes.

EDGAR A. SEYNOUN: Publisher PAUL L. MITCHELL: Vice Pres. & Mdes. Wanager MARIAK WOORE: Seller WILL MITCHELL: Vice Pres. & Mdes. Wanisy Provinsion WILL MILER AND DEE Seller MULTANDER AND DEE Seller MULTANDER AND DEE SEL MULTANDER AND DE SE MULTANDE SE MULTANDER AND DE SE MULTANDER AND DE SE MULTANDER AND D

pectancy. world was waiting-with a breathless exwaiting on this one little town, as if the tempo and hurry. It's as if America was coar. There's a constant push and quick and in the eyes of the girl in the mink honky-tonks, it's in the soul of the minet

where lives and breathes the monster. this mountain-fringed stretch of Nevada war-effort. A lot of hope is fastened on portant, most valuable metal in the whole Magnesium is the most vital, most im-

The Big Job. Today, the eyes of the world are on cast the savage beginning of the war's end. a deep breath; not until then will be forethe skies. Not until then will America take alive with a roar, and hell will rain from of the world, then the monster will come bullets, the flates, the incendiary bombs sium a year for the airplanes, the tracer to produce millions of pounds of magne-In May, when B.M.I. will be equipped

> reads: "Wedding rings an souvenirs." notice the itony of a gift sore sign which marriage brides and groots do not even in the United States. But stary-eyed, quickthe size of the town than ny other town In fact, Las Vegas has mre lawyers for revenue comes from out-ofsmie divorcees. of the town, a good part of their legal practice handling the regular legal affairs

> > DALY

the tax rate is never over he dollars. edness and by constitution amendment come tax; the state has no onded indebtts no sales tax, no inheritace tax, no in-Nevada to be amazingly ax free. There places of amusement makeit possible for casinos, restaurants, lique stores, and In Nevada, gambling islegal Prostitu-tion is legal. The license ces from bars,

Vegas today. sal si sa shih miw anising has animen a long sleep. There are fey towns in the United States as wide-awake, as aware, as like Rip Van Winkle-is awaking from sun-baked railroad rown where carrie cars stopped to water the animas, Las Vegaslater the Rancho Vegas, and finally a lazy, Once a rendezvous for horse thieves,

the faces of everyone; it's in the burs and feel the electric tautness in the air. It's in hits the town of Las Vegas, he can almost history in the making. When a travelet Now you are conscious of big things, of citement is in the very air you breathe. in the terms of Mexico's manana. Now exthe days when everything to be done was Gone are the good old days. Gone are

THE BIG JOB (70)

RFP

dormitory for single men. Rlans are also being drawn for a 320-room tion, with 300 more on the drafting boards. An additional 300 are now in constructhe plant for families of their employees. Basic built a thousand homes opposite

and dormitories. city, Andersons', houses 4,000 men in tents them have as many as 800 trailers. A tent camps in and around Las Vegas; some of more are on the way. There are 200 trailer Basic has purchased 250 trailers, 50

Williams and Adrian Wilson. being planned and built by architects Paul whole housing unit for colored people is single colored men, a recreation center. The oted people, a 175-room dormitory for Basic is also building 324 homes for col-

to be made weeks in advance. of his hotel, and even so reservations have whole street lined with bungalows as part list. Bob Brooks' Nevada Biltmore has a a month for three people, have a waiting auto courts, some of them tenting for \$170 All hotels are jammed to capacity. All

Supreme Court. than the Chief Justice of the United States Justice of the Peace made more money divorces in Las Vegas last year, and the laws. There were 22,500 matriages and is Nevada's quick marriage and divorce Also responsible for jamming the hotels

says that although lawyers have a good Former district attorney, Roland Wiley,

JR'L OF COMMERCE NEW YORK 3/15/44

CIAL, NEW YORK, WEDNESDAY, MARCH 15, 1944

Cutbacks Being Mapped in Magnesium Output

cipal cutbacks in magnesium pro-duction, expected to be ordered within the next few days by the War Preduction Board, will be made in those plants which are made in those plants which are farthest removed from processors. t was fearned today.

will be approved and of the week. horizontal reduction could be ef-Cuthack at Las Vegas feeted.

Las Vegas, Nev., operated by Lance be effected by cutbacks in those Refractories Corporation, which plants which have the most critical has a production capacity of 112, problems of transportation, man-100,000 pounds of basic magnesium power and power.

S CAL WALL STREET INH MICH.

BASIC MAGNESHIM, INC., largest of the

ight metal producets in the country, was left

intouched by unst week's cut-back in mag-

resium metal production by WPB, and is going

full blast. It was recently reported from Las

Vegas, Nev., that Basic had contracts enough

Kaiser Manteca plant are cut to 50% of capac-

ity. Incidentally, the Kaiser magnesium se,-up

his for some time been devoting itself to other

The Spokane magnesium plant and the

to keep it at capacity until mid-autumn.

war materials ends for some time.

WARTCH ZA, THM

Accessibility of Plants to Processors Seen Influ-encing WPB Policy WASHINGTON, March 14.-Pirm, was ubacks in magnesium pro-March 14.-Pirm, Mich.: Midland, Mich.: Lucky, all kinds from the Western part of the country. This group has pro-tested against alleged centralities in the East and has been campaigning for more Grant of the industries in the West. This country in the East and has been campaigning for more Grant of the final decision will be the availability and coar of power, the watability and coar of power, the decision will be the availability and coar of power, the decision will be the availability and coar of power, the decision will be the availability and coar of power, the decision will be the availability and coar of power, the decision will be the availability and coar of power, the decision will be the availability and coar of power, the decision will be the decision will be the decision will be the availability and coar of power, the decision will be the decision wi

WASHINGIDA, are located at Cansan, try will cipal cutbacks in magnesium pro-availability and cost of power, the Conn.; Wingdale, N. Y.; Detroit, duction,

view estimates of prospective amount to between 15 and 20 per wirzB estimates of prospective anount to between 15 and 20 per cutbacks in magnesium production are now under review by the De-duction under the accelerated war are now unnot received in was program would exceed consump-fense Flant Corporation, it was program would exceed consump-and, with the probability that they tion, it was thought that a method with the proved and the orders is might he worked out under which a

This was later found to be impractical, it was said, and it is be-imple outback will be ordered in the Government-owned plant at the effected by coutback of the structure will be effected by coutback.

Output Exceeds Needs It was understood that in review- With all producers running at ca-

pacity, annual production of mag nesium in this country would be in excess of 600,000,000 pounds. Milltary, export and civilian requirements are expected to be about 500,000,000 pounds.

It was considered certain that any reduction in the production at the Basic magnesium plant at Las Vegas would result in criticiam from the Western bloc in Congress. headed by Senator Pat McCarran (Dem., Nev.), which has been protesting against removal of Govern-



Report Shocks

LABOR

3/18/44

WASHINGTON D.C.

Another shocking example of the

way the taxpayers' money has been

tossed about in the construction of

war plants was brought to public

attention this week by the Truman

Senate committee in a report filed by Senator Mon C. Wallgren (Dem.,

Wash.). It represented the results

of a two-

gation

year investi-

A contract

made with

Basic Mag-

nesium for a

plant in Ne-

vada was de-

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program."

The exposure parallels charges

Forecast Scandal

Bunker forecast what he thought would happen when the deal was in its inception, and before \$133,000,-000 of government funds had been put into the project. That was about twice the original estimate of the cost of the plant.

doorstep of Jesse Jones' Defense Plant Corporation. The fact that

the deal had been recommended by the War Department and the War Production Board did not, in the committee's opinion, exonerate the D. P. C. for permitting unbelievable Big Profit on Shoestring

WAR CONTROLS

Wallgren Raps 'Bungling'

In Basic Magnesium Deal

Uncle Sam Taken for Ride by Shoestring Promoters On

Construction Project Authorized by Jesse Jones

Although Basic Magnesium was operating on a "shoestring," it ob-tained from Jones a contract under which it was to receive a minimum fee of \$560,000 a year for operating the plant, plus a royalty of \$280,000 a year to one of the owners of the company for ore which cost it only \$24,000.

The Jones organization, the committee pointed out, later bought the ore from the company for \$450,000. The company was also paid \$300,-000 as a construction fee, and it received the money despite the fact the government was forced to employ another engineering firm to complete the job, at a fee of \$100,000.

Payrolls Padded

The committee's report devotes several scathing paragraphs to a denunciation of the "extravagances" of the contractor. Payrolls were padded with an army of "whitecollar" workers, who received salaries far in excess of any previous salary earned by them, the committee declared,

In the early stages of construction, the committee reported, the company had 3,000 on the payroll, a fourth of whom received in excess of \$4,000. There were seven general superintendents, 57 superintendents and assistant superintendents and 36 general foremen.

Money was also spent with a lavish hand in the purchase of supplies and materials, the committee said.

Bows Out With Windfall

Eventually Basic Magnesium was forced to dispose of control of the company to the Anaconda Copper Company, which is doing a much better job, the committee declares, On this final transaction, Basic Magnesium made a profit of \$376,136, "despite its demonstrated incompetence," the committee revealed.

MAR 1 7 1944

F. O. C.

RENO EVENING GAZETTE A Newspaper for the Home

MERRITT C. SPEIDEL, President GRAHAM M. DEAN, Treasurer and Publisher LYLE T. HARPER, Susiness Manager JOHN SANFORD, City Editor

The Beno Evening Gazette is a member of Speidei Newspapers, Inc. a national service organization pro-moting through the publication of progressive newspapers the best interests of the community and the home Entered at the Postoffice at Reno, Nevada, as second plats matter Published evenings except Sunday in Gazette Building: Center street, Reno, Nevada The Associated Press exclusively is entitled to the use for republication of all news dispatches credited to it or not otherwise credited in this paper, and also the local news published herein. National Advertising Representatives: West-Huiday Company, New York, Chicago, San Francisco, Detroit, Los Angeles, Seattle, Portland, St. Louis, Cleveland.

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\$2.50 By Mail, Outside Nevada and Northern California One year Bix months One month For service men, the Gazette will be mailed to any address for the special monthly rate of 50c per month "Our country in ner intercourse with foreign nations may she always be in the right; but our country, right or wrong"-Stephen Decatur

19952-111 - 2.24F Monday, March 13, 1944

Magnesium for Civilian Use

CHARGES OF "extravagances and inefficiencies" in the construction and early operation of the gigantic Basic Magnesium, Inc., plant in Clark county, such as were made today by the senate's Truman committee, have been levied before by the same group.

The significant part of the committee's report is that wherein the senatorial factfinding group reveals that magnesium production has reached a point where its use for civilian goods manufacture should now be permitted. Certainly there is logic in the committee's contention that this step would lay the foundation for a new postwar industry through development of new uses for magnesium and protect the government's \$500,000,000 wartime investment in the Clark county plant.

Politics and industrial rivalries have obscured the facts concerning the early extravagances and inefficiencies to which the committee refers. Whether excessive costs and lost motion can be attributed, in part at least, to the experimentation that must inevitably accompany such a pioneering effort is still a matter for speculation.

The present management of the plant, however, is efficient. Production costs are being lowered and there is good basis for believing that further research, plus an unprecedented demand from civilian sources for this lighter-than-aluminum metal, will make operation of this plant in peacetime economically practical.

Senator Wallgren of Washington, a member of the Truman committee, offers still another logical argument in support of the group's recommendation, in expressing the opinion that we should never again permit such a monopoly to be established as was operating in the magnesium production industry at the time of our entrance into the war.

The plant in Clark county has made a vital contribution to our war program. It will continue to serve in peacetime if the practical suggestions of the Truman committee are given serious consideration

Magnesium Mill **Exceeds Rating**

With final returns still awaited, it was predicted that February prouction by the Basic Magnesium inc, will be shown to exceed substantially the record production rate reported for January of this

During January the company maintained an average output of 105 per cent of rated capacity with a high day of 110 per cent. One marter of the domestic magnesium production now comes from BMI's plant near Las Vegas.

It is said that the January output of ingots, placed end to end, would mach from Las Vegas to Butte, Montana. 'The company's production costs during the past year have dropped sharply and still are dereasing, F. O. Case is general maniger at Henderson.

3-23-44 **Vocational School Okehed by Labor**

L.V.R.Journal

Approval of plans for a voca tional training school at BMI to facilitate the training of Basic mployes who wish to learn such trades as welding, automotive equipment and repair, brick laying and other skilled crafts now being employed at the plant, was announced today by the Central Labor Council.

The school would be staffed by mechanics from the ranks of organized labor in Clark county, it was stated, and is planned to present an opportunity for the local citizens to learn trades and crafts which will enable them to qualify for work at the plant and will eliminate periodical skilled labor shortages and the need to recruit labor from other states.

resources and the most meager ex-

made two years ago in the Senate by Berkeley L. Bunker, then Democratic Senator from Nevada, filling out the unexpired term of Senator

Key Pittman.

Responsibility for what the committee brands as a "betrayal of the public interest" is placed on the

cials who "gave unwarranted ad-Senator Wallgren vances of public funds to a concern which had no financial perience and talent."

ONDITIELD, NEW THEMS IN EXHIBITINE WARCH 24, 1944

GOVERNMENT-FINANCED

Supervisors and foremen of Basic Magnesium, Inc., whether they work at the Gabbs Valley or the Henderson unit, have been given the opportunity for further scientific study. Classes in advanced courses, taught by company engineers, are offered em-ployes of BMI. The U. S. office of education finances these courses under a war training program of engineering, science, and management. Such classes may be conducted where there is an important war industry. The BMI courses at Gabbs and Las Vegas are the only two in Nevada at present.

The University of Nevada does not qualify for courses in management under the program, but does qualify for courses in engineering and science. Jay A. Carpenter, director of the school of mines, is in charge of metallurgy classes; Stanley G. Palmer. dean of engineering, is in charge of classes in electricity; and Geo. W. Sears, head of the department of chemistry, supervises chemistry courses. The supervisors



News dispatches a few days ago brought word about an "okay" for a plate mill to be constructed for Columbia Steel at their new, big plant at Geneva. Utah. That's headway — for Utah. The picture of the industrial west will be more satisfying when the green light comet for a rolling mill for BMI. Such an addition to the world's largest magnesium project will bring permanent prosperity to an area richly deserving industrial encouragement

Southern Nevada has contributed much to the nation, during war as well as peace, and it is high time the powers that be recognize the importance of the union's smallest populated state. Nevada cemented the union with its silver during the Civil War. Now, with BMI in more than full production for over a year and a half, Nevada is saving the world with magnesium war material carved from its hills. What's the reward?

BMI is doing its part, too, in the matter of employing returning service men of this war. New faces with war-tired expressions, are seen in various units. Their lapel buttons, symbols of honorable discharges, some worn on overalls, are their marks of distinction. These men, of varying ages, know hat it's all about and they are tackling their job. with the vengeance that come: with that knowledge. Many have dumped basket loads o magnesium incendiary bomb over the sides of their fighting planes atop enemy targets. Many appreciate the value of mag tracer bullets and flarei

Patting a freshly cast magnesium ingot, one young exbombardier was recently heard to say with affection, "Do your stuff for the next guy like you did it for me, baby!" A dozen workers in the same crew knew what he meant.

visit the classes as often as pos-SCHOOLS ESTABLISHED sible. The registration bureau sics office of the university and

> LEADERST 26 1964 DLERS

News dispatches a few days ago brought word about an "okay" for a plate mill to be constructed for Columbia Steel at their new, big plant at Geneva, Utab. That's headway — for Utab. The picture of the industrial west will be more satisfying when the green light comes for a rolling mill for BML. Such an addition to the world's largest magnesium project will bring permanent prosperity to an area richly deserving industrial en-

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Patting a freshly cast magnesium ingot, one young exbombardier was recently heard stuff for the next guy like your did it for me, baby!" A dozen t workers in the same crew knew what he meant.

Did you know that Ted Swift, chief of Plant Protection, was an Army Air Corps major? ww II.

Friends of Augustine Martinez father of six youngsters and hero of World war I, are glad to see him back on the job at the re-fineries. Augustine, holder of many citations including a spetial award from General Persh ing, recently returned after the doctors said. Martinez says this heart is still good enough win this war with magFolks are congratulating Fred Unsworth, Townsite housing manager. Fred's a brand new grandpa. His son is an admiral, or something, in the Washington navy. By way of celebration, trees will be planted all over the Townsite. Residents of the area might have had grass, too, if only it had been twins.

W Warning to kids at Basic and Railroad Pass schoolst There's "a truant officer on the way! He'll be on the job any day now.

d Did you know that warehouseiman Earl Thomas was once a big shot in the business agent's soffice of the Los Angeles Bureau fof Power and Light? Well, he was.

Overheard at Anderson's Cafeteria: "... so what's the differience between a Democracy and a Republic?" And we ask, what is the difference?

For the Honor Roll of Car Owners Who Give Rides to Those Who Walk at Basic, we nominate L. A. West, cost accounting; Grace Leaman, general stores; Bertha Gannon, group insurance; Jim Crawford, C and A accounting, and Ed Hickman, timekeeping. There are still too many lone occupants of Townsite cars who could give plant hikers a lift. (I'm the girl with the red carnation in my hair).

Ralph O'Neil, chief of the division of water works, (one of the most responsible jobs at the plant), is taking salutes with both hands these days. He was recently elected to the coveted office of District Commander, Veterans of Foreign Wars. Commander Ralph has a heroic overmander Ralph has a heroic overseas record of combat service in WW I. Watch the VFW go places this year!

Earl E. Keenan, indoctrinated with BMI at Gabbs and now head man-at surplu's stores here, is an old timer with Anaconda. Drafted from the Anaconda reservation at Butte, Montana, Earl has made a raft of new friends. (Wanna buy a second hand wheelbarrow?)

That new ditch angling from the Ad building to the fire station to the guard hdqirs, and across the road at gate 2, stopping in the middle of nowhere at the overhead water hose on the edge of the north parking lot, believe it or not, will carry a STEAM HEAT line. That's what L. A. Harris, general service, says.

Orientation and plant education have intensified since the Foremen Training Unit, John Keyes, chief, has been moved to the Personnel building.

The office and staff of the BASIC BOMBARDIER, W. Har-Id Kingsley, editor, have moved tack to the Administration buildng. That brings the official press tervice closer to news sources.

Jenth Unit of BMI Plant Now Is At Full Capacity

New Unit Is Cut In Yesterday Morning At Plant

The world's largest magne-sium plant, Basic Magnesium, Inc., brought its tenth and last unit into full production today, according to F. O. Case, general manager.

The last unit was cut in yesterday morning and was producing metal this morning, after the 24-hour cycle of production had been completed.

First In '42

The BMI plant's first unit went into production on August 30, 1942. Since that time one unit per month has been completed and has started producing metal for incendiary bombs and other war uses,

The rated capacity of the plant is 15 tons of metal per unit per 24-hour period, for a total of 150 tons per day. The plant is ex-ceeding its rated capacity daily. but no figures are available for publication on the total production at present,

When the tenth unit was start-ed yesterday, officials of the company who were present in-cluded: F. O. Case, general manager; H. G. Satterthwaite, assistant general manager; and V MacDonell, chief engineer. Four men were present who have assisted with cutting in each of the 10 units now in operation. They were: J. R. Coulter, super-intendent of production; H. H. "Bed" Gillings, electrical super-intendent; Art Newell, superintendent of metal plants; and Frank Woodman, superintendent of the electrolysis plant.

The progress of the BMI plant construction has been rapid, as first soil tests were made Septem-ber 2, 1941, and the first stake driven just one week later. Clearing of brush from the area was started September 11, 1941, and first excavation started October 29, 1941.

While construction at the plant is not yet complete, all necessary building to bring the 10 metal producing units into full opera-tion has been completed. Remaining to be built are several permanent structures, such as an administration building, which will be constructed of steel and concrete. Present temporary buildings will be razed when permanent structures are completed.

This construction program is expected to be completed by early fall.

Officials at the plant pointed out that attention has been directed to completion of structures necessary for the actual produc-tion of metal, and that all util-ilies and other preparations necessary for that purpose were given first consideration. Departments now housed in temporary buildings will be transferred

Western Metals June, 1943

Basic Magnesium Completes Tenth Metal-Producing Unit

ON May 28, exactly 18 months and six days after the pouring of the first mass concrete on the job, construction of the last of the ten metal producing units was completed at Basic Magnesium, Inc.'s Las Vegas plant. As soon as the McNeil Construction Co.'s crews put the finishing touches on Unit No. 10, last of the series, B. W. McNeil officially turned the key to the building over to F. O. Case, general manager of the operating company.

When it gets into full production, BMI will have the largest magnesium plant in the world, with a rated capacity of 31/2 times the total output of the United States in 1941. The building of this huge plant in so short a period of time sets a record in construction work. The first of the ten the attendant task of getting that prounits was completed on August 29, 1942.

Incidentally, it has been estimated that at least half a million dollars was saved on the masonry labor that went into the project, attributed to various short cuts worked out on the iob.

ALT LAKE CITY, DITAH, NEWS

In Production

Magnesium Plant

LAS VEGAS, Nev. - (AP)-

The government's \$130,000,000

Basic Magnesium, Inc., plant went

into full production today and

spokesmen said its output of the

vital war material will be three

and one-half times greater than

that of all the world's other sim-

Placing of the final unit in

operation was the occasion for a

day-long celebration, in which the

crew of the Memphis Belle, Fly-

ing Fortress which made 25 suc-

cessful sorties over Germany and

occupied Europe, took part.

PHOENIX, ARIZ., MINING JOURNAL

BASIC MAGNESIUM REACHING

GH V. 109 JUNE 30, 1943

ilar factories combined.

JUNE 12, 1943

The various buildings of the plant are covered with a maroon-colored substance that has evoked considerable curiosity. This material, familiarly known as "APM," is asbestos protected metal - black iron sheet enclosed in a permanent weather-proof, acid-resisting asbestos felt envelope. In addition to these qualities, APM requires no painting and little or no maintenance. It is manufactured by the American Steel Band Co., Pittsburgh, and finished to size and ready for use.

The first phase of the big Las Vegas job is over-but there still remain certain alterations and changes yet to be made. Basic Magnesium will shortly go into full production, with duction on a basis where the Las Vegas plant can compete successfully in the postwar market. This problem will be in the capable hands of F. O. Case, Guernsey Frazer, administrative general manager of BMI, Defense Plants Corp., and Nevada's congressional delegation.

THEALE CAL ADVANCE REGISTER JEAME 20, 1043

MAGNESIUM PRODUCTION GOING FULL BLAST

LAS VEGAS, Nev., June 26 (P)-The tenth and last metal producing unit of the world's largest magnesium plant, Basic Magnesium, Inc., was put to production today.

CORVALLIS. ORE., GAZETTE-TIMES Cir. 2,213 JUN 26 1943

Big Magnesium Plant Opened at Las Vegas

LAS VEGAS, Nev., June 26-(AP)-The touth and last metal producing unit of the world's largest magnesium plant, Basic Magnesium, Inc., was put to production today.

The rated capacity of the plant. here in one of the hot parts of the Colorado desert, is rated at 15 tons of metal a unit every 24 hours. However, said F. O. Case, general manager, the plant is exceeding the mied output of 150 tons a day; by how much, he is not permitted to suy,

ENGINEERING AND MINING JOURNAL "For nearly three-quarters of a century the out-standing authority of the metal and non-metallic, milling, smelting and refining industries." McGraw-Hill, 330 W. 42nd St., New York City

NEVADA

Large Molybdenum Plant Planned Near Tonopah

Basic Magnesium to use truck haulage-State advisory committee formed-New orebody reported at Rio Tinto

▶ Early construction of a 2,000-ton molybdenum plant on claims held under option by the U. S. Vanadium Corp. in the Liberty district, 20 miles north of Tonopah, Nye County, was forecast in reports attributed to engineers of the U. S. Bureau of Mines. Ground involved covers part of a large number of pat-ented claims embraced in the old Liberty silver-lead mine, worked in the early '70s by Mexican miners and later operated by the Tonopah Liberty Mining Co., which built a 125-ton gravity concentration mill. Principal owner is Lee Hand, of Tonopah, who bought the claims for delinquent taxes. United States Vanadium took over the molybdenite group of 1936 and a considerable amount of development work was done under direction of Clarence Hall, but the project was abandoned in the following year. Reports stated Defense Plant Corp. will provide construction funds and U. Vanadium will operate as agent for Mctals Reserve Co., as it is now operating the tungsten plant at Salt Lake City. A 10-ton sample of the molybdenite was shipped recently for tests to the Bureau of Mines experiment sta-tion at Salt Lake City.

► Magnesium oxide, product of the flo-tation-calcining plant of the Anaconda-operated Basic Magnesium, Inc., at Gabbs Valley, Nye County, will be shipped hereafter by huge 32-wheel trucks and trailers some 350 miles south by road, the trucking contract having been awarded to Wells, Inc., Reno contractors. This replaces the former rail haul of nearly 1,100 miles by way of Ogden and Salt Lake City. Proposed construction of a railroad south from Goldfield to Las Vegas still awaits approval of Army and Navy engineers as a wartime strategic need, and the decision may hinge on further test work at the Boulder City station of the Bureau of Mines, which has announced success in recovering magnesium from a 400,000,000-ton dolomite deposit at Sloan, less than 30 miles from the magnesium metal plant.

▶ The Cordero Mining Co., D. Ford Me-Cormick, manager at Denio, Humboldt County, is operating its 125-ton Herreshoff furnace plant at part capacity on cinnabar mined by power shovel from open cuts. Working force has been reduced by the draft and attraction of war-plant wages to 32, against the normal crew of 65 men. In April the company shipped 250 flasks of mercury and in December the output was 500 flasks. The company is an affiliate of Horse Heaven Mines, Inc., of Oregon; both subsidiaries of the Sun Oil Co., of Philadelphia.

► An RFC loan has been granted to Mark G. Bradshaw, of Tonopah, engi- R. E. Margenau, of Ely, is manager,

neer and veteran mine operator, to reopen his Endowment silver-lead-zine mine in the Marietta district, 26 miles southwest of Mina, in Mineral County. Records indicate that the mine pro-duced around \$1,500,000 prior to 1885 and lessees made some production in later years. Below the adit level the minerals are chiefly argentite, sphalerite, and galena.

▶ Because of the exhaustion of its bud-get allowance, the U. S. Bureau of Mines experiment station at Boulder City, Clark County, has been compelled to ay off about 150 employes. This doe not affect continued work designed to perfect electrolytic processes in mangamese and magnesium metallurgy but will curtail other activities to the prewar level.

▶ The lately formed Sierra Minerals Corp., operating a 25-ton flotation mill at the East Walker mine, near Wichman, Lyon County, has shipped some concentrate containing gold, silver, lead, and copper to the Selby smelter of the A.S.& R. Co., on San Francisco hay. The mine has been equipped in recent months under direction of Joseph R. Geronimo, of Yerington.

▶ The Bray antimony mine, at Big Creek, south of Austin, in Lander County, an early-day producer of note, is being reopened by Tony Romano, Robert Roecker, and California associates, who are preparing to ship their product to a Texas smelter. The mine produced during the '70s and again in the '90s, when a considerable quantity of 50 percent ore was shipped. The area has been one of the most productive of stibnite in Nevada.

▶ Its open-cut gold mine and 350-ton cyanide mill closed since the October WPB order, the Northumberland Min-ing Co., J. C. Perkins, of Tonopah, manager, has maintained its plant in operating condition with the purpose of resuming when possible. It is the purpose then to install a 300-ton calcining furnace for primary roast before the ore enters the cyanide circuit, a procedure in practice at the Getchell mine. where arsenic is now an important byproduct. Walter Haggerty is president.

▶ John A. Payne, president of the Consolidated Coppermines Corp., operating at Kimberly and shipping 9,000 tons per day of copper ore to the Kennecott smelter at McGill, has recommended to the hoard of directors that a decision on dividend policy be deferred pending action on his request for downward revision of the company's production

quota. ▶ The Gilded Age Mining Co. is said to be producing a high-grade scheelite concentrate in its 25-ton tungsten mill on its Gold King mine, in the Black Horse district, White Pine County, n short distance northeast of its productive gold mine at Osceola, which made reported gold production of \$175,000 in 1939. Development work has been conducted in late months on two other tungsten properties in nearby districts. The company has its main office in Grosse Pointe, Mich. John B. Blanchard, cf Grosse Point, is president, and

> The Swales Mountain mine, in which zinc-lead-silver orebodies of large volume have been developed by intermittent work extending over many years, and which is situated 20 miles north of Carlin, in Elko County, has been acquired by the Angelus Basic Copper, a syndicate composed of southern Califormia men. Road work has been in progress and a compressor and other equipment units have been delivered. The group also has acquired a large group of copper claims near Yerington, Lyon County, adjoining ground now being drilled by Anaconda interests, Allan A. MacLean, of Los Angeles, is head of the syndicate and J. P. McGlynn is superintendent at Carlin.

▶ Members of a state advisory mining board, created at the December session of the Nevada Legislature, named lately by Governor E. P. Carville, are: J. C. Kinnear, of McGill, manager for the Nevada division of Kennecott Copper Corp.; Horace A. Johnson, resident manager for Tonopah Mining Co., of Nevada; Fred E. Gray, manager for Desert Silver, Inc., at Nivloc; Eric J. Schrader, consulting engineer of Reno; Paul Gemmill, geologist for Prince Con-solidated Mining Co., of Pioche; William Donovan, head and manager for the Silver Hill Mining Co. at Silver City, and P. A. Keegel, of Las Vegas, engineer and former manager of productive gold mines in the Eldorado district in Clark County. An organization meeting of the board is to be held soon.

> Copper mines in the Contact district, northeastern Elko County, that made some production during the first World War, are being reopened by the Marshall Mining Co., of California, and some small shipments have been made over the Wells-Rogerson branch railroad to a Utah smelter.

With completion of a new road and with new heavy-duty trucks, the Golconda Mining Co. is shipping around 60 tons per day of high-grade manganese ore from its leased Black Diablo mine, in the Pumpernickel district, northern Pershing County, 22 miles south of the Goleonda rail point. Hollis E. Chatwin is manager. The product goes to the Columbia Steel plant at Ironton, Utah, a subsidiary of U. S. Steel.

► The East Standard Mining Co. of Utah has acquired old zine-lead mines at Freiberg, western Lincoln County, and has made several shipments to the Midvale smelter of the U.S. Smelting. Refining & Mining Co. Charles W Dodge, vice president, is said to have announced that a 150-ton concentrating mill on a Utah property of the company will be moved to the Freiberg mine. Ted Oxborrow, of Ely, superintendent, is driving a new tunnel.

▶ Miners in the employ of the Mountain City Copper Co. in northern Elko County, say there is truth in reports that a new orebody of major importance has been opened in the far western part of the company's Rio Tinto mine in raising to the surface from the main 700-ft. haulage level for air connection. This point was said to be near claim boundaries of the Mountain City Consolidated Copper Co. and the Rio Grande Copper Co. J. J. Lillie is manager.

soon as they are completed.

pacity. Eight and a half units out of the projected 10 are in operation and, while production figures are withheld because of censorship, the company is stated to be the largest single magnesium producer in the world.

BASIC MAGNESIUM, INC., is reported

to be operating at 85 per cent of ca-

Arrangements are being considered to change the present system of transporting the ore from the mines at Gabbs in Nye County, Nevada, to the plant near Las Vegas. Shipments at present are made by rail via Salt Lake City, Utah, but soon 32-wheel trucks will be used. If the plan to extend the Tonopah and Goldfield railroad is put into effect and the present light track replaced with 110-pound rails, then the company will use that means of transportation. The extension of the railroad would cost about \$8,000,000 and would involve the cooperation of Washington and Oregon in order to complete the rail route up the coast behind the mountains.

F. O. Case, Box 8, Las Vegas, is general manager of Basic Magnesium, assisted by H. G. Satterthwaite and Gurnsey Frazer, also of Las Vegas.

CALL Newark, N. J. JUN 27 1943

Over 150 Tons Daily At Magnesium Plant

LAS VEGAS, Nev. (A)-The 10th and last metal producing unit of the world's largest magnesium plant, Basic Magnesium, Inc., was put to production yresterday. The rated capacity of the plant, in one of the hot parts of the Colorado desert, is rated at 15 tons of metal a unit every 24 hours.

ng Journal-Vol.144.No.6

Production Begun in New Magnesium Plant Unit

LAS VEGAS, Nev., June 26.— amount of metal now being dim_The tenth and final unit turned out,

of Basie Magnesium, Ing., began First tests on the ground were producing metal today, bringing made September 2, 1941, with exthe plant's production capacity to cavation starting October 29. maximum in less than two years The plant is complete now exafter first soil tests were made, cept for replacing some tempo-The first unit of the world's rary buildings with permanent largest magnesium plant was put structures of cement and steel, in operation August 30, 1942. Although the rated capacity of the plant is 15 tons a unit each 24-hour period, or 150 tons a day, this output is being exceeded, F. O. Case, general manager, and the said.

said. He declined to reveal the

LONG BEACH, CALIF., PRESS-
Las Vegas AGE 3-12-44 Future of Magnesium

Those who were fortunate enouh to hear the broadcast, "The Future of Magnesium," over the Blue Network and Radio Station KENO Thursday evening are convinced that a metal with so many desirable qualities cannot be ignored in the rebuilding of the world, any more than it could be ignored in its primary function of providing munitions without which the war could not be won. The amazing record of plant construc-

tion and production of magnesium in immense quantities is proof, of the energy, enterprise and genius of those who conceived, built and operated this, America's Number

One War Industry Basic Magnesium. Nevertheless, we see evidences of the beginning of a titanic struggle between Dow Chemical Company and the Aluminum Corporation of America on one side, and Ana-

conda Copper Company (operating Basic Magnesium) on the other, for control of the Anaconda Copper Company, which so "light metals industry.

well perfected the production of magnesium, may well carry on extensive research work. to demonstrate the desirability of magnesium

in the industrial world. It is probable that Basic Magnesium, Inc., under the guidance of Anaconda, is the best qualified organization in the entire world

qualified organization in the entire world to devise and operate fabrication plants for to devise and operate into cation plants for the peacetime utilization of magnesium, this the peacetime that world's great industries.

AIVERSIDE, CAL ENTERPRISE

Magnesium Need Supplied Despite Las Vegas Bungling

WASHINGTON, March 13. UP-Despite a slow start by private in-dustry and 'bungling and incompe-dustry and 'bungling and incompe-tence' is construction of a govern-tence' is construction of a govern-tence' is construction of a govern-tence is construction of the plant, the report said: "To provide the necessary speed and performance Basic Magnesium the septensive personnel for which there appears to be no justifica-tion." It also charged that although ore

suffice not only for war and essen-tial civilian needs but also provide a surplus for other civilian needs. a surplus for other civilian needs. The criticism of "bungling and The criticism of "bungling and Incompetence" was leveled at the Incompetence" Magnesium, Inc., in 1942 \$133,000,000 Basic Magnesium, Inc., in 1942 . . .

TATT LAKE CITY, UTAH, TRIBUNE TRANSPH IN 1944

Basic Magnesium Cutback Averted

After a hearing before a congressional subcommittee on westeru industrias, Senator McCarran da announced that support from the department of the h terior, Defense Plant corporation and the United States bureau of reclamation had enabled the subcommittee to prevent a move on a the part of the war production board to curtail production at the Basic Magnesium plant near Las

Vegas, Nev. The senator commented upon the fact that W P B had not taken my steps to close plants of the any steps to close plants of the Dow Chemical company and ex-pressed the opinion that the plan to curtail at Las Vegas was "very plainly an attempt to foster com-plete monopoly of the magnesium plete monopoly of the magnesium industry by the Dow Chemical ompany.

a surplus the cellian items. The report climaxed a long in-guiry headed by Sen. Mon C. Wall-gren, D., Wash, chairman of a sufficient high grent of the second sufficient high grent of the second sufficient high grade, "no steps were taken to obtain the ore from better chaims." "The committee finds it difficult," the report said, "to reconcile the failure on the part of the interest-ed agencies to obtain the best ore available, irrespective of owner-

EUTEKA, CALIF. STANDARD APRIL 17, 1944

Basic Magnesium Unit Reported Shut Down 468

LAS VEGAS, Nev., April 17. -(UP) - Shutting down of one unit of the huge basic Magnesuim, Inc., plant was reported yesterday, and it was understood that a total of four of the plant's ten units will be idle by May 31. Superintendent Frank O. Case

refused to confirm or deny the report. BMI has been operated by the Anaconda company for the Defense Plant Corporation.

Sen. Pat McCarran, Nev., declared if a shut-down order has been issued, "I and the members of the U. S. Senate committee I head will fight to have such an order revoked."

Reports have been recurrent here that production at the BMI plant, largest in the world, would be curtailed because production of magnesium has exceeded requirements. The plant reportedly has anticipated the action by not replacing drafted employes.

THE CLIPPING CO. 524 E. Mason St., Milwaukee, Wis. Tribune.

Chicago 111. 3-14-44

URGE DIVERSION OF MAGNESIUM TO CIVILIAN USE

Early Waste Draws Committee's Fire.

Ichicago Tribane Press Service.] Washington, D. C., March 13.-American production of magnesium -lightest structural metal known to man-be progressed to the point whar 'w use for civilian goods manufacture now should be permitted, the Truman war investigating committee reported today. The report at the same time criti-

cized early waste and Inefficiency in a 133 million dollar government financed plant at Las Vegas, Nev., which will cost almost double original estimates. However, early errors have been corrected and nation-wide production this year will exceed war and essential civilian needs and provide a surplus for civilian goods, the committee said. Uses Are Varied.

The war production board was urged to release this extra production for development of new uses of the metal. The report said magnesium can be developed for use in the making of automotive parts, portable tools, vacuum cleaners, typewriters, business machines, photo-engraving plates, and conveyors. Magnesium is supremely important not only to the war but to the future welfare of the country, said Sen. Wallgren [D., Wash.], who

filed the report. The Nevada magnesium plant was authorized by the Defense Plant corporation in 1941 under contract to Basic Magnesium, Inc., of Cleveland. Of this contract, the report remarked:

" This was one of the most unjustified contracts which was proposed in connection with the war program and represented a wholly unwarranted advance of government funds to a newly organized corporation which had no financial resources and only the most meager experience and talent.

Causes Management Change.

"Aside from the lack of coordinated engineering, extravagances on the project, general inefficiencies, overoptimistic attitude with respect p ply 7,000,000 pounds. to the ore reserves both as to ti . The committee was concernquality and quantity, errors in effiprompted the committee's Interest of manufactures." but culminated in the removal of 'In 1942, the report said, it was ment of the project."

Copper Mining company. Sen. Wall-Copper Mining company. Sen. Wall tal production for the year was since their inception. It produced been in charge from the outset. , only 348,000,000 pounds were ac- nesium produced in all plants in

NEMARCIA, NEV. STAR & STATE

Committee Praises BMI MagnesiumProduction, Largest in the World

Criticizes Incompetence in Building 133 Million Dollar Plant, Which Has Output 122 Million Pounds, 1943

(United Press)

WASHINGTON-The senate Truman committee, in its longawalted report on magnesium, said today it was "reasonable" to assume that 1914 production not only will suffice for war and essential civillan needs but also provide a surplus for production of other civilian items.

Climaxing a long inquiry headed by Senator Mon C. Wallgren, B., Wash., chairman of a subcommittee on light metals, the report :150

1. Said the war production board soon will initiate action to reduce production of magnesium, which is used for such things as incendiary bombs and aircraft parts.

2. Gave Bow Chemical company major credit for the nation's success in meeting the bulk of wartime requirements but criticized the company for its failure to,

match German output in recent years.

PRAISES LAS VEGAS

3. Criticized inefficiencies in construction of the \$133,000,000 Basic Magnesium Inc., project at Las Vegas, Nevada, but nevertheless praised the plant's present 112,000,000 pound output of the "largest in the United States and believed to be the largest in the world."

4. Recommended an immediate program to familiarize civilian industry with the advantages and techniques involved in the use of magnesium. This, the committee said, would open a larger future market for the light, tough metal and make private operators of government-built plants more inelined to purchase them for postwar operation.

5. Declared that this country should lead the world in the light metals industry and said it was "incumbent" on any firm holding a monopoly on any type of profluction to make certain the United States at least equals other fountries in output of that macrial.

s The committee observed that tra 1933, German magneshum protenction was about 33,000,000 ounds, while American output, intirely by Dow Chemical was

cient layout and design occurred to "Mi," Wallgren said in a separate such a degree that they not only Ptatement, "to find that Germany

Basic Refractories [parent of Basic Magnesium, Inc.] from the manage magnesium would be 501,000,000 Since October, 1942, the plant has pounds. Estimated requirements were 448,000,000 nounds, but to nate" that this company had not but 391,000000 pounds of which about 39 percent of all the magtually shipped.

B M I PRODUCTION

port said:

operation (after completion) in and incompetence" displayed in 1942, the project produced 1,299,. promotion and construction of 744 pounds of magnesium metal. the plant made it "most unfor-In the succeeding 13 months to tunate that the project was not February, 1944, the project pro- entrusted to Anaconda Copper duced an additional 102,520,762 originally, so that the benefits pounds of metal having reached of its skill could have been oband exceeded capacity operations tained from the outset." by July 1943.

all government-owned facilities um fabrication facilities.

L.V.R. Journal 3-17-44

BMI Plant Is Not Affected by WPB Curtailment Rule

The Basic Magnesium plant at Las Vegas was unaffected by a war production board order issued late yesterday afternoon calling for curtailment in the production of magnesium ranging from 35 to 100 per cent in five plants located in various parts of the country.

According to the United Press, the agency halted production en-tirely at the Dearborn, Michigan, plant of the Ford Motor company and at the Mathieson alkali works at Lake Charles, Louisiana. Fifty per cent cuts were or-

dered for the Electro Metallurgical company at Spokane, and Permanente and Metals Corporation, Manteca, California, A 35 per cent reduction goes into ef-fect at the Amco Magnesium Cor-poration plant at Wingdale, New York.

WPB said the rated capacity of all magnesium plants in the country is 586,000,000 pounds a year, and added the curtailment will amount to about 34,000,000 pounds per year, less than six per cent of the country's capacity. The agency said production currently is running between 8,-000,000 and 10,000,000 pounds a month in excess of requirements.

the United States both private. and public, in the year 1943 . . . Turning to the Basic Magnesi+ the magnesium produced by this um project at Las Vegas, the re- plant was of great value to the war effort."

"During the four months of Wallgren said the "bungling

He said about \$500,000,000 in "The metal produced at this government funds had been spent project since the start of opera- for the construction of magnesitions accounts for about 25 per- um producing plants and an adcent of all the metal produced in ditional \$15,000,000 for magnesi-

EXTRAVAGANCE IS CHARGED IN NEVADA PLANT

16, 1944

Truman Committee Asks WPB Order Be Broadened to Include More Civilian Uses of Magnesium

WASHINGTON, Mar. 13 (AP) .-The senate's Truman committee, today released a report charging "extravagances and inefficiencies" in a giant \$133,000,000 governmentfinanced magnesium project at Las Vegas Nav., but reported pro-duction of that methic has reached a point where its use for civilian goods manufacture should now be

permitted. The report urged the war pro-duction board to cancel its order limiting the use of magnesium to war and essential civilian items Such a step, the committee said, would say the foundation for a new post-war industry through development of new uses for the metal and protect the govern-ment's \$55,000,000 investment. Further research should be undertaken at once, the committee said, to develop magnesium for such uses as the making of photoengraving plates, automotive parts portable tools, conveyors, vacuum cleaners, typewriters and business machines. Magnesium is a metal one-third lighter than aluminum. Cost Is Doubled

In charging waste and ineffi-ciencies in the construction and early operation of the Nevada development, described as the world's largest, the committee said its final cost of \$133,000,060 was almost double original estimates. The project was authorized by the defense plant corporation in 1941 under contract to the Basic

and quantity, errors in efficient layout and design occurred to such a degree that they not only prompted the committee's interest Basic Refractories (parent management of the project." The report added, however, that

bombs and munitions.

STERLING, COLO. NEWS

the ore reserver using & Giare,

but culminated in the removal of Basic Magnesium, Inc.) from the

the plant reached its 112,000,000 pounds yearly production capacity by July last year under Anaconda management and that its output was a vital factor in reaching the metal requirements for war purposes, principally aircraft manufacturing and the production

LOS ANOTLES, CALIF., CITIZEN MARCH 17, 1955

Structural Iron / Workers 433468

By JIM CHEELY

Considerable business was transacted by the executive board at the meeting last Tues board at the meeting last Tues day. Several men appeared be-fore the board with reference to complaints. The decisions be-ing rendered by President Gray in our disputes with the Pipe Fitters also caused considerable discussion. We have been ad-vised by our International head-quarters that Vice-President Woods will be in the city this week, at which time we will confer with the organizations in-

Woods will be in the city this week, at which time we will confer with the organizations in-volved in these disputes. The election held by the Na-tional Labor Relations Board at Las Vegas, Nevada, last Friday, March 10, resulted in a victory for all of the trades of the American Federation of Labor who were asking to be certified to represent their members employed at the Man-ganese Ore Company project. The Iron Workers winning their unit 100 per cent with no dissenting vote. All of the other Unions won by a consid-erable majority, with the ex-ception of the Laborers, whose vote was close. We also held conferences with offlicials of the Basic Magnesium Co. as well as representatives of oth-er Unions, at which time an agreement was reached be tween the Iron Workers. Boll-er Makers and Machinists, which we hope will eliminate some of the difficulties at the Basic Magnesium project. Basic Magnesium project.

Basic Magnesium project. Manager Lestie is very proud of his baseball team, having won the many times postponed game with North American last Sunday by a score of 3 to 0. This places the Iron Workers in the playoff and we will now go into a three game series with North American. These games should all be very interesting. Work has improved consider-ably and most of our members are employed and it is hoped that this will continue through the summer.

the summ

Difficulties have developed at Fontana, with the Labor move-ment in San Bernardino extend-ing their efforts, with reference to the maintenance work at the

to the maintenance work at the Fontana plant, and at the writ-ing of this article no decision has been reached as to what ac-tion will be taken. The "Keyhole Peeper" evi-dently has been out of the city as he has not presented us with a report for the last week. We will look forward with antici-nation to his comments in the pation to his comments in the next issue of this paper. Do not forget to register to

vote. See you at the ball game Sun-AFT

L.V.R. Jounnal 3-18-44 Magnesium for Civilian Use

(Reno Gazette)

Charges of "extravagances and inefficiencies" of the construction and early operation of the gigantic Basic Mag-nesium, Inc., plant in Clark county, such as were made today by the senate's Truman committee, have been levied before by the same group.

The significant part of the committee's report is that wherein the senatorial fact-finding group reveals that magnesium production has reached a point where its use for civilian goods manufacture should not be permitted. Certainly there is logic in the committee's contention that this step would lay the foundation for a new post-war industry through development of new uses for magnesium and protect the government's \$500,000,000 war time investment in the Clark county plant.

Politics and industrial rivalries have obscured the facts concerning the early extravagances and inefficiencies to which the committee refers. Whether excessive costs and lost motion can be attributed, in part at least, to the experimentation that must inevitably accompany such a pioneering effort is still a matter for speculation

The present management of the plant, however, is efficient. Production costs are being lowered and there is good basis for believing that further research, plus an unprece-dented demand from civilian sources for this lighter-thanaluminum metal, will make operation of this plant in peacetime economically practical

Senator Wallgren of Washington, a member of the Truman committee, offers still another logical argument support of the group's recommendation, in expressing the opinion that we should never again permit such a monopoly to be established as was operating in the magnesium production industry at the time of our entrance into the war.

The plant in Clark county has made a vital contribution to our war program. It will continue to serve in peacetime if the practical suggestions of the Truman committee are given serious consideration.

Committee Praises BMI MagnesiumProduction, Largest in the World

ith about half the population of he United States had produced early six times as much magesium in 1939 as the Dow Chemal company, America's only proucer

HEMICAL EXPLANATION

"The committee believes that obwhenever any corporation ains a monopoly in the United itates in the production of any asic commodity, that company hould be called upon to explain why a smaller foreign nation proluced several times more than we did and developed new and mproved methods of fabrication faster than we did.

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"Dow Chemical's explanation was not very satisfactory, and I do not believe that we should permit any such monopoly to be established or continued in the future," Wallgren said.

The committee said the belowschedule production of magnesium in 1943 "indicates the extent to which this country failed in attaining its production objective due to difficulties in completing facilities on schedule and the problems encountered in surmounting the difficulties involved in adapting new techniques of manufactures."

In 1942, the report said, it was estimated that the 1943 supply of magnesium would be 501,000,000 as pounds. Estimated requirements ia were 448,000,000 pounds, but to

tal production for the year was since their inception. It produced of but 391,000000 pounds of which about 39 percent of all the mag-, only 348,000,000 pounds were actually shipped.

B M I PRODUCTION

Turning to the Basic Magnesi-um project at Las Vegas, the report said:

"During the four months of operation (after completion) in 1942, the project produced 1,299,-744 pounds of magnesium metal. In the succeeding 13 months to February, 1944, the project produced an additional 102,520,762 pounds of metal having reached and exceeded capacity operations hy July 1943.

"The metal produced at this project since the start of operations accounts for about 25 percent of all the metal produced in ditional \$15,000,000 for magnesiall government-owned facilities um fabrication facilities.

since their inception. It produced nesium produced in all plants in the United States both private and public, in the year 1943 . . . the magnesium produced by this plant was of great value to the war effort."

Wallgren said the "bungling and incompetence" displayed in promotion and construction of the plant made it "most unfortunate that the project was not entrusted to Anaconda Copper originally, so that the benefits of its skill could have been obtained from the outset."

He said about \$500,000,000 in government funds had been spent for the construction of magnesium producing plants and an adArizona Builder & Con-June, 1943 tractor



BASIC MAGNESIUM INDUSTRY INVADES DESERT

A year ago this location was the barren desert of southern Nevada. Today an industrial city teems with the activities of over 12,000 workers as tons of steel and concrete give rise to the giant plant of Basic Magnesium.

1-Construction sheds and mountains are landscape features at the present time at the thousand-unit housing development for workers at the plant.

2-Enormous asbestos mittens must be worn by men handling the thousands of hot magnesium ingots produced daily at the plant. A number of units of this plant are now in production.

3-This exhaust tower, 90 feet high with a portion of a metal recovery unit, in the background will soon be adding to the huge production of the plant which is scheduled for full operation in the summer of 1943. Federal Works Agey. Photo

MOTOR TRANSPORTATION "Covering the Commercial Automotive Industry in the Pacific Region Comprising the 11 Western and Pacific Coast States."

Souttle, Washington

Here's A New Type of "Global Warfare"



One hundred per cent transportation in essential industry is visualized in this photograph of special equipment operated by the H. & M. Trucking Co., Los Angeles, in the service of the American Liquid Gas Corp. The unique "body" consisting of four spherical containers is mounted on a dual-axle Utility semitrailer. The payload consists of propane or butane. Each container has a diameter of eight feet and a capacity of 1,735 gallons. Transportation is between the refineries in the Bakersfield district and the Basic Magnesium plant at Las Vegas, about 200 miles.



Tank Trucks Play Big Part in War

Millions of gallons of high-octane gasoline needed every day to keep rapidly growing numbers of war planes in the air are now being delivered on a round-theclock schedule to hundreds of military air fields throughout the country by tank truck, leaving railroad tank cars free for vital longer hauls.

Tank-truck operators, although hampered by shortages of manpower, parts, and equipment replacements, are performing services of great importance to the war effort. The assumption by the tank truck of an increasing portion of the short-haul movement of petroleum products is regarded as a major contribution to the war effort.

In the East, much of the 1,250,-000 barrels of oil arriving daily from the oil fields of the Middle West by tank car, pipe line, and barge is being moved from terminals to thousands of bulk plants by big over-the-road transports. Smaller local delivery trucks pick it up there and distribute it to millions of homes and commercial consumers.

Enormous Quantities of Oil, Gas Needed for War Machine

PARTIAL evidence of the enormous requirements for petroleum products to keep United States forces fighting on world fronts is divulged in a statement released by the Office of War-Information.

A mechanized division burns up 18,-000 gallons of gasoline an hour when proceeding along a road at a normal speed.

At cruising speed, a heavy bomber uses 200 gallons of gasoline an hour and a fighter plane needs 100 gallons.

Most of the transport ships that take supplies to the armed forces are oil burners. A round trip from the Pacific Coast to Australia is 14,000 miles. From

Belyea Inspects Pan-American Highway

Brynn W. Belyea, president of Belyea Truck Company, Los Angeles, has completed a report to the Coordinator of Interamerican Affairs following a survey he made recently of the Pan-American Highway. Belyea is a consultant on the staff of the coordinator and made the trip to Central America under his specific instructions. He is not at liberty to divulge any information acquired while on his inspection tour of the highway.

Last summer, Belyea was sent to inspect the Alcan highway as a civilian consultant to the War Department. It is understood that a number of recommendations he made were incorporated later in the plan of operating trucks over the military road New York to the Persian Gulf and return is 28,000 miles. A ship making that trip consumes approximately 225,000 gallons of heavy fuel oil.

Getting petroleum supplies where they are needed at points removed from coastal dumps is a problem that demands solution. They must be there or all machinery stops. As one method, the Army has developed portable pipe ines that convey gasoline to motorized units in the field. They consist of haf-mile units that are truck transported. For each unit there is a centrifugal pump driven by an engine that boost the gasoline along.

Each unit can be used independently or joined with others. They are said to be able to deliver gasoline through swamps and forests or over mountains at a rate of approximately 200 gallons per minute. The pipe also can be used to assist or replace floating tanks for ship-to-shore operations.

In cooperation with the petroleum industry, the Army has worked out a standardization that has resulted in a substantial reduction in the number of grades of lubricants and fuels required. This has helped to simplify the supply system. One grade of oil now serves for tank motors, transmissions and differentials. Tests show that lubricants now used represent a great improvement over any previously used.

Instead of nine commercial grades of internal combustion engine lubricating oil, the ordnance department now has three grades which can be used with equal facility in gasoline or diesel engines under any climatic conditions. The four grades of gasoline formerly used in ordnance vehicles have been replaced by two high standard grades.

LAS WEGAS, NEV., REVEN-JOURNAL CH 2017 JUNE 26, 1943

Ienth Unit of BMI Plant Now Is At Full Capacity

New Unit Is Cut In Yesterday Morning At Plant

The world's largest magnesium plant, Basic Magnesium, Inc., brought its tenth and last unit into full production today, according to F. O. Case, general manager.

The last unit was cut in yesterday morning and was producing metal this morning, after the 24-hour cycle of production had been completed.

First In '42

The BMI plant's first unit went into production on August 30, 1942. Since that time one unit per month has been completed and has started producing metal for incendiary bombs and other war uses.

The rated capacity of the plant is 15 tons of metal per unit per 24-hour period, for a total of 150 tons per day. The plant is exceeding its rated capacity daily, but no figures are available for publication on the total production at present.

When the tenth unit was started yesterday, officials of the company who were present included: F. O. Case, general manager; H. G. Satterthwaite, asmistant general manager; and V. E. MacDonell, chief engineer. Four men were present who have assisted with cutting in each of the 10 units now in operation. They were: J. R. Coulter, superintendent of production; H. H. "Red" Gillings, electrical superintendent; Art Newell, superintendent of metal plants; and Frank Woodman, superintendent of the electrolysis plant.

The progress of the BMI plant construction has been rapid, as first soil tests were made September 2, 1941, and the first stake driven just one week later. Clearing of brush from the area was started September 11, 1941, and first excavation started October 29, 1941.

29, 1941. While construction at the plant is not yet complete, all necessary building to bring the 10 metal producing units into full operation has been completed. Remaining to be built are several permanent structures, such as an administration building, which will be constructed of steel and concrete. Present temporary buildings will be razed when permanent structures are completed. This construction program is

expected to be completed by early fall.

Mines and Mining

Las Vegas, Nevada . . .

At request of C. B. Henderson, RFC head and member of defense plants board, Senator James G. Scrugham is investigating feasibility of making government's huge BMI magnesium plant near here a permanent post-war industry. Scrugham said he envisioned a peace time plant to manufacture sheet magnesium and magnesium plastics to develop the larger plane of the future. The senator also is interested in developing by-products of the industry.

. . .

Officials at the plant pointed out that attention has been directed to completion of structures necessary for the actual production of metal, and that all utilities and other preparations necessary for that purpose were given first consideration, Departments now housed in temporary buildings will be transferred later to permanent structures as soon as they are completed.

IRON AGE Philadelphia, Pa.

1944



A. I. M. E. Discusses War and Postwar Problems

OPPING last year's attendance, approximately 3000 members met in New York last week at the third wartime annual convention of the American Institute of Mining and Metallurgical Engineers to hear a four-day program, Feb. 21 to Feb. 24, of technical papers, round-table discussions and symposia.

Among the noteworthy events was the awarding of the eighth Robert W. Hunt gold medal and certificate at the Institute of Metals banquet on Wednesday evening, Feb. 23, to Clarence D. King, chairman of the operating committees, United States Steel Corp. of Delaware, for the work done and summarized in his paper, "Washing of Pittsburgh Coking Coals and Results Obtained in Blast Furnaces," presented to the 1943 Cleveland conference of the Blast Furnace and Raw Materials Committee. Mr. King reported that by a relatively simple washing treatment applied to Pittsburgh coking coal, pig iron production could be increased 8 per cent, net furnace coke consumption decreased 8 per cent and flux consumption decreased 15 per cent. In addition, improvement was noted in the regularity of the analysis of the pig iron.

To Alfred H. Geisler, research metallurgist at the Aluminum Research Laboratories, Charles S. Barrett and Robert F. Mehl, both of the Carnegie Technological Institute, went the 11th Institute of Metals Division award for their paper "Aging in the Solid Solution of Silver in Aluminum."

The 18th recipient of the J. E. Johnson, Jr., Award was Leonard A. Tofft, general foreman of the new war-plant

At their third wartime annual convention, the mining and metallurgical engineers assembled to hear about new research on the powers of boron, powder metallurgy and magnesium reduction.

for "Use of Inwall Temperatures in Determining Improper Gas Flow."

James T. MacKenzie, chief metallurgist of the American Cast Iron Pipe Co., Birmingham, delivered the 21st Howe Memorial lecture on "Cast Iron-Steel Plus Graphite." Mr. Mac-Kenzie discussed the mechanical performance of cast iron and the rela-

blast furnaces of the Inland Steel Co. tion of this performance to the concept of cast iron as steel plus graphite.

Chester A. Fulton, new president of the A.I.M.E., spoke at the Institute of Metals Dinner where Arthur Phillips, new division chairman, made his inaugural remarks. Inducted as chairman of the Iron and Steel Division was William A. Haven, vice-president of Arthur G. McKee & Co.

Protecting Boron Additions to Liquid Steel

STIMULATING paper presented 1 by R. W. Gurry of the research laboratories of the United States Steel Corp. at the Steelmaking and Deoxidation session on "The Relative Deoxidizing Power of Boron in Liquid Steel and the Elimination of Boron in the Open-Hearth Process" raised the question as to what extent any boron present in the scrap charged into the open hearth is oxidized out during melting and subsequent refining. This question is significant because the optimum concentration of boron in the finished steel, which is fairly critical, would be very difficult to attain if the boron in the charge were largely retained in the metal. Moreover, unless boron is substantially eliminated in the open-hearth process, its use on a large scale would

eventually make it impossible to produce boron-free steel except by restricting the charge to virgin material.

Although there is at present virtually no satisfactory direct evidence to provide an answer to this question, there are indications from practice that boron is oxidized out in the open hearth in the production of medium or low carbon steel. It may be retained, however, if the carbon content is fairly high; that is, if the oxygen is kept fairly low.

From thermodynamic calculations it has been shown beyond doubt that boron is an effective deoxidizer for iron and should, therefore, be almost entirely removed during the openhearth process; more specifically, the deoxidizing power of boron is greater than that of silicon, vanadium or



THE WALL ON TRADUCY HERALD HEBRUARY 29, 1964

Basic Magnesium

Output Increased LAS VEGAS, Nev., Feb. 28, (AP). -Basic Magnesium, Inc., has reported a new world's production record for January, 1944, when the daily average reached 105 percent of rated capacity with a high day of 111 percent.

The plant, a company announcement said, now produces one-fourth the nation's magnesium supply

L.V.R. Journal 2-29-44 **BMI Metal Head** Honored by Group

RENO, Nev., Feb. 28. (P) — Harley C. Lee, metallurgist of Basic Magnesium, incorporated, is among those who will serve on the executive committee of Ne-vada's section of the American Institute of Mining and Metal-Robert S. Mochlman of Reno, a

eologist, was elected chairman at ast week's meeting. TANSELES, CALIF., EXAMINER

RUARY 22, 1994

Magnesium Firm Claims Record LAS VEGAS, Nev., Feb. 28 .-LAS VEGAS, Nev., Feb. 28.-(P)-A new world's production record is claimed by <u>Basic Mag</u>-nesium, Inc., for January, 1944. Daily average output reached 105 per cent of rated capacity, the 105 per cent of rated capacity, the company declared today, with a peak day of 111 per cent. The concern said it new manufactures one-quarter of the nation's magnesium supply.

AMERICAN METAL MARKET Leading Iron, S eet and Metal Newspape Recognized price and market authority. New York City

FEB 29 1944

Basic Magnesium, Inc. Production This Month Exceeding January Record

LAS VEGAS, Nevada, Feb. 28. LAS VEGAS, Nevaux, Feb. 28. Production at the Bas' Magnesium, Inc., plant thus far this month has broken all world records for ally and weekly tonne re of magnedum produced by a single plant, the

The January, 1944, record reached ompany announced. daily average of 10% of rated capacity with a high cay of 111%. capacity with a high cay of 111%, and February averages show a sub-stantial increase. One-fourth of all the magnesium being produced in the United States is turned out by Basic Meanwright. The

he increased percentage of output Magnesium, Inc. commercial structural alloys, principally for fabrication of

aircraft and automotive equipment. Production costs per pound are showing a steady decrease, the company said, with present costs less than one-half the December, 1942, cost and are also below last month's costs.

March, Cal., Desort Magazine Che. 6,440 MARCH, 1919

. . .

Henderson, Nevada . . . Contrary to newspaper reports that light metals plants in the West soon would shut down, F. O. Case, Basic Magnesium general manager, declared that "the outlook for continued production here at BMI is much brighter than it was a month ago." It was pointed out that recently new expenditures of \$217,000 had been approved.



Magnesium Las Vegas Production

Breaks All Records All world records for the pro-duction of magnesium were broken during January when the Las Vegas factory of Basic Magnesium, Inc. produced 30 per cent more than the average monthly world total production of 1940, it was announced today.

During the month the plant averaged 105 per cent of capacity per day, and on one day hit 111 per cent of capacity. Further the company announced, February production is running ahead of January, indicating another record possibility. One fourth of all magnesium now being pro-duced in the United States comes from the Las Vegas plant.

Company officials also announced that production costs have dropped sharply. December, 1943, cost per pound was less than half the December, 1942 production costs.

From SUN Binghamton, N.Y. FEB 24 1944

The DAILY WASHINGTON MERRY - GO- ROUND BY DREW PEARSON

Merry-Go-Round

Meny-Co-Round Senator has declaran is having re-election forbibles in Newada. Among other things he action forbibles in Newada. Among other things he action forbibles in Newada. Among other things he action by the senator of the action of the senator seen to want a change of faces- and of collitical penties. Senator Dennis Chaves of New Mexico may be action the oblitical enemy. Gov, fack penties to senator Dennis Chaves of New Mexico in for re-election. Dempsey has become increasingly the Bataan atrocities than any other state, being allow the Bataan atrocities than any other state. Senator the



Basic Magnesium, Inc., expects its February production level to exceed the record production rate reported for January of this year. During January the company maintained an average output of 105 per cent of rated capacity with a high day of 110 per cent. One quarter of the domestic magnesium production now comes from BMI's plant near Las Vegas, Nevada. It is said that the January output of ingots, placed end to end, would reach from Las Vegas to Butte, Montana. The company's production costs during the past year have dropped sharply and still are decreasing. F. O. Case is general manager at Las Vegas.

FEB 29 1944 EVAD

MINING JOURNAL

Phoenix, Arizona

Basic Magnesium, Inc., expects its February production level to exceed the record production rate reported for January of this year. During January the company maintained an average output of 105 per cent of rated capacity with a high day of 110 per cent. One quarter of the domestic magnesium production now comes from BMI's plant near Las Vegas, Nevada. It is said that the January output of ingots, placed end to end, would reach from Las Vegas to Butte, Montana. The company's production costs during the past year have dropped sharply and still are decreasing. F. O. Case is general manager at Las Vegas.

BMI SMASHES PRODUCTION RECORDS

Relia Dovis Labor News

#944

Tonnage of magnesium cell metal produced Sunday, January 30, was the greatest since the plant began operation 17 months ago. That day's output was ten times more than daily average of all United States plants in 1940. BMI's January production also broke all plant records; 30 per cent above average monthly world output in 1940.

Laid end to end, ingots cast here in January would reach to Anaconda's immense copper plant near Butte, Montana. A long stretch. BMI is now producing at 105 per cent of rated capacity; enough for a full load of incendiary bombs for 50 flying fortresses every day. More than a quarter of all magnesium now produced in the United States is now made right at Las Vegas at the BMI plant.

Data by Statistician Ross. -Basic Bombardier.

World's Production Record

TAN FRANCISCO, CALIF

Basic Magnesium, Incorporated, Las Vegas, has reported a new world's production record for January 1944, when the daily average reached 105 per cent of rated capacity, with a high day of 111 per cent. According to a company announcement, the plant now produces one-fourth of the nation's magnesium supply.

WARCH FRAS

Big Magnesium Increase

Las Vegas, Nev.-On January 20 at 11:30 a. m., Basic Magnesium poured its 100 millionth pound of magnesium, or enough for 50,000,000 magnesium bombs to help win the war.

This is more magnesium than the total United States production for the 27 years preceding March 1, 1942, and it is more than the world's entire output for the year 1940.

L.V.R. Journal 3-1-44

Pat McCarran, Jim Schrugham ATTENTION !!

Yu all, Pat and Jim, don't have to be a fightin' those hands in Washington about B.M.I. Jest leave them alphabet departments to their own rot killin' and help out on a simplified form for the income tox.

We down here at the Dunes has got all your worries in the sack . . . even got a job for Frank Case and Guernsey Fraser and the rest of the boys in case them fellers who make that high priced light metal of bauxite insist we close B.M.I.

B. M. I. Ain't a Goin' to Close

Not fer a single second . . . The Dunes has everything set to take over . . . we're goin' to make a super coffee shop and Hired Hands Dining Room of the place to accommodate the tourists that will be. a trapsin' thru here when this war is over.

We'll make hashers of the folks on the pay roll out there . . . teach a few of 'em how to cook that passel of Groceries . . . and do a land office business like a chuck wagon at round-up time ... That hired hand Guernsey Fraser can be the Maitre de and Frank Case can run the she-bang, like he's doin' now. He's bound to do a real job . . . he can't miss ... he's a doin' it now, ain't he?

But tonight . . . come down to the Dunes for that Golden Fried Chicken or one them there Blue Ribbon Steaks or the Hired Hands dinner.



The Finest Food - - - The Choicest Liquors

The Best People

Call 951 and Doc'll Hold That Table

MINING RECORD DENVER COLO. 3/9/44

Basic Magnesium Has Made Greater Record

Las Vegas, Nev. - New world records for magnesium production have been set by Basic Magnesium Inc., the world's largest magnesium plant, the company reports. BMI now produces one-fourth of this

nation's entire magnesium supply. Its January record reached a daily average of 105% of rated capacity with a high day of 111%. Averages for February showed material increases.

After a hearing before a congressional subcommittee on western industries, Senator McCarran of Nevada announced that support from the department of the interior, Defense Plant corporation and the United States bureau of reclamation had enabled the subcommittee to prevent a move on the part of the war production board to curtail production at the Basic Magnesium plant near Las Vegas, Nev. The senator commented upon the fact that W P B had not taken any steps to close plants of the Dow Chemical company and ex-pressed the opinion that the plan to curtail at Las Vegas was "very plainly an attempt to foster complete monopoly of the magnesium industry by the Dow Chemical company."

SALT LAKE TELEGRAM 3-11-44

Basic Magnesium Cutback Averted

Here's a short story about co operation at BMI, the world's largest magnesium plant, near Las Vegas, Bill Winn, who served in both the army and navy dur ing and after the last war, has been a member of the Plant Protection guard force. Never sick a day in his life before. Bill was rushed to the Basic Hospital a short time ago with a bum heart After a short stretch on his back, rugged Bill, formerly a police court judge at Peoria, Illinois, was back on the job. Three weeks later there was a recurrence of the trouble and Bill woke up again in the hospital. It didn't take long to go through the little reserve fund Bill and Mrs. Bill had ac cumulated and they were begin ning to worry. The American Legion gang, out Basic way, found that this veteran, not a member now, was a pretty sick hombre. They checked with Bill's doctor and his wife and sold Bill on the idea of going to the Veterans Fa-cility at West Los Angeles, California, where there would be un limited attention AT NO COST

Las Vegas AGE

3-12-44

BM

Bill was figuring on going back to work in a few days. He did not know how sick he was, but agreed that maybe it might be a good idea. Clearing with the American Red Cross, the Legionnaires arranged long distance phone calls between the BMI staff doctor and the officials at Sawtelle, Result: An ambulance was dispatched from Sawtelle late last Thursday night, arrived at BMI hospital in the wee small hours Friday, Bill, seriously ill by now, was sent to Sawtelle with a special attendant that accompanied the ambulance driver up on the trip. Bill is safe at the Veterans Hospital now where a grateful government will provide care at no cost. Doctors, the Legion, the Red Cross and Bill's friends at Plant Protection all are pulling for a speedy recovery for Bill. His wife will leave for Los Angeles in a few days with her sister, who made a fast trip up here to be with the wor-ried Mrs. Winn during her trou-

bles. Moral: Doctors and hospitals are not mercanary; join the American Legion; kick in to the American Red Cross - you may be next.

There's another side to life at BMI, too. Hidden under the dirtspattered overalls and behind the white collar of the office and field workers are talents enough to amaze a Zigfield. (Was that his name?)

Take Vernon West, instrument repair unit, for instance. He was a full fledged ice man on the Pittman strip not so long ago. Sort of working his way up the highway toward Boulder when he saw the big plant loam up out of the des-ert. Curious he opplied for and got a job. Handy and a specialist with instruments. Vern has done pretty well. The point is, he was once a big shot guitar player with a name Hill Billie Band on the radio Spends space time now rumming with the BMI Farmer. String Orchestra. Sings, foo, like a Searchlight cowbo

Gordon Deen, foreman, electrolysis, is rated as one of the most idefficient key men in his line at h the plant by those who know and work with him. In grease and grime he's down in the pits or 'w swabbing around with the low- to liest of 'em, Gordon was once with ag a nationally renowned band. He's ed still one of the best drummers in ed

troofs participation of the second states and states will be sung only as music lovers can sing 'em. Other attractions have been scheduled - and, all for free. Go to Carver Park, beyond Andersons Camp, to the left on the Boulder highway at BMI and see democracy at work.

Did you know that Earl Mc-Naughton, plant protection photographic staff, veteran of World war II, was once piano secompanist for Maestro Rubinoff, master violinist? Bashful as a Hollywood starlett, too.

conium or aluminum.

for oxygen indicates that boron, unprotected, tends to oxidize out during aluminum or calcium, the presence of teeming; hence, if "fading" is to be these elements in relatively high conavoided, the boron must be protected centration usually suffices to protect by the addition of a more powerful deoxidizer, which means that prefer- protection varies significantly with ably the steel should be thoroughly such conditions as the original oxygen deoxidized before the boron is added. content, the temperature of the liquid If the boron is introduced as ferro- steel and the composition of the deboron, the steel should first be de- oxidizing alloy.

the boron, although the extent of this

titanium and approaches that of zir- oxidized with aluminum or some other hot-press methods, the superiority in very powerful agent; if boron is density and hardness of hot-molded The relatively high affinity of boron added in the form of a complex alloy materials is most striking. Using the containing a good deoxidizer like relatively low temperature of 932 deg. .F., completely dense alloys with a hardness comparing favorably with wrought metal are obtainable. Die life at such temperature is still reasonably long for high hot strength alloy steels. At the same time high strength and ductility are achieved if proper care is taken to make alloying effective. Possibly all these properties can still be improved if higher molding temperatures are employed.

The hot-press method offers definite

possibilities for the production of cer-

tain solid bronze parts and bearings.

where closest tolerances, high density

and good mechanical properties or

corrosion resistance are required. In

the manufacture of porous parts, like

self-lubricating bronze bearings, the

conventional cold-press and sintering

process has its established merits.

However, the experimental results

show that a porous bronze of the 90-

10 composition with about 25 per cent

porosity and a hardness of about 50

Brinell needs approximately 20 tons:

per sq. in. briquetting pressure against

2 tons per sq. in. or less when hot-

pressed at or above 932 deg. F. At

the same time the entire sintering

and final sizing operation can be

Sintering vs. Hot-Pressing Compacts

DEPORTING on "Some Properties course, lowest values for hardness. K of Sintered and Hot-Pressed The kind of initial material has the Copper-Tin Powder Compacts," Claus following effects: Density of the sin-G. Goetzel, assistant director of re- tered compacts is improved by presearch, American Electro Metal Corp., alloying and the opposite is found in Yonkers, N. Y., described the results most instances for hot-pressed comof experiments on powder mixes cor- pacts; specimens of the tin-rich comresponding to 95-5, 90-10, 85-15 and positions pressed at 932 deg. F. at 80-20 Cu-Sn.

went only negligible changes in weight trend, except that low-tin pre-alloyed during heat treatment, with maximum weight gains of 0.29 per cent and maximum weight losses of 0.67 per cent. Volumetric changes, on the other hand, were considerable. For low tin compositions alloy powder compacts shrink less than mixed powder compacts in the low pressure range, but this is reversed for the tin-rich compositions, for which shrinkage figures above 30 per cent by volume were observed for very lightly briquetted material.

Pre-alloying of the powders promoted increased homogenization in all hot-pressed samples, but it was much less effective in sintered specimens, with virtually no effects on the 95-5 and 90-10 compositions. Other features of the microstructure are decreased porosity with rising pressures of raw materials, relaxes the rigid bon, but this notable advantage is and grain growth and normalization electrolytic requirements of raw ma- modified by the production of a volaof the structure during sintering. For terial purity, and by obviating direct tile oxide CO so that both Mg and CO. hot-pressed material, greatly increased current, offers simplicity of plant are evolved simultaneously. Elaborate densification is coupled with only par- equipment. With this preface, Dr. L. devices are required to shock cool the tial recrystallization and substantial M. Pidgeon and W. A. Alexander went equilibrium mixture in order to preretention of a structure of closely on to describe the pilot plant developagglomerated powder particles.

F. show lowest physical properties, eration of six commercial plants-one with the sole exception of the hard- in Canada and five in the United this process is due to the work of ness of cylinders pressed at 50 tons States. per sq. in. Specimens hot-pressed at Because magnesium, unlike alumi- recently been given a trial on a grand 932 deg. F. reach theoretical densities, num, is volatile at relatively low scale in the plant at Permanente, Cal. high hardness and compressive prop- temperature, they explained direct re- A second class of available reducing

54-THE IRON AGE, March 2, 1944

high pressures are the only excep-All sintered bronze compacts under- tion. Hardness values show a similar powders form harder compacts when hot-pressed. The use of alloy powders leads to improved compressive properties in all compositions made by

When comparing the cold-press and eliminated.

both methods.

The Pidgeon Process for Mg Production

tion of magnesia offers many attrac- ducing agent. tive features. It widens the choice

ESPITE the success in produc- reaction may be forced to the right ing metallic magnesium by the at high temperatures by the evolution electrolysis of a molten salt, there of magnesium vapor, despite the large were sufficient inherent objections to negative value of the heat of reaction justify the search for a direct reduc- which is almost bound to follow the tion method. Direct thermal reduc- use of any available commercial re-

The cheapest "X" is, of course, carvent back reaction. At best a pyroment of the Pidgeon process which phoric powder is produced requiring Specimens hot-pressed at 572 deg. subsequently formed the basis of op- redistillation to provide marketable metal. The practical development of F. Hansgirg and his methods have

erties comparable with normal alloys duction methods can be used where agents they said are those which proof similar composition. Sintered al- they are impossible with aluminum. duce non-volatile oxides. When XO lovs have intermediate density and The basic reaction is $MgO + X \rightleftharpoons$ and X are non-volatile, magnesium is compressive-strength values and, of XO + Mg. If X is non-volatile, the the only volatile member of the sys-

IRON AGE Philadelphia, Pa.

1944

tem. It may be evolved in a simple distillation step and condensed without the formation of powder. Two basic requirements must be

fulfilled in order that such a reaction may proceed :

1. The reducing agent when heated to a reasonable temperature in the presence of MgO must result in the production of an appreciable equilibrium vapor pressure of magnesium. This magnesium must be removed continuously.

2. A supply of heat must be maintained.

In order to fulfil (1), operations must be conducted in vacuo or in a stream of Hs. Owing to its greater efficacy and relative safety, vacuum was employed in the work they described.

The choice of a suitable reducing .gent formed the subject of an extensive series of small scale experiments which examined the reactions between calcined dolomite, magnesia and calcined serpentine, and such reducing agents as silicon, aluminum, calcium carbide and calcium silicide. The greatest commercial possibilities were offered by the reaction between calcined dolomite and silicon in the form of ferrosilicon.

2CaO + 2MgO + (XFe)Si ≓ (CaO)₂ SiO₂ + 2 Mg + (XFe).

The availability of dolomite is an outstanding advantage. The lime forms a silicate in the residue thereby preventing loss of available magnesia by a similar reaction. Ferrosilicon was the cheapest reducing agent (in dollars per equivalent) of this type available at the time this work was initiated. Aluminum and aluminum-silicon alloys are chemically more attractive, but the former is too expensive in normal times, while the latter has been unavailable in commercial quantities and has yet to be produced as cheaply as ferrosilicon on an equivalent basis.

The reactants are solids and the residue remaining after magnesium vapor is evolved is a solid. Under such conditions, the ferrosilicon and calcined dolomite must be reasonably finely ground to permit the reaction to proceed to completion. From small scale experiments carried out at the National Research Council at Ottawa it was found that small briquets would react at reasonable velocities at a ter rature of 2012 deg. F.

paratus for conducting this reaction from the following requirements:

James T. MacKenzie, chief metallurgist of the American Cast Iron Pipe Co., Birmingham, was this year's Howe Memorial lecturer.

0 0 0

sufficient to overcome the endothermic reaction.

(b) Receiving a solid charge of similar shape and form. The reaction zone must be in vacuo during the evolution of magnesium vapor.

continuously and completely under non-oxidizing conditions.

vapor in a form capable of safe handling and ready conversion to ingots in large concentration. For the ferroor other marketable form. The purity silicon, a grade of 75 per cent was of the latter must be as high or high- found to be the most economical to er than that of ingots already avail- employ under existing market condiable by established commercial pro- tions. duction methods.

facilities.

loaded and unloaded as a batch opera- ment in the yield. tion, and may readily be evacuated. With the high purity dolomites em-(a) Heating calcined dolomite and retorts were considered sufficiently as a whole. ferrosilicon in briquetted form to a promising to proceed with the con-



struction of a large pilot plant. For the preliminary pilot plant, 8-in. heat resisting steel retorts with a wall thickness of 7/8 in. were chosen and such retorts have given nine months' life without collapse in full scale plant operation, while 90 per cent of the retorts were still in operation at 359 days. Later a 10 in, retort with a 1 in. wall was designed.

The calcined dolomite and ferrosilicon in briquetted form reacted in these retorts in vacuo at temperatures of 2100 deg. to 2120 deg. F., giving 70 to 80 per cent reaction of the silicon.

The metallic magnesium is deposited in a simple tubular condenser inserted in the cold end of the retort. A massive deposit of crystals is secured by correct condenser design and temperature. Alkali metals must be separated effectively from the magnesium since the admission of air will cause the hot alkali metals to ignite. Fire was generally transmitted to the magnesium crown resulting in partial or total loss. The crown reacting temperature and maintaining of magnesium is pressed from the cona supply of heat at this temperature denser and the latter is returned to the retort. Crowns may be melted to ingots with not more than 3.5 per cent loss. The magnesium is exceedingly briquets and discharging a residue of pure, they said, Mg content being greater, than 99.9 per cent.

The dolomite should be largely CaCO₅MgCO₅. Since high purity stones (c) Removing magnesium vapor are of widespread occurrence, there would appear to be no need for considering a dolomite with a CaCOa-(d) Condensing the magnesium MgCO, content lower than 97 per cent. Alkali metals should not be present

At operating temperatures of 2100 Because of the problems presented, deg. to 2120 deg. F. in a direct gasit was considered that a continuous fired furnace, a retort with i.d. 8 in., apparatus was beyond the available wall thickness 3% in., and composition technique and pilot plant research 35 Ni 15 Cr steel has a life of at least 6 months. Heat resisting steels That the reaction system must be may be cast into retorts which may loaded, unloaded, and evacuated, sug- be made vacuum tight. Pressures of gested a retort or autoclave, with the about 0.1 mm. Hg are required to prominimum number of openings heated duce good deposits. However, presat the closed end, with the open end sures below 0.5 mm. while they do protruding from the hot zone, water not increase yields, do improve metal cooled and fitted with a vacuum tight deposits. Pressures as low as 0.002 closure. Such an apparatus may be mm. Hg were tried without improve-

Since the magnesium vapor is con- ployed, over a limited range calcina-The difficulties of developing ap- densed in the cool part of the appara- tion temperature is not a vital factor tus soon after formation, all handling in the reactivity of the charge itself. on a commercial scale are evident of this very reactive gas is obviated. Calcination, however, does affect Early experiments with horizontal briquetting and therefore the process

Particle size of calcine and ferro-

silicon was not found to be critical provided a reasonably fine subdivision is achieved. For ferrosilicon 65 mesh and 30 per cent-30 plus 100 and 30 per cent = 200 mesh for calcine are suitable. In general, grinding should be adjusted to facilitate briquetting. Strong, dust free briquets of density in excess of 2.0 are most desirable. From experiments with two types of piston press the following than 21 per cent MgO and not more observations were made:

- 1. Crystalline dolomite produced calcines more readily briquettable than the microcrystalline variety.
- 2. A wide range of particle sizes assists briquetting.
- 3. Precompression assists briquetting, and is, in fact, essential to some calcines.
- 4. Lubricants such as graphite did not improve briquetting when added in the small amounts permissible.

Retort output and silicon efficiency with different cycle times are to a certain extent inversely proportional.

Cycle time hr. 4	Si Efficiency per cent 65	24 Hr. Output* Ib. 66.0	Lb. per 24 Hr. per Sq. FL of Hot Retort Surface 7.8
6	77	52.2	6.2
8	80	40.7	. 4.8

*Assuming S-in, retorts holding 100 lb, of

The externally heated retort, if fuel fired, permits the production of magnesium by the use of approximately one-half the electrical energy of the established electrolytic process, they pointed out, and this energy is a.c. and not d.c. This is shown in the table below where it is assumed that 1 net ton of 75 per cent ferrosilicon required 8000 kw-hr.

Silicon Efficiency per cent 65	75 per cent Si Consumed per lb, Mg Produced 1.21	Basic Power KwHr. per Lb. Mg. 4.84
70	1.12	4.48
75	1.05	4.20
80	.98	3.92

When dolomite is present in ex- supply of 20-oz. air should fall. cess, silicon efficiency is highest but metal output per retort may be lower. The choice of an ideal ratio depends upon many factors and is beyond the scope of the pilot plant.

One Plant's Experience:

COLLOWING Dr. L. M. Pidgeon's I discussion of the pilot plant de- der vacuum is about 91/2 hr. velopment of the ferrosilicon process, Andrew Mayer, chief engineer of the to the reaction National Lead Co., New York described in a paper entitled "Plant for Production of Magnesium by the

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experience at its Luckey, Ohio, plant. the retorts is 2130 deg. F. toward the request of the government and op- slight rise in temperature when the erated by Magnesium Reduction Co., retorts are opened, he explained, fola wholly owned subsidiary. Plant lowed by a distinct drop upon chargcapacity was rated at 5000 tons of ing. For the rest of the cycle, howmagnesium annually.

From tests made under Dr. Pidthan 2 per cent acid-insoluble material. Second, the dolomite should contain less than 0.10 per cent sodium the cycle and 2800 at the end. plus potassium in order to avoid serious fires caused by spontaneous ignition when the retort is opened.

The dolomite is calcined in coalfired shaft kilns, and the calcine and ferrosilicon are ground and mixed. The mixture is then briquetted to an average density of 2.15 grams per cc. No suitable binder for the briquets has as yet been found and production of strong briquets, which are essential has been a difficult problem, Mr. Ware said, involving high power consump-

These briquets are charged into tubular retorts of chrome-nickel steel which are set horizontally in a furnace with the open ends projecting outside the front wall. The furnace is fired by low-pressure velocity burners made by Surface Combustion Co. which are supplied with air at 20 oz. pressure. There are three zones of temperature control, one in the middle and one at each end. The temperature of each zone is controlled by a Bristol pneumatic indicating recording controller, which regulates the gas flow to the top burners. The bottom burners are adjusted manually when the furnace is started and thereafter the gas flow to them is virtually constant under normal operation conditions. The gas flow to con, <0.008. both top and bottom burners is reduced automatically if the furnace temperature should become excessive and is shut-off automatically if the

Into each retort, five paper bags of briquets (225 to 250 lb.) are charged by hand and the retort fittings are inserted. After a "burnoff" period of 10 to 30 min., to reduce the proportion of combined water, the retort is closed and the vacuum is applied. Average time un-

 $2(MgO, CaO) + Si \rightleftharpoons$

 $2 \text{ Mg} + 2 \text{ CaO}, \text{SiO}_{\pm}$

Ferrosilicon Process" his company's so adjusted that the temperature of is that the retort is not cooled down

This plant was constructed at the end of the retort cycle. There is a ever, it remains fairly constant.

Average pressure in the furnace geon's guidance it was found that is 0.05 in. water and the air-gas ratio the dolomite should contain not less is adjusted so that the waste gases contain about 1 per cent oxygen. Each furnace consumes about 6200 cu. ft. of gas per hr. at the beginning of

> Cooling water is recirculated through the water jackets of the retorts at an average rate of 1 gal. a min. Water temperature and rate of flow is not critical but the jackets must be kept filled.

At the end of the 91/2-hr. period. vacuum is broken and the retort is opened to remove the fittings and condensed magnesium. Most of the retort residue is discharged mechanifor efficient operation of the process, cally, a small remainder being hoed out by hand.

With a mix ratio of 28 lb. silicon tion and excessive maintenance costs. to 80.6 lb. magnesia, 235 lb. of briquets will yield 31.5 lb. of recovered magnesium, making the silicon efficiency 65 per cent.

> The magnesium deposit, in the form of a "muff" is driven out of the removable sleeve by a pneumatic hammer provided with a steel disk that fits inside the sleeve. These magnesium muffs are transferred to the melting and alloying department where they are melted down and alloyed by the usual methods.

> A few lots of unalloyed magnesium ingots have been produced at the plant, Mr. Ware said, with the following typical spectrographic analysis: Copper, <0.005 per cent; lead, <0.005; iron, 0.003; nickel <0.005; manganese, 0.001, and sili-

Estimated life of the retorts has been estimated at about 250 days. In general, failure has been due to scaling and to cracks caused by "blowing up" after collapse had become extensive.

Additional Developments:

ONTINUING the discussion on the Pidgeon process, W. M. Peirce, R. K. Waring and L. D. Fetterolf of the research division, technical department of the New Jersey Zinc Co., Palmerton, Pa., called at-Magnesium is liberated according tention in their paper "Some Developments in the Production of Magnesium from Dolomite by the Ferrosilicon Process" to the major advan-The temperature of the furnace is tage of this ferrosilicon process which

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between charges. Earlier investigators, they recalled, had used apparatus that necessitated cooling and reheating of the retort between charges.

Although in his original work, Pidgeon briquetted the dry mixture of calcined dolomite and ferrosilicon in a plunger press under very high pressure, plans for commercial practice called for briquetting in a roll press. After several weeks of experimentation, no satisfactory dry briquets were made in any roll press available at the start of the investigation. This led to experiments with wet briquetting. Sufficient water was added to slake the lime and to provide excess water to give a plastic mix. The excess water was then removed by drying at 230 deg. F. and the water of hydration was removed by heating the charge to 1112 to 1292 deg. F. in an externally heated muffle. Excellent briquets were produced by this procedure and after several months' work, the following process was developed:

1. A mild calcination of the dolomite to yield a calcine that would hydrate readily.

2. Hydration of the calcine with about 12 per cent excess water fol- resulting in a decrease in the density lowed by addition of the ferrosilicon of the preheated briquet of about 1.7 and thorough mixing. This can be to 1.3 grams per cc. Of the various of about 2.5 grams per cc., thereby done in a heavy muller, a paddle mixer or a cement mixer.

passage through smooth, corrugated was found to inhibit hydration par- and under normal operations, with or briquetting rolls. 4. Briquetting of the densified mix bility is in progress.

University of Sao Paulo, Brazil. about 2000 pounds per square inch. which is a high-pressure roll press briquets in a drier. 6. Removal of water of hydration externally fired steel tube. This tube was inclined at about 45 deg. and was 8 or 10 lb. in. in internal diameter. A tube of a larger diameter was tried and found to have a lower capacity because of the difficulty in driving heat to the center of the charge with the limitation in firing temperature imposed by oxidation of the silicon. The tube was fired at a temperature of 1562 deg. F. Use of a higher temperature had an adverse effect on the recoveries obtained in the subsequent reduction, presumably because of oxidation of silicon.

A serious drawback to this wet briquetting process in commercial operation would be the low capacity of the externally fired preheaters. Heating in an internally fired rotary kiln was found to be simpler and cheaper than preheating in indirectly fired muffles.

Some dolomites were used in which part or all of the magnesia hydrated,



C. S. Barrett, Robert F. Mehl and Alfred Geisler (left to right) received the Institute of Metals award for "Aging in the Solid Solution of Silver in Aluminum." Dr. Mehl is now delivering the second of a series of lectures on metallurgy at the Escola Politecnica of the

7. Charging the preheated briquets into the reduction retort.

5. Removal of free water from the designed for briquetting dry materials. Even with this press, it was a difficult matter as this press works and preheating the briquets in an too near the limit of its capacity in handling the power input necessary to produce a briquet of good strength. The operating load must be limited to avoid excessive maintenance and roll breakage.

A number of interrelated variables influence the quality of the briquets, and the optimum values that are universally applicable do not exist for each of these vaulables. Important factors affecting briquet quality are the nature of the dolomite, method of calcining, size to which the calcine is crushed, method of operating the feeder and press, and the moisture and carbon dioxide content of the briquets. If the moisture and carbon dioxide content are allowed to be above 1 per cent in the briquets as they are charged into the retorts, they disintegrate during the reduction treatment. This disintegration becomes increasingly severe as the moisture and carbon dioxide content increase.

The addition of 1 to 5 per cent fluorspar to the dolomite prior to calcination profoundly influences the nature of the calcine and makes it possible to attain a briquet density remedies tried to retard magnesia permitting a proportional increase in hydration, the use of 1 per cent the weight of briquetted material 3. Densification of the mix by sodium chloride or calcium chloride which can be charged to the retort, tially. Further work on this possi- some dolomites may lead to an increase in magnesium yield of nearly by passage through briquet rolls Production of usable briquets was 25 per cent. The fluorspar addition exerting a pressure on the mix of tried with the Komarek-Greaves press also makes the calcine less susceptible

to absorption of moisture and carbon vacuum at 2102 deg. F. At a tem- Engineering as Related to the Dolo-

3

The disadvantages of wet briquetting are the necessity of a hydration step, a preheating setup and a lower density briquet resulting in a lower efficiences were reached with drycharge weight in the retort. The ad- process briquets. vantages of this method are simpler and less expensive briquetting with high press capacity, production of a charged in paper bags to facilitate much stronger briquet of any desired handling and to avoid breakage. The size, freedom from disintegration of the briquets during reduction. The consequent absence of fines in the paper bags and any oil adhering to retort charge makes it feasible to ob- the briquets. Vacuums of 200 to 250 tain more complete utilization of microns of mercury in 1 to 11/2 hr. silicon and to use a shorter reduction and final vacuums of 50 to 100

The disadvantages of dry briquetting are a difficult and expensive briquetting operation with low press capacity, a relatively weak briquet of small size and a strong tendency to form fines in the charge due to the weakness of the briquets and to their tendency to absorb moisture and carbon dioxide. The presence of fines in the charge causes less efficient utilization of silicon and lower yields of magnesium per unit weight of charge.

The outstanding advantage of dry briquetting is the higher briquet density, which permits higher charge weights and greater magnesium yield per retort.

Earlier in the investigation, it dry briquets and particularly the dis- sium yield. covery that dry briquet densities in excess of 2.5 grams per cc. can be at- powder, aluminum-silicon alloys and tained by use of fluorspar, the inconditions to favor dry briquetting.

Reduction tests were made in a perature and time. block of four individually oil-fired retorts. The retorts were of the standard 10-in, i.d. alloy-steel type with of the briquetted charge from vola-5 ft. of their length in the heated zone. Each retort was connected to and good separation of the alkali a Stokes mechanical vacuum pump metals which are contained in various of 28 or 50 cu. ft. capacity, so that amounts in the dolomite. individual operation was possible.

Charging of wet-process briquets involved handling hot preheated briquets at about 1292 deg. F. and these were weighted in buckets, deposited on a trough and pushed into the retort which was connected to the

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perature of 2225 deg. F., silicon mite Ferrosilicon Process." efficiencies of 78 to 80 per cent were achieved in 71/2 hr. at vacuum. Under optimum conditions, comparable

Dry briquets were normally charged cold and were weighed out and retorts were left open for 15 to 25 min. prior to evacuation to burn the microns were considered to be satisfactory. These conditions were not obtained unless the briquets were low in carbon dioxide and water and the vacuum pumps in good operating condition.

From tests made in a special laboratory furnace it was found necessary to maintain a vacuum of 0.1 to 0.3 mm, in order to obtain a dense metal deposit in the condenser. With increased pressure the condensed metal becomes more porous, with the resultant tendency to burn and with increased losses during the subsequent melting step.

Many materials were tested in the laboratory reduction apparatus to determine whether their inclusion in the calcine-ferrosilicon mix might clearly demonstrated. At pressures catalyze the magnesium reduction re- above 500 µ, a deposit containing relaseemed that taking all factors into action. Of those tried only CaFz and tively large quantities of oxide, nitride consideration, the wet briquetting MgF: showed catalytic effects. The and pyrophoric dust is formed. If method was preferable. In view of addition of fluorspar up to 5 per cent sodium and potassium are present, as the recent experience with very small substantially increased the magne- in the case of most dolomites, these

Laboratory tests with aluminum various aluminum scrap confirmed vestigators are inclined under most the advantage of aluminum over silicon as a reducing agent, as to tem-

> To get good magnesium deposits there must be good vacuum, freedom tiles like water and carbon dioxide,

Vacuum Engineering:

HROUGH the use of high vacation of many reactive metals such as ing speed at low pressures for the magnesium can be done industrially remainder of the cycle. vacuum line immediately after charg-hence in much simpler equipment, than nesium plants, industrial diffusion

The main function of vacuum in the ferrosilicon process and hence in most vacuum smelting processes is to lower the temperature at which the metal may be rapidly distilled or sublimed from the reduction mixture. A secondary function is to protect the newly produced metal from attack by the furnace atmosphere and to permit the formation of a dense condensate.

In the ferrosilicon process, the metal is produced from a briquetted charge at a free air pressure of about 0.100 mm. (100 #) of mercury. This low pressure is not needed for the reaction but rather serves to protect. the metal vapor from the oxygen or nitrogen of the atmosphere and permits the formation of a dense condensate relatively free from sodium.

However, at pressures above 500 μ the metal yield begins to decline. This does not necessarily mean that the reaction is impeded by the high pressure. It may be that the magnesium vapor oxidizes upon formation and thus remains in the charge. Sight gas observations confirm the fact that actual burning of deposited magnesium occurs at pressures as low as 100 # (1.0 mm.).

The effect of pressure upon the quality of the condensate has been metals usually burst into flame and ignite the pyrophoric magnesium during the discharging of the retort. At lower pressures, a dense metallic crown is formed, low in impurities and difficult to ignite.

It has been found in plants using the ferrosilicon process that the economical temperature for alloy retorts is about 2150 deg. F. and that an 8-hr. cycle is optimum. Under these conditions, it is desirable to maintain an operating pressure of 100 # or lower and to reach that pressure within 1 hr. from the time of charging. Vacuum pumps perform two functions: (1) To provide for the initial evacuation in which large volumes of gas are produced at relatively uum, the distillation or sublim- high pressures, and (2) supply pump-

was heretofore thought possible, W. pumps using both oil and mercury The silicon efficiencies obtained B. Humes, director of research and were developed for the process. These were 70 to 75 per cent in 7½ hr. at development, reported in "Vacuum pumps, which have extremely large Steam jet ejectors have been employed successfully in one plant which used a small number of very large retorts. A long evacuation cycle plus the large unit vacuum system makes steam jet ejectors particularly applicable in this installation. When suitable protective devices are available, it is possible that they will receive wider use. It is probable that for future operations, various combinations of these three pumping means will be evaluated to

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provide maximum efficiency. Most ferrosilicon process plants have used retorts 8 ft. long and 10 in. i.d., making a volume including the condenser space of about 6 cu. ft. Four of these retorts are connected to a manifold and operated as a unit. The time necessary to evacuate this volume is given by the equation:

 $T = \frac{VK}{D}$

where T is the evacuation time, V the volume of the system, D the pump displacement in cu. ft. a min., and K a constant depending upon the desired pressure.

since

V = 24 cu. ft. K = 8 for .100 mm. D = 100 cu. ft. a min.

Actually this condition is realized only when there is no impedance in the pipe lines between the vacuum system and the pump and no leakage or outgassing. In actual plant operations this has not been feasible and in many cases the pumps are placed at different levels from the retorts necessitating pipe lines approximately 50 ft. in length. It has been calculated that when pumps with high capacities in the lower range be used, either the pumps must be placed close to the retorts or large pipes must be used.

Although piping carries only a relatively small external pressure, it must be made extremely non-porous because of the tremendous expanded Threaded joints are treated with chloride. assembly. Lubricated plug valves, up electrolytic cells. Chlorination and ped out every 24 hr.

surfaces.

The process used by Basic Magnesium to extract the metal from the ore is the electrolytic reduction of and neutralized with magnesium magnesite, developed initially by the oxide to provide magnesium chloride M. G. Farbenindustrie and operated extensively in England by Magnesium Elektron Ltd. of Manchester, C. J. Ball, chairman of the board, Magnesium Elektron, Ltd., England and vice-president Basic Magnesium, Inc., revealed. The first stage in the reduction

process consists of the preparation of In the ferrosilicon process the evac- the raw materials. The magnesite uation time is approximately 2 min, materials are finely milled and then mixed with certain proportions of coal and of peat moss. The peat is added to give porosity to the pellets and to provide for the more rapid action of the chlorine upon the magnesium oxide content. Magnesium chloride solution made in the recovery and neutralization plant is added as a binder. The mix is then briquetted rotary kilns. The coked briquets are maximum economy. then fed into a shaft furnace or reaction tower lined with special re-The solid charge rests upon a netheated by their resistance to the parallel electrodes. passage of 3 phase a.c. As the briquets action tower or chlorinator, which operates at a temperature around chlorine rising from the bottom of volume of a small leak at atmospheric the furnace. The carbon in the pressure. Considerations of the leak- briquets acts as a reducing agent and the electrical input of about 20,000 age problem led to the use of welded the magnesium oxide is converted to amp, being sufficient to maintain the

gas handling capacities at pressures to 6-in. pipe size, have been used with that final tests can be made under below 100 µ, must be used in combin- success, although care must be exer- vacuum. Where thermocouple gages ation with a suitable backing pump, cised with regard to the lubrication are used, vacuum leaks may be desuch as a rotary mechanical pump. and the condition of the valve seat tected by spraying the suspected point with autone or other volatile liquid It has been found that new piping or hydrogen. As the vapor or hydrosystems are best subjected to an initial gen leak replaces the air leak, rise in pressure and "soap bubble" test, and pressure is noted on the gage.

Basic Magnesium Enterprise

plant in southern Nevada.

AHE combination of electric power electrolysis take place in one building from the Boulder Dam, water in which, for the purpose of easy from Lake Mean and magnesite ore in tapping and feeding to the cells, the Gabbs Valley led to the initial pro- chlorinators are located in a line along posal to erect a magnesium reduction one side of the cell room. The exhaust gases from the chlorinators are washed and the resultant hydrochloric acid solution concentrated, clarified solution used in the process.

> Each unit contains eight chlorinators and 88 cells, the latter built in eight banks, each of 11 cells, with a capacity of 5600 tons a year.

> Electrolysis of the fused magnesium chloride is carried out in electrolytic cells lined with refractory and insulating bricks to take care of the comparatively high working temperature. The electrolytic consists of a salt mixture which inhibits the tendency of anhydrous magnesium chloride to decompose when molten and favorably influences the conductivity, viscosity and specific gravity of the electrolyte.

Provision of electrode surfaces of maximum area and the maintenance of a fixed ratio between the depth of immersion of electrodes and their disand dried, and coked in oil heated tance are essential combinations of

The cells are so designed as to allow the separation and collection fractory bricks and heated internally of the chlorine by use of ceramic using carbon resistors and electrodes. curtain walls of high density and of particular properties forming a part work of carbon blocks which are of the cell and built in between the

Cast steel cathodes and graphite pass from top to bottom of the re- anodes are used. The chlorine which is quite dry and concentrated, collects in the anode compartment, and is 1832 deg. F., they meet a stream of drawn off, filtered and recirculated to the chlorinators.

The cell is not externally heated, bing and forged steel fittings. absolutely anhydrous magnesium temperature of the charge. The power consumption is approximately 9 kw .resins paints like "Glyptal." Rubber The fused chloride is tapped hr. per lb. of metal. The magnesium or composition gaskets are cleaned periodically from the bottom of the metal collects at the cathode, floats and wet with grease and oil before reaction tower and fed into special to the surface of the melt and is dip-

molten metal and a fairly clean the manganese being added in the mechanically into one end of the separation can be made between the form of manganous chloride. The furnace onto a preheating shelf, from metal and the fused chloride metal. charge is then refined with a refining which it is pushed into the bath by Under normal operating conditions flux, Basic E, which is stirred into and with reasonably trained operators the melt to carry down the suspended Metal is dipped or pumped out of a this should be more than 98 per cent particles of chloride from the elec- well at the opposite end of the fur-

finery where it is either refined for fined metal is then poured into a clean sale as pure metal 99.7 per cent or crucible and superheated under cover better or alloyed for sale as one of the of refining flux at a temperature constructional alloys.

melted in large cast steel crucibles 1328 to 1382 deg. F. and poured either of 2-ton capacity; during this process onto a continuous ingoting machine Basic Melting flux is used to mini- or into 300 lb. crucibles which are mize local oxidation. When the charge then poured off into extrusion billets is molten, the alloying additions are or rolling slabs.

Hand ladles are used to remove the made-aluminum and zinc directly; trolysis metal and to remove the re- nace. This metal then passes to a re- mains of the melting flux. The reabove 1472 deg. F. for over 15 min. In the refinery the metal is first The charge is then cooled rapidly to

the introduction of the next charge.

Consumption of flux for melting magnesium in these units has been the same as previously was required for standard open-pot operation. Similarly the melting loss closely parallels that obtained in the more conventional methods of melting. Fuel efficiency is much better and would amount to about twothirds of that used in open-pot melting. The outstanding feature of the open hearth operation, Mr. Nelson pointed out, is the very high melting capacity. The units in operation are capable of melting continuously at the rate of 4000 lb. of metal an hour. Safety of operation is another notable feature, since the charging and preheating is all automatic and spatterings cannot reach the operator. Further, the likelihood of a runout is remote because the refractory construction is cold on the outside.

The field of use of the reverberatory, he continued, is in large-scale continuous melting of magnesium or alloy ingot or heavy scrap. In such a process it operates as a premelter for alloying or foundry operations. It is not considered suitable for the melting of fine magnesium or light scrap because of the difficulty of applying adequate mechanical puddling and the development of the large amounts of sludge or dross that accompanies the processing of these materials.

Protection during melting and holding is provided by the open-pot type flux. Ultimate refining of the metal is accomplished in open-pot or crucible process that follows.

The die-casting process makes use of a flux, 57 KC1, 28 CaC1, 12.5 BaC1, and 2.5 CaF, that gives no surface protection but is used only for refining the metal. Surface profurnaces have been placed in service. is used as protection during melting Below the metal line these furnaces down and this is stirred through the re lined with a refractory that is metal for refining. After a few mo-

lem since a certain proportion of

for the die-casting process is not satisfactory as a reddish scum or film of the carbonaceous material seems to stay suspended throughout the metal. This behavior is eliminated through the melting of such scrap in open pots or crucibles using the crucibletype flux. This flux has the necessary characteristics to agglomerate the carbonaceous film and refine this material.

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The melting and refining of crystalline magnesium, the product of the ferrosilicon-dolomite reaction, is somewhat difficult, Mr. Nelson said. It is finely divided and hence oxidizes readily. Furthermore, a variable and sometimes appreciable amount of oxide, nitrides and other impurities are occluded with the crystals. Because of these more care must be exercised during the melting of the crystals to use a fluxing technique that will not permit oxidation. Normally this is done by charging the crystals into a "heel" of molten metal purposely left over from a previous batch, or into a bath of melted flux in the bottom of the pot. Liberal quantities of the same flux are dusted over the solid charge and as often as required to prevent the start of oxidation. The crystals are puddled into the metal or flux bath as rapidly as possible. After the charge has all melted down, more flux is added and stirred thoroughly through the bath, in order to separate the oxide and dross inclusions.

If the crystals are particularly clean and free from oxide and other undesirable materials, it may be sufficient to proceed with the normal alloying processes, followed by stirring of the fluxes through the bath and finally settling out of the dross and sludge and pouring of the refined alloy into ingots or castings.

If the crystals contain a large amount of oxide, or appreciable oxidation takes place during the melting, it is desirable to allow a few minutes of quiet settling and then dip from the bottom of the pot as much of the dross and oxide as possible before proceeding to the alloying and refining steps.

The magnesium crystals usually

The grain structure of magnesium carbonaceous materials, lubricants up to the saturation value if melted and its alloys can be markedly refined and other impurities are present on in steel pots. The iron may be prethe scrap. Using the flux described cipitated after the principal alloying by a superheating treatment of 200 materials have been added, usually deg. to 400 deg. F. above the melting point. In this behavior, it is conby the addition of manganese to a sidered to be much like cast iron, and saturation value for a temperature above that at which the metal is to the theories and hypotheses used for be poured. When manganese is the explanation of the behavior of present up to its solubility value, parcast iron may be applied to magneticularly in the presence of aluminum, sium with the substitution only of the iron is greatly reduced in solubility or alloy and the type of impurities. tendency to stay in suspension, and Superheating effects may be obis rapidly precipitated to the bottom tained as low as 1500 deg. F. but the of the pot.

cible.

Bureau of Mines "Baby"-Electrolytic Mn

0 0 0

LECTROLYTIC manganese pro- The average for a year has been 82.5 L duction capacity in this country per cent. The reduction step has been is approximately 5 tons a day, R. S. carried on satisfactorily in either a Skinner muffled-hearth furnace or a Dean, assistant director of the Bureau of Mines, reported in "The Present Taylor multitube furnace. With either, Status of Electrolytic Manganese and direct addition of oil is a satisfactory reducing agent. Its Alloys." It has been used in mag-The managanese is substantially nesium alloy bomb casings, stainless steel tests, by the Mint for new nickels pure, except for 0.03 to 0.07 per cent and has been sent to England under sulphur. An interesting use of electrolytic lend-lease principally for addition to manganese is in an age-hardening aluminum alloys.

Present practice, as carried out at the Boulder City project, starts with a manganese dioxide ore containing about 20 per cent manganese which is reduced to MnO. The MnO is dissolved from the ore in spent electrolyte which contains about 38 to 47 grams per liter of free sulphuric stantially greater than that of berylacid, 135 grams per liter of ammonium sulphate and 10 to 12 grams per liter of Mn as sulphate. In the leaching step the manganese is built back neutral by gaseous ammonia and

The price of electrolytic manganese has held back the demonstration and utilization on a substantial scale of its possible advantage in ferrous alup to 32 to 36 grams per liter of Mn loys. Experiments undertaken by the as sulphate; the pH is adjusted to Bureau of Mines indicated a recovery of manganese in furnace additions to passed through thickeners. The elecstainless steel of 87.8 per cent comtrolyte is purified by adding HaS pared with 84 per cent for low carbon which precipitates the heavy metals. ferromanganese and for ladle addi-After filtering, ferrous sulphate is tions 89.9 per cent, compared with added to the solution and oxidized 72.7 per cent for low carbon ferro. with air and the solution is filtered There was no measurable increase in and clarified on a pre-coat filter. the carbon or phosphorus content of The purified catholyte is electrolyzed in a diaphragm cell using stain- the heat. Recovery of manganese was are relatively low in iron content but less steel cathodes and lead-silver more consistent from heat to heat may contain sodium, potassium, cal- anodes. Current density is about 45 than when using ferromanganese and cium and sometimes silicon as im- amp. per sq. ft. Current efficiencies because of the convenience of handpurities. For all practical purposes, of 60 to 65 per cent are regularly ling, weighing and shoveling, electroall except the silicon are removed by obtained. The brittle manganese is lytic manganese and the smaller bulk reaction with the flux in the melting stripped from the cathode by bending. and weight of the addition, the time and refining process. The iron con- The stripping efficiency, in good required to prepare a heat for taptent, however, will tend to increase weeks, has reached 94 or 95 per cent. ping is shortened.

Fluxes in Magnesium Refining

TNASMUCH as all melting and re- used that is thinly fluid at the start fining processes for magnesium and then dries out or thickens to and its alloys require the use of leave a protecting crust on the pot fluxes, C. E. Nelson of the Dow surface until the time of casting. Such Chemical Co.'s metallurgical depart- a flux contains 20 KC1, 50 MgC12, ment emphasized their unique char- 15 CaF, and 15 MgO. When pouring, acteristics and proper use in his paper the crust can be readily skimmed off on "Melting and Refining of Mag- or held back, so that the molten metal

Four main types of melting were discussed: Open-pot; crucible; rever- in sand and permanent mold casting beratory, and die-casting. The open- as a single step melting, refining and pot method makes use of a flux hav- pouring operation, or more commonly ing the composition 55 KC1, 34 MgC1s, as a second step following the trans-9 BaCl₂ and 2 CaF₂. The flux pro- fer to a casting crucible of molten vides protection during melting. It metal from premelting units like large is stirred through the molten metal open pots or tilting crucibles. It is bath and agglomerates oxide or also used in the batch method of similar foreign bodies; then on quiet melting, alloying and pouring billets standing separates away, leaving the or ingots from which wrought prodrefined metal ball floating in an en- ucts are fabricated and in the refining circling layer of molten flux. It forms only a thin fluid film over the surface of the molten metal, which may be parted for hand ladling processes and tends to cover the metal again after the ladle is removed.

The open pot method is used generally in the following process: 1. Alloying and secondary smelting in the production of magnesium ingots; 2. in sand foundries for premelting and to a lesser extent for the production of small castings requiring hand ladling; 3. in permanent mold foundries for premelting and also direct ladling to castings; 4. for contin uous methods of preparing metal in the production of billets or ingots from which wrought products are fabricated, and 5. in general scrap recovery.

and refining magnesium, a flux is are of high-grade firebrick.

60-THE IRON AGE, March 2, 1944

is not contaminated with the flux.

Crucible melting is used principally of die-casting scrap.

Successful experiments in melting magnesium in the resistor-heated type of Detroit electric rocking furnace led to further experiments with a reverberatory hearth furnace having a capacity of 1500 lb. of magnesium and using oil and gas as fuels. Based on these preliminary experiments, a furnace with a capacity of approximately 12,000 to 20,000 lb. of mag- tection in this method comes from the nesium was put into use. This furnace use of a sulphur dioxide atmosphere, has operated for about two years and which is maintained in a closed dome during that time six more similar over the pot. Only a very little flux

relatively non-reactive with the fluxes ments of quiet standing, this flux toand the magnesium. Linings with the gether with agglomerated oxides and longest service record are of Tercod, a dross, sinks to the bottom of the pot carbon-bonded silicon carbide refrac- and is removed with the sludge. tory having a carbon facing next to The melting and refining of die-For the crucible process of melting the metal bath. The walls and roof casting scrap presents a special prob-

Manganese is introduced as manganese chloride or either Dow's No. 250 or 320 manganese flux, the former

time required at this temperature is rather long, being several hours. As the temperature of superheating is if the process is carried out in an raised to about 1700 deg. to 1750 deg. open-pot and the latter if in a cru- F., the time required to get the effect gradually drops off to approach zero.

> alloy of approximately 60 per cent copper, 20 per cent manganese and 20 per cent nickel. This alloy is being rapidly commercialized. Its hardening range (from 80,000 soft to 180,000 hard) and fatigue strength (60,000 lb. per sq. in. for 108 cycles) are sublium copper.

New Equipment ...

Machine Tools

... Recent developments in production and tool grinders, boring mills, Swiss type automatics, gear shavers and other units are described and illustrated in the following pages. Other machine tool developments will be described next week.

THE wheel feed mechanism on the 10 and 14 in. Type CH plain hydraulic grinders put on the market by Landis Tool Co., Waynesboro, Pa., has been redesigned. Accurate setting for the hand feed is provided by a large micrometer ring at the rear of the feed-up handwheel. Graduations on the ring are normally read in thousandths in terms of work diameter reduction, but a simple adjustment permits graduations to be read in "tenths." The wheel feed is automatically reset at the end of each grinding cycle without changing the position of the wheel feed handwheel. Hydraulic straight infeed, supplied only on order, retains the automatic wheel feed feature. Stroke of the infeed is adjustable from 1 to 31/2 in, and slow feed from 0 to 0.120 in. on the work diameter. An automatic compensating device prevents changes in oil viscosity from influencing accuracy of feed. A hinged hood at the front of the wheel guard is adjusted inward as

proportions are said to be considerably heavier and stronger than conventional type machines of equal capacity. The 30-in. rotary magnetic chuck is equipped with a Neu-T-Rol demagnetizing switch and is traversed into grinding position by push-button control. The grinding wheel head has hand, power or automatic trav-





the wheel wears down. Smooth headstock face plate rotation is assured through anti-friction bearings and an all multiple V-belt drive. A wheel truing bar with micrometer adjustment is built into the footstock base.

Surface Grinders

THE No. 24 vertical spindle rotary surface grinder has been brought out by Hanchett Mfg. Co., Big Rapids, Mich. The structural

62-THE IRON AGE, March 2, 1944

being furnished by a 2-hp. 900 r.p.m. motor, while the coolant pump is driven by a $\frac{1}{2}$ -hp. motor. The grinder is equipped with an ammeter for determining the cutting action of the grinding wheel.

Tap Reconditioner

A NEW spindle head that accommodates interchangeably a wide range of motor types for various service voltages, phases and frequencies has been added to the tap reconditioner marketed by the *Detroit Tap & Tool Co.*, 8432 Butler, Detroit 11. Standard motors are 220 to 440 volt, 3 phase and 110 volt, single phase for either 25 or 60 cycle service. The



erse with power. type and will accommodate collets from the smallest machine screw size up to the 1¼ in. standard tap shank size, including long shank taper taps.

Precision Thread Grinder

HE RU-2 high precision thread grinder manufactured by Societe Genevoise, Geneva, Switzerland. grinds internal and external threads and is equipped with a micrometer stop which permits setting to 0.00005 in. Both wheel and work profiles may be inspected as to angle and radius by means of a microscope, which may be tilted out of the way. The wheel truing device is manually operated and has a dial gage reading to 0.0001 in. A temperature compensator permits variation of the pitch of the threads ground, to allow for the cooling effect of the coolant supply. The compensator works in conjunction with a device which automatically corrects for error in pitch of the lead screw. The external grinding wheel is 10 in.

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Basic Magnesium at Capacity In Output of Critical Metal

Last of 10 Units to Be Installed in Great Plant Is Turning Out Its Quota of Vital Mineral

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MINO, HEV JOURNAL

JULY 1, 1943

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L.V. Review Journal

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July 3, 1943

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tons per day. The plant is ex-Unit No. 10 of the world's ceeding its rated capacity daily, largest magnesium plant was "cut but no figures are available for tion at present.

When the tenth unit was started officials of the company who were present included: F. O. Case, general manager; H. C. Satterthwaite, assistant general manager, and V. E. MacDonell, chief engi-

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IRON AGE Philadelphia, Pa. JUL 8 1943

WEST COAST OSGOOD MURDOCK

 Magnesium labor cauldron boils in Nevada desert heat . . . Lockheed puts P-38 on moving assembly line . . . Cast iron pipe industry forms basis of post war speculation.



OS ANGELES-If you think the Athletic Club steam room in July is the hottest spot in the country, you ought to try Las Vegas, in the southern tip of Nevada, sometime this Summer. You won't sweat as much in Vegas, because the heat is dry, desert air, but you will have

A photo-of a new West Coast blast furnace appears on page 106.

other attractions such as wide open gambling and bourbonless bars, interspersed in equal proportions, and women completely tarnished except for the gleam in their eyes.

The mystery is not that there is a labor problem in this desert boom town sired by Boulder Dam, but that crew into the desert in mid-Summer. anyone at all can be found to work there, what with the lack of air cooling in half the government crackerbox housing. A labor problem there alternate chills and fever, and miliboiling, and ready to blow the lid at Uncle Sam's fair haired colossus of magnesium production, Basic Magnesium, Inc.

During the period when the big plant was under construction, some

of the place, some were of the booming breed of the west's openest town, some were drained from the still less attractive mining camps, and still others were migrants from the Middle West originally labeled "California or Bust," who had busted at Vegas. No one was busted long, though, for wages were high, in the best construction camp tradition. As construction tapered off early this year, many of the workers switched their time cards from the construction companies to the Basic Magnesium clock itself, which by this time was wound by Anaconda instead of the Howard Eels' interests.

The old-time construction workers, turned factory hands, had lineal allegiance through the construction trade to the AFL, while CIO's blood flowed in the veins of those who had By the time the National Labor Relations Board got around to holding an election, tempers were hot. CIO carried the poll by eight votes out of about 2000. With its peculiar talent for starting disputes rather than ending them, the NLRB ruled that employees of the semi-monthly payroll could not vote, even though they held the union card. Insofar as the AFL is concerned, the CIO eight vote victory means nothing at all. A protest has been registered, and the general AFL temper seems to be that if it is not heeded, members will walk off the job, leave for the California seashore, and let the Anaconda management work out with the NLRB the problem of attempting to inveigle a new

Every responsible government official charged with keeping the situation under control has been having is, hot like the weather, constantly tary representatives have been expounding with zeal the importance of any moment, crippling production at unbroken magnesium production, service in the background.

G Coast employers have an ad-12,000 or 13,000 workers descended vantage over those in other parts of upon the bewildered desert town, the country in that they are dealing barely recovered from the sudden with union leaders, both CIO and hadn't had enough energy to get out result of the unrest of organized ment." Six out of every ten new

labor to any reat extent. This factor is balarced off, however, by the great gaps between wage scales in shipbuilding and those of other vital industries. The lesser workers in the lesser paid industries naturally are restive under their wage inferiority, and a wage decision favoring the United Mine Workers might easily change the entire equal complexion, setting off major trouble in the aircraft, lumber, mining and smelting industries.

Despite their industry-wide superiority, AFL metals trade workers, labor participants in the Coastwide shipbuilding wage agreement, will probably attempt to squeeze out a little higher scale in pending negotiations. They correctly maintain that the terms of their agreement, signed two years ago, tying their wages to come from the mines and smelters. a cost of living index, provide for a raise at this time. Knowing when they are well off, they probably would settle condescendingly for 5c. per hr. additional. Shipyard union leaders maintain that housing and living conditions at most West Coast shipyards are comparable to construction camps and that a higher wage scale is justified. The argument is not an easy one for the unions to defend, for all Coast industrial workers are in the same boat as to living conditions.

> AT Seattle, Boeing Aircraft sus-A pended 159 skilled workers in its tool and die shops last week for three days for refusal to punch company time clocks. So stringent is the Seattle labor shortage that some of the workers were given temporary work clearances by the U.S. Employment Service and accepted three day jobs in other war industries.

At Sunnyvale, Cal., a petty squabble between International Association of Machinists Local 68, always a bad actor, and Joshua Hendy Iron Works, while holding the big stick of selective a Kaiser satellite, building engines for the Maritime Commission, almost set production on its ear. The ques-* ENERALLY speaking, Pacific tion involved was whether the management had the right to order ten hour work shifts.

As school was out June 26 here in Southern California, so many doting fame descended upon its doorstep by AFL, who are better than average mothers rushed home from their jobs the construction of Boulder, nee in ability and definitely superior in in the aircraft plants that the Air-Hoover, Dam. Some of the BMI con- their control over the actions of their craft War Production Council destruction workers were hangovers membership. Consequently, produc- clared that "production of warplanes from the dam construction days who tion has not suffered in this area as a is threatened with serious impairJULY 9, 1943

LAS VEGAS, NEV , AGE

BMI to Carry Out Building Program

A portion of the construction work undertaken by McNeil Construction Company for Basic Magnesium, Inc., will be com-pleted about July 31, but the construction company will not be leaving the Basic job until about the middle of October.

Work now under way includes the gigantic ventilating systems being built above the ten units of the great chlorination plant, which will practically double the height of the seven story buildings

A four-million dollar project for which the money is now available will be carried out by the BMI organizations and will include a group of permanent administra-tion buildings, all administration work to date having been directed from the temporary buildings,

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RENO NEW JOURNAL

JULY 1, 1943

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L.V. Review Journal July 3, 1943

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All employes of Basic Magnesium Inc., will be able to obtain their new "A" gas ration books through the Office of Employees Service at the plant instead of applying to the board from which they received their first book, it was announced today.

Applications will be distributed among Basic employees next week with instructions as to the method of obtaining the new books, it was stated,

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IRON AGE Philadelphia, Pa. JUL 8 1943

WEST COAST

employees hired at the aircraft moved from Joliet, Ill., by the Defense plants now are women. The area still Plant Corp. where it had been idle. It is desperately short of adequate child care facilities.

The new continuous moving assembly line put in operation last week at Lockheed will double production of P-38 interceptors within the next 60 days and cut manhours per plane 40 per cent, the company claims. built on a temporary, open air asand parts.

Utah, was blown in last Thursday mingham and on the eastern seaboard and is now producing pig. This fur- have been handicapped by the disconnace is the second to be blown' in in tinuance of water shipments. Much the far West in a little over six cast iron pipe still is being shipped months, and means that three fur- all-rail to the Coast, however. In exnaces now are producing iron in the amining the problem which will be far West. Ironton No. 2 is rated at faced by the Utah steel plant after

duced at Provo has been shipped to ucts. The changeover to the new line was Coast plants of Columbia Steel Co. in acomplished over a period of nine the San Francisco and Los Angeles days, during which the P-38's were areas, with some foundry grade being marketed. The balance of Provo prosembly line while the assembly duction has been taken by the neighhangar could be emptied of planes boring plants of Pacific States Cast. Iron Pipe Co., which has been lately pressed to capacity, not only because THE Ironton No. 2 furnace of of wartime demands, but because Columbia Steel Co. at Provo, their principal competitors at Bir-900 tons daily capacity, and was the war in competing with shipments

from the East by water, the prewar history of the Pacific States Cast was largely rebuilt and redesigned Iron Pipe Co, might well be examined when re-erected at Provo. Columbia's as a laboratory specimen. Over the No. 1 Ironton 600 ton stack was built years, Pacific States has added a numsome 20 years ago, and until the twi- ber of specialty items to its line when light of 1942 was the only blast fur- demand in its restricted sales terrinace in the far West. No steel facili- tory warranted. These have included ties exist at Provo, and approximate- high pressure pipe, hydrants, valves, ly 75 per cent of the pig iron pro- fittings, and special associated, prod-

> Every thorough study of the problem of how to utilize excess pig iron capacity on the Coast in the post war period has hinted cast iron pipe production, possibly in cooperation with either United States Cast Iron Pipe & Foundry Co., or the American Cast Iron Pipe Co., both of which maintain active sales organizations here. In the better prewar years, probably 120,000 tons of cast iron pipe were sold on the Coast annually, the bulk of it in four, six, eight and twelve in. sizes. That tonnage, supported by growing demand in areas of increasing population, could form a nice cushion for a distressed pig iron producer.

JULY 9, 1942

LAS VEGAT NEV. AGE

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CHEMICAL INDUSTRIES

"Devoted to economic and business problems of making and marketing, buying and using of chemicals.

New York City

FEB 16444

Trademarks of the Month A Checklist of Chemical and Chemical Specialties Trademarks

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mington, Del.; filed Oct. 6, 1943; for chlorin-ited water tablet; since Sept. 24, 1943; 464,022. Lehn & Fink Products Corp. Bicomfield, N. J.; filed Oct. 9, 1943; for hormone preparationa; since Aug. 17, 1943 464,062. Natural Gas Odorising Co., Baton Rouge, La.; filed Oct. 11, 1943; for odorising natural gas, since May 1, 1942. 464,105. The Dicalite Co., Los Angeles, Calif.; filed Oct. 13, 1943; for dehumidify ing air and other gases; since Sept. 10, 1943 464,132-3. Geigy Co., Inc., N. Y.; filed Oct. 14, 1943; for insecticides; since Sept. 16, 1943.

464,132-3. Geigy Co., 185., N. 4., 1850 Co., 14, 1943; for innocticides; since Sept. 16.
1943.
464,142. William Peters, as Shoik Products Co., Freeport, N. Y.; filed Oct. 14, 1943; for shoe polishers; since Nov. 1937.
464,212. Basic Magnesium Inc., Las Yegas, Nov.; filed Oct. 15, 1943; for melting and refining fluxes; since Aug. 23, 1943.





L.V.R. Journel 2-20-44 Plant to **Remain in** Operation

A threat by the government to close the great BMI plant here has been overcome and the plant will remain in operation. This was gleaned last night from several sources by the Morning Tribune.

For the past 48 hours rumors have flown around Las Vegas that an order had come from that an order had come from Secretary Ickes, ordering the plant to shut down, as a matter of conservation of oll on the Pa-

Electric power from the plant cific coast. here was to have been transmitted, according to rumor, to war plants now using oil on the coast,

ted, according to plants now using oil on the coast, thereby conserving the oil. Rumor also had it that Sena-tor Pat McCarran, now visiting tor Pat McCarran, now visiting in Las Vegas, had intervened with Washington and caused the order to be rescinded. The Morn-order to be rescinded. The Morn-ing Tribune interviewed Senator McCarran last night and he re-fused to either confirm or deny fused to either confirm or deny the statement that he had inter-vened. He did say, however, that "we have nothing to worry about," intimating that the plant will not be closed.

will not he closed. Will not be closed. The Morning Tribune then in-terviewed F. O. Case, manager of the BMI, who said he had re-ceived no order for closing.

There is another angle to the There is another angle to the situation. In the event the plant did close the coast city plants would receive no benefit because transmission lines could not car-ry the human double

The statement by Mr. Case that he has received no orders to shut down-and that the first he had heard about it was through ru-mor-makes it quite safe to assume that the plant will remain

in operation. Las Vegans can breathe easler this morning. 467

FEB. 21, 1944 OMARA, MEB. MORN. WORLD

WLB Declines Taking Nevada Plant Dispute Washington (P)—The war labor board Sunday declined to take jurisdiction of a dispute over rep-resentation rights of International Union of Mine, Mill and Smelter Workers GiO, at the Las Vegas, Nev., plant of Basic Magnesium, Inc., involving 5,700 workers, The national Jabor relations Inc., involving 5,700 workers. The national labor relations board has held that it cannot in-terfere under a rider to the 1944 NLRB appropriations act, between the company and the Building Trades department, AFL, under which AFL was given exclusive Trades department, in a science which AFL was given oxclusive bargaining rights at the plant. The war labor board majority felt that the board could not properly un-dertake what congress had directed NLRB not to do.

CAN FRANCISCO AL CALL-BULLETIN-GIR 131,650 FEBRUARY 20, 196

WORLD RECORD LAS VEGAS, Nev., Feb. 28 (AP). - Basic Magnesium Inc. has reported a new world's production record for January, 1944, when the daily average reached 105 per cent of rated capacity, with a high day of 111 per cent.

The plant, a company announcement said, now produces one-fourth of the nation's magnesium supply.

2-21-44 WLB Refuses to Take Jurisdiction In BMI Argument

L.V.R. Journal

WASHINGTON, Feb. 21 (P)-The war labor board has declined to take jurisdiction of a dispute over representation rights of International Union of Mine, Mill and Smelter Work-ers, CIO, at the Las Vegas, Ne-vada, plant of Basic Magnesium, Inc., involving 5,700 workers. The national labor relations

board has held that it cannot interpret under the so-called 90day rider to the 1944 NLRB appropriations act, between the company and the building trades department AFL, under which AFL was given exclusive bargaining rights at the plant.

The war labor board majority felt that the board could not properly undertake what con-gress had directed NLRB not to The two CIO members of the board dissented from the decision adopted by a vote of 10 to 2.

L.V.R. Journal 2-24-44 2 Way Radio for **BMI Police Cops**

Defense Plants Corporation has aproved the expenditure of \$26,-900 for installation of a modern, two-way radio system for police work in the vicinity of BMI it was revealed this morning.

The transmitter will be located in the community building in Basic townsite, and all cars operated by plant protection will be equipped with two-way sets so as to be in communication with headquarters at all times.

It is expected that sets will be installed in the Clark county sheriff's office, Las Vegas police department, and Boulder City ranger station to complete the system in Clark county so that all law enforcement agencies in this area will be in immediate touch with each other.

AL VECAS, HEV REVIEWADDRINAL

One of the outstanding vo-

which will accommodate both

high school students and in-

dustrial workers, is planned

in the Railroad Pass school

district, it was announced to-

Donald Cameron of Carson,

City, of the state department of

education, vocational division,

yesterday informed members of

the school board at Railroad Pass

school district, that the federal

department of education and the

war production board have allo-

cated \$73,530 to the school dis-

Plans Told

training of students as machin-

ists, carpenters, electricians,

automotive workers, sheet metal

Already applications have been

The vocational school will

serve a double purpose. In the

shops classes will be held for both

boys and girls of high school age

who plan to go into industrial

work. Regular teachers will be

Workers at the Basic Magnes

ium, Inc., plant who desire to

improve their skill in a certain

trade or to learn a new trade will

be offered the opportunity to at-

tend after-work classes. Instruct-

ors will be selected from the Basic

employes and will be paid by

federal funds from the depart-

ment of education for their teach-

ne facilities provided for the

jointly by the school district and

the industrial workers, but clas-

all facilities will be ready within a few months. The building prob-

Announcement of the plans for

gram outlined is expected to af-

the school authorities report.

ses will be segregated.

ing duties.

are obtained.

employed for these classes

made to obtain priorities for the

equipment needed for the new

The plans include shops for

trict for a vocational school.

workers, and welders.

day.

ocational School **ADDED EXPENSE** Af Basic Planned, FOR BMI PLANT **Fund Is Alloted IS AUTHORIZED** cational schools of the west,

Hot Metal Conveyors Are Similar to Thermos

Included in newly authorized expenditures totaling \$217,000 for Basic Magnesium, Inc., is the provision for a method of transporting hot metal from the cells to the refinery crucibles at the company's plant, it was stated in a report to the Mining Journal.

This will eliminate "cheeses" which now are allowed to cool and must be remelted in the refinery. The new method will require vehicles designed by BMI technicians and known as hot-metal cars.

Twelve of them have been ordered at a cost of \$108,000. The program is expected to result in increased efficiency and reduced

The hot-metal cars are described by BMI engineers are being literally big thermos jugs mounted on standard truck axles.

The containers, each with a capacity of over two tons of molten magnesium, have both an inner and an outer shell of sheet steel. The five-Inch air space between is packed with insulating material. The cars are three feet deep, five feet eight inches wide, and seven feet ten inches long.

Also included in the improvement program is an addition to the hospital, to cost between \$50,000 and \$60,000. The present wing will be extended to provide 12 private rooms and 14 ward beds. Facilities in the maternity section also will be improved.

The company is producing over 150 tons of metallic magnesium daily at the Henderson plant and orders on hand are said to be sufficient to keep the plant in full production for the next nine months.

The company's research department, under the direction of Charles H. Mahoney, chief metallurgist, is devoting its time to developing new uses for magnesium metal and its alloys.

JA JUARY 26 1960 **BMI** Orders

Indicate No Shutdown

MINNEMUCCA, NEW STAR D STATE

Commenting on newspaper reports to the effect that light metals plants in the west would soon shut down, F. O. Case, BMI general manager, declared Monday in a plant-wide bulletin that "the outlook for continued production here at BMI is much brighter than it was a month ago. He added: "Orders on hand are sufficient to keep this plant in full operation the next nine months."

The bulletin also pointed out that within the last 30 days D.F.C. approved new expenditures for construction and changes here totaling \$217,000, as follows:

Hot metal transport \$108,000; hospital addition \$60,000; Carver Park stores \$49,000.

That doesn't make things look like a shutdown, does it?-BMI Bombardier.

RENO NEV CAZETTE FEBRUARY 26 1944

In an extension of romarks in the Congressional Record of Feb-ruary 18, Rep. Maurice Sullivan, whose term expires this year, spoke glowingly of the possibilities for Basic Magnesium in the postwar period. The congressman said "Indications are that magnesium will be in great demand for manufacture of household appliances. automatic equipment, aircraft. lightweight streamlined railroad cars, plumbing fixtures, furniture and other items requiring a light. strong and durable metal."

The congressman added that BMI broke all production records January 30 when it operated at 111 per cent of its rated capacity. The Clark county plant is now reported to be producing one-fourth of all

the magnesium now being turned out in the United States.

The BMI project has long received kind attention from all Democratic officeholders, both Serators McCarran and Scrugham courting the favor of BMI and the voters which the project has brought into Clark county.

The plant is reported to have on file sufficient orders to keep it operating through this year. Any shutdown, partial or whole of BMI. through changes in the progress of the war, would probably have a serious effect on Democratic strength in Clark county.

AL WALL STREET YOURNAL

FEBRUARY 28, 1944

Basic Magnesium Shatters vocational school will be used World Production Records

LAS VEGAS, Nev-All world records for daily and weekly production of magnesium by a Plans regarding a building for single plant were broken in February by Basic the school have not been com- Magnesium. Inc., world's largest magnesium pleted yet, but it is expected that plant,

February averages showed a material increase over the January record which reached a lem must be solved, and the ma- daily average of 105% of rated capacity with a chinery needed for the school high day of 111%. One-fourth of the magnesium must be bought after priorities produced in the U.S. now is obtained at Basic Magnesium.

Production costs per pound have shown a the vocation school culminates steady decrease with the present costs less than several years of planning for the one-half what they were in December, 1942. establishment of such an institu- Present costs are even below the January, 1944. tion in southern Nevada. The pro- cost factor.

An increased percentage of this output is feed an opportunity to many flowing into commercial structure alloys, prinmediately into indiffer while ob a cipally for the production of defense aircraft upon their graduation. In addi and automotive equipment. There is a corretion, industrial workers will be sponding decrease of total production for purely shie to improve their skills under warting demand for manufacture of incendiary instructors, thus affording then surface demand for manufacture of in opportunities for advancement

WAR CLASSES ARE HELD AT LAS VEGAS AND GABBS

Carpenter.

Two classes in the United States seevateen weeks. Upon compleoffice of education's engineering and science management for war training were begun during January at the Basic Magnesium in- all employes at no cost, dustry plants at Las Vegas and The first class to complete the Gabbs valley, Dr. S. W. Liefson, training was a group of metallurgy SMIWT representative, announced trainees, who were awarded

REND NEV, GAZETTE

FEBRUARY 26, 1944

The courses, designed to train nen and women employes at the expressed a desire to continue the lant in certain phases of work courses for the duration. They and make them better prepared declared that the classes furnish inspiration to the adult students for advancement, are sponsored by who discover new facts on the the office of education and are dustry in which they are en under the supervision of the Uni- ployed. The workers who atte versity of Nevada, Dr. Leifson is the classes become more valuable the university faculty member in to the company and have greater charge of the adult training pro- opportunities for advancement gram.

Instructors for the courses are gun at the Las Vegas plant since from the plant and are paid by the national office of education. The classes are inspected by Dr. enrollment of thirty-five; a metal-The classes are inspected by Dr. Leifson, Dean Stanley Palmer and December 5, with an enrollment

Courses in metallurgy, chemis- of eighteen; a fundamentals of try, electricity and metallurgy of magnesium are being conducted at the Las Vegas plant. A course in electricity was inaugu-rated January 12 with an enrolluary 24 at the Gabbs BMI plant. ment of fifty-two men and women A foreman's training course has also been instituted at the Las Vegas plant.

The class room sessions consist of recitations, laboratory work and lectures by the instructor who usually has had extensive college and practical training in the subject he teaches, Classes flor the workers are usually held at night and meet twice a week for an average of

> Las Vegas Tribune 2-27-44

Sullivan Talks

Magnesium Plant

WASHINGTON, Feb. 26 .- (P)

The Basic Magnesium plant at

Henderson, Nev., may be expected

About Basic

House recently.

durable metal.

per cent.

Advised that the war pro-

tto "take a large place in indus-try after the war", Representa-tive Sullivan (D-Nev.) told the Reprinting in the Congressionduction board was preparing an al Record, a story from the Pi-oche (Nev.) Record, Sullivan said down of the plant, Senator Mc down of the plant, Senator Mcthat the \$140,000,000 plant Carran called his committee to-would, if placed in such a city as gether Saturday morning, with Los Angeles or San Francisco, "cover an entire business area, approximately 12 to 25 city poration, Reconstruction Finance Corporation, and war production "When peace returns," he said, board, and discovered the latter Basic Magnesium, Inc., is expect- agency had already ordered a ed to take a large place in in- man to Las Vegas to confer with dustry. Indications are that mag- plant officials with regard to a nesium will be in great demand for manufacture of portable household appliances, automatic Reason Given

present time.

NEWS PILOT, SAN PEDRO, CAL. Gr. 10,646 EEBBUARY 28, 1944 New Mark Set by

During the course of the hear-ing. Senator McCarran brought out the fact that WPB did not Basic Magnesium LAS VEGAS New (29) - A new world's production record is claimed by Basic Magnesium, Inc., for January, 1944, as daily average out-mut reached 105 per cont. of rated plan to cut production at any of the Dow Magnesium plants that there was no intent to cut the aluminum plants in southern California despite the large surput reached 105 per cent of rated plus of that metal; and that the capacity, with a peak day of 111 power saved here could not be transmitted to California be-



tificates October 20, 1943 by Dean

Officials of the BMI plant have

The following classes have beclass, started October 25, with an

L.V.R. Journal 2-28-44

Plan to Curtail BMI Production **Said Forestalled**

Senator Pat McCarran "Smokes Out" WPB Move Today

A plan to cut production at BMI by forty per cent, which would mean shutting down four of the ten units at the magnesium plant, was "smoked out" and forestall-ed, at least for the present, by the joint congressional committee for protection of western industries of which Sena-tor Pat McCarran of Nevada is chairman, it was learned here this morning.

Reason Given

equipment, aircraft, lightweight Reason given was an over-streamlined railroad cars, plumb- supply of magnesium and necesing fixtures, furniture and other sity for conserving the oil now items requiring a light, strong, being used to produce electrical energy through steam plants on the Pacific coast-the idea being that power now being used by BMI could be transferred to southern California to replace that generated by steam.

> cause the transmission lines are carrying capacity load at the

He also established the fact that BMI is the one industry in the country that can compete with Dow Chemical in the post-(Continued on Page Two) -

BMI Production Said Forstalled

(Continued from Page Ghe) war period-that Defense Plants Corporation, under whose jurisdiction it operates is anxious keep it running at capacity and that the department of Interior has no intention of allowing BMI to abrogate the contract it now holds for the use of Boulder dam power in capacity production.

Evidence Given

Evidence was presented before the committee to show also that Secretary Ickes, as petroleum administrator for war, will not cut the allocation of petroleum for the steam power plants in south-ern California, and has not requested a cut in use of oil for this purpose.

Following the hearing, war production board cancelled all proceedings to date and prepared to re-investigate the whole proposal starting late this week.

Senator McCarran was energetically supported in the hearing by Senator Harry Byrd of Virginia and Senator Harley M. Kilgore of West Virginia.

Following the hearing, the Ne-vada senator declared: "it is very plainly an attempt to foster complete manopoly of the magnesium industry by Dow Chemical Company, and I propose to attack from every angle.

"We have the support of the interior department, Defense Plants Corporation and bureau of reclamation, and I believe have a good chance to keep BMI operating at full capacity."

The senator vigorously criticized the apparent intention of the War Production Board to keep all the high cost magnesium plants in operation while seeking to curtail the only plant that has a chance to compete with Dow Chemical after the war,

6 CAL CHRONICLE FEBRUARY 20, 1945

Magnesium Plant BreaksTonnage Record

LAS VEGAS, Nev. Feb. 27-Basic Magnesium, Inc., the world's largest magnesium plant, has broken all production records for daily and weekly tonnage during February, officials of the local plant announced today. January showed a daily average of 105 per cent of rated capacity, and the month just closing has topped that mark. With the increase in production here, a larger percentage of magnesium is being released for civilian uses, 15 was announced.

> DS ANGRES, CALIR, TIMES, ER ESDAUARY 25, 1944



New world records of magnesium production have been set by Basic Magnesium, Inc. at Las Vegas, Nev., the company reported yesterday. B.M.I. now produces one-

fourth of this nation's entire magnesium supply. Its January record reached a daily average of 105 per cent of rated capacity, with a high day of 111 per cent. February averages show material increases.

3 7. CALIF, EXALQUER -Daily 173,071 Junday 485,285 FESTUARY 29, 1344

New Magnesium Record LAS VEGAS (New.), Feb. 28 .-(AP)-A new world's production record is claimed by Basic Magnesium, Inc., for January, 1944. Daily average output reached 105 per cent of rated capacity, the company declared yesterday.

L.V. Review Journal July 13, 1943

WPB Official Pays Tribute To Workers At BMI Plant

Gordon W. Reed, assistant di-rector of the aluminum and mag-nesium division of the WPB, in Washington, D. C., last night paid high tribute to the workers of the Basic plant and to the crew of the Memphis Belle when he spoke on the program at the BMI ball park.

Reed said: 'Way back in 1941 ments completely lose their con-we in the aluminum-magnesium trol of the fires. we in the aluminum-magnesium division of the war production board despaired of ever having enough magnesium for this war for aircraft, traccr bullets and incendiary bombs. Month after month we were forced to ask the air corps to eliminate some bubble. air corps to eliminate some highly of magnesium incendiaries. When desirable uses of magnesium you read in the papers that 2,000 desirable uses of magnesium tons of bombs were dropped on aircraft) and go back to alum-inum, a heavier metal, for this pretty well assume that well over half the weight was magnesium purpose.

to the furnaces. Even with the few bombers England then had in 1941 we sion of the WPB take this opporcould not furnish enough mag-nesium for any first class offen-sive operations. I might add that what sold England on the value cent plant.

struction they caused in London when dropped by the Germans in 1940. In 1942 we had a small increase in magnesium production so that we could keep up with the direct aircraft needs with an occasional small dividend for incendiary bombs which were promptly delivered to Germany

We oftentimes consulted our progress charts to compare the entire need for magnesium with the construction progress of this

Starting production late in 1942 Basic Magnesium has now achieved its objective and is turning out the metal in the enormous quantities demanded by the various needs of war.

We are now entering the stage of full fledged aerial warfare against Germany in particular. Many of you have a natural curiosity as to the use and destructiveness of the metal you produce. You can obtain an excellent visualization of its effects as used in city bombing by looking at the aerial photo in this week's "Life" magazine of the destruc-tion visited upon Dusseldorf, Germany. If you examine this startling photograph under a magnifying glass you will see hundreds of buildings-mainly homes-with roofs burnt off, rendering

ously that the local fire depart-

purpose.
We had no stock pile of magnesium in those days and as a consequence were wide open to disaster should sabotage or storm even temporarily curtail production. I recall in the fall of 1944 a guif coast hurricane swept into freeport, Texas, where 75 per cent of our magnesium production was then located, and the rising of Guif of Mexico water level shut everything down except the reduction furnaces and came within a foot or two of doing that. We estimated at the time that we would have lost one or two months' alreraft production if the water had risen that extra foot and caused incalculable damage.
Even with the few bombers incendiaries and that a goodly

L.V. Review Journal Place Of BMI In by way of England.

Aviation Industry magnificent plant in Las Vegas.

Is Being Studied The role of Basic Magnesium's Las Vegas plant in the aviation industry, has been the subject of continued study and conferences during the past several days be-tween officials of BMI and metal-

84

lurgists and engineers of North and Lockheed Aircraft companies, it was revealed this morning by F. O. Case, general manager, Representing Northrup was T. E. Piper, chief metallurgist. Here for Lockheed were L. T. Kantner, research engineer, and Dr. V. N. Krivobock, chief metallurgist.

July 13, 1943

All three expressed themselves as very much impressed with the potentialities of magnesium in the aircraft industry, pointing out that the alloys made from this metal have a much higher rigidity than steel or aluminum and that at low temperatures, physical properties of magnesium alloys



Two Significant Events

Two significant events were observed at Basic Magnesium this week.

One was accompanied by parades, public meetings, speeches and entertainment. The other was merely an incident in the day's work so far as ballyhoo was concerned, and yet it was of equal and vital importance,

One was the complement of the other-the second was the result of first having been achieved. The first, for nearly two years, has been a goal toward which all parties concerned were constantly driving. The second has taken shape only recently, and today is as much of a dream as the first was two years ago now when rumblings of its impending advent on the scene were

just beginning to be heard. The first was the public celebration attending Basic Magnesium's going into FULL production-a goal that seemed a long way off when the plant was originally launched, and at times during the construction period seemed a lot further away.

The celebration was made many times more im-

pressive by the presence of an American bombing crew that had been engaged successfully in dropping a lot of magnesium on continental Europe in the shape of destroying bombs-men who, with becoming modesty, characterized themselves as "merely truck-drivers, delivering YOUR product to its scheduled destination."

It was an epochal occasion for southern Nevada, for Basic Magnesium, Inc., for the nation and for the war effort. Immediately important, because it meant that from now on there would be no shortage in this vital metal. Of long range significance because it serves notice on industry generally that here is being produced a plentiful supply of a new (to this country) material which has so many advantages in most light metal construction.

It would be overlooking an achievement of the first magnitude if it were not stated in this connection that BMI has done a TREMENDOUS job in the days that have followed Anaconda's advent into the picture. General Manager Frank Case and his staff of A.C.M. engineers, BMI veterans who remained in the harness and the operating and maintenance crews have wrought a near-miracle out there on the desert, perfecting and streamlining the plant and process into step with American methods and demands, and bringing the cost of production gradually down from a prohibitive figure to a point where it is now confidently expected to be competitively sound in the post-war world.

Recognition of this achievement and its significance to industry in general is contained in the second event observed this week: the appearance here in conference with BMI officials of three of aviation's top-notch engineers and metallurgists to discuss the possibilities of using magnesium from the local plant in the manufacture of airplanes.

This is a natural step in the evolution of the local industry, of course, but it's most gratifying to see it under way. For BMI's place in the future of industrial development of this country depends entirely on putting its product to beneficial usage on a large scale, and fitting into the post-war picture on a competitive basis.

The first goal has been achieved. BMI is in full production. The second goal is attractively before us, but at present, a long way off. However-there are more serious obstacles in the way of achieving this second goal than piled up in the way of the first. BMI successfully surmounted these hurdles. BMI will successfully surmount those remaining in the way of postwar permanence.

MINING JR'L PHOENIX ARIZ. 7/15/43

CAPACITY OUTPUT OF WAR METAL STARTED BY BASIC MAGNESIUM

L. V. Review Journel July 17, 43

Blanket Insurance Group Insurance Plan at BMI Told

Adoption of a blanket insurance program for all operating employees of Basic Magnesium Incorporated, was announced this morning by J. R. Hobbins, BMI president.

The program is designed to provide surgical, hospital and death benefits for all contingencies not covered by state indus-trial insurance, and will be open to some 5,900 BMI employees, General Manager F. O. Case explained. The company has paid the first month's premium for its entire operating personnel, and will participate with the employees in premium payments throughout the life of the policy to the extent of approximately \$100,000 a year.

Permanent adoption of the plan depends upon its acceptance by 75 per cent of the workers, Case explained, and it is expected this approval will be forthcoming during the month.

LACRAMENTO, CAL, UNION SULY 10 1940

Gabbs Valley Shins Quantity of Brucite

RENO - Mining brucite at Gabbs Valley from deposits that are said to be the most important ever developed in the United States, the Basic Refrac-tories, Inc., of which Basic Mag-nesium, Inc., was formerly a subsidiary, continues regular shipments, reported to average around 150 tons per day, to its plant at Maple Grove, Ohio, The processed product is used for fire brick, furnace lining and other refractories. The company lately paid a 20-cent dividend. /



In Short . . . Maarred At Lake Arrowhead, who sign up for it will partici-tailf and actress Janet Blair and pate. Those who signed for the Louis Bush of Louisville, Ky. Opened: The Government's \$130,- required to take physical exam-

Sued for divorce: By Madge Bel-lamy of the silent screen, Albert Stanwood Murphy, at Las Vegas, Nev. Returned; From an inspection tour Returned: From an inspection tour of temporary possessions in the Phil-

ippines, Burma and Malaya, Japan's premier Gen. Hideki Tojo.

Recovering: After a record fall at Fort Benning, Ga., Pvt. Blaine D. Hall whose parachute failed to open 700 feet above the ground.

L.V. Review Journal July 30, 1943 Plan Okehed for **BMI Workmen**

More Than 75% of **Employes** Sign For Plan

The new group insurance plan for employes at the Basic Magnesium, Inc., plant went into effect at noon today, after more than 75 per cent of the employes at the plant had signed up to participate.

All those working for the company who signed for the policies will be covered for life insurance, weekly sickness and accident benefits, hospital expenses and surgical operation insurance, and for all sickness and injuries not covered by the compensation act, it was pointed out. The state compensation act covers accidents on the job, but the insurance will cover accidents off duty and all signed up to participate. To Family

The group plan, selected from 13 submitted proposals to the BMI, also extends to all members of the worker's immediate family for daily hospital expenses only. The average weekly premium will be less than one dollar per week for each worker at plant, it was learned today. However, the premium and compen-sation vary with the income of the worker. Payroll deductions for insurance payments will be made by the company.

BMI, acting on the request of a group of employes, started negotiations several months ago to offer a group insurance plan for the workers. The selection of the insurance company was made after a long study of various plans. The insurance company required at at least 75 per cent of all workers sign up before it. would go into effect. This was accomplished today. The em-ployes have fostered the insurance idea and have pushed the plan to success, officials said to-

Not Compulsory

day.

The employe will pay approximately two-thirds and the company one-third of the, worker's premium on the policy. The plan is not compulsory and only those 000,000 basic magnesium plant at Las inations for the policy. For a lim-Vegas, Nev., its output expected to be ited period, workers still will be three times greater than that of all able to subscribe to the policy

other similar plants in the world. Died: In Manhattan, famed oldtime stage and screen actress Cecilia (Cis-sie) Loftus, at the age of 67. Sued for divorce: By Madge Bel-lany, of the silent strang. Albert

July 31, 1943 **BMI Plant Now Is**

L.V. Review Journal

In Full Operation

Basic Magnesium, Inc., went into 100 per cent production at 10 o'clock this morning when the switch on the last cell in plant unit number 10 was turned on. Officials of the company and t few invited guests gathered in the plant for a short ceremony, which marked the beginning of full and complete operation of the plant. Just 11 months have elapsed since the first unit was put into production. It was August 31, 1942, that the first metal was produced at the plant. Since that time, at the rate of one plant unit per month, the big defense plant has added to its production facilities.

Plant unit number 10 has been in operation for some time, but today marked the beginning of full operation of that plant.

winter. If a city is uninhabitable

JULY 13, 1043 F PITTSBUNG, MS. SUN

VI

EULL OPERATION.

La Vegas, Nev., July 12-(P)-The government's \$130,000,000 Basic Magnetium, Inc., plant went into full production today and spokesmen said its output of the vital war material will be three and a half times greater than that of all the world's other similar factories combined. Placing of the final unit in. operation was the occasion for a day-long celebration.

WMONED MOW IT FRELS.

do not change as do those of other metals.

They declared magnesium has a "big future" in aviation, stating that up to the present time the difficulty in getting standard castings throughout the industry has retarded this development. They felt BMI might solve this problem because of the magniude of the plant and experiments already made in this direction.

The experts were amazed at the testing laboratory now near-ing completion at BMI and said they were impressed with the possibility of getting outstanding results in developing the use of magnesium therefrom.

"They pledged complete co-operation of their vast organizations in working out the problems attending the adoption of magnesium as a base material for air-plane construction, and through working with them, we expect to make rapid strides in this direction," Case commented.

THE tenth and last unit of the Basic A Magnesium, Inc., metal plant at Las Vegas, Nevada, was put into operation June 26, 1943. Rated metal capacity of the plant is 150 tons daily, but production is reported to be exceeding that figure. The first metal was poured on August 31, 1942, less than a year after construction contracts were signed.

F. O. Case, 720 South Seventh Street, Las Vegas, is general manager, assisted by H. G. Satterthwalte and Gurnsey Frazer. The staff at the Las Vegas plant also includes J. Ray Coulter, production superintendent; B. D. Harden, reduction superintendent; J. M. Casteras, refineries super-intendent; and S. W. Stockdale, chlorine and caustic superintendent.

Mill feed for the Las Vegas plant is supplied from the Basic Magnesium mines and calcining plant at Gabbs, Nevada, about 300 miles away. The whole project was started in mid-1941. Production was started within a year and capacity pro-duction was reached in less than two years. Besides the mine, mill, and metal plant, two complete towns have been built to accommodate the thousands of workers at Gabbs and Las Vegas.

Arrested: In New York City by the F.B.I., two draft violators who escaped induction by misfiling their own, cards while serving as Selective Service registrars in 1940.

manufacture of manufactures

INVASUAL SMILLING MULTING MULTING



THE STORY OF BASIC MAGNESIUM, INC. IN PICTURES

Plantsite of the world's largest magnesium plant, Basic Magnesium, Inc., near Las Vegas, Nevada. The entire project was constructed in less than two years, but required more than 28 million man-hours of labor. Basic Magnesium claims to be the largest refractory brick job in the world, the largest sheet metal job ever undertaken, the largest plumbing installation in the history of the industry, and the largest electrical installation in the world. Basic Magnesium is said to have required an investment of \$150,000,000, funds being provided by Defense Plant Corporation. In October 1942, Anaconda Copper Mining Company purchased the controlling interest in BMI and took over the management of the company. Under the direction of F. O. Case, general manager, and H. G. Satterthwaite, general superintendent, the project was rushed to completion. Already production is well above rated capacity.



(Above)—Crude magnesite for the project is mined at Gabbs, Nevada. Here are two of the 20-ton ore trucks doing business at the primary cone crusher which takes an entire truckload at one gulp. From the primary crusher the ore is carried to the mill by conveyors. (Below)—Magnesite concentrates, calcined magnesite, coal, and peat moss are mixed in a dry state, then magnesium chloride solution is added. From this mixture cakes of magnesium are extruded, cut in slabs, and passed through gigantic drying kilns. Here are the cakes of raw material after they have passed through the kilns.



(Above)—This is the mill at Gabbs, the structure at the right housing flotation equipment and primary driers. In the sevenstory building in the center, a battery of roasters, building high, calcine the magnesium oxide. The "silos" at the left store the processed oxide prior to shipment to Las Vegas. The Gabbs plant produces 400 tons of calcined product daily. (Below)—To make magnesium BMI must first produce chlorine. This is done by the electrolysis of brine. Basic's chlorine plant comprises 900 Hooker-type cells, a portion of which are shown in the picture. Caustic soda is a by-product.





THE MINING JOURNAL for JANUARY 15, 1944

Page 6

STOCKS AND PRODUCTION OF SLAB ZINC REACH NEW HIGHS

WITH the lifting of censorship on metal production figures, the American Zinc Institute has resumed its reports to industry. The current release brings the records up-to-date since it contains not only the latest, but also the past figures issued. during the censorship, as well as yearly averages starting with 1929.

According to the table issued, stocks of slab zinc of all grades at the end of November 1943 were the greatest reported at any time and totaled 159,853 tons. This is in marked contrast to the situation at the beginning of 1941 and again in June of 1942 when total stocks were 17,582 tons and 18,447 tons, respectively. The tabulation of unfilled orders also shows the altered position of the zinc supplies with only 42,151 tons of unfilled orders at the end of November, compared with a high of 125,132 tons at the end of 1940 and 110,552 tons in January 1942.

Commencing with 1940, the accompanying table includes the production from

foreign ores. Thus the report reflects the total output of slab zinc of all grades, as reported by all producers represented in the membership of the American Zinc Institute

FIGURES ON COPPER OUTPUT AND CONSUMPTION RELEASED

STIMATES based on statistics released E by the United States Copper Association indicate that the copper consumption in 1943 will treble that of 1938 while domestic production of refined copper will almost double the output of that year. Refined production for the first 11 months of 1943 amounted to 1,102,227 tons (of 2,000 pounds each), and for the entire year, with December production estimated, the output will top 1,200,000 tons by a comfortable margin.

In 1938, refined production was reported at 638,076 tons. In 1940 it crossed the million-ton mark, reaching 1,033,710 tons. In 1941 a slight increase to 1,065,-667 was made. The rate of increase was accelerated in 1942 to attain a total output of 1,135,708 tons.

TOTAL		ALCONOM	the second s	the second s	and the second s	and the second se
IUIAL	SLAB	ZINC	SMELTER (Tons of	OUTPUT (ALI 2,000 Pounds)	L GRADES)	1929-1943

Stock	kat -		SHIPMENT	s	Unfilled	Dail Av.
1020 Begin	ning Production	Domestic	Danaha I	-	Orders End	erap
1929 46,4:	631,601	596.249	C Drawback	Tota	of Period	Proc
1930 75,43	30 504.463	436 079	0,352	602,60	1 18,585	1.73
1931	8 300,738	314 479	196	436,27	5 26,651	1.35
1932	2 213,531	210 04-	41	314,51	4 18.273	82
1933	6 324 705	210,347	170	218,51	7 8,478	50
1934	0 966 099	343,762	239	344.00	1 15 978	001
1935	5 491 400	852,515	148	352.66	3 30.796	1 00
1936 88 75	9 401,499	465,687	59	465 74	51 100	1,004
1937 44.05	5 523,166	561,969		561 96	0 70 000	1,182
1938 65 99	0 589,619	569,241	And and and a	569 21	18,626	1,429
1929 196 76	3 456,990	395,554	20	205 55	48,339	1,615
1040 20,76	9 538,198	598,972	20	500,004	40,829	1,252
1041 14,26	2 706,100	674,615	88 165	098,912	53,751	1,475
1341 17,58	2 863,955	751.276	106 105	162,180	125,132	1,929
1942	a de la d	in the second	100,135	857,471	87,666	2,367
Jan ar oa						
Fab 22,000	79,417	67.382	12 166	70 - 10		
Max 23,93	73,579	60,070	14 819	79,048	110,552	2,562
Mar 22,626	79,187	61.612	18 400	74,888	109,260	2,628
Apr 21,702	77,170	63 955	10,939	80,111	103,297	2,554
May 22,559	79,545	67 211	12,358	76,313	98,885	2.572
June 18,447	75,124	56 800	16,346	83,657	84,809	2,566
July 27,554	76.441	50,892	9,125	66,017	80,104	2.504
Aug 32,586	77.009	59,250	12,159	71.409	65.518	9 400
Sept 36,652	74 995	57,822	15,114	72,936	58 972	2,400
Oct 50.047	77,000	51,461	9,429	60,890	49 280	2,484
Nov. 55 405	11,990	61,263	11,369	72,632	46,000	2,476
Dec. 65 240	77,171	57,481	9,846	67 397	40,082	2,516
	82,859	69,419	10,421	79 840	40,989	2,572
Total				10,040	02,752	2,673
A O CAI	929,770	733,918	151 650	ODE FOR		
Monthly average	77 101			000,008		
and an erage	11,481	61,160	12,637	73 797	Dath Am	-
1943				10,101	Dany Average	2,547
Jan 89,458	88 870	60.000				
Feb	76 667	66,925	10,296	77.221	69 426	0 705
Mar 98.012	20,007	66,552	8,210	74,762	66 920	2,705
Apr. 105 766	00,101	66,111	9,922	76.033	62 870	2,138
May 108 042	81,057	73,131	5,650	78,781	60.000	2,703
June 111 015	82,399	75,225	4.201	79 426	60,250	2,702
Inly 115 con	78,865	68,271	5,920	74 101	60,212	2,658
Ang 105 100	80,249	67,549	3,229	70 770	07,879	2,629
Sant 120,160	79,736	68,953	2 857	71,010	51,819	2,589
Jept	79,361	68,180	980	60,120	49,617	2,572
Joe	83,066	69.845	2 101	09,160	49,147	2,645
vov154,407	80,579	73 364	1 700	71,946	41,532	2.680
		10,004	1,109	75,133	42.151	2000

THE MINING JOURNAL for JANUARY 15, 1944

The highest monthly rate m into was recorded in July when production totaled 105,589 tons. During August, September and October, three successive declines occurred, bringing the October total down to 97,274 tons. The trend was reversed in November when a production of 102,136

tons was reported. Publication of these production figures has been made possible through recent action by WPB and the Office of Censorship in lifting a ban which had been in effect since the start of the war. The action was taken since knowledge of these figures no longer "offers comfort to the enemy," but will be of assistance to industry in making plans for the future.

The Copper Associates also has released figures on net domestic consumption which, of course, is running considerably in excess of production, the difference ing made up through imports. For the first 10 months of 1943, consumption taled 1,437,769 tons for a monthly average of 143,777 tons. The annual total is estimated at 1,700,000 tons. These figures compare with a 1938 total consumption of 526,743 tons, and a 1942 rate of 1,517,983 tons.

Comparison of production and consump-tion totals, states the organization, gives only an incomplete picture of the current. situation since no complete import and inventory figures are as yet available. Industry stocks, including those in hands of consumers, were estimated at 410,000 tons. However, it is pointed out, no true inventory picture can be given without knowledge of copper in government stock-piles and stocks in fabricators' hands, particularly in semi-finished forms.

ARMY DEMANDS MAINTENANCE OF SIX-MONTH COPPER RESERVE

WASHINGTON officials report that the army has insisted that a six-month stockpile of copper must be maintained as a safeguard against adverse developments in the submarine warfare. Any substantial increase in the submarine menace, it is stated, might jeopardize the supply routes over which copper requirements are shipped from South America. It is pointed out that the six-month minimum requirement specified by the army represents a considerable reduction from the two years' supply originally demanded by army of-

The present stockpile, according to WPB officials, amounts to only one month's supply, and if consumption continues at the present rate it will take until the end of the year to build up the desired six-month emergency reserve. Therefore, it is deemed likely that allocation of copper for civilian use will continue to be scanty throughout the year, despite the general easing up of copper, steel, aluminum, and other metals.

Although the cut-backs in small arms nmunition programs, and in other lines of war production in which copper is used, have served to ease the copper situation considerably, the reductions have been largely offset by stockpile requirements of the army and by the expanded demand for copper wire.

Page 5

Waters of the Colorado River, harnessed by Boulder Dam, furnish the electric en-ergy for Basic Magnesium, Inc. Two transergy for Basic Magnesium, Inc. Two trans-mission lines with a capacity of 230,000 volts each extend from the dam to the plant, 15 miles away. This forest of steel is the electrical "switchboard" of the plant. In all, more than 100 miles of copper cable weighing approximately 520 tons were strung; 178 steel towers erected; 70 sub-stations constructed and massive 110-ton transformers installed. The main electrical distribution tunnel is almost a mile long distribution tunnel is almost a mile long and 14 feet wide. It houses the electrical cables which shunt off in subtunnels to the various production units. Insurance against work stoppage because of power failures was the construction of two trans-mission lines, one of which is maintained as a stand-by. First electric power on the project was turned on May 17, 1942, when the plant and townsite water system went into operation, pumping water system what Lake Mead intake station to the two 15,-000,000 gallon reservoirs. More than \$23,-000,000 worth of U. S. Treasury silver was drafted for Basic Magnesium, Inc., to replace copper as electric bus bars.

OTHING ANTZ. MINING JOURNAL ANUARY 15, 1959



(Above)-This picture shows one of the chlorinators being charged. The pellets of raw material fall into great electric furnaces where chlorine gas is introduced and the magnesium oxide is transformed into magnesium chloride, then transported to the electrolytic cells, 880 of them, where metallic magnesium is recovered by means of electro-chemical action. (Below)—This ingot pouring machine receives the crucibles full of hot metal, tips automatically, and keeps the outpoured magnesium alloy flow-ing steady into moving molds. At the end they drop into bins— a finished product, ready for manufacture into implements of war.



THE MINING JOURNAL for JANUARY 15, 1944



(Above)-Various alloys are made at the BMI refineries--for incendiary bombs, sheet magnesium, airplane parts, tracer bullets, and flares. This crucible, freighted with two tons of white-hot magnesium alloy, has just been lifted from the gas furnace and is being lowered into a cooler before being transported to the is being lowered into a cooler before being transported to the ingot pouring machine. (Below)—F. O. Case, general manager of BMI, presents an incendiary bomb made of Basic metal to Major Robert Morgan, pilot of the famed Memphis Belle, the flying fortress which made 25 trips over Germany. Major Mor-gan told BMI workers: "O. K. You made it and we'll deliver it."

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W. H. HAUSER* answers the question

Why Has War Production Drc

RECENT articles stassing the let-down in production of war materials throughout the United States appear to place the cause of this production decline on overconfidence. If one wished to arrive at the true reason for our production drop, and were not afraid to face the facts as disclosed by a careful analysis of the situation, he would find that our production failures are due entirely to three factors:

1. Red tape and failure of government officials to differentiate between a war worker and a non-essential.

2. The harassing of industry by bureaus and investigators.

Disruption of transportation for war workers and war production necessities.

A good example of how the first factor caused a production decline in mining is the following case. A miner, hauling much-needed manganese from a small operation, blew out a tire. He left his loaded truck standing and went to the board for a replacement. He was informed smilingly that the quota was out and he would have to wait his turn. The miner looked astonished and then remarked to a bystander: "I guess the country doesn t need manganese as badly as I thought. I can't leave my loaded truck on the highway and make expenses, so I'll have to dump the ore. I believe I'll close down the mine."

The above case is only one of many. It does not apply only to tires, but to any product necessary for the economical and efficient operation of a mine, industrial plant, plane factory, or shipyard. Even when all requirements for priorities have been fulfilled at an enormous time and money waste, no emergency plan has been developed to help the operator on war necessities.

The second factor interfering with war production is the constant harassing of industry by bureaus and investigators. Since this article is prepared especially for mining men, the references naturally will pertain to the mining industry. However, almost every industry engaged in actual war work has from one to a dozen incompetent investigators checking into its processes and operations. Practically all of the large operators are afraid of public opinion or government regulations, so dare not object to the continued interference to which they are subjected.

One large operator stated that there was no way of telling how much a sabotage agent had cost his operation in money, time, and efficiency. This agent had taken hours of the president's time, employes' time, and thoroughly disrupted the entire organization with his continual persecution. When he had finished, the plant was in worse shape for accidents and possible de-

*Globe, Arizona

Page 8

The blame for lessened war production should be placed where it belongs, not on overconfidence, but on mismanagement in many phases of our war effort and on our failure to differentiate between what is essential and what is nonessential.

lays than before. The company dared not say anything, but had to take its whipping with a smile.

Another disturbance created by bureau red tape is the quantity of questionnaires which must be filed monthly with Washington. If the company fails to do this, is threatened with disloyalty, with loss it of its priority, or other dire consequences. Many of the inspectors cause no friction, although most of them are unfamiliar with the operation they are inspecting. The filing of forms, waste of time discussing various phases of work unfamiliar to the inspector-and thus we have loss of time for already overworked personnel and nice sabotage for efficient operation.

THE third factor disturbing industrial output is probably the most serious. A war worker or employe of a war industry must spend the same time to acquire gas cards and other needed supplies as a non-essential worker or loafer. After a busy day the war worker must line up and wait his turn for gas cards along with the pleasure rider. He must go through the wait and delay for a tire, a tool, or other implement essential for efficient and cooperative operation.

Most small mines are situated many miles from towns and main roads. Machinery, food, supplies, repairs, and fuel must be transported to the job for distances varying from 10 to 40 miles, over rough mining roads. In most of the mining areas, buses have been taken from the highways, trucks have been utilized for other freight hauls, and private cars have been curtailed by gas rationing. The miner, therefore, must buy the necessary automobiles, or find some other means of transportation which usually is more costly than it has been in the past. But, when the miner tries to buy a truck or car, he finds he is again handicapped by priorities and red tape. He must wait the usual time that any nonessential worker has to wait, and he must conform to the same routine. It is necessary that he go through numerous boards before he can get the needed transportation. Some boards are intelligent in their handling of the problems, but that statement might be questioned if applied to other boards. -

During all this delay, critical copper ore, manganese, lead, zinc, and tin ore stay in the ground where they were discovered. And our soldiers at .he front lack the equipment with which to do the job for which they are giving their lives.

A miner stood on the street watching a Packard car go by. It was filled with children and driven by a woman. He remarked, "See those new tires? They are war tires, but I am waiting for tires for a truck I need to haul supplies to camp."

The mismanagement of food supplies for the small miner must be included in the factors retarding the war effort. The small miner gets to town only once a week, or every two weeks; some less frequently. On these trips he must buy enough food to take care of his workers for the period they are in camp. Food rationing has made this so difficult that additional trips have to be made, thus increasing the cost of the operation about 25 per cent and adding another transportation problem.

If the three main factors, red tape, bureau officialism, and faulty transportation, were eliminated from their dominating position in industry, and the individuals participating in industry baiting were put to work as active workers, all production would have a most decided increase, possibly an astonishing volume of increase. This would happen in spite of optimism and overconfidence, both of which are assets instead of liabilities, provided we do not discount the other fellow.

IDAHO BUREAU OFFERS HELP IN FINDING WAR MINERALS

THE Idaho Bureau of Mines and Geology is offering 17 pamphlets containing essential information for prospectors and others interested in the search for war minerals. Joseph Newton, professor of the Idaho School of Mines and metallurgist of the bureau, has prepared 14 of the pamphlets; Lewis S. Prater, assistant metallurgist, wrote two; and A. W. Fahrenwald, dean of the school of mines and director of the bureau, contributed one.

Each leaflet contains a description of the mineral or mineral product, its use, and helpful advice for its discovery. They may be obtained by writing to the director, Idaho Bureau of Mines and Geology, University of Idaho, Moscow, for the sum of 10 cents each.

The complete series is as follows:

1. Beryllium and beryl; 2. tungsten and its ores; 3. tin; 4. mica; 5. crystalline quartz; 6. iron ores; 7. sponge iron; 8. magnesium and magnesite; 9. fluorite or fluorspar; 10. antimony; 11. black sands; 12. mercury (quicksilver); 13. phosphates; 14. refractories and insulating materials; 15. abrasives; 16. some general information (discusses importance of mineral industry, mining literature, mineral identification, assaying, marketing minerals, and other topics); 17. aluminum, alumina, bauxite, and clay.

THE MINING JOURNAL for JANUARY 15, 1944

FEBRUARY 10, 1944

RENO NEV. LOUDINA

WIRNINGCON NIN. STARE STATE 1858UARY 9, 1944

BMI Pours Its 100 Million Lb Magnesium

Cates Said Pleased With Progress Made At Las Vegas Plant

One hundred million pounds of magnesium, enough for 50 million incendiary fires in Berlin or Tokyo, has been produced at the Basic Magnesium plant at Henderson, Nevada, according to the report receiv. ed here. It was stated that the record was more magnesium than the total output in the United States for 27 years preceding March 1, 1942 and more magnesium of the entire world for the year of 1940.

LAS VEGAS - "Basic Magne sium is just another example of the splendid job American indusity has done all over the nation in answering the country's call (or vital war materials and metals," Lewis S. Cates, president of Phelps Dodge Copper company, said here after a trip, through the big plant with F. O. Case, general manager.

"At the start of the war there, were 35 strategic metals that were listed as critically searce. Today there is a surplus of every one of the 35," Cates said. ACHIEVEMENT

The Phelps Dodge executive paid tribute to the miraculous achievement of the Anaconda company in bringing the magnesium plant into full production and ironing out the kinks in a new industry for this country, and characterized as splendid) the manner in which Case and his associates have handled the pioneering in this field.

He expressed surprise at the growth and development of the, entire area since he was here seven years ago, declaring "it's hard to believe this is still Las Vegas."

Cates was accompanied by Harry Lavender, chief auditor for the company, and the two executives left later for Morenci, Ariz., to be present at the start of production in the new Phelps Dodge copper plant there.

CATES AMAZED AT BMI PLANT Famed Mine Head

Visits Nevada

"Basic Magnesium is another example of the splendid job American industry has done all over the nation in answering the country's call for vital war materials and metals," Louis S. Cates, president of Phelps Dodge Copper Co., said at Las Vegas after a trip through the big plant with F. O. Case, general manager.

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ADDESTO CAL BEE PEBRULARY 14 1944 Western Leaders Demand Tax On U.S. Property

CARSON CITY, Nev. Feb. 14-DP-Taxation on federally owned property by state, county and local units was demanded by representa-tives of five western states at a conference on postwar development of the West here. A demand that all plants now owned by Defense Plant Corpora-tion, be turned over to private ownership, with a guarantee of continued operation in peacetime, also was made by the conference which voted in favor of "immediate completion" of the structural units of the Geneva steel plant at Provo.

the Geneva steel plant at Provo,

tah. Charge Discrimination Inquiry into the allegedly dia-criminatory "effect on western states of federal excise taxes on transportation and communication services." also was demanded and the conference went on record as opposed to any change in the mile-age system of rate making. Use of the socalled Pittsburgh plus system for determining prices of all steel products pro-duced at the Geneva plant also was asked. was asked

Expansion of federally owned pipoperty throughout the West has resulted in the "elimination of local taxes" and has worked a deit was explained in the demand fo the right to tax such federally owned property until it is placed under private ownership after ming opened to competitive bidding

ding. Ask Management Change Westerners should be placed in charge of all properties such as Geneva steel when they are re-turned to private ownership, and such western management is de-sirable even during federal opera-tion, it was stressed.

A charge the "Geneva project was deliberately delayed by the United Strtes Steel Corporation" was denied in a telegram to the conference from B. F. Fairless, president of the corporation. The charge that "somebody was drag-zing their feet badly" in connec-tion with the completion of the Geneva plant was made by Chad Calhoun, vice president of the Kai-ser Corporation, which operates the Fontana, Callf, steel mill. In his telegram Fairless said "construction of this (Geneva) yean tasks Magnesium, Inc., plant will be forced to close when the war ends. Thus Tay, McCarvan said, the WPB has refused to con-sider fabrication plants in the Las Vegas area.

HOT-METAL TRANSPORTATION SYSTEM AT BASIC MAGNESIUM

MINING JR'L

2/15/44

PHOENIX ARIZ.

INCLUDED in newly authorized expenditures totaling \$217,000 for Basic Magnesium, Inc., is the provision for a method of transporting hot metal from the cells to the refinery crucibles at the company's Las Vegas, Nevada, plant. This will eliminate "cheeses" which now are allowed to cool and must be remelted in the refinery. The new method will require vehicles designed by BMI technicians and known as hot-metal cars. Twelve of them have been ordered at a cost of \$108,000. The program is expected to result in increased efficiency and reduced costs.

The hot-metal cars are described by BMI engineers as being literally big thermos jugs mounted on standard truck axles. The containers, each with a capacity of over two tons of molten magnesium, have both an inner and an outer shell of sheet steel. The five-inch air space between is packed with insulating material. The cars are three feet deep, five feet eight inches wide, and seven feet ten inches long.

Also included in the improvement program is an addition to the hospital, to cost between \$50,000 and \$60,000. The present wing will be extended to provide 12 private rooms and 14 ward beds. Facilities in the maternity section also will be improved.

The company is producing over 150 tons of metallic magnesium daily at the Las Vegas plant and orders on hand are said to be sufficient to keep the plant in full production for the next nine months. The company's research department, under the direction of Charles H. Mahoney, chief metallurgist, is devoting its time to developing new uses for magnesium metal and its alloys.

AN INCAL NEV REVIEW-OURNAL

The Problem of BMI

HEBAURARY IS 1914

When Senator Pat McCarran told the western industrial conference in Carson City that unless a fabrication plant is built at Basic Magnesium, the big industry will have to fold up after the war, he put his finger on the problem that has been worrying all connected with the operation almost from its inception.

When BMI was first launched on its career, Howard Eells, Jr., and his associates took it for granted a fabrication plant would be built. Their early discussions concerning future plans always included the completion of the process by which the raw metal could be properly alloyed and rolled into sheets or poured into castings ready for the use of manufacturers.

As time went on, however, less and less was heard nesium plant being strictly a war-baby. AND-there has been NO indication from anyone in authority that in a tank factory, or a builder of airplanes? a fabrication plant WILL be built.

"mere coincidence." He doesn't say it, but infers the belief it is part of a carefully-laid plan of eastern industrialists to stifle western industry again, once the industrialists to stifle western industry again, once the war-need no longer exists.

It has been contended by the newspaper for many privileges when it comes to serving on the battle-line, or in months that if BMI is to survive the war, it will be the air or on the serving necessary to beat off the attacks of eastern corporations which are NOT interested in competition from magnesium in the post-war era.

While this goes on, interest in the "miracle metal" grows apace. From all over the west coast, manufacturers, large and small, are beating a pathway to BMI to investigate the possibility of use in their particular product. They are met with the problem of fabrication, Their desire is to nurchase the finished product, it is industry after the war isn't successful.

Magnesium has arrived. It is here to stay. All attempts to stille its development will serve only to hold it back temporarily.

L.V.R. Journal 2-17-44

Editorials and Features

This page is a regular feature in the Las Vegas Evening Review-fournal and Boulder City Journal which are published evenings except Sunday in the Review-Journal Building, 113 South First Street, Las Vegas, Nevada, The Review-Journal is entered in the U.S. Postoffice it Las Vegas as second class matter. Subscription price 11.00 or month by mail or carrier. Member United Press, Associated Press, American Newsper month by mail or carrier. Member United Press, Associated Press, American News-paper Publishers Association. F. F. Garalde, Publisher Phone 6 A. E. Cahlan, Managing Editor

Yes, How Come, Anyway?

The reason selective service has functioned so satisfactorily in the United States is its fairness, its equitability, and the fact that by and large, it is without corruption or favoritism.

The general public has complete confidence that everyone is being treated the same-whether rich or poor, prominent or humble, and feels definitely that it is the only method by which the duty of service in the armed forces in a time of crisis can be equally distributed among the whole people.

When it became necessary to draft fathers, an attempt was made to set up a system under which all fathers would be deferred until all single men were taken-then to call them into service in order of the number of dependents, and in order of their essentiality in industry. This proposal was presented to congress, but defeated under administrative pressure.

While there was considerable sentiment in favor of that type of arrangement, once it was defeated there was no further argument, for everybody felt it may be the right thing, and that since all would be treated the same, it was fair.

Comes now the revelation Monday before a congressional committee, that a differentiation has been made between employes of the government and the rest of the people. A point system has been set up for federal draft registrants which determines the order in which they shall be called and decides their deferse ment status.

Everybody else is called in accordance with the order numbers established in the great national lottery at the beginning of selective service. Government employes are called in accordance with order number AND the special point system.

Points are allocated for several things-age, number of dependents, importance of work done to the war effort. A man of 30, for instance, gets 2 points for age. One of 35, 3 points and so on. Those under 30 don't get any. Two points would be given for each dependent. A man with six children, then would have 12 points. Essentiality is also rated in points-the more necessary an employe is, the more points he is assigned.

This all clears through a government board in Washington which must apply for all deferments for federal employes. Local draft boards, of course, can ignore deferment requests, but the government then can appeal and the case ultimately winds up back in Washington again, where the point system is sacrosanct

This was all told in testimony before the congressional committee. The system was conceived by War Manpower Director Paul McNutt, approved by Sam Rosenman on behalf of the White House, AFTER congress had turned down similar proposals for all fathers.

The revelation will not set well with the American people who will find it extremely difficult to understand why there should be one set of draft standards for federal employes and another for everybody else.

What's so sacred about being on the government about this vital unit-more and more about the mag- payroll? Why is a Washington bureaucrat, large or small, entitled to any more consideration than a worker

What's the difference between a father in govern-Senator McCarran declares this is MORE than a ment service and one working in a war factory? Why

Has our bureaucracy reached the stage where it is the

BASIC PLANT CAN COMPETE, MANAGER CASE TELLS ROTARY

"Under full production the magnesium plant of Basic Mag-nesium Inc. can compete with anyone, if allowed to continue to operate," F. O. Case, manager of the plant, stated yesterday at a meeting of the Boulder City Rotary club, at the Green Hut cafe.

Magnesium is being produced at approximately half the English cost of production, he said, despite the fact that the English pay much lower salaries.

Case also spoke of the remarkable safety record in the operation of the plant by the Anaconda Copper company, and the fact that the plant is now engaged in turning out war essential products at 109 per cent of the plant's intended capacity.

Praise Predecessors

Case also paid tribute to the excellent work done by Howard Eells and other officials of the original company, in getting the plant going, and to Major Ball, Englishman who was prominent in the planning of the plant and execution of the plans.

Roland Sibert, of the B. M. L. personnel department, gave a description of the workings of the plant at Gabbs, where the magnesite is mined and of the operations of the plant between Boulder City and Las Vegas. He spoke of the fact that it was remarkable that production was under way eleven months after the start of the project.

30-Ton Trucks Nsed

Showing slides as he spoke, Sibert explained transportation of the mineral to the plant from Gabbs by huge 30-ton trailer trucks, and showed the main processes in the manufacture of magnesium.

The plant, 1¼ miles long, has 27 miles of railroad, and uses raw magnesite and calcite magnesite, coal from Utah, peat moss from British Columbia, potash from various parts of the United States and salt from the Mojave desert.

Moritz Expounds Rotary Aims E. A. Moritz, director of power for Boulder Dam, as program chairman, presented an editorial on the spirit and practice of Rotary, by an Argentinian Rotary leader.

The national Rotary convention was announced for May 15 to 18, in Chicago, and Clarence Watson's appointment as director to fill out the term of Earl Brothers was announced.

A "workpile" committee for post-war planning work was announced, consisting of J. M. Higgins, A. G. Boynton, E. P. Bryant and Robert M. Rose.

Guests at the meeting were Lt, Bob Georgeson, Leonard P. Davis, Frank Case, Bill Sha, Roland Sibert of Basic, Leonard Fayle, Jim Cashman, Howard Davies and Jack Wollenzien of Las Vegas, Jack Lonergan, Don Cameron of Carson City, Omer E. Rob" and Don Speer of San Bern-

TANT LAKE CHET UTAH, TRIBUNE "SERUARY 20, 1944

Basic Magnesium

Sets New Record

Production of magnesium metal at the Las Vegas, Nev., plant of Basic Magnesium, Inc., operated for Metals Reserve company by Anaconda Copper Mining company. in January created a new monthly record.

record. January 30 was the record day of production, when 111 per cent of rated capacity of the plant was produced. On January 20, the bundred millionth pound of magnesium metal was poured by the day shift.

Las Vegas AGE 2-20-44

Future of BMI

Few people realize the great magnesium plant known as BMI was part of a tremendous national awakening and marshalling of effort never before seen in this

From a country peacefully direaming behind her ocean bar-riers and only mildly disturbed by the fires in the Orlent and in Europe, the United States was atapulted into action by Pearl

For many months prior to De-cember 7, 1941, however, national uncasiness had begun to replace complacency. The Seleclive Service act had been passed and a naval building program started and Industry began looking forward to a shortage of nanpower and materials.

At about the same time Howard Eells and his associates began action in their efforts to establish BMI early in 1941, the government sent out a quiet call to industry to be on the alert for a great training program.

All over the nation industrial experts were called into round able conferences to discuss the the quickest and most efficient method by which a great number of men and women could be trained in supervision for the job ahead. There was an extreme shortage of able foremen and other supervisors.

Out of these round table conerences came a pattern which will probably have a profound iffect on post-war industry and in the period of conversion which will follow the end of hostilities.

Experts of the country's leadng industries established an organization known as the Training-Within-Industry bureau and set up a program for training supervisors in three separate skills: the skill of job instruction. the skill of job planning, and the skill of maintaining good or harmonious job relations.

The nation's great industrial companies were combed for men qualified to start the program. and these men, after working all ay in their own industries were nt to other companies for twoour meetings each night to oin supervisors in Job Instrucm, Job Methods, and Job Relane-now known as JPT. JMT d JRT.

Each of the three training thods was divided into five shour sessions. They were most concentrated, stream-I training programs known. densed from the programs of such industries as General Electrie, Western Electric, Ford Motor, Lockheed Aircraft, and a score of others.

Results have been astounding. One aircraft company announced more than 4,000,000 man hours had been saved after a few months of this sort of training Other companies had similar say ings in man-hours, materials.

Although BMI was not in operation when the three programs aunched the staff of eng eers which had been sent to Fauland had returned to take over supervision of the new inchistry began to apply the prin-ciples of JIT. Befort a pound of metal had been poured they nednestablished the methods by which they intended to start production.

Some picture of the tremendous job Training-Within-Industry has accomplished is seen in the fact that during 1943 nearly that a million foremen, superin-itendents, presidents, etc., have studied and applied JIT. JMT. and JRT.

Association of Foremen.

Probably few other industries in the country have so seriously and conscientiously tried to train their supervisors for the grim! days of war remaining and for the trying conversion days which will follow the war. Las Vegas Review Jour. July 31, 1943

From Where I Sit---By A. E. CAHLAN

tion of coolers in the new hous-ing units built for Basic employees. Twenty-five dwellings were completed recently except for the coolers. Families moved

for the coolers. Families moved in. Coolers arrived ready for in stallation and it apparently would be but a day or two until the units were entirely comfort-able. But—a couple of eagle-eyed rible discovery. The coolers were powered by one-third horse-power motors while specifica-tions called for quarter-horse-power motors. Moreover, the blades of the cooler fans were to length. Investigation revealed there were NO 14-inch fams to be bought and no quarter-horse motors. Specifications that, however, failed to dunt the engineers. Specifications

tors. That, however, failed to daunt the engineers. Specifica- the need for incendiary bombs is tions are specifications, they opined, even though twenty-five families sweltered in accommodations designed to be artifically cooled in summer. And they re-fused to permit their installation.

What difference it makes whether the fan blades are 12 or 14 inches long or the motors that 14 inches long or the motors that drive them are a quarter or a third horsepower, so long as the coolers cool the air, nobody has satisfactorily answered. The de-cision of the gentiemen in charge (Federal Public Housing Authorsatisfactorily answered. The de-cision of the gentlemen in charge (Federal Public Housing Author-ity) appears to be that it's a far greater error to install coolers varying from specifications than to allow human beings to cook in the low-ceilinged, block every dwellings out in the middle of the desert where no shade or termin the desert where no shade or vegetation has had a chance to grow yet.

in air-conditioned houses, so pared to those in which Alcoa didn't have the least idea what operates. kind of an existence they were wishing on those twenty-five families. When the high point of the summer temperatures hit a few days ago, the heads of those families decided they had those families decided they had had enough and quit their jobs. BMI officials, needing skilled workers, were extremely sorry to see them go. But they had nothing to offer. The cooler blades were two inches short, and some huremorat in Washand some bureaucrat in Wash ington might get awfully mad if the engineers assigned to the job. out here were to take pity on those twenty-five families and install the coolers anyway, on the theory it is more impor keep up the production of magneaium than to put in thirdhorsepower motors where somebody in authority said quarter horse should be used.

You'll find this story hard to I couldn't find out how the believe, but it is vouched for by reliable persons who are in a poreliable persons who are in a po-sition to know the facts. And it's about the most ridiculous in-the absence of any information, stance, of bureaucratic function-ing I've heard yet—very laugh-able if it weren't so serious. the absence of any intermation the record up to this point would seem to justify the conclusion they didn't give a hoot—that specifications are specifications, our at 116 degrees in the shade It has to do with the installa- even at 116 degrees in the shade

Of course there may be an ex-planation for all this—an ex-planation that will tell why the families must be forced to suf-

Division. War Production Board, told in his address of the precarious shortage as late as 1942, and stated that BMI is now turning out the metal in the enormous quantities demanded by the war's various needs and for the

The details would shock you at the moment. And there's no cinch the gentlemen in key spots who are doing the clipping be-hind the scenes and when nobody's looking, can be beaten. Aluminum Corporation, which owns Dow Chemical, only other sizeable producer of magnesium in the soundary is determined the post-war era as it was be-

Southern Nevada should drop Southern Nevada should drop everything else and join together in this fight, upon a successful termination of which depends the very future of the entire area and every dollar invested. And The engineers, I am told, live For we're still a small state com-

> The job will rest squarely on the shoulders of Senators Pat McCarran and Jim Scrugam And there is NO job they have in Washington today more im-portant to ti state of Nevada.

Output From BMI Setting Huge Fires In Nazi-Occupied Europe

L.V.Tribune

8/8/43

The army's significant cele- | dropped on Cologne you can pretbration here of full production, ty well assume that well over half with the Memphis Belle's crew the weight was magnesium incenwith the atemphis belie's crew the weight was inspiresturi mean honored representatives, brought out information of particular in-terest regarding the BMI metal. One point is that incendiary bombs cause colativals areastor simm and burg production and

bombs cause relatively greater slum and huge production and destruction in enemy industrial stockpiles are essential. Nobody centers than block busters and cares to predict just how much similar high explosives; and an- magnesium will be necessary to other that this plant's output has set fire to the island of Japan."for some time set huge fires in Basic Bombardier,

Germany and Nazi-occupied Europe, and now probably constitutes a major portion of the blazing vengeance exacted by United Nations flyers, Gordon Reed, director Aluminum and Magnesium Wins Promotion

first time making stockpiles pos-

available for all war uses.

alble; and that his hoard has informed our army, nuvy, England and Russia that magnestum is

Mr. Reed, out from Washington as speaker for the War Pro-

duction Board, said: "When you read that 2000 tons of bombs were

Las Vegas Tribune

August 11, 1943

BMI Plant Went

Saturday

facilities.

To Full Production

Basic Magnesium, Inc., went

into 100 per cent production at 10 o'clock this morning when the

switch on the last cell in plant

a few invited guests gathered in the plant for a short ceremony,

which marked the beginning of

full and complete operation of

the plant. Just 11 months have elapsed since the first unit was

put into production. It was Au-

gust 31, 1942, that the first metal

was produced at the plant. Since

that time, at the rate of one plant

unit per month, the big defense

plant has added to its production

Plant unit number 10 has been

in operation for some time, but Saturday marked the beginning of

full operation of that plant.

unit number 10 was turned on. Officials of the company and

L.V. Review Journel

July 23, 43

July 23. 40

From Where I Sit---By A. E. CAHLAN

You may never have met them, but they're a couple of grand people. They came here nearly beople. They came here hearly while we have plenty. But they'll two years ago with the vanguard of McNeil Construction Com-pany people, to help build the great magnesium plant. We of the Review-Journal first met them we have plenty. But they'll rear up en masse IF the Wallace-decide there should be equality of food distribution the world over when nobody has ever the Review-Journal first met them in connection with publica-tion of the McNeil Constructor, bi-weekly paper of the McNeil Employees' Association. They were editor, publisher, and en-tire staff. tire staff.

been tamed a lot more than I think they have. No American would see any people starve while we have plenty. But they'll

Throughout the months that followed, we became well ac-quainted with the two-kind of regarded them as part of our own organization. Quiet, effi-cient, and hard-working, they gave the McNeil employees a splendid paper with a minimum of fuss and trouble. And they always had a smile and a good word to pass on-enjoyed their work tremendously, and, like all members of the group, were certain in their own minds that McNeil Construction Company is the greatest outfit on earth.

Last night they finished their job here. The last issue of Mc-Neil Constructor went to press and their work was over. They served as high as 13,000 people at the peak of construction-knew every problem and every whim of the company and its employees. Their job was to spread the McNeil spirit, to initiate the newcomers into the itiate the newcomers into the tradition of the company, and to help weld the group into an ef-ficient, well-knit, hard-hitting construction crew. And in this field they contributed tremend-ously to the successful comple-tion of the big job.

We hate to see them leave us, because we'll miss them both. But that's the inevitable in the construction business. Starting a job today in a new community, at the peak tomorrow, finishing and moving on to another one the day after. Make a lot of grand friends, only to be faced with the necessity for saying good-bye just as your friendships are beginning to mean something concrete.

It's with a great deal of regret that we say goodbye to the Mc-Neil Constructor, for its discon-tinuance means that the forces of that company have dwindled away to the point where it can no longer be supported. There'll still be a crew here until October, perhaps, but only a handful compared to the vast numbers of the past two years.

Ted and Jerry Watterson (Mr. and Mrs.) are going on to a new and imortant job with their company. We of the Review-Journal wish them good luck and happi-

Bruce W. McNeil, who has held the post of general manager of the construction work on the magnesium plant here, was pro-moted to vice president in charge of construction of the McNeil Construction company. The announcement was made yesterday by L. G. McNeil, president of the company.

Bruce McNeil Promoted To Post of Vice-President

Announcement was made yes-terday by L. G. McNeil, presi-tion work at the magnesium plant company, that his son, B. W. Mc-eral managership of the work Neil, has been made a vice-presi-here has been there due to the work of all construction work. In mak-chief engineer since the incep-ing the announcement, McNeil stated that the company had B. W. McNeil, who is married ing the annohimediated with the field of the project at the second structure in the second structure i stated that the company had B. W. McNeil, who is married midst. dent will relain ins renaine need and the building of this linda in Las Vegas and will continue 000-unit housing project at Linda Vista in San Diego, as well as other buildings in Southern California.

Las Vegas AGE 2-6-44

Saturday, February 5, 1944

Editorials and Features is a regular Datrial which are published evenings c. A Bouldsr City Journal Building, 113 South First Street, the Review Journal is entered in the U. S. Posta anda, ... second class matter. Subscription price Subscription price \$1.00 arrier, Associated Press, American News-ited Press, Association, where Association, or Phone 6 A. E. Cahlan, Managing Editor

Publicity and BMI

L.V.R. Journal

After nearly two years of vacuum, so far as favorable publicity is concerned, Basic Magnesium, Inc., is coming into its own on a nation-wide scale in a manner designed to bring to the attention of the entire country the remarkable record made out here on the Nevada desert in a new enterprise so badly needed for the

During the first year of actual operation, BMI was war effort. kicked around from pillar to post and rather thoroughly discredited on a national scale. It was supposed to be without enough of the proper ore, the process wouldn't without enough of the proper ofe, the process wouldn't work, the cost was too high to ever be considered on a

The plant seemed to be the whipping boy of the competitive basis. war-industry beefers, and everywhere you turned, there was a new blast of some kind being sent out in

It was difficult to interest any of the nationally this direction. circulated publications in presenting the true storyand it was admittedly most discouraging to those who were giving everything they had to make it go.

They kept everlastingly at it, however, and regardless of all obstacles thrown in the way from countless sources, finally came through to PROVE BMI with a production considerably in excess of the rated capacity -a production that continued despite any and all controversies and other interruptions which might have been expected to affect the output.

The result has been a record without a peer in industry anywhere in the world. This has changed the picture completely and during the past few weeks many national publications have "discovered" BMI and talk in terms of "miracles" wrought out here on the

Tomorrow (Sunday) evening at 8:30 P.W.T., United Nevada desert. Airlines will cover the future of magnesium and BML on a Columbia network program that will be shortwaved to the entire Pacific area.

Not long ago Life magazine, one of the most widel circulated of the nation's weekly publications, carried a story with pictures in color, of BMI. In a forthcoming issue of Fortune, BMI will receive considerable space Popular Mechanics, Western Industry, and a number of other publications will also carry considerable cuoy concerning the job being done here by this great

Reader's Digest was first to give BMI a breakmaastrial giant. this came in the days when the industry had but a few friends outside southern Nevada. Only recently the Mining Journal, of Phoenix, Arizona, carried a two

page picture story of BMI. page picture story of Diff. The Arrowhead magazine, official publication of the Union Pacific railroad, December-January issue, devotes the first seven pages to the "World's Largest Producer of the New Miracle Metal." This publication is circulated widely among Union Pacific employes and on all Union Pacific passenger trains.

Standard Oil Company of California, in its Winter Bulletin of 1943-44 leaves company matters to present four pages of pictures and descriptions of "Las Vegas and the Miracle of Magnesium," "Nevada's Light Metal Thunderbolt," "From Ore to Ingot." Circulation of this magazine is close to the 100,000 mark and goes all

Nearly every mining and metallurgical journal in over the west. eady run stories about BMI the nation either has alre or will in the near future. To be favorable, they only

have to be FAIR. Add to these widely-circulated stories, the statement made by Phillip D. Wilson, director of the Aluminum and Magnesium division of the War Production Board, and you have the basis for a rather duction Board, and you have of the light metal with the American Liquid Gas installations in remote areas as industry in this area.

Wilson said: "Magnesium can face 1944 with some in a havy yard.

It appears as though this point is gradually being reached, and that NOW, a substantial effort will have to be made to keep the plant in production even after the war. Director Wilson seems to feel that IF the potential uses of magnesium are developed, there'll be no question about any over-supply, but one of expanding the peak war-time production beyond its present capacity.

Basic Breaks World's Record in Magnesium Output During Month

BMI this week broke another world's record to add to its long string of similar performances. Production in January, 1944, broke all plant records for any single month in BMI's history. Sunday, January 30, was the high day with a record production of 111 per cent of rated capacity.

The Clark county plant today is producing more than me-fourth of all the magnesium now being produced in the United States. If the ingots cast at BMI in the month of January were laid end to end they would reach from Las Veges to Anaconda's great copper plant near Butte, Muntana. S. F. CAL WALLSTREET TOUPSCAL

FEBRUARY & 1946

record expected.

wartime demand.

Basic Magnesium Reports

Output Record, Lower Costs

LAS VEGAS Nev.-Baic Magnesium, Inc., operated by Maconda Copper Mining Co., re-ports January production of metal.ic magnesium

broke all records for production from any cne

plant, reaching a daily average of 105% of rated

capacity with a high day at 110%. It is claimed

that one-quarter of all magnesium now being

produced in the United States is from Basic's

plant. Daily average for January is stated to

have been 30% higher than average monthly

world total in 1940. Ingots cast in January, it is

calculated, would, if placed end to end, have

formed a line from Las Vegas, Nev., to Butte,

Mont. To date in February production is re-

ported slightly ahead of January, with a new

A steadily increasing percentage of output is

going into commercial structural alloys, it is

stated, principally for fabrication of aircraft and

automotive equipment, with a corresponding

decrease of total production flowing to purely

Production costs have dropped sharply, with

December, 1943, cost per pound less than half

of December, 1942, cost per pound and a sharp

Anaconda acquired controlling interest in BMI on Oct. 27, 1943.

reduction since December, 1943.

The high day production was ten times greater than the average daily production of all United States plants in the year 1940, and daily production would provide a full load of incendiary bombs for 50 Flying Fortresses every day in the calendar year.

With increased production has come decreased cost in produc-tion and the BMI organization today is bending every effort to make February production top January and March, April and the other months to come to break the record of the month before.

On January 20, at 11:30 a. m., BMI poured the 100 millionth pound of magnesium, with William Owens handling the ladle. It marked the production of more magnesiuse than, the total world output for the year 1940.

LOS ANGELSE, CALIF HERALD & EXPILES, CI. 200.529 FEORV/MY 7, 1953

Dale Carnegie

Author of "How to Win Friends and Influence People" Are you looking forward to Naughton talked the matter retiring, after a long and useful career?

In 1942 J. A. McNaughton etired from three corporations nd settled down to whittle. ut he soon found he didn't feel ell; was restless. He didn't have a thing in the world to do t turn over his hand, and at soon became monotonous. He was living in Devonshire, Chatsworth, Callf.

One day he said to himself: "I'm just rusting out. It's bet-ter to work out than rust out." So he looked around for a job. He had been an outstanding successful business man; but he was now approaching 70. He said: "People think of men He of my age as they do of an old sure storage tanks which hold farm horse that has served its gas in a liquid state. Through purpose-they pull off its shoes and turn it out to pasture. is saturated with air which Well, I resolved I wouldn't be turned out to pasture."

THE TA

over with him, told him he wanted to show what he could do. And his son-in-law gave him the encouragement he wanted. He now drives back and forth from his home-a distance of 68 miles-and when he gets to his desk he works eight hours a day, five days a week. His vitality is amazing. He spends most of his time promoting new business, and thinks nothing of traveling thousands of miles by plane and train in these times when travelling isn't a bed of roses. His particular job is talking to war concerns about the advisability of installing liquid gas plants.

a mixing apparatus the liquid causes it to become a highly efficient gas, similar to natural His son-in-law was connected gas. Some war plants use these Corporation, and so Mr. Me their sole source of gas. One

them as a "standby" installation in case of sabotage which would wreck the public utility gas system, or to be used when there is not enough gas during peak hours. These plants consist of pres-

His plants are striking hard blows at Hitler & Co. He says, "I am doing as much work, and as useful work, as I ever did in my life." And he is happy in the doing of it. And now comes a very important point: with all the work he is doing, he says he feels better than he did when he was

retired and didn't have anything to do but turn over that hand. How much truth is there in the old saying: "It's better to wear out than rust out." And J. A. McNaughton is a splendid

such installation is the Basic Magnesium Plant, near Las Vegas, Nev. Other plants use

example of that truth. So if you're hoping to spend/ your days doing nothing pep haps you'd better think it over or at least do it gradually.

Hints About

Philosophy

Of Life

1 440 FEB. 7. 1944 DENVER COLO. POST



Because cattlemen are getting rid of all fed cattle, since they assert they can make no money feeding under present government regula-tions of the industry, Denver stock-yards had the largest run of fed steers in many years Monday, live-stock men said. A total of 100 loads were received, com pared with around 130 in May, 1943, the previ-ous high in the memory of present-day traders. The market was slow to 10 to 15 cents a hundred lower, Experts forecast a shortage of fed cattle between April and June this year as a result of heavy market-ings now.

A bullish indicator was discerned in the OPA authorization of a flat 6 per cent increase in celling prices for all graded hardwood lumber produced in northeastern states and eastern Canada to compensate for higher production and wage

Basic Magnesium, Incorporated, world's largest magnesium plant, in fanuary of 1944, broke all world's records for magnesium produced in any one plant, reaching a daily werage of 105 per cent of rated ca-pacity with a high day of 111 per cent, the company announced. One-fourth of all the magnesium now being produced in the entire nation is being production average for the month of January was 30 per cent greater than the average monthly world total production for the year out of 1940. Anaconda Copper acquired control in October, 1942.

Dow-Jones announced the OPA had extended scope of the sugar rationing program to bring use of imported sugar containing products, such as syrup and candy crystals, under control.

Dow-Jones said used auto price ceilings probably will be announced by the OPA March 1 and will be-come effective April 1, unless deal-ers succeed in obtaining further de-lays. Under the ceilings, as out-lined to the industry at a special meeting last week, average Jan-uary, 1944, used car guide book prices will be the highest dealers can charge, said the financial news agency. agency.

Utility rates are not going to be subjected to any sweeping sudden reduction by state regulatory agen-licized supreme court decision in the Hope Natural Gas case, said ow-Jones. On the other hand, the used by some state bodies to bolster cases for lower rates in-volving not only electric and gas companies, but possibly transit lines and the whole range of public utilities.

With consumer buying power strong, demand for merchandise sold by chain stores will remain substitutial, according to survey Poor's, Sales trends, however, will mixed.

cause of food controls and supbly factors, gains in grocery chain volume in the first half of this year volume in the first half of this year are not expected. Sales of variety chains may show a moderate reces-sion, since merchandise is less abundant. With their supply situ-ation somewhat better, drug chain sales, on the other hand, may con-tinue to exceed the levels of a year earlier. Granter metromage and

tinue to exceed the levels of a year earlier. Greater patromage and larger average checks promise to expand dollar volume of the res-taurant chains. Altho the experience of various organizations will vary, most con-cerns will continue to realize large sales. Despite a ten i ney of costs to edge upward, it atively well maintained operating profits seem reasonably assured for the first half of the year.

TODAT'S MARKETS TODAY-

AMERICAN METAL MARKEL "Leading Iron, Steel and Metal Newspaper Recognized price and market authority." New York City

FEB 8 1944

Basic Magnesium, Inc. Set New Production Record Last Month

LAS VEGAS, Nevada, Feb. 7. Basic Magnesium, Inc., broke all world's records for magnesium produced in any one plant last month. reaching a daily average of 105% of rated capacity with a high day of

One-fourth of all the magnesium now being produced in the entire nation is being produced by B.M.I. The daily production average for the month of January was 30% greater than the average monthly world total production for the year of 1940. To date, February's production is

slightly ahead of January's record with indications that another world's record may be broken this month.

A steadily increasing percentage of output is going into commercial structural alloys, principally for fabrication of aircraft and automotive equipment, with a corresponding decrease of total production flowing to purely wartime demand for manufacture of ncendiary bombs, tracer bullets and shells, flares and other war uses.

Production costs have dropped sharply, with December, 1943 cost per pound less than half of December, 1942 cost per pound, and a sharp reduction since December, 1943. Anaconda Copper Mining Company acquired controlling interest in B.M.I. on October 27, 1942.

LOS ANNELES, CALIF. HERALD & HERALD CIT. 258,529 EEERLENCY E. 1253

Magnesium Las Xegas Production Breaks All Records

All world records for the production of magnesium were broken during January when the Las Vegas factory of Basic Magnesium. Inc. produced 30 per cent more than the average monthly world total production of 1940, it was announced.

During the month the plant averaged 105 per cent of capacity per day, and on one day hit 111 per cent of capacity. Further the company announced, February production is running ahead of January, indicating another record possibility. One fourth of all magnesium now being pro-duced in the United States comes from the Las Vegas plant.

Company officials also announced that production costs have dropped sharply. Decem ber, 1943, cost per pound w

L.V.R. Journal 2-11-44 AFL Contract at BMI Is Said Valid By Capital Action

Complete validity of the Amer-ican Federation of Labor's con-fract with Basic Magnesium, Inc., was established this week when the war labor board in Washington, D. C., refused to take jurisdiction over the "dispute" CIO claims exists at the local plant.

The war labor board held a hearing last week in response to a CIO demand for opportunity to present its case. John P. Frey, president of Metal Trades department, appeared for the AFL and yesterday the board by a vote of 10 to 2, declined to intertere.

This, according to Frey, should end all labor agitation at BMI, where various AFL unions hold contracts for the duration.

TELLARY IS INA the conserve.

BMI Pours Its 100 Million Lb Magnesium

One hundred million pounds of magnesium, enough for 50 million incendiary fires in Berlin or Tokyo, has been produced at the Basic Magnesium plant at Henderson, Nevada, according to the report received here. It was stated that the record was more magnesium than the total output in the United States for 27 years preceding March I. 1942 and more magnesium of the entire world for the year of 1940.

LAS VEGAS - "Basic Magnesium is just another example of the splendid job American indus try has done all over the nation in answering the country's cail for vital war materials and metals," Lewis S. Cates, president of Phelps Dodge Copper conpany, said here after a trip through the big plant with F. O. Case, general manager,

"At the start of the war there were 35 strategic metals that were listed as critically scarce. Today there is a surplus of every one of the 35," Cates said. ACHIEVEMENT

The Phelps Dodge executive paid tribute to the miraculous achievement of the Anaconda company in bringing the magnesium plant into full productior and ironing out the kinks in a new industry for this country and characterized as splendic the manner in which Case and his associates have handled the pioneering in this field.

He expressed surprise at the growth and development of the entire area since he was here seven years ago, declaring "it's hard to believe this is still Las Vegan."

Cates was accompanied by Harry Lavender, chief auditor for the company, and the two executives left later for Morenci, Ariz, to be present at the start of production in the new Phelps Dodge copper plant there.

L.V. Review Journal 8/2/43

Found in the Mail Bag-

job, where a great job very bad- there is a great job of reporting needs doing.

fense job in the United States. In the past few days the tem-perature in Las Vegas and surrounding country has been the To the editor, desert normal. The outcries of I should like to take this discomfort, mistreatment, both in method of thanking the Las Ve-

to write to you.

a large extent these are men in-nured to semi-primitive living conditions. In the last few weeks the living conditions as regards food, sleeping accommodations, etc have degenerated very rapidly. In the last 56 hours I have idly. In the last 96 hours I have observed upon two separate oc-casions my own bed being infest-ed with bedbugs. That, sir, is a thing which I am neither used to nor intend to get used to. I will be very glad to give you the ex-act and absolute data as to the time, days and occasions upon which such observations were made, and which I may add have not been corrected and are still in existence

The construction and opera-tion of this great defense plant has naturally entailed many difficulties. Due to the pressure of other interests on a great many

Bra

Las Vegas, Nevada, To the Editor: During the something over five months of residence in Las Vegas, and reading your column ous as those on our far-flung bat "From Where I Sit," may I say the fronts. What is much more to you, sir, you are doing a great to your interest in point is that

to be done out there. Get in and I have been told and led to be-lieve that Basic Magnesium, Inc., is and was the number one de-and peacetime Las Vegas and peacetime Nevada. Yours very truly, J. H.

and out of your good newspaper are the occasion for this letter, the first and last I ever expect ing that four Boy Scouts arrived safely home at Basic Townsite

to write to you. Wholly, and because of your own designation of BMI as the number one defense plant in the United States or words to that effect. I'll say to you here and now, sir, that there are not tens, nor dozens, nor hundreds of men, but thousands of both races, white and black, who are now and who have in months past worked in temperatures of 160, 170, and closely approaching 180 degrees Fahrenheit. Mode the second seco

Now, sir, these men are large-ly unsung and unloved. It is their lot and their luck to live well for the resourcefulness of and work producing under the one of the Scouts who thought most adverse living conditions of the police, and the mothers that a half-baked bureaucracy appreciate the kindness of the which a divided authority can police who took the time and devise. For your information, sir, to midnight,

Gratefully, Mrs. Glenn W. Ebaugh, 238 Kansas Avenue, Basic

L. V. REVIEW-JOURNAL July 31, 1943

BMI Plant Now Is In Full Operation

Basic Magnesium, Inc., went into 100 per cent production at 10 o'clock this morning when the switch on the last cell in plant mit number 10 was turned on.

Officials of the company and a few invited guests gathered in the plant for a short ceremony, which marked the beginning of full and complete operation of the plant. Just 11 months have elapsed since the first unit was put into production. It was Au-gust 31, 1942, that the first metal was produced at the plant. Since that time, at the rate of one plant unit per month, the big defense plant has added to its production facilities

Plant unit number 10 has been in operation for some time, but today marked the beginning of full operation of that plant.

CITY BUILDING

JULY 10, 1943

Las Vegas, because of certain natural advantages of climate, scenery, water, power and tributary wealth, coupled with its man-created advantages of transportation and industrial facilities, with proper encouragement and guidance, will some day become a city equal in wealth and importance to such other cities of the inter-mountain region as Ogden, Salt Lake, Phoenix and others of that character.

Without that proper encouragement and wise guidance, she may remain for long years on the borderline between the prosperous country town and the thriving industrial city.

The foresight and long years of effort of some Las Vegas citizens created the Boulder Canyon Dam project and provided at our very doors a vast resource of electrical power. The holocaust of World War put that vast power to work for us, creating for us payrolls, business and wealth in the form of the gigantic plant of Basic Magnesium, Inc. It is primarily a "war baby" called into being as a plant for the sole purpose of aiding in the prosecution of the war. It was visioned by those who created it as probably a temporary enterprise which would cease to function at the end of the war.

Fortunately the management of this gigantic plant has been placed in the hands of Anaconda Copper Company, an organization which includes much of the best engineering talent and scientific ability of the country. To the development of the plant, the perfection of its processes and the economy of its business operations Anaconda is directing its talent and its ingenuity. Already they have so modified and perfected the processes of producing magnesium metal as to very materially reduce its cost toward economic competition with other plants.

It is becoming evident that the Basic Magnesium plant may continue after the war as one of the great industrial plants of the west. Nevertheless that can be fully assured only if BMI shall receive the support and cooperation of the entire community to the fullest extent.

The officials of BMI are not seeking to take advantage in any manner of the business people of Las Vegas and whatever they ask in the way of cooperation is not because of petty greed or grasping business tactics as some of our worthy citizens seem to imply by their actions.

Whether or not Las Vegas is to go forward to its manifest destiny of greatness within the next few years diepends largely upon our own citizens. Basic Magnesium and Las Vegas are inescapably partners in our future and neither can ignore the other and hope for continued success.

If we can assure the operation of Basic Miagnesium as a permanent enterprise following the war, our future destiny will have been accomplished because other great enterprises will cluster here where the "magic metal" of, the future is produced.

But, if we of Las Vegas shall assume a sugerior attitude

AUGUST 6, 1941

Magnesium Plant Is Permanent Industry

Technicians Tell of Steps Being Taken to Increase Use of Magnesium Metal.

That they consider the Basic Magnesium plant a permanent in-dustry which will continue as one of the great industries of the west following the war was indicated by a group of technicians who are associated in the job of advising and assisting in the development of increased uses of both manganese and magnesium following the war.

Among those who were guest speakers introduced by Program Chairman Frank Case, were Clyde Williams, director of the Battelle Memorial Institute and chairman of the war metallurgy committee of the war production board; Col. Glen F. Jenks, also member of the war metallurgy committee of the ordnance department of the United States Army, and Dr. V. M. Krivobok, chief metallurgist of the Lockheed Aircraft Corporation

Mr. Williams, the first speaker, said, in part:

"You here in Las Vegas are working at the completion of the western frontier. Las Vegas is becoming an industrial city. Working on the metallurgical problems of this region are 26 of the top metallurgists of the United States. Our success in the war has been dependant on the increased production of metals. Without the scientific genius of men such as are associated with B. M. L. success would have been impossible. "After two and one-half years of war we have been able to excell Germany in production of metals, both as to quantity and quality. Among other things, processes have been developed for treating the low grade manganese ores. The plant constructed by the Hanna Company at the 'Three Kids' manganese property is the only plant of its kind. It is now about ready for steady production. They will make a very fine product which will be converted into ferro-manganese in eastern plants for use in the steel industry. The eyes of the steel world are on Las Vegas.

"The present war has given us the light metals industries of aluminum and magnesium and the airplane industry. It is fortunate that the government decided to put the largest magnesium plant in the world just across the hills from the California aircraft indus-

tries. "The use of magnesium before the war was about 2000 tons per year. Now the B. M. I. plant is turning out many times that. Magnesium is one of the most fascinating of metals, just as this plant is one of the most phenomehal in the world. It is fortunately situated as to power and raw materials and has a most efficient and effective process. There is no doubt that this industry will be a (Continued on Page 4)

culties but we are still expanding our plants. We never forget our efforts ot build a better plane."

"In our plant in many places are posted placards 'Save One Ounce'. It is our task to save in weight of our planes in every way without endangering the safety of the plane. In this magnesium is a new product.

"It is now apparent that this organization at B. M. I. will supply the scientific research necessary. Its new industrial laboratory now nearly completed, will be one of the most complete in the country.'

Mr. Williams then introduced Col. Jenks, president of the American Welding Society, whose work is of the hgihest importance in the airplane industry.

"The producers of metals must understand for what his metals will be used," Col. Jenks said. "The war is our present problem. After the war we must work out the competative factors. The producers must have in their organizations men competent to sit at the table with the users of the metals produced here."

Guest of honor at the luncheon was Major C. J. P. Ball, who following World War I, introduced the magnesium industry into England and whose experience in the production of that metal was the basis for the beginning of the B. M. I. plant at Las Vegas.

Major Ball returned recently from a trip to his home in England and will be a speaker at Rotary in the near future we are promised. His son, Peter Ball, who spent some time with his father at B. M. I. a year ago, is now in the British Royal Artillery

L. WALL STREET DURNAL AUEUST 9, 1943

* * ** REPORTING on the recent ceremonies at the Nevada plant of Basic Magnesium, Inc., which has just reached full production, the house organ of B. M. I. says that Gordon Reed, director Aluminum & Magnesium Division, War Production Board, told in his address of the precarious magnesium metal shortage as late as 1942, and stated that B. M. I. is now turning out the metal in the enormous quantities demanded by the war's various needs and for the first time making stockpiles possible; and that his board has informed our Army, Navy, England and Russia that magnesium is available for all war uses.

He also is quoted as saying: "When you read that 2,000 tons of bombs were dropped on Cologne you can pretty well assume that well over half the weight was magnesium incendiaries and that a goodly share originated in Las Vegas. Incendiary warfare requires large and unpredictable amounts of magnesium and huge production and stockpiles are essential. Nobody cares to predict just how much magnesium will be necessary to set fire to the island of Japan."

MODERN INDUSTRY

"For All Management Men Concerned With Making & Marketing Better Products At Lower Cost." New York City

Magnesium production. The \$130million Basic Magnesium plant in Las Vegas, Nev. is stated to be now producing 31/2 times more of the light metal than the total of all other similar plants in the world.

and ignore the needs of our principal enterprise other industries will be slow and loth to entrust their success to our petty selfishness and our city will still have to work: its way painfully along the path of the years instead of strutting its way to greatness as we would like to see it do.

(Continued from Page 1) permanent one.

"The continuation of B. M. I. after the war may be dependent on several factors. To continue successfully we must develop new uses for magnesium. You here should be happy and grateful that the men at the head of this plant are so farseeing.

Mr. Williams introduced Dr. V. M. Krivobok as one, known throughout the world as a research scientist who, during the last few years has turned his talents to the service of the airplane plants of Los Angeles. Dr. Krivobok said in part:

"When the war came 7000 planes a year were being pro-duced in the United States. When I first came to the Lockheed plant they were turning out one plane per week-now many times that. The demand for increased production brought unbelievable diffi-

More Magnesium . . . The talk around Washington, we hear, is that there is really a big supply of magnesium available these days. One reason for this is undoubtedly the mammoth magnesium plant now in operation at Las Vegas, Nevada. A yarn about the \$100,000,000 project was carried in the auc June-July issue of Link-Belt News . . . and included pictures and descriptions of some of the company's installations 3 の間の

AMERICAN MACHINIST is executives, engineers, shop officials mechanics of the metal-working machin and allied fields."

and

New York

West City

: 42nd

This lightweight metal packs a heavy punch when used in bombs, tracer bullets, planes and other war goods. We're glad we have enough . . . and we'd like to suggest that interested parties start figuring now how a plentiful supply of magnesium will affect their post-war future.

there.

BRICK AND CLAY RECORD

"The leading clay journal of the world" 59 East Van Buren St., Chicago, Ill.



A Department Devoted to the Production of Refractories, Their Performance in Use, and News of the Industry

Silicate Cements in Acid Tanks-And How to Use Them

Acid-Proof Cement Applications Cannot Be Determined Without Thorough Understanding of Their Reactions-Incomplete Hardening Offset by Strong Sulfuric Bath

Josef M. Robitschek, D.Sc.

Director of Research, U. S. Stoneware Co., Akron, Ohio

SE of chemical stoneware equipment in acid-proof structures is somewhat limited. Experience has shown the impossibility or impracticability of manufacturing one-piece stoneware vessels and apparatus for capacities greater than 600 to 700 gallons. Also, very large vessels, containers and apparatus made in one piece from ordinary stoneware either cannot be heated at all or must be heated very slowly and carefully.

So chemical stoneware has to be replaced by acid-proof masonry (lining or over-sheathing) where sizes of the acid-proof equipment exceed limits determined by shape and application, or where wood, brick, concrete or metal structures must be protected against chemical action. These acid-proof masonry structures are composed of two parts of different natures-acid-proof ceramic ware or brick, and acid-proof cement.

Bonding Material Cause of Trouble

Desirable properties of acid-proof brick have been generally known for many years; high grade material of this type is widely manufactured in every industrial country. Acid-proof ceramic ware, too, has been successfully exposed for 10 or 20 years to attack by hot acids. While failure of acid-proof structures may, in isolated three bonding materials most common- terials, has ordinarily been used as cases, be traced to the fired ceramic ly used in corrosion-proof masonry and cement for acid-proof masonry and linmaterial, by far the greater number of linings. Of these three, silicate cement ings. Setting of this ordinary siliceous these failures has always been caused alone may be used at temperatures cement is brought about by precipitaby the bonding material.

14.1

FEBRUARY, 1944

An acid-proof refractory tank or wall is no more efficient than the cement bonding the brick construction. This first installment of Dr. Robitschek's article explains the theory of using sodium silicate cement as a bonding sub-stance to resist acids (single exception, hydrofluoric acid and some derivatives) and to withstand reasonably high temperatures. Because sodium silicate is the basis of numerous acid-proof refractory cements, this series should prove of value to acid brick manufacturers and users of acid-proof structures.

past few years, the fact remains that a structure's resistance to any destructive action is limited by that of its weakest component part. And the best of acid-proof cements have lower resistance to chemical attack than even medium quality acid brick. Cement joints-between single masonry units or between lining and casing-are the weaker of the two acid-proof constituents. Special care must be exercised in selecting and applying this bonding alloys. material.

Silicate Cement Is Best Material

cements and resin cements are the grained sand, or other siliceous ma above 180° F. in contact with acids of tion of silicic acid from the sodium Although considerable progress has any concentration, and with strongly silicate. been made in acid-proof cements in the oxidizing agents. Although the other Commercial sodium silicate solutions,

two cements are used advantageously in many cases, sodium silicate cement still remains the most important bonding material for acid-proof ceramic structures. This is due to its resistance to acids (single exception, hydrofluoric acid and some derivatives), ability to withstand high temperatures, easy application, low price and high bonding power to all clean surfaces.

Different types of sodium silicate cements have evolved from the simple putty which consumers formerly prepared from sand and a sodium silicate solution. But none of these various cements is universally applicable. To avoid failures and to secure maximum service from each, one must have a good knowledge of the different types and the reactions taking place during preparation, setting and hardening. Importance of this knowledge is stressed by the fact that today ceramic linings not only serve in their normal applications, but also replace to a large extent such corrosion-proof critical-proof materials as rubber linings, stainless steel equipment and metal

Ordinary Sodium Silicate Cements

A mixture of sodium silicate solu-Sodium silicate cements, sulfur base tion of high SiO2: Na2O ratio and fine-

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formed by treating a soluble silicate glass with hot water, do not contain the sodium salt of the silicic acid. Instead, there is present free alkali and silicic acid that has been peptized (brought into colloidal solution) by the alkali. If these "solutions" lose water through evaporation, or if their equilibrium is disturbed by a partial neutralization of the alkali due to the action of atmospheric carbon dioxide. silicic acid precipitates from them in the form of a voluminous silica gel of high water content. This reaction follows the schematic formula: $Na_{3}SiO_{8} + xH_{2}O \rightleftharpoons Si(OH)_{4} - NaOH$

Filler Performance

One molecule of the precipitating silicic acid combines with 330 molecules of water. This absorption of water from



Acid-resisting brick and cements are used in tanks processing raw materials for chlorine manufacture.

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the semi-liquid mixture of inert filler and silicate solution causes the mixture to stiffen or "set." The filler takes no part in this reaction. Its presence is merely necessary to convert the adhesive silicate solution into a cement, i. e., to form a skeleton for the stiff paste and to counteract the shrinkage which takes place during dehydration of the voluminous silica gel. Dehydration-brought about by further evaporation of water from set cementcauses mixture of silica gel and filler to harden, losing its pseudo-plastic nature and becoming entirely solid.

From this simple description of reactions occurring in ordinary silicate cement, it is evident that water evaporation must take place to cause setting and hardening of the cement; that the presence of carbon dioxide may accelerate its gelation or "set."

At first glance it may appear easy to comply with both these conditions. In truth, complying with them is so difficult that it is frequently impossible to use ordinary silicate cements in acid-proof masonry or over-sheathings. This difficulty, in many instances, is the primary cause of an entire disintegration of masonry and linings. Cement is almost entirely cut off from the action of atmospheric carbon dioxide when setting between casings and acid brick or tile.

Precipitated Gel Keeps Out Air

Since good acid brick are almost impervious to liquids, water can be removed from the cement only by slow diffusion to the drying surfaces of those joints binding the single masonry units. But carbon dioxide can hardly penetrate the interior of these joints. Silicic acid first begins to precipitate from the sodium silicate solution on the inner surface of the lining directly exposed to action of the surrounding air. Precipitated gel is so voluminous that it immediately forms a skin impervious



In the manufacture of synthetic rubber, many operations require tanks lined with acid-resisting and heat-resisting brick and cements.

to air. Air is then prevented from entering the joint and water cannot diffuse to the surface.

Setting and hardening of ordinary silicate cements take place slowly and only on surfaces exposed to air. Interior of the joints, and cement layers between single courses of tile and between lining and casing remain soft. Acid-proof brick generally have a water absorption of at least 1%. Small quantities of the liquid phase are thus slowly absorbed by the porous ceramic material, resulting in a stiffening of the cement. As long as this stiffening has not taken place, even small pressures are sufficient to squeeze the soft cement out of the joint. This is why vertical parts of structures can only be built slowly. After laying two or three courses of brick or tile, the mason must wait until joints are stiff enough not to vield under weight of the next course. Using only dry, warm brick may partly overcome this difficulty.

Heat Helps Quicken Set

To carry the process of setting and hardening farther into the joint interiors and to impart sufficient mechanical strength, the finished structure must be thoroughly heated. Large equipment, however, is difficult to heat sufficiently to set and harden completely a major part of the cement joints. This is true of large tanks consisting of an outer concrete or brickwork casing and a thick inner acidproof over-sheathing, especially when located in damp rooms or outdoors. As a rule, equipment lined by using ordinary sodium silicate cement has to be put into use as soon as a certain stability is achieved by mere superficial hardening of the joints. Complete dehydration of the silica precipitated from the sodium silicate can take place only at temperatures above 212° F. Otherwise, the silica remains soluble in water as long as it has not been exposed to this temperature for a sufficient length of time.

Incomplete hardening of the joints, however, is no disadvantage if the structures come in contact only with concentrated strong acids. These acids not only precipitate the silica hydrogel from the silicate solution and its hydrosol, but they dehydrate it thoroughly. So, setting and hardening of outer layers of cement will be completed as soon as the lining comes into contact with the acid. Instantaneous hardening will also occur in the joint interiors if the acid can penetrate the pores or fissures of the outer layers.

Dehydrated silicic acid is insoluble in acid solutions. Thus, cement is converted by this acid treatment into a body of sufficient mechanical strength with almost absolute insolubility in concentrated sulfuric, nitric, hydrochloric or other strong acids.

Need Dehydration to Resist Acids

If an ordinary silicate cement comes in contact with dilute solutions of strong acids, the silica gel will still be

BRICK & CLAY RECORD

precipitated from the sodium silicate but no dehydration of this gel will occur. On the contrary, presence of aqueous acid solutions will prevent hardening of the cement. A cement which has done no more than set is not strong enough to resist even moderate erosive action; it will wash out of the joints in short time. So, without previous dehydration, structures consisting of acid brick and ordinary silicate cement are not resistant to the action of dilute or weak acids or of acid salts solutions

Dehydration of silicic acid may be effected (1) by heating the structure above 212° F., maintaining that temperature long enough to evaporate most of the water adsorbed by the gel, or (2) by exposing the cement to the dehydrating action of concentrated sulfuric acid. The first measure is hardly practical even with moderate sized equipment.

Paint Joints with Sulfuric Acid

However, after joint surfaces are hardened, small equipment may be filled with acid and left in contact for several days. In large structures, joints may be repeatedly painted with concentrated sulfuric acid. Although the acid does not penetrate the entire joint, it does completely dehydrate the cement on joint surfaces, making it insoluble in any acid solution.

Prolonged use of the equipment will finally result in certain unavoidable erosion or mechanical damage to the hardened surface. Liquid can then penetrate these parts of the joints where the cement is only a stiff paste of silica gel and filler. This mixture is then easily washed out, causing disintegration of the whole structure or parts of it. Only constant supervision and care will assure reasonable service from these linings. Damaged joints should be repaired immediately; acid treatment has to be repeated periodically.

Ordinary silicate cements cannot be used in structures exposed repeatedly or for long periods to the action of water, steam or neutral solutions. Alkali hydroxide, formed during precipitation of silicic acid from the silicate solution and adsorbed by the precipitating gel, is still present in the completely hardened cement. Even superficial treatment of the joints with strong sulfuric acid does not remove it entirely because the acid cannot penetrate the joints.

During prolonged exposure to water or neutral solutions, however, small quantities of liquid will penetrate the cement either as vapor or by capillary action. Small amounts of a concentrated sodium hydroxide solution will form in the joints. This solution has a strong peptizing effect on the precipi- a chemical reaction is accompanied by tated silicic acid. Since it is conveyed considerable loss of strength in the by diffusion to the joint surface, it destroys the interior as well as the outer layers where neutralization had pre- such additions to the filler has found viously taken place through the acid wide usage. treatment. Even at normal tempera- A method to speed up setting was

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Special silicate cements were needed for the construction of the Basic Magnesium plant in Las Vegas, Nev. To avoid rapid setting, the comparts were placed in V the cements were placed in shaped pans of ice,-115 carloads of ice were used. Firebrick were ground to shape on flat grinding wheels.

tures, destructive action of water on silicate cement is so strong that linings may deteriorate within a few days. Elevated . temperatures and even a slightly alkaline reaction of the solutions will, of course, further speed up destruction of the cement.

QUICK-SETTING SILICATE CEMENTS

One disadwantage of ordinary sodium silicate cement-slow setting under action of air-could be eliminated if the silicic acid could be precipitated from the sodium silicate solution throughout the whole joint by disturbing the solution's equilibrium in ways other than evaporation and neutralization by carbon dioxide.

Sodium silicate solutions react with many different substances. So, it is not difficult to accelerate the set of silicate cement by adding acids or acid salts to neutralize the alkali. Thus is caused the precipitation of silicic acid. Or, metallic salts may be introduced to react with the sodium silicate under formation of insoluble metasilicates.

Chemical Setting Is Unsatisfactory

Agents of different natures-sodium bi-sulfate, chlorides, nitrates, phosphates or sulfates of weak bases, calcium sulfate, calcium carbonate, lead carbonate, esters of fatty acids-have been recommended as accelerators in silicate cements. But setting caused by cement. This is why none of the many "quick-setting" cements obtained by

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used successfully several years ago. It was based on the fact that presence of a silicic acid soluble in alkalies disturbs the equilibrium of concentrated sodium silicate solutions in much the same way as carbon dioxide. Fillers have been put on the market in which inert acid-proof sand or silicates were partly or entirely replaced by more active forms of silicic acid. Cements prepared from these fillers set quickly throughout the whole joint. Speed of the reaction is controllable to some degree by the quantity, grain size and solubility of the active silicic acid replacing inert filling material.

Amorphous silica, soluble in alkali solutions, occurs in nature as opal, chalcedony, agate, and so forth. It is also a by-product of certain chemical manufacturing processes. Example: manufacture of fertilizers from natural phosphate rock, and aluminum salts from clays or kaolins.

Active Fillers Have One Advantage

Active fillers only accelerate precipitation of hydrogel from the sodium silicate solution. They do not affect the hardening of the set cement, Hydrogel, whether precipitated slowly by air action or quickly by the presence of soluble silicic acid, must be dehydrated by drying or by the action of strong acids. After hardening, cement still contains alkali hydroxide adsorbed from the solution by the precipitated silica. Thus the cement remains easily soluble in water or neutral solutions. These active fillers have the lone advantage of not interrupting the mason's work to allow for the slow setting of ordinary silicate cement.

If active silicic acid, the by-product of super-phosphate manufacture, is used as a filler for silicate cements, an interesting phenomenon results. It probably led to the discovery on which present modern silicate cements are based.

Natural phosphates, converted into super-phosphate by a sulfuric acid treatment, contain silica and calcium fluoride. During the acid treatment, these impurities combine to form a silicofluoric acid. To prevent this volatile acid and the simultaneously formed hydrofluoric acid from escaping into the atmosphere, gases leaving the apparatus are washed with water and salt solutions. Part of the silicofluoric acid is decomposed in this washing, resulting in a precipitated reactive silicic acid containing small quantities of sodium silicofluoride. Cements containing this silicic acid as a filler not only set rapidly, but also have a quicker hardening.

In the March issue of BRICK & CLAY RECORD Dr. Robitschek will describe accelerated silicate coments-their ap plication and some of their special uses.

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APPLICATION - REFRACTORIES-

Suspended Wall Construction Takes on New Jobs

Vice-President of Bigelow-Liptak Corporation Comments on Suspended Wall Construction— Tells What It Is... and How It Works

BECAUSE refractories are the chief material used in suspended wall and arch construction, these two industries are closely associated. In fact, since the days of the now abolished NRA, the suspended wall and arch industry has been considered part of the refractory industry.

History of suspended wall and arch construction goes back to the early twenties. At that time structural adequacy of enclosures for furnace hot zones was beginning to receive consideration parallel with the development of the refractories themselves.

Applications of Suspended Walls

Early applications of suspended construction were limited to the high temperature zones of boilers and other industrial furnaces. These suspended wall applications came about naturally enough. Failures had grown prevalent in previously used construction due to slag action, fusion, spalling, expansion



Interior of catalyst regenerator during construction showing Bigelow 3-in. refractory unit-suspended wall with supporting brackets bolted to small clips which are welded to vessel shell. Note sealed insulation. movements and load deformation. Maintenance costs were high. Since a suspended wall carries no superimposed load, its use became highly desirable in hot furnace areas.

Remainder of the boiler enclosure was not then considered a necessary, or even desirable, application for suspended construction. This was partly true because the accent had been on air cooled walls.

Air cooling, of course, presupposes a certain amount of thermal loss due to radiation and conduction. Such possible heat losses would be negligible in high temperature furnace areas where refractory survival might be the primary consideration. Yet the opposite condition would prevail in convection areas where compensating heat in-put would not be available.

Encasement for Low Heat Zones

Gradually, however, due to high performance 'requirements, low temperature zones of these units also came to require the more adequate encasement provided by suspended wall construction. Thus maintenance and conduction losses were minimized and air infiltration was prevented. It had been demonstrated that refractories, even when subjected to relatively low temperatures, expand to a major degree. At 1200° F., for instance, high heat duty firebrick will expand 60% of the total expansion. Cracks will develop in solid masonry walls, admitting outside air to the tube areas.

Suspended walls fall into two broad categories—air-cooled and insulated. Both these types of wall look very much alike. They employ substantially the same tile and castings. But their thermodynamics are entirely different.

Originally designed as air-cooled walls, the suspended wall design had the primary purposes of relieving cumulative loading of refractories and affording simple, effective means of making localized repairs. Yet, another important design objective was to prolong the life of refractories by lowering their hot face surface temperature as well as their mean temperature, thereby giving them their greatest opportunity for survival.

Efficiency of insulated suspended walls had now been proved as enclosures for cooler areas of various types of industrial furnaces and for the entire enclosures of all types of low temperature furnaces. It had also been demonstrated that refractory wear-and-tear in such zones was hardly existent.

Development of Thin Suspended Wall

And so the next logical step for the industry was to develop thin suspended wall and arch construction. This was entirely feasible with certain types of suspension. But the reduction in refractory thickness imposed an added designing burden from the standpoint of structural integrity with its complementary twins—air tightness and sealed insulation.

What is thin suspended refractory wall construction? What does it do? In the words of H. S. Ford, vice-president of Bigelow-Liptak Corp., thin suspended wall construction is a fore-



Typical panel of Bigelow 9-in. heavy duty unit-suspended refractory wall showing brackets bolted to steel columns. Each row of refractory blocks is supported directly on its bracket and retained at top by the next bracket above. Removal of the intermediate filler tile permits the removal and placement of individual wall blocks without disturbance to the others. L.V.REVIEW-JOURNAL Aug. 19, 1943

BMI Permanency **Problem Studied By Truman Group**

(Continued from Page One) stances, then we might be able to get the answer as to the permanency of the plants on the west coast.

"The ability of the magnesium industry to compete with other metals in the field, of course, probably will determine the permanency.

To Protect Investment

In reply to a question regarding whether the government investment will be protected after the war, the senator declared that his committee was interested most in seeing that all governmental investments should be protected, as well as to see that the war job was done. He said that all monies in-

vested in the new war industries in America were invested with an eye toward the salvage value after the conflict is completed.

"The best salvage job that could be done, naturally, would be to continue operations after the war, Then none of the in-vestment is lost. However, the operation after the war depends on many things, the answer to which cannot be arrived at right now."

Senator Truman revealed that the committee has taken up plans for the establishment of fabrication plants in the west because of the fact that, at the present time, the magnesium plants are far ahead of their production schedule and they are stockpiling the material because of the lack of the fabricating plants.

Not Interested

He declared that the committee was not interested in jurisdictional labor disputes, that the main idea was to see that the war industries did their job rapidly and efficiently.

As one member of the committee put it, during a recent dispute in this area, the senator said, "this plant has problems enough on its hands without adding that of labor disputes."

The future of magnesium in the light metal field depends on fabrication of the metal, and this problem is being worked out as rapidly as possible, it was said here today by Senator Harry Truman, democrat of Missourl, who, with other mem-bers of the Truman committee, visited the BMI plant yesterday said today.

Asked as to the permanency of the local magnesium plant, Truman declared that his committee was gathering data and information regarding the BMI plant and others on the west coast, looking toward some solution of the post war operation of these establishments.

Demand Needed "Future development of magnesium depends entirely on the demand for the metal after the war, and the ability of American



Another "World's Largest" The world's largest single producer of magnesium is the plant of Basic Magnesium, Inc. now operated by the

Anaconda Copper Mining Company near Las Vegas, Nevada. It is operating at 85% capacity. Ore is transplanted to the plant by

a 1000 mile rail haul-which may cause a new railroad to be built. duties of Harold G. Dean.

Basic Magnesium, Inc., **Reaches Full Capacity**

Copper Canyon to double 1942 production -Hoover examines Pioche and Bristol claims Scheelite concentrator built at Toy

▶ Production of copper at the Copper Canyon mine, in Lander County, operated with a 350-ton flotation mill by the International Smelting & Refining Co., will, in 1943, be more than double that of last year, according to J. J. Lillie, manager. Mill feed is now around 350 tons per day and will be increased to 400 tons. Development on the 500-ft. level of the new Julie shaft has increased substantially the visible reserve. Several of the company's old mines in Copper Basin, five miles to the north, are being worked by lessees.

Firon ore, both hematite and magnetite, is being shipped from several Nevada deposits to points on San Francisco bay

> L.V.REVIEW-JOURNAL August 19, 1943 **Training Shops at BMI Plant Hinted By Federal Heads** WMC State Chieftain **Reveals Plans for** New Program

RENO, Aug. 19 (Special)-The possibility that shops will be set up at Basic Magnesium Inc., for the training of people in various skills and trades, was revealed this week at a meeting of training agency di-rectors and educational per-sonnel held in Reno.

The meeting was called in Reno by state manpower director for the Nevada area, William Royle. It is purposed at the BMI

for use as ballast in navy and merchant. vessels. It is crushed to 13/2-in. size before shipment in bulk and, mixed with cement, is made into 1-ft. cubes. Representatives of Pacific Coast plants have been in Nevada seeking to contract for delivery of 1,500 to 2,000 tons per month of ore meeting weight requirements.

▶ With completion early in July of its tenth and last metal production unit, the colossal plant of Basic Magnesium, Inc., in Clark County, operated for the WPB by the Anaconda Copper Mining Co. was reported producing metallic magne sium in excess of its rated capacity. ENGINEERING AND MININ First unit began production Aug. 30, 1942. Francis O. Case is manager.

JOURNAL "For nearly three-quarters of a century standing authority of the metal and non milling, smelting and refining indust Nevada section of the A.I.M.E., Walter S. Larsh, assistant manager for the Nevada Mines Division of Kennecott McGraw-Hill, 230 W. 42nd St. New Yr Copper Corp., told the members that a large daily tonnage of copper is being produced in leaching old waste dumps containing overburden stripped from the open-pit mine at Ruth. This operation has produced 12,000,000 lb of copper from two of the seven dumps available, and water will be piped to other dumps. Water is delivered to each dump at around 1000 g.p.m. and copper recovery has been between 4 and 5 lb. per ton of ore. The operation was sug-gested in 1940 by W. S. Boyd, vice president of Kennecott, while on a visit to the Ruth mines and office at McGill. J. C. Kinnear is general manager, with office at McGill.

▶ With completion of an access road connecting with the rail point at Inday, Pershing County, production has been resumed at the Greenan-Kerr tin-copper mine at Majuba Hill, and several carloads of copper ore have been shipped to the A.S.&R. smelter at Garfield, Utah. Tin ore is being trucked to a custom flotation mill at Toy, west of Lovelock, where several hundred tons of the cassiterite will be concentrated. James O. Greenan, 206 N. Virginia St., Reno, is in direct charge.



World's Largest Magnesium Plant Operating at Capacity

From THE Pacific Coast WALL STREET JOURNAL SAN FRANCISCO - Basic Magnesium, Inc., Las Vegas, Nev., operated by Anaconda for the Defense Plant Corp., and now the world's largest magnesium plant, attained full operation at the outset of this month with the turning of Boulder Dam power into the final electrolytic cell in No. 10 unit of the vast works. As of that date it was reported that all cells but 12 in the entire plant were

AUGUST 26, 1243 **PRODUCTION OF** MAGNESIUM **NOW STABILIZED** Plant Operating All

RENO, NEV. JOURNAL

Of Electrolytic Equipment

Signalizing the final step in progress toward stabilized capacity production of one of the most urgently needed of war metals, the Basic Bombardeer, publication of the Basic Magnesium Inc. at the main plant in Clark county, said this week that another all-time record went down in the books of industrial history at BMI Saturday, July 31, when the last switch was thrown to put in operation the final electrolytic cell in the world's largest magnesium plant.

When juice from Boulder Dam started flowing through the silver bus bar on the final circuit in No. 10 unit, all cells but 12 in the plant were "cooking."

Probably never again will such a large number be in operation at the same time, as steady production necessitates cut-outs for maintenance and repairs.

A large number of executives was present when Basic crews swung the last circuit into action. It was noteworthy that the final cell went into operation exactly eleven months from that exciting day on August 31, 1942, when the first circuit warmed to the energy flowing from anode to cathode.

From that day to July 31, 1943. construction crews, gaining speed as they moved down the line of units, hung up record after record in the completion of installations. Now, with the last cell carrying white-hot metal on the surface of the electrolyte, the big plant will be well out in front in world production of magnesium.

Many of the men who attended the throwing of the first switch were also present at the throwing of the last. Theirs was a justifiable pride-which they tried not to reveal-pride of accomplishment through a long, tough pull.

The last cell is making magnesium. Its product, like that of its hundreds of facsimiles, will soon, as castings and forgings, be reducing the weight of war planes; as tracer bullets, be lighting the fire line for machine-gun bursts at Focke-Wulfs and Zeros; and as incendiary bombs be raining fire on the Hitler-Hirohito hierarchies

July 31 was, indeed, a big day at BMI. But it was a hig day only becauses it had such deep meaning to democracy.

> Seattle (Wn) Times August 26, 1943

The United States government's \$130,000,000 Basic Magnesium, Inc., plant at Las Vegas, Nev., has gond

SEPTEMBER 1, 1943 **BMI Plant Will** Production of **Survive After the** Magnesium War, Expert Says Now Steady

INNEMUCCA NEV. STAR GSTATE

Signalizing the final step in progress toward stabilized capacity production of one of the most urgently needed of war metals, the Basic Bombardeer, pablication of the Basic Magnesium, Inc, at the main plant in Clark county, said this week that any other all-time record went down in the books of industrial history at BMI Saturday, July 31, when the last switch was thrown to put in operation the final electrolytic cell in the world's largest magnesium plant.

When julee from Boulder dam started flowing through the silver bus bar on the final circuit in number 10 unit, all cells but 12 in the plant were "cooking,"

Probably never again will such a large number be in operation at the same time, as steady production necessitates cut outs for maintenance and repairs. ENECUTIVES PRESENT

was present when Basic crews swung the last circuit into action. It was noteworthy that the activ 11 mouths from that excit-ing day on August 31, 1045, whon the first circuit and that excit-the first circuit mouth of the same set of goods and the same set of goods and the same set of the same se the first circuit warmed to the energy flowing from anode to un I ul pauldes staiples usilen

From that day to July 31, 1943. construction crews, gaining speed as they moved down the line of units, hung, up record after rec-ord in the completion of installations. Now, with the last cell carrying white hot metal on the surface of the electrolyte, the big plant will be well out in fcont in world production of magnesium

L.V.REVIEW-JOURNAL Sept. 5, 1943

Henderson Postoffice **Building Under Way**

Construction of Henderson postoffice building; Townsite center, was begun the past week by O. J. Scherer Company for DPC and is to be completed in about 75 days. The main structure will be 97x48 feet, concrete-block walls and concrete roof-one story with high ceiling. The same contractor also started work on the Small store building, opposite Victory Theater. to be of similar material and fireproof, 31x182 feet. This will house express and telegraph offices, laundry and cleanery, dentist, shoe repair shop and possibly other necessaries. Walter D. Merrigan is general superintendent of both of these building jobs.

clared that the manganese plan located at the Three Kids mine was unique in the western hemi sphere, in that it will work the netal from low-grade ores.

"While this plant will shortly start producing in commercial quantities, it is still in the status of a pilot plant because if it i successful there will be scores of others built. The eyes of the steel world are focused on Las Vegas and the manganese development which is a tribute to the Hanna Companay and the government engineers who have worked with them to bring this plant into ex-

Lauds Officials

istence.

Dr. Williams in the opening re-marks of his address lauded officials of Basic Magnesium, Inc. and its staff "for the splendid achievement" in the Las Vegas plant, and pointed out that here was an illustration of American enterprise.

today predicted that the Basic Magnesium plant here would "Germany had 15 years to prebe one of the industries to surpare itself industrially for this vive the difficulties of war war. In a year and a half we over-expansion after the conhave excelled her record both in "As the last war gave us the chemical industry which had formerly been the exclusive members ware and his committee

10 A 100 A

property of Germany, so this war has given us the great light met-Rotary Club by F. O. Case, gen als industry and the airplane in- eral manager of BMI. dustry," he continued, pointing Lout that "it is for tunate that of

liornal announcement of foreig The nearest approach to to Eisenhower's offer.

AUGUST 5, 1941

Dr. Clyde Williams

Declaring "you are fortunate that you have the greatest magnesium plant in the world

here, just across the hills from

the country's greatest airplane

factories" Dr. Clyde Williams, chairman of the war metallurg-ical commission speaking be-

fore the Las Vegas Rotary Club

Discusses Metal

With Rotarians

qer femiol a ron ,emiger izen is all the solidarity with the A large number of executives and in the parse sad was present when Basic crews of each of the parse sad by broadcasts have insisted thi moH bus "suninos Iliw raw" nu on, serted in a proclamation that th -23

viliais and Sicily.

on ment an "hundrable peace" the D. Eisenhower's otter of July 2 to grant the Badoglio govern ay theorized, was General Dwigh 14- the sgends, observers her t bebulent has new out in elor ne lieved related to Italy's futur The cabinet meeting was be

sarly peace. ed which Swiss sources and rais tollowing two ecclesiastica conferences at Valican City (shor "suitant instruction ins to scheduled to examine "matter The new Italian cabinet war LONDON, Aug. 5 (UP)-

WESTERN INDUSTRY

"A magazine directed to the men of management in all manufacturing industries in the industrial West."

San Francisco, California Alla

U. S. Maritime Commission asks for \$2,000,000 appropriation to improve food conditions, San Francisco Bay Area shipyards. . . . 300 miners, Kaiser Company's Sunnyside Mine, strike for change in superintendents. . . . Wage increases from 21/2c to 20c an hour approved by 10th RWLB for employees, Basic Magnesium, Inc., Las Vegas, Nev., retroactive to March 1, 1943. . . . 25,000 women expected to leave war jobs to stay home during summer to care for children out of school. . . . Northwest wage-earner still 5 to 10 per cent ahead of high cost of living, according to Dr. G. B. Noble, chairman, Northwest RWLB.

industry to produce the metal as efficiently and cheaply as other light metals with which it will compete," Senator Truman said. "We have no idea, yet, just how great the demand for the metal is going to be after the war. Motor cars, freight cars, airplanes and a hundred other peace time uses probably will follow, but industry, at present, is so busy completing a war job that it has had little time to debate the use to which this new metal will be put.

"The trouble right now is with fabrication of magnesium. that problem can be licked, and it is being worked out as rapidly as possible under the circum-(Continued on Page Four)

shops to train people as carpenters, machinists, sheet metal workers and automotive trades. Formulate Plans

Plans are now being formulated to get machinery for the the occasion of a plant ceremony.

carrying out of these training projects. BMI personnel offici-als were confident that such in-vide instruction for training stallations would be a direct aid courses. to them particularly from the

Need Cited

standpoint of training workmen A definite need for clerical for skilled jobs and that it would training was expressed by the definitely aid their manpower naval ammunition officials. Mil-

problems. Don Cameron, state supervisor, Phillip Hasty, field representa-tive, and Melville D. Hancock, out of this program. Contacts in assistant state director, reported the near future will be made by on their visits to the training Lieutenant J. P. Puffinbarger, personnel at Sierra ordnance, Reno army air base and the naval ammunition depots. The need for job instructor training courses at the Sierra ordnance was expressed by the army perwas expressed by the army per-sonnel officials. Aylwin Probert, training within industry repre-sis being placed upon the probsentative, stated that he would lem of coordinating training promake immediate contacts to pro- grams.

operating simultaneously, a record not expected to be repeated because of regular shutdowns for maintenance and repair that will be necessary. The final cell heating came exactly 11 months after the first power was turned into a unit of the plant, and was made

into full production and spokes-men said its output of vital war material will be three and one-half times greater than that of all the world's other similar factories com-

F CAL ELECTRICAL WEST

*

Superlatives are commonplace to the

Far West. Here is another one: the

largest magnesium producing plant in

the world is Basic Magnesium in Ne-

vada. It achieved that distinction early

in August when all but 12 of the fur-

naces went on the line. Incidentally it

simultaneously became one of the largest single electrical customers in the

world at the same time.

SL-TEMBER 1943

AUG. 29, 1943 - 46 911 IGPLIN, MO. GLOBE

BASIC MAGNESIUM IS OPERATING AT CAPACITY

San Francisco-Basic Magnesium, Inc., Las Vegas, Nev., operated by Anaconda for the Defense Plant Corporation, and now the world's largest magneshum plant, allained full operation at the outset of this month with the turning of Boulder dam power into the final electrolytic cell in No. 10 unit of the vast works.

As of that date it was reported that all cells but 12 in the entire plant were operating simultaneously, a record not expected to be re-peated because of regular shutdowns for maintenance and repair that will be necessary. The final cell heating came exactly 11 months after the first power was turned into a unit of the plant and was made the occasion of a plants coremony.

WESTERN INDUSTRY

"A magazine directed to the men of management in all manufacturing industries in the industrial West."

San Francisco, California

AllG 1042 Fritz Ziebarth, head of the Long Beach construction firm bearing his name, has taken over operation of the Morrow Aircraft Corporation at Rialto, Calif., where plane assemblies are made for aircraft manufacturers in the East as well as West. In charge of the Morrow operation for Ziebarth is E. M. Findlay, Ziebarth has built practically every known type of heavy construction. Recently at Basic Magnesium, Inc., Las Vegas, Nevada, he supervised completion of the world's largest electrical installation in record time.

MINING JOURNAL Phoenix Arizona



THE STORY OF BASIC MAGNESIUM, INC. IN PICTURES

Plantsite of the world's largest magnesium plant, Basic Magnesium, Inc., near Las Vegas, Nevada. The entire project was constructed in less than two years, but required more than 28 million man-hours of labor. Basic Magnesium claims to be the largest refractory brick job in the world, the largest sheet metal job ever undertaken, the largest plumbing installation in the history of the industry, and the largest electrical installation in the world. Basic Magnesium is said to have required an investment of \$150,000,000, funds being provided by Defense Plant Corporation. In October 1942, Anaconda Copper Mining Company purchased the controlling interest in BMI and took over the management of case, general manager, and H. G. Satterthwaite, general superintendent, the project was rushed to completion. Already production is well above rated capacity.



(Above)—Crude magnesite for the project is mined at Gabbs, Nevada. Here are two of the 20-ton ore trucks doing business at the primary cone crusher which takes an entire truckload at one gulp. From the primary crusher the ore is carried to the mill by conveyors. (Below)—Magnesite concentrates, calcined magnesite, coal, and peat moss are mixed in a dry state, then magnesium chloride solution is added. From this mixture cakes of magnesium are extruded, cut in slabs, and passed through gigantic drying kilns. Here are the cakes of raw material after they have passed through the kilns.



(Above)—This is the mill at Gabbs, the structure at the right housing flotation equipment and primary driers. In the sevenstory building in the center, a battery of roasters, building high, calcine the magnesium oxide. The "silos" at the left store the processed oxide prior to shipment to Las Vegas. The Gabbs plant produces 400 tons of calcined product daily. (Below)—To make magnesium BMI must first produce chlorine. This is done by the electrolysis of brine. Basic's chlorine plant comprises 900 Hooker-type cells, a portion of which are shown in the picture. Caustic soda is a by-product.





THE MINING JOURNAL for JANUARY 15, 1944

STOCKS AND PRODUCTION OF SLAB ZINC REACH NEW HIGHS

WITH the lifting of censorship on metal production figures, the American Zinc Institute has resumed its reports to industry. The current release brings the records up-to-date since it contains not only the latest, but also the past figures issued during the censorship, as well as yearly averages starting with 1929.

According to the table issued, stocks of slab zinc of all grades at the end of November 1943 were the greatest reported at any time and totaled 159,853 tons. This is in marked contrast to the situation at the beginning of 1941 and again in June of 1942 when total stocks were 17,582 tons and 18,447 tons, respectively. The tabulation of unfilled orders also shows the altered position of the zinc supplies with only 42,151 tons of unfilled orders at the end of November, compared with a high of 125,132 tons at the end of 1940 and 110,552 tons in January 1942.

Commencing with 1940, the accompanying table includes the production from

foreign ores. Thus the report reflects the total output of slab zinc of all grades, as reported by all producers represented in the membership of the American Zinc Institute.

FIGURES ON COPPER OUTPUT AND CONSUMPTION RELEASED

ESTIMATES based on statistics released by the United States Copper Association indicate that the copper consumption in 1943 will treble that of 1938 while domestic production of refined copper will almost double the output of that year. Refined production for the first 11 months of 1943 amounted to 1,102,227 tons (of 2,000 pounds each), and for the entire year, with December production estimated, the output will top 1,200,000 tons by a comfortable margin.

In 1938, refined production was reported at 638,076 tons. In 1940 it crossed the million-ton mark, reaching 1,033,710 tons. In 1941 a slight increase to 1,065,-667 was made. The rate of increase was accelerated in 1942 to attain a total output of 1,135,708 tons.

TOTAL SLAB ZINC SMELTER OUTPUT (ALL GRADES) 1929-1943 (Tons of 2,000 Pounds)

				and the second second			Daily
	C . 1 .			SHIPMENTS		Unfilled	Av.
	Stock at	Berland		Export &		Orders End	erage
1929	A6 430	631 601	Domestic 506 240	Drawback	fotal	of Period	Prod.
1930	75 430	504 462	126 070	0,002	196 075	18,080	1,730
1931	143 618	300 799	200,019	130	430,270	20,001	1,305
1932	129 842	213 521	019,410	41	314,514	18,273	822
1933	124 856	294 705	210,041	170	218,517	8,478	983
1024	105 560	966 099	343,702	239	344,001	15,978	890
1025	110,005	491 400	302,010	148	352,663	30,786	1,004
1000	00 750	101,400	400,687	23	465,746	51,186	1,182
1007	00,100	523,100	501,969	******	561,969	78,626	1,429
1090		089,019	569,241	******	569,241	48,339	1,615
1020	60,888	456,990	395,554	20	395,554	40,829	1,252
1939	126,769	038,198	598,972		598,972	53,751	1,475
1041	17 500	706,100	674,615	88,165	762,780	125,132	1,929
1941	17,582	863,955	751,276	106,195	857,471	87,666	2,367
1942							
Jan.	24,066	79,417	67.382	12.166	79.548	110 552	2 569
Feb.	23,935	73,579	60.070	14,818	74 888	109 260	9 690
Mar.		79,187	61 612	18 499	80 111	109 207	9 554
Apr.	21,702	77,170	63 955	12 358	76 313	00 005	0,570
May	22,559	79.545	67 311	16 946	83 657	04,000	2,012
June	18.447	75 124	56 892	0 125	66 017	89,009	2,000
July	27,554	76 441	59 250	19 150	71 400	80,104	2,004
Ang	32,586	77.002	57 990	15 114	70,000	00,018	2,406
Sent	36 652	74 995 -	51 481	0,114	12,930	08,972	2,484
Oct	50.047	77 000 -	61 089	11 900	00,890	49,289	2,476
Nor	55 405	77 171	57 401	11,000	12,032	46,082	2,516
Dec	65 940	89 050	01,481	9,840	67,327	40,989	2,572
L/CC.		04,009	09,419	10,421	79,840	52,752	2,673
Total		929,770	733,918	151,650	885,568		
Mont	hly average	77,481	61,160	12,637	73,797	Daily Average	2,547
1943							
Jan.		83,870	66.925	10.296	77 991	60 196	9.705
Feb.		76.667 *	66 552	8 210	74 769	66 020	0,700
Mar.		83.787	66 111	0,022	76 092	69 970	2,100
Apr.		81.057	73 191	5,650	79 791	02,019	2,703
May	108.042	82 200	75 995	4 201	70 496	60,200	0,020
June	111.015	78 865	68 971	5 920	74 101	57 970	2,008
July	115,689	80 249	67 540	2 220	70 770	51 910	2,049
Ang	125 160	79.796	68 059	9 957	71 010	01,819	2,089
Sent	133.086	79.961	68 190	4,001	20,100	49,017	2,012
Oct	143 287	82 000	60 945	9 101	09,160	49,147	2,045
Nov	154 407	80,570	79 964	1,760	71,940	41,032	2,680
		00,010	10,304	1,709	15,133	42,151	2,686

The highest monthly rate in 1943 was recorded in July when production totaled 105,589 tons. During August, September and October, three successive declines odcurred, bringing the October total down to 97,274 tons. The trend was reversed in November when a production of 102,136 tons was reported.

Publication of these production figures has been made possible through recent action by WPB and the Office of Censorship in lifting a ban which had been in effect since the start of the war. The action was taken since knowledge of these figures no longer "offers comfort to the enemy," but will be of assistance to industry in making plans for the future.

The Copper Associates also has released figures on net domestic consumption which, of course, is running considerably in excess of production, the difference being made up through imports. For the first 10 months of 1943, consumption totaled 1,437,769 tons for a monthly average of 143,777 tons. The annual total is estimated at 1,700,000 tons. These figtures compare with a 1938 total consumption of 526,743 tons, and a 1942 rate of 1,517,983 tons.

Comparison of production and consumption totals, states the organization, gives only an incomplete picture of the current situation since no complete import and inventory figures are as yet available. Industry stocks, including those in hands of consumers, were estimated at 410,000 tons. However, it is pointed out, no true inventory picture can be given without knowledge of copper in government stockpiles and stocks in fabricators' hands, particularly in semi-finished forms.

ARMY DEMANDS MAINTENANCE

OF SIX-MONTH COPPER RESERVE WASHINGTON officials report that the army has insisted that a six-month stockpile of copper must be maintained as a safeguard against adverse developments in the submarine warfare. Any substantial increase in the submarine menace, it is stated, might jeopardize the supply routes over which copper requirements are shipped from South America. It is pointed out that the six-month minimum requirement specified by the army represents a considerable reduction from the two years' supply originally demanded by army officials.

The present stockpile, according to WWB officials, amounts to only one month's supply, and if consumption continues at the present rate it will take until the end of the year to build up the desired six-month emergency reserve. Therefore, it is deemed likely that allocation of copper for civilian use will continue to be scanty throughout the year, despite the general easing up of copper, steel, aluminum, and other metals.

Although the cut-backs in small arms ammunition programs, and in other lines of war production in which copper is used, have served to ease the copper situation considerably, the reductions have been largely offset by stockpile requirements of the army and by the expanded demand for copper wire. Waters of the Colorado River, harnessed by Boulder Dam, furnish the electric energy for Basic Magnesium, Inc. Two transmission lines with a capacity of 230,000 volts each extend from the dam to the plant, 15 miles away. This forest of steel is the electrical "switchboard" of the plant. In all, more than 100 miles of copper cable weighing approximately 520 tons were strung; 178 steel towers erected; 70 substations constructed and massive 110-ton transformers installed. The main electrical distribution tunnel is almost a mile long and 14 feet wide. It houses the electrical cables which shunt off in subtunnels to the various production units. Insurance against work stoppage because of power failures was the construction of two transmission lines, one of which is maintained as a stand-by. First electric power on the project was turned on May 17, 1942, when the plant and townsite water system went into operation, pumping water from the Lake Mead intake station to the two 15,-000,000 gallon reservoirs. More than \$23, 000,000 worth of U. S. Treasury silver was drafted for Basic Magnesium, Inc., to replace copper as electric bus bars.



(Above)—This picture shows one of the chlorinators being charged. The pellets of raw material fall into great electric furnaces where chlorine gas is introduced and the magnesium oxide is transformed into magnesium chloride, then transported to the electrolytic cells, 880 of them, where metallic magnesium is recovered by means of electro-chemical action. (Below)—This ingot pouring machine receives the crucibles full of hot metal, tips automatically, and keeps the outpoured magnesium alloy flowing steady into moving molds. At the end they drop into bins a finished product, ready for manufacture into implements of war.



THE MINING JOURNAL for JANUARY 15, 1944





Page 7

W. H. HAUSER* answers the question

Why Has War Production Dropped?

RECENT articles stressing the let-down in production of war materials throughout the United States appear to place the cause of this production decline on overconfidence. If one wished to arrive at the true reason for our production drop, and were not afraid to face the facts as disclosed by a careful analysis of the situation, he would find that our production failures are due entirely to three factors:

1. Red tape and failure of government officials to differentiate between a war worker and a non-essential.

2. The harassing of industry by bureaus and investigators.

3. Disruption of transportation for war workers and war production necessities.

A good example of how the first factor caused a production decline in mining is the following case. A miner, hauling much-needed manganese from a small operation, blew out a tire. He left his loaded truck standing and went to the board for a replacement. He was informed smilingly that the quota was out and he would have to wait his turn. The miner looked astonished and then remarked to a bystander: "I guess the country doesn t need manganese as badly as I thought. I can't leave my loaded truck on the highway and make expenses, so I'll have to dump the ore. I believe I'll close down the mine.

The above case is only one of many. It does not apply only to tires, but to any product necessary for the economical and efficient operation of a mine, industrial plant, plane factory, or shipyard. Even when all requirements for priorities have been fulfilled at an enormous time and money waste, no emergency plan has been developed to help the operator on war necessities

The second factor interfering with war production is the constant harassing of industry by bureaus and investigators. Since this article is prepared especially for mining men, the references naturally will pertain to the mining industry. However, almost every industry engaged in actual war work has from one to a dozen incompetent investigators checking into its processes and operations. Practically all of the large operators are afraid of public opinion or government regulations, so dare not object to the continued interference to finds he is again handicapped by priorities which they are subjected.

One large operator stated that there was no way of telling how much a sabotage agent had cost his operation in money, time, and efficiency. This agent had taken hours of the president's time, employes' time, and thoroughly disrupted the entire organization with his continual persecution. When he had finished, the plant was in worse shape for accidents and possible de-

"Globe, Arizona

Page 8

The blame for lessened war production should be placed where it belongs, not on overconfidence, but on mismanagement in many phases of our war effort and on our failure to differentiate between what is essential and what is nonessential.

lays than before. The company dared not say anything, but had to take its whipping with a smile

Another disturbance created by bureau red tape is the quantity of questionnaires which must be filed monthly with Washington. If the company fails to do this, it is threatened with disloyalty, with loss of its priority, or other dire consequences. Many of the inspectors cause no friction. although most of them are unfamiliar with the operation they are inspecting. The filing of forms, waste of time discussing various phases of work unfamiliar to the inspector-and thus we have loss of time for already overworked personnel and nice sabotage for efficient operation.

THE third factor disturbing industrial output is probably the most serious. A war worker or employe of a war industry must spend the same time to acquire gas cards and other needed supplies as a non-essential worker or loafer. After a busy day the war worker must line up and wait his turn for gas cards along with the pleasure rider. He must go through the wait and delay for a tire, a tool, or other implement essential for efficient and cooperative operation.

Most small mines are situated many miles from towns and main roads. Machinery, food, supplies, repairs, and fuel must be transported to the job for dis-tances varying from 10 to 40 miles, over rough mining roads. In most of the mining areas, buses have been taken from the highways, trucks have been utilized for other freight hauls, and private cars have been curtailed by gas rationing. The miner, therefore, must buy the necessary automobiles, or find some other means of transportation which usually is more costly than it has been in the past. But, when the miner tries to buy a truck or car, he and red tape. He must wait the usual time that any nonessential worker has to wait. and he must conform to the same routine. It is necessary that he go through numerous boards before he can get the need-'ed transportation. Some boards are intelligent in their handling of the problems, but that statement might be questioned if applied to other boards.

During all this delay, critical copper ore, manganese, lead, zinc, and tin ore stay in the ground where they were discovered.

And our soldiers at the front lack the equipment with which to do the job for which they are giving their lives.

A miner stood on the street watching a Packard car go by. It was filled with children and driven by a woman. He remarked, "See those new tires? They are war tires, but I am waiting for tires for a truck I need to haul supplies to camp.'

The mismanagement of food supplies for the small miner must be included in the factors retarding the war effort. The small miner gets to town only once a week, or every two weeks; some less frequently. On these trips he must buy enough food to take care of his workers for the period they are in camp. Food rationing has made this so difficult that additional trips have to be made, thus increasing the cost of the operation about 25 per cent and adding another transportation problem.

If the three main factors, red tape, bureau officialism, and faulty transportation, were eliminated from their dominating position in industry, and the individuals participating in industry baiting were put to work as active workers, all production would have a most decided increase, possibly an astonishing volume of increase; This would happen in spite of optimism and overconfidence, both of which are assets instead of liabilities, provided we do not discount the other fellow.

IDAHO BUREAU OFFERS HELP IN FINDING WAR MINERALS

THE Idaho Bureau of Mines and Geology ⊥ is offering 17 pamphlets containing essential information for prospectors and others interested in the search for war minerals. Joseph Newton, professor of the Idaho School of Mines and metallurgist of the bureau, has prepared 14 of the pamphlets; Lewis S. Prater, assistant metallurgist, wrote two; and A. W. Fahrenwald, dean of the school of mines and director of the bureau, contributed one.

Each leaflet contains a description of the mineral or mineral product, its use, and helpful advice for its discovery. They may be obtained by writing to the director, Idaho Bureau of Mines and Geology, University of Idaho, Moscow, for the sum of 10 cents each.

The complete series is as follows:

1. Beryllium and beryl; 2. tungsten and its ores; 3. tin; 4. mica; 5. crystalline quartz; 6. iron ores; 7. sponge iron; 8. magnesium and magnesite; 9. fluorite or fluorspar; 10. antimony; 11. black sands; 12. mercury (quicksilver); 13. phosphates; 14. refractories and insulating materials; 15. abrasives; 16. some general information (discusses importance of mineral industry, mining literature, mineral identification, assaying, marketing minerals, and other topics); 17. aluminum, alumina, bauxite, and clay.

THE MINING JOURNAL for JANUARY 15, 1944



Las Vegas AGE 1-30-44 Magnitude of BMI Plant Is Told In Testimony Before Air Board

The magnitude of Basic Mag- dependable power supply from tance calls made from BMI were nesium, Inc.'s big plant here was described in detail before the civil aeronautics board in Wash-from Lake Mead. These factors Chicago area and 401 to New ington, D. C., recently by Guern- should, in the future, give BMI York City. In the case of tele-

of 169 pounds for aluminum. In addition to the great advantage of its light weight it is readily fabricated and is easily handled. Another very important factor which contributes to the increas-ing market for this metal is its relatively low cost, which has steadily decreased until the price is now only 20 and one half cents per pound compared with \$5 per pound in 1917.

per pound compared with \$5 per pound in 1917. Basic Magnesium, Inc., antici-pates the cost of production in the future will be substantially lower. Thus it seems certain that the combination of light weight low cost and great strength will account for a large demand in the post-war period for this metai from all types of manufacturers. Particularly in the aviation, au-tomotive, electrical and railroad equipment industries as well as the building trades and countless other fields will this new metail be used.

be used. of the scope and size of that con-While magnesium has been known for over 180 years, its use in this country for industrial purposes was extremely limited until the demands of the present war forced the construction of additional conduction footilite tion in August, 1941, and the first metal was produced on Au-gust 31, 1942. The overall invest-ment in the plant and its facili-ties is in excess of \$140 million, and it is now the world's largest producer of magnesium. It has a rated capacity of 112 million pounds per year and it is now producing in excess of rated ca-pacity. In 1943 BMI produced more magnesium than was pro-While magnesium has been ducted at the BMI plant should more magnesium than was pro-duced by the entire country in the preceding 27 years. As of December 31, 1943, 5335 persons were employed by the company, population centers throughout of whom 4887 were located at the country is to be found in the Las Vegas. BMI is the largest records of telephone and telesingle employer of labor in the graph companies at the plant state of Nevada and accounts for during 1943. The total long disabout 60 per cent of the employment in the mining industry in Las Vegas Age the state. The immediate industrial area of the BMI plant covers approxi-1-30-44 mately 2500 acres and includes 154 buildings, Adjacent to the plant site is the town of Hender-son which is now the third larg-Plant to Shut Down? Commenting on newspaper reports to the est community in Nevada with effect that light metals plants in the west would soon shut down, F. O. Case, BMI genan estimated population of 8500. This community has 1824 dwelleral manager, declared Monday in a plantmgs, two churches, a post office, wide bulletin that "the outlook for continued high school, 3 grammar schools, a hospital and a commercial disproduction here at BMI is much brighter trict. The total investment in this than it was a month ago." He added; "Orders residential area is approximately on hand are sufficient to keep this plant in S6 million. Two factors dictated the locafull operation the next nine months. tion of the BMI plant at Las Vegas, Neveda. First, was the availability of a low cost and The bulletin also pointed out that within the last 30 days DPC approved new expenditures for construction and changes here totaling \$217,000.-Basic Bombardier.

described in detail before the dividence of the

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Producers of Mercury, Future of BMI TungstenGetNewHope; Says BMI Not to Close

Metals Reserve Terminates Status of 'Qualified' Mines in New Circular; Case Claims Basic Has 9 Months Work

Hope is held out this week to the tungsten and mercury producers of Nevada, according to the view that is being taken of the Metals Reserve company's action terminating the "qualified" status of mercury and tungsten producers, which is reported to have been misconstrued in some quarters and the current situation has been clarified in the supplementary circulars from the Washington office of the federal agency.

That there is little liklihood of the closing of the Basic Magnes. ium plant at Las Vegas despite reports to the contrary appear in the statement issued this week which says the orders on hand will keep the plant running for the next nine months. NEW CIRCULAR

The Metals Reserve encular from Washington regarding mer-

cury and tungsten is as follows: "After December 31, 1943, no applications from producers of domestic tungsten ores and concentrates or of mercury, requesting confirmation as 'qualified' producers will be considered by Metals Reserve company under the program described in the May 11, 1943 circular of Metals Reserve company.

"The effect of this action, which is taken in accordance with a recommendation of the war production board, is to establish December 31, 1943, as the final date on which applications for eligibility as 'qualified' producers under the domestic tungsten program will be considered."

Accompanying this notice is a statement directed to producers of mercury and reading as follows:

"You have heretofore been confirmed as a 'qualified' producer under the domestic mercury program described in the Metals Reserve company circular dated May 11, 1943, entitled 'Information Concerning Purchase of Domestic Mercury

CASH SETTLEMENT

"Condition numbered eight of that circular measured to Metals Reserve company the right to terminate the domestic mercury program therein described at any time on or after December 31, 1943 upon certain conditions, such termination to be effective 30 days from the date of the giving of notice of termination.

"In accordance with the recommendation of the war production board, you are hereby notified that Metals Reserve company is terminating the program in question, effective as of the close of business January 31, 1944.

Las Vegas AGE 1-30-44

Recent announcement from the War Production Board that \$73,-intermediate required and the 530.50 has been approved for job will be finished. training shop equipment at BMI conflicting rumors concerning the fate of Nevada's largest industry

-magnesium production.

No better indication could be given by our Mappers of Strategy to assure this state of the pros-pects for permanency of the sprawling desert giant at Hender-son, the town born of war's trav-son, the town born of war's travson, the town born of war's trav-ail and destined to add another star-studded page in Nevada his-tory. \$3,884.01; plumbing and pipe fitting shop — \$3,884.01; plumbing and pipe fitting shop — \$379.90; elec-

Amount of the money approved is small compared with the \$150,-000,000 already spent to

our war machine with incendiary bombs, tracer bullets, flares, air-plane castings and parts. But it is a potent approval as far the trend of the nation's thought is concerned concerned.

marked the latest progressive step in Nevada's newest industry. Larger population centers have It is the first such club in the night schools and special classes state. for war production workers desiring to learn or to train for better jobs. Not so Nevada,

In fact many years effort to establish vocational training courses and to get adequate equipment in this area have not Union by the CIO and the char-

So when NYA officials approached BMI people with their proposition it was accepted quickly,

Equipment sufficient to estab-forbids their charter members lish shops in machine and metal work, electricity, plumbing and bargaining in any form. pipe fitting, carpentry, and automotive repairs were in possession of the NYA people on the Pacific

coast This equipment was boxed and placed on freight docks from Seattle to San Diego for shipment to Nevada.

And then Congress killed the National Youth Administration.

BMI immediately joined forces with the Railroad Pass School district and began a strenuous effort to have the machinery shipped, but the Army and Navy froze it on the grounds it was more essential to the armed forces.

Nevada's state board for vocational education entered the fray and assisted the local people. The result is that after eight months the War Production Board finally approved the \$73,530.50 necessary

L.V.R. Journal 1-27-44

Eells To Affend Old Timers Party

This is the first local affair at

which all employes who have

been connected with BMI for two years will attend. Those who worked for McNeil Construction company and sub-contractors but since have been employed by BMI, making a total of two years Howard P. Eells of Cleveland, on the job, are eligible to attend. Tickets are available at the re-

Ohio, first president of Basic ception desk in the administra-Magnesium, Inc., will arrive in tion building at BMI. tend the "BMI old timers party" PRISON SHIP SUNK broken back when a reconnais- casualties. sance car in which he was riding was bombed, will be one of the honored guests at the party. Tate, who served in the medical corps, now is employed in the water treatment plant at BML

which is planned to be held at El LONDON, Jan. 27 (P)-The Rancho Vegas on the night of sinking of a Japanese transport February 3, it was announced to- carrying British prisoners of war day by Walt Hoover, chairman of the party committee. Eells ex-pects to spend several days be-fore returning to the east. Bill Tate, veteran of the Afri- from the Japanese government, can campaign, who suffered a which did not give the number of

The BMI group is not to be con-fused with the Foreman's Asso-ciation of America which has

Thursday night's meeting of

Sunday, January 30, 1944

to buy the equipment outright.

The result, Nevada's southern

students, BMI workers, and for

As a matter of fact the NAF to which the BMI group is affiliated

"You are also hereby advised that Metals Reserve company has elected to offect a cash settlement with respect to your production information and and an anna \$49,000 for the business district in Carver Park.

senator and one of Nevada's out-"It seems unlikely that federal standing citizens. It is the comgovernment agencies would ap- munity built by the Defense Plant prove such expenditures if plan- corporation to house employes. ning to shut down this plant." and families of Basic Magnesium, THIRD LARGEST TOWN

The new postoffice of Hender- "The BMI plant today is proson, the third largest town in ducing magnesium in excess of population in the state, was op- its rated capacity and is the largened January 10 according to ad- est single consumer of Boulder vises received hore. . dam power and Lake Mead wa-

The town of Henderson was ter, government projects that are named in honor of Charles D. playing an outstanding part in Henderson, former United States the development of the west."

L.V.REVIEW-JOURNAL Sept. 8, 1943 Sheriff's Office And BMI To Get Short-Wave Radio

Final steps have been taken to provide short-wave radio equip-ment for automobiles of the Clark county sheriff's office and the Basic Magnesium, Inc., plant, a plan under consideration for several months, it was revealed vesterday by Chairman James H. Down, Sr., of the Clark coun-ty board of commissioners.

The county board obtained a permit from the federal communications commission for the installation of the equipment and has entered into a lease with the Defense Plants Corporation, which will install the equipment and maintain it for the duration of the war, plus six months.

Five cars from the sheriff's office are to be equipped with the iwo-way radios, in addition to the central station and motorized equipment in use for general police work at the BMI plant. The radios will be effective for a radius of 250 miles and will enable headquarters to contact the officers in the vehicles at any point in Clark county. This will speed up the activities of the patrols and aid materially in preventing the escape of criminals, Down pointed out,

Basic Magnesium's Race Discrimination Menaces Production

T FLATAL LABOR HERALD

SETTEMBER 10, 1943

LAS VEGAS, Nev., Sept. 9 - Sensational testimony demonstrating collusive attempts by the management of Basic Magnesium, Inc., and the AFL to deprive the CIO of its legal rights as the collective bargaining agent and to cause chaos in the plant was given by officials of Local 629, MMSW, before the Truman U. S. Senate Committee here.

The AFL was also invited ments and between the depart-to participate in the hearing ments, caused by bad manage-but declined, according to Senator Harry Truman, who With all employment of into leaving. presided.

Negroes suddenly halted and PULL COUNTS the plant losing manpower because of quits running as high as 250 per day, the pub-lic investment of more than state of because of a EMI work-er's life, in getting his job, in se-curing transfers and promotions, in obtaining housing, it is not what he can do but who he knows that \$150,000,000 in the huge spells success or failure for him. "The company refuses to grant S150,000,000 in the indig "The company refuses to grant seriously imperiled. CIO members testified. The entire plant is tense with threats of race rioting, it was destructed and the seriority in all cases of promotion. Rank fadeclared. Charges of discrimination have been filed against BMI with the Fair Employment Practices Com-mittee

mittee.

CIO Attorney A. J. Isserman de- general manager of the plant, up

CIO Attorney A. J. Isserman de-scribed the legal steps by which the CIO became the legal collec-tive bargaining agency. Then Es-tolv E. Ward, executive officer of Local 629, told how the company had refused to bargain after cer-tification, how it had fired men for belonging to the CIO and even for living with CIO members.

living with CIO members. "The company's claim that it is an innocent party in the mid-die of a jurisdictional dispute is faise. and always has been faise." said Ward. "The com-pany is using AFL organizations and its contract with the AFL as a convenient stooge with which to defeat honest union-tam"." Aside from the threat of rac

ism."

disturbances, other bad condition 1,500 GRIEVANCES Lack of bargaining rights and at the plant are exorbitant rent grievance procedure have caused and insufficient housing, imprope approximately 1.500 unsolved allocation of housing, bad treat grievances to pile up. Ward testi-fied. The absence of labor-man-agement committees and the lack of schority rights provide an open field for favoritism, weste, and poor production, he asserted. Documentary evidence was in-

He told how v orkers who give physical examinations to new troduced showing that rentals hires had been instructed to re-ject Negroes wherever possible, ernment housing are higher than whereas white alcoholics from in better defense housing, more big-city skidrows are being re- conveniently located, in other big-city skidrows are being recruited by the bus oad.

war production centers. Ward related how, when the company finally issued its order plant canteens sold spoiled and barring all new employment of mouldy food to the workers. The

1. O MAN POR ADDRESS OF ADDRESS OF ADDRESS

Negroes, Paul Burns, local director of U. S. Employment Service, stated that the company had been unable to furnish him with any-thing but "silly" reasons for the order. DRUNKS O.K. ington, Chief Counsel Hugh Fulton

"This means that the com- and the committee's investigator. pany, while rejecting capable and reliable men, has revived its former methods of recruiting drunks and jailbirds from Los Angeles and other vicinities un-der sentences of '60 days or BMI'," Ward declared.

An urgent domand that every step be taken by the Government to secure the continued operation of Basic Magnesium plant after the war was voiced by the CIO

INTRODUCTION* to

Basic Magnesium—the Plant and the Job

MAGNESIUM is the miracle metal of World War II. It is the metal which enables men to fly higher and faster, to shoot with more deadly accuracy, and to sow flame and desolation on the enemy. It is the metal which brought about the miracle of Basic Magnesium, Incorporated.

Not so many years ago, men considered magnesium only as a base for various medicines. Later they learned that its ores made excellent brick and tile. Still later this versatile element was used in flares and flashlight powders. Today, magnesium, the eighth most abundant metal of the earth, is one of the essential elements for modern warfare.

This silvery, lustrous element is only three-fifths the weight of aluminum but its alloys are as strong as aluminum; it can withstand much greater vibration than aluminum without failing. Consequently, it is most valuable in construction of airplanes, landing gears, and even artillery wheels, in addition to fire bombs and tracer bullets. Transportation on land, sea, and in the air has been revolutionized.

Although nearly a century and a half have passed since magnesium was identified as one of the metallic elements of the earth's crust, comparatively little was either known or done with the metal until recent years. At the conclusion of World War I, the moderate impetus which had been given to production of magnesium practically stopped except in Germany. The Germans continued experimentation with the metal and by 1937 had become the world's leading producer of magnesium. In the United States, the metal was being produced, but chiefly as a by-product from certain brine wells in Michigan and other parts of the country.

In 1937, the Germans constructed an electrolytic plant for the British near Manchester, England, and the British began to be a significant factor in magnesium production. Thus, the British were supplied by their arch enemies with the technique which may prove to be a deciding factor in World War II.

Before the war began it was known that Nevada had immense deposits of magnesium ores-enough, it was estimated, to supply the world for 150 years. Nevada also had other advantages-the power and water necessary to wrest the magnesium from its ores, made available through the harnessing of the Colorado River by Boulder Dam.

THE project was conceived early in 1941 through the efforts of Basic Refractories Company, Cleveland, Ohio. That company owned a number of mining claims

"Abstracted from "Welcome to BMI" pub-lished by Basic Magnesium, Inc., Las Vegas. Nevada.

THE MINING JOURNAL for SEPTEMBER 15, 1943

So that its employes may have a better understanding of the magnitude and importance of their plant and their jobs, Basic Magnesium, Inc., has published a booklet giving the basic facts about the project, the largest magnesium plant in the world.

in Gabbs Valley, near Luning, Nevada, approximately 330 miles north of the Basic Magnesium Townsite. Deposits were large bodies of dolomite, magnesite, and brucite, and their use prior to the war was almost entirely for the manufacture of refractory brick and tile.

It was decided that the electrolytic method of reducing anhydrous magnesium chloride offered the best possibilities, and to that end an agreement was made with a British company, Magnesium Elektron, Limited, near Manchester, England, for the American rights to the process being used by the British.

In October 1942, Basic Refractories sold its interest to the Anaconda Copper Mining Company which thus made its first entry into the light metal field. Under the direction of Anaconda the tempo of construction was speeded and production was



geared to the war effort. Improvements were made, the organization was streamlined, and metal unit after unit was brought rapidly into production.

On May 14, 1943, the last brick was laid in the tenth and final unit, completing a job begun in September 1941.

Estimated production at Basic Magnesium is 112 million pounds, or 56,000 tons of magnesium a year. Significance of this figure is seen when one considers that this company alone will produce nearly twice the amount of magnesium produced in the entire world in 1939 when the Germans first marched their legions into Poland. In that year, world production of magnesium was 68,355,000 pounds.

BMI, as the plant is known throughout the country, probably is one of the most phenomenal projects the world has seen; where bricks are laid with a precision which would make a watchmaker proud; where pipe lines are made of silver, lead, zinc, rubber, copper, glass; where enough water and electricity are used each day to supply a city of 1,800,000 inhabitants; where the magnitude of the great desert basin itself dwarfs the plant into relative insignificance; where practically every craftsman has been required to call back into use every trick and skill he ever knew.

To supply the plant with water, a pipe line was constructed from Lake Mead, 15 miles away, lifting the water approximately 800 feet from the surface of the lake to two 15,000,000-gallon reservoirs above and behind the plant. The pump house was constructed on the end of a cantilever bridge which required more than 1,000 tons of steel. The bridge anchor arm is more than 150 feet long and the cantilever arm is 230 feet long. In order to provide for the high and low water levels of the lake, pump shafts were extended down 190 feet from the end of the bridge. Approximately 700,000 pounds of dynamite were used in excavating the trench for the water line. The trench averages 10 feet in depth, 6 feet in width at the top, and 5 feet in width at the bottom.

Two transmission lines bring 200,000 kilowatts of electric power from Boulder Dam to the plant. The electric equipment cost \$12,500,000, and required more than 6,000,000 pounds of copper-including the largest bus-bar installations in the world.

Anderson's Camp, where most of the construction crew and the single men operating the plant are housed in dormitories and tents, has a mess hall capable of seating 2,500 men at one time. Construction engineers all over the world considered Boulder Dam one of the most amazing feats of engineering and construction in the world, and yet at its peak the Boulder Dam job employed only 5,250 men as compared with 13,618 men on the Basic job at its peak.

Page 3

this week in testimony before the Truman Committee.

"Our national Government, the of southern Nevada, and the BMI workers all have a stake in the continued operation of BMI after the war is over," declared E. A. Phaneuf, vice president of Basic Union No, 629.

NO WAR BABY

"We of the CIO feel that magnesium has an important place in post-war development and that BMI, with the water, the power and the ore all strategically located, must play a big role in that development. There has been talk that BMI is a war haby. "The CIO feels that every effort should be made to end this talk and to assure the people that this great and valuable plant will continue to be the heart of industrial development in southern Nevada." "There is friction in the depart-

During the construction period every conceivable type of shelter was used, from shacks built of cardboard and scrap lumber, to modern stone houses electrically heated and cooled. Tents, trailers, barracks, dotted the desert reaches near the plant. And when the construction and operating crews swung into Las Vegas on payday nights, mingling with the soldiers from McCarran Field Gunnery School and from the Boulder Dam guard details, there was a sight the like of which may never again be seen. The average weekly payroll in this western desert camp regularly exceeds a half-million dollars.

Basic Magnesium is not what is known as a brick, sheet metal, electrical, or plumbing "job,' yet it has established a world record in all four of those categories.

THE process used by BMI is not new, except for certain American refinements. Essentially the process involves changing magnesium oxide into magnesium chloride and then breaking down the magnesium chloride compound into metallic magnesium and chlorine gas.

Magnesite is magnesium carbonate and the process as applied by BMI consists of mining the ore at Gabbs Valley, heating it to drive off the carbon dioxide gas, mixing the resultant magnesium oxide with peat moss, coal dust, common salt, potassium chloride and calcium chloride. The various dry components are cemented with a solution of magnesium chloride to form pellets or briquettes.

After the pellets or briquettes have been through kilns in which they are burned to produce porosity, they are placed in an electric furnace called a chlorinator. In this chlorinator they are melted and simultaneously subjected to a stream of pure chlorine gas which changes the magnesium oxide to magnesium chloride.

The molten magnesium chloride is tapped off at the bottom of the chlorinator and transferred into electrolytic cells where a direct current is passed through the mixture breaking down the magnesium chloride compound into metallic magnesium and pure chlorine gas. The cells are so designed that the metallic magnesium can be ladled off and sent to a refinery where remaining impurities are removed. Under ordinary operating conditions the magnesium ladled from the surface of the melt is more than 98 per cent pure. In the refinery it is purified to 99.7 per cent or better.

The refinery also is the place where dif-ferent alloys are made. At the present time Basic Magnesium production is going chiefly into the type of magnesium metal used in incendiary bombs.

Chlorine gas, which is sent through the chlorinators, is manufactured in a separate plant, construction of which was supervised by the Hooker Electro-Chemical Company of Niagara Falls. Electrolysis of common salt brine is the method used. The by-product of this operation is caustic soda chemically known as sodium hydroxide which in itself is one of the most widely used chemicals in the world.

nerstones of the chemical industry and go of this desert giant. If it were set down taxes for the first half of 1942. Caustic soda and sulphuric acid are cor-

Page 4



into a wide variety of products ranging from explosives to glass. The chlorine plant at BMI is one of the three largest in the world, producing 225 tons of chlorine each day and 250 tons of caustic soda. Approximately 370 tons of salt a day are dissolved into 300,000 gallons of brine to make the raw material from which the chlorine and the caustic soda result.

When December 7, 1941, plunged the United States into war, an immediate and acute shortage of copper resulted. As far as industry is concerned, copper's chief use is conducting electric energy. To the munitions people, copper is vital in the production of shell casings, etc. It is understandable that overnight the allocation of copper became one of our major war problems. There was not enough copper to equip Basic Magnesium. However, silver is even a better conductor of electricity than copper, and at West Point, New York, the United States Treasury was holding 47,000 tons of silver, much of it mined in Nevada, against which no coinage certificate had been issued.

Nearly half of this silver was loaned to Basic Magnesium, Inc., by the treasury. It was fashioned into bus bars and other electrical fittings and shipped to the Nevada desert. It arrived in great silvery planks, some of them 12 feet long-\$23,-313,300 worth-under the direction of armed treasury guards.

BASIC Townsite, where company employes are housed, is the third largest city in Nevada. It is a complete modern village of 1,000 homes, a market, grade and high school, recreation center, and hospital. In the townsite are 44 double apartments for either single women or couples. Twenty-six additional apartments are located at Boulder City. North of the Townsite on the opposite side of the Las Vegas-Boulder City highway, are 500 additional homes and 212 dormitory rooms. These rooms will house 320 single men. In addition accommodations are available for single men at Anderson's camp. Northeast of Anderson's Camp is a modern vil-lage for Negro workers. This village includes 324 family units and 175 dormitory rooms for single men.

It is difficult to convey the actual size

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the ground. The entire plant, housing and service facilities cover an area of more than four square miles. It staggers the imagination that all this work was begun on September 15, 1941, and that 11 16 months later the first silvery magnesium was poured.

Prior to September 15, 1941, the present plantsite was a gently sloping prairie dotted with sagebrush and cactus, and inhabited only by rattlesnakes, tarantulas, and vinagaroons. A thousand modern dwellings were built in the space of weeks. Lawns were seeded and landscaped, and a modern sewerage system and disposal plant, worthy of the finest city, was installed.

Before the war, the British plant near Manchester, England, was said to be one of the largest in the world. Basic Magnesium is two and one-half times larger. It consists of 10 metal reduction planu, two chlorine plants, three refineries, and a large preparation plant where the raw materials are made into pellets. Total cost of the plant is approximately \$140,000,000

ABANDONED MINES CHECKED FOR SCRAP IRON AND STEEL examination of all abandoned mines the western states is being urged Affort to obtain additional scrap iron and steel. The drive in California is be-ing conducted by the Special Projects Section of the Way Production Board under the direction of Don S. Neher.

California has been called upon to turn in one-third more scrap metal in the sec-ond half of 1943 than it did during the first six-month period. The quota for the last half of 1943 has been set at 517,000 tons. Southern California's scrap metal supply has been depleted greatly by the Kaiser Company's new steel plant at Fontana, and it is estimated that the plant will need approximately 25,000 tons of scrap monthly.

ANACONDA MAKES PRELIMINARY REPORT ON FIRST SIX MONTHS

N a preliminary report for the six months I ended June 30, 1943, the Anaconda Copper Mining Company, 25 Broadway, New York, and subsidiaries show a net in come of \$17,854,952, or \$2.06 a common share, compared with \$18,204,033, or \$2,10 a share in the corresponding 1942 period. Total income for the six months was \$40,-456,310, compared with \$55,546,070 in the same period last year.

The company has set aside for U. S. and foreign income and profits taxes, including \$2,200,000 for excess profits levies, the sum of \$16,250,000 after a \$220,000 provision for postwar refund of excess profits taxes. This compares with a prosion of \$27,057,552 for all U. S. and foreign income taxes and excess profits

THE MINING JOURNAL for SEPTEMBER 15, 1943

LAS VECAS NEV REVIEW-IGURNAL SEPTEMBER 14, 1943

Basic Plant Given 12 Million Value

CARSON CITY, Sept. 16 (UP) The value of the Defense Plant Corporation of Basic Magnesiun Inc., in Clark county has been fixed at \$12,649,608 by the Nevada tax commission, it was announced today, The valuation represented a

reduction from the previously as-sessed valuation of \$14,499,608 and covers real estate only of the plant corporation. No action was taken by the

commission on property owned by BMI or the Defense Plant Corporation in Nye and Mineral counties.

ALT LARE CITY, UTAH, TRIBUNE 8.522; Sunday 94,635. ScPTEMBER 17, 1943

Nevada Cuts Tax Value **Of Magnesium Plant**

CARSON CITY, Nev. (UP)-The value of the Defense Plant corporation - Basic Magnesium, Inc.-property in Clark county has been fixed at \$12,749,608 by the Nevada tax commission, it was an-

The valuation represented a re-duction from the previous valua-tion of \$14,499,608, and covers real estate only of the plant corpora-No action was taken by the commission on property owned by B M I or the Defense Plant cor-

poration in Nye and Mineral coun-S. F., CAL., COMMBICIAL NEWS

PERIEMBER 17, 1943

Las Vegas Magnesium Plant Value Is Set At \$12,749,608

CARSON CITY, Sept. 16 (U.R)-The value of the Defense Plant Corp. of Basic Magnesium, Inc., in Clark County has been fixed at \$12,749,608 by the Nevada Tax Commission, it was announced today.

The valuation represented a reduction from the previously assessed valuation of \$14,499,608 and covers real estate only of the plant corporation.

No action was taken by the commission on property owned by RMI or the Defense Plant Corp., in Nye and Mineral Counties.

REND, NEV., JOURNAL SEPTEMBER 17, 1943

Reduce Valuation Of Defense Plant

The state tax commission reduced the assessed valuation of the Defense Plant Corporation of Basic Magnesium, Inc., by almost two million dollars at a meeting held in Carson City September 14, The valuation was made on real estate of the plant corporation, which permits itself to be assessed on realty. The reduction affected only the property held in Clark county,

Present at the meeting were George Allard, statistician for the tax commission; Gov. Carville, Henry Rives, C. B. Sexton, D. W. Park, J. W. Woodward, F. O. Stickney and Howard Doyle.

L.V.Age 9/17/43



ABOUT MAGNESIUM

For little more than one year we have watched the heroic efforts of Basic Magnesium, Inc., its officials, construction organizations,

and employes in every line of work, in heroic efforts to complete the great plant and produce magnesium in an sufficient quantity to meet the demands of the war efforts of the Allied Nations. It was Aug-

ust 31, 1942, when a group of Las Vegas people witnessed the tap-ping of the first chlorination furnace and the fiery stream of molten magnesium pouring into the big caldron which carried it to the cells where it was reduced to magnesium metal.

The date marked the first step in production which from that day on continued to increase in volume. Thousands of tons of this vital metal during past months have been pouring from the plant, increasing in amount with the completion of each successive unit until the almost insatiable war demands were met.

On the Russian front; in the Mediterranean area; in the South Pacific, in the Aleutians, in China and India and Burma; on the industrial cities of Japan and most important of all, on Berlin and all the great industrial cities of Europe which had been turning out the materiel of warfare for the Axis, magnesium explosive bombs and incendiaries and lighting flares and flash lights from Basic Magnesium, Inc., in Las Vegas have been doing a decisive work in the shaping of victory for the Allied Nations.

The cry had been for more and more of the "magic metal" and it seemed that there would never be enough. Basic Magnesium labored sternuously day and night. The estimated output of the plant was far exceeded in actual production. Now, we are told, the demand has been filled. Naturally we wondered what that meant for Las Vegas and the great plant of Basic Magnesium. The answer was clear, simple and convincing. For months the scientists and metallurgists have been deep in the study of how best to adapt post-war industries to the increased use of magnesium metal and its various alloys. They have studied and experimented in the various uses of the metal and how to fabricate it for use in thousands of articles of every-day use. They are solving the problems of casting, rolling, pressing, welding, and all the processes necessary to place magnesium among the indispensible elements of the new industrial world which will be born with the end of the war.

More important still, is the fact that those who know most about magnesium and its adaptibility to modern industries, tell us that the enterprise and skill of scientists are successfully solving the problems and that, instead of the war demand being the major means of utilizing magnesium, the greatest use for it will come in the demands of everyday, peaceful existence following the war,

Basic Magnesium takes its place definitely as a major and permanent industry in the scheme of the new civilization ahead of us.

L. V. Age 9-17-43

OUR FUTURE?

Speaking of pessimists and optimists, there are some of the first named class who think they have the situation sized up and see a depression coming to Las Vegas with the ending of the war.

On the other hand the optimists have quite another view. They see that Basic Magnesium and Manganese Ore are settling down to normal operations which will permanently employ between six thousand and seven thousand men. They realize that, as soon as priorities and restrictions are removed Las Vegas and neighboring communities will enjoy a vast amount of building construction to provide business blocks and living quarters for several thousand who are still compelled to live in unsanitary and unpleasant surroundings. They realize that the present make-shift accommodations will give way to well ordered homes and the creation of a more substantial and permanent city.

It is foreseen also that industries now monopolized by war contracts will, following the war, establish themselves in this region where there is an ideal combination of power, water, climate and the essentials of fabricating a thousand things which will be needed by the whole world during the years of reconstruction, while our tourist industry will be far greater than ever before.

Instead of fear of depression, the people of Las Vegas should be filled with encouragement at what the future promises. We should realize that the war, in spite of all its misery and destruction, has created conditions which assure the future growth and the future greatness of this entire region.

L.V.Review Journal 9/23/43

BMI Pamphlet **Tells of Its Work**

come to BMI^o has been published for circulation regarding the Basic Magnesium, Inc., plant and is being distributed particularly to prospective workers from the distributed particularly in the desert is told in monotonic story of the new industry in the desert is told in other states.

having been "built by deter-mined men, operated by deter-The booklet is donnas. This is a place where living conditions in this area. people take scorching heat, lashing sand storms—this is the place where Japs and Germans will be defeated

Entitled "Miracle in the Des-

ert," the featured article in the pamphlet opens with this statement, "Magnesium is the miracle metal of World war II. It is the metal which enables men to fly higher and faster, to shoot with A new pamphlet entitled "Wel-sow flame and desolation on the

prospective workers from graphic style. Statistics on the ther states. It describes the BMI plant as frequent questions asked are list-

The booklet is designed to inmined men, a big harsh job in a form newcomers on the importharsh land, with no place for lace panties," brittle men or prima industry and to prepare them for

L. A. Evening Harold Express 9-28-43

Mighty Achievement One of many gigantic construction feats performed by the McNeil Construction Company was the completion of Basic Magnesium's \$150,000,000 can industry in meeting the de-

L.V.Review Journal

and efficiency with which this task was handled will go down in years to come as one of the "miracles" performed by Ameriplant in record time. The speed mands of the war effort.



Jack Charles of London, England, who has been one of the British consultants in the chemical and metallurgical process at the Basic Magnesium, Inc., plant, plans to leave Saturday to start his homeward trip, after completing his duty here.

He will be accompanied by his family. They will travel to Chi-cago and New York City for stops before crossing the Atlantic.

Las Vegas AGE 1-23-44 **Carson Meeting** Talks Of BMI

CARSON CITY, Jan. 22 (Special)-A plan to insure post-war operation of Basic Magnesium was considered by the advisory mining board in Carson Tuesday. A decision has not been reached yet, and details will be announced later.

The board was newly commis-sioned in the 1943 Nevada legislature and consist of E. P. Carville, chairman; William Dono-van, Silver City; P. A. Keele, Las Vegas; E. J. Schrader, Reno; J. C. Kinnear, Ely; H. A. Johnson, Tonopah; Paul Gammill, Pioche, who was absent. Fred E. Gray, member from Silver Peak, submitted his resignation to the board. Present at the meeting but not on the board were Prof. Jay C. Carpenter, Mackay school of mines, and Henry Reeves, secretary of Nevada mine operators.

Las Vegas AGE 1-23-44 Future of BMI

Imagine a world in which-Automobiles will travel 100 miles on a gallon of gasoline. Tires will give 100,000 miles of

Kitchen stoves can be carried about like orange crates.

Two or three men can lift an

automobile out of a ditch. Fantastic? Not at all! All the above are not only pos

sible but extremely probable be-cause the decade following the war will see the most amazing industrial developments of the 20th century.

Magnesium, of course, is the cey to this development-and BMI as the world's largest producer of magnesium will be a dominant figure in the post-war period.

Back in 1933 Dr. William J. Hale predicted civilization was passing rapidly out of the "Iron Age" and into the "Magal Age"an era in which the alloys of magnesium and aluminum would be the basis for our industrial development.

Hale's prediction came before the outbreak of the present con-flict which has vaulted the two light metals into first place in the world of metals.

Today the price of magnesium is 20½ cents a pound—once it was \$86 a pound. Today the price of aluminum is 15 cents a pound In 1939 the two metals were 37 12 cents and 20 cents a pound respectively.

However, on the basis of unit volume magnesium already is the second cheapest metal in the Comparing blocks of world. metal of the same size it is interesting that the costs are: steel, magnesium, 4.5c; aluminum, 5:45c; zinc, 7.3c; copper, 13.1c.

L.V.Tribune 7 17 44 KNUDSEN NOT OPTIMISTIC **ON MAGNESI**

Basic Magnesium, Inc., and its cohorts yesterday were still optimistic about the future of the great war plant at Henderson, but Lieut. Gen. William S. Knudsen, boss of the Government's supply, was busily throwing water on the

whole rosy picture. In Los Angeles, where he had been attending and speaking at a council on the war, together with Admiral William F. Halsey, Un-dersecretary of War Patterson and others, General Knudsen, in peacetime head of General Mo-tors was anoted as "sounding a tors, was quoted as "sounding a virtual death sentence on West Coast aluminum and magnesium

industries." General Knudsen said: "We have enough aluminum

and magnesium-and I mean we don't need any more!" At the same time, a B.M.I.-ad-vised article in the Union Pacific's trade magazine out of Los Angeles. The Arrowhead, was in the mails and painting a glowing

the mails and painting a glowing picture of optimism. "Although the Basic Magne-sium project cost \$150,000,000," said the magazine, "it is not in any sense a 'war baby." "Already the use of magnesium looms large in the future of met-allurgy. It is now envisioned that

(Continued from page 1.)

Knudsen Pessimistic on Magnesium Future

trim, petite stenographers will be pushing office desks and type-

be pushing office desks and type-writers around as easily as they now push a vacuum cleaner. "Sewing machines and wash-ing machines made of magnesium will be not only light in weight but strong and durable as well and metallurgists are now talk-ing of grand piapos which can ing of grand pianos which can be heaved around by one man.

"Hollow metal furniture was fast becoming a fad when the war plunged us into the emer-gency fields. That very thrust has brought this new light metal to the front and Ameri-

ca is destined to take the lead in popularizing magnesium metal for every purpose. "That will include metal doors. and window frames, refrigerators

and kitchen ware, radio frames, office equipment, bathtubs and almost every conceivable article or commodity which has formerly been built from the heavier metals.

"With the building of the mammoth Basic Magnesium project, Southern Nevada and Las Vegas now seems to be coming into its own as a man-"With an abundance of cheap electrical power from Boulder Dam and a wealth of rich min-

erals and non-metallic ores avail-able, other projects, large and small, will probably follow in the footsteps of B.M.I. and take advantage of Nevada's resources,

1-11-44 **BMI** Manager Refutes Reports That Plant May Close Down

L.V.R. Journal

Calling attention to the fact government agencies would ap-that "orders now on hand are prove such expenditures if plan-sufficient to keep this plant in ning to shut down this plant."

full production for the next nine months" and to new expenditures authorized within the last 30 days by Defense Plants Cor-

poration, F. O. Case, general manager for Basic Magnesium Starting today and manager for Basic Magnesium Incorporated issued a bulletin to through the month of January, company employes indicating there is little likelihood of the plant's closing, despite state-ments to the contrary. The tort of the plant's of the contrary.

down apparently refer in particular to plants using processes other than the one used at BMI.

"The outlook for continued production here at BMI is much brighter than it was a month ago. Orders now on hand are suffici-ent to keep this plant in full pro-duction for the next nine months. "Furthermore, within the last 30 days Defense Plants Corpora-

tion has authorized new expenditures for construction and changes aggregating \$217,000. These include \$108,000 for hot

metal transportation, \$60,000 for an addition to the hospital, and \$49,000 for the business district in Carver Park. "It seems unlikely that federal

AS VECAS NEV, REVIEW JOURNAL

LATHIADV II IGH

Two Magazines More publicity for the Las Vegas area has just appeared in several magazines.

A photograph of the Charleston mountains here appears in color on the cover of the Union Pacific Raliroad's Arrowhead Magazine, while a lengthy article on the Basic Magnesium plant appears in the magazine.

B.M.I., Charleston

Publicized in 11

Life magazine also carries an article about B. M. I. in a current issue.

RENO MEN. CLAZETZE

Refutes Rumor

BMI To Close

Case Cites Huge

Material Orders

Calling attention to the fact that

orders now on hand are sufficient

nesium incorporated, issued a bul-

letin to company employes indi-

cating there is little likelihood of

The text of the bulletin follows

JANUARY 15, 1944

BMI Manager Refutes Reports That Plant May Close Down

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full production for the next nine months" and to new expendi-tures authorized within the last 30 days by Defense Plants Corporation, F. O. Case, general manager for Basic Magnesium Incorporated issued a bulletin to company employes indicating there is little likelihood of the plant's closing, despite statements to the contrary. The text of the bulletin fol-

lows: "Statements appearing in the public press last week to the ef-fect that light metals plants in the west are soon to be shut down apparently refer in particular to plants using processes

other than the one used at BMI. "The outlook for continued production here at BMI is much to keep this plant in full production brighter than it was a month ago. for the next nine months" and to Orders now on hand are sufficinew expenditures authorized withent to keep this plant in full proin the last thirty days by Defense Plants Corporation, F. O. Case, general manager for Basic Magduction for the next nine months.

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L.V.R. Journal 1-11-44

JATUSPEY 15, 1544

ments to the contrary. The text of the bulletin fol-lows: "Statements appearing in the public press last week to the ef-fect that light metals plants in the west are soon to be shut

Morning Tribune Jan 14, 1944 and employ 2.000.000 persons.

> BRUCITE IN MILLIONS OF TONS Power shovel bites into refractory mineral at Gabbs Valley.

Declared by geologists and met-| to the company's plant at Maple allurgists to be the largest and Grove, Ohio, for making fire brick highest in purity of any known de- and lining furnaces, with present posits of brucite, the Gabbs valley output reported to be around 300 deposits, showing over large areas tons per day.

on the surface, were located in the Following the start of this enterearly twenties by the late Harry E. prise, attention was directed to the Springer, then operating gold prop- far larger deposits of magnesite, erties in the Douglas district near adjoining the brucite and at some points intermixed with the latter. Mina.

It was not until the late thirties Surface work was said later to that the material attracted any in-terest, when a large number of tons of high-quality magnesite in claims was taken under lease and this deposit, which was acquired option by the Basic Ores inc., now the Basic Refractories inc., of Cleveland, Ohio.

Shipments that have grown con- world's largest producer of the stantly in volume have been made light metal.

Boulder City News 1-19-44

Basic Has Orders Enough for 9 Months Operation Manager Case 'Bulletins'

The outlook for continued pro-duction of magnesium at B.M.I. is much brighter than it was a month ago, F. O. Case, B.M.I. general manager, stated recently in a plant-wide bulletin, in commenting on newspaper reports that the light metals plants in the West would soon shut down.

"Orders on hand are sufficient to keep this plant in full operation the next nine months," the "Basic Bombardier" quotes him.

Case's bulletin also pointed out that within the last 30 days Defense Plant Corporation approved new expenditures for construction and changes at Basic totaling \$217,000, as follows:

the plant's closing, despite state- Hot metal transport ... \$108,000 ments to the contrary, says the Hospital addition .. 60,000 MAPRINGS, CALIF., LINELICHT JANUARY 28 1944

Appoint Margaret Bushard To USO Desert Staff

Miss Margaret Bushard, former director of USO activities in southern Nevada, has been appointed to the USO Desert staff, according to an announcement by Harry H. Hall, head of the desert area office. Her main task will be to or ganize a standard women's and girls' program throughout the 20 desert USO clubs, it was said.

She has been affiliated with the national USO for the last 18 months, during which time she developed a number of outstanding program ideas for industrial workers. As director at Las Vegas, she established a residence club for girls; set up a recreation program in cooperation with the public relations office of the Basic Mag-nesium. Inc., war plant; instigated the opening of an exten-sion USO club in Las Vegas. Before becoming connected with USO, she was physical education director at Immaculate Heart college and high

school in Hollywood. Her head-quarters will be in Indio and her territory will extend into, Arizona, Nevada and the Caly fornia desert.

BMI Folks to Hold

'BMI oldtimers" which will be held at El Rancho Vegas on the

To be eligible to attend one must have worked for the B.M.I. for two years. Those who worked for the McNeil Construction company and are now in the employ of B.M.I. are also eligible if their total time amounts to

Ohio, the first president of Basic

Another guest of honor will be Bill Tate a veteran of the African campaign, who is now em-ployed in the water treatment plant at B.M.I. He served in the

Las Vegas AGE 1-30-44

Old Timers Party

A party is being planned for

evening of February 3.

two years.

Howard P. Eills of Cleveland, Magnesium, Inc., will arrive in Las Vegas, February 2 and will attend the party as an honored guest.

Coming back to b possibility, we may be bathing in magnesium bathtubs, cooking in magnesium utensils, eating with magnesium table ware, writing on magnesium typewriters, flying in magnesium airplanes

We probably will have magnesium furniture which the average housewife can move with one hand in pursuit of her housewifely duties,

On the designing boards of one large aircraft plant are the plans of a huge post-war cargo plane operating for more than 100 years at the most conservative

There are millions and millions estimate. of tons of magnesium ores in this state.

We may have to tear out Boul der dam and build a bigger one to get enough electricity to keep the plant going.

One thing is certain-there are enough possibilities in post-wat America for magnesium metal to make this area the Pittsburgh of the West, without the smoke and soot.

ocation and climate. Basic Magnesium officials here are enough orders on hand now to assure the plant's operations "for the next nine months at least." have been quoted as saying there

in to the hospital, and \$49,000 for the business district in Carver Park. "It seems unlikely that federal

"Statements appearing in the public press last week to the effect that light metals plants in the west are soon to be shut down ap-

Review-Journal.

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"It seems unlikely that federal government agencies would approve such expenditures if planning to shut down this plant."

Carver Park stores. 49,000 APHO NEY CAZETTE

A ILLARY 19, 1946

nounced later.

Mining Board

Discusses BM

CARSON, Jan. 19 .- A plan to

insure post-war operation of Basic

Magnesium was considered by the

advisory mining board in Carson

Tuesday. A decision has not been

reached yet, and details will be an-

sioned in the 1943 Nevada legisla-

ture and consists of E. P. Carville,

chairman; William Donovan, Silver

City; P. A. Keekle, Las Vegas; E.

J. Schrader, Reno; J. C. Kinnear, Ely; H. A. Johnson, Tonopah; Paul

Gemmill, Pioche, who was absent.

Fred E. Gray, member from Silver

Peak, submitted his resignation to

the board. Present at the meeting

but not on the board were Prof.

Jay C. Carpenter, Mackay school of mines, and Henry Reeves, sec-

retary of Nevada mine operators.

The board was newly commis-

medical corps and suffered a broken back when a reconnaissance car in which he was riding was bombed.

Walt Hoover is chairman of the Committee of Arrangements. Tickets may be had at the reception desk in the administration building.

PATTLE MOUNTAIN, NEV., SCOUT

Production of Magnesium Now Steady

Signalizing the final step in progress toward stabilized capacity production of one of the most urgently needed of war me tals, the Basic Bombardeer, publication of the Basic Maghesium, Inc., at the main plant in Clark county, said this week that another all-line record went down in the books of industrial history at BMI Saturday, July 31, when the last switch was thrown to put in operation the final electrolytic cell in the world's largest magnesium plant.

When juice from Boulder dam started flowing through the silver bus har on the final circuit in number 10 unit, all cells but 12 in the plant were "cooking."

Probably never again will such a large number be in operation at the same time, as steady production necessitates cut-outs for maintenance and repairs.

A large number of executives was present when Basic crews swung the last circuit into action it was noteworthy that the final cell went into operation exactly 11 months from that exciting day on August 31, 1942, when the first circuit warmed to the energy flowing from anode to cathode.

From that day to July 31, 1943, construction crews, gaining speed as they moved down the line of units, hung up record after record in the completion of installations. Now, with the last cell carrying white-hot metal on the surface of the electrolyte, the big plant will be well out in front in world production of magnesium.

Soffeyville Ks. Jrl 9-15-43

C. H. Buckles Returns To Las Vegas as Guard At Magnesium Plant

Back at his job as a guard at Basic Magnesium, Inc., 75 million dollar enterprise near Las Vegas, Nev., went C. H. Buckles, formerly of Dearing, who spent his vacation here the past two weeks.

here the past two weeks. This plant, government financed, produces 100,000,000 pounds of magnesium annually, and is the largest project of its kind in the world, it is said. Mr. Buckles displayed a half-bar of this silvery, feather-weight metal, used in solid form in airplanes and in powder form in incendiary bombs and tracer buillets.

The process used at BMI was brought from England two years ago and came originally from Germany, where it was highly developed. The process was sold to British manufacturers in 1935 by Germans who believed that Eng9/15/40 JR'L

INTRODUCTION* to

Basic Magnesium—the Plant and the Job

MAGNESIUM is the miracle metal of World War II. It is the metal which enables men to fly higher and faster, to shoot with more deadly accuracy, and to sow flame and desolation on the enemy. It is the metal which brought about the miracle of Basic Magnesium, Incorporated.

Not so many years ago, men considered magnesium only as a base for various medicines. Later they learned that its ores made excellent brick and tile. Still later this versatile element was used in flares and flashlight powders. Today, magnesium, the eighth most abundant metal of the earth, is one of the essential elements for modern warfare.

This silvery, lustrous element is only three-fifths the weight of aluminum but its alloys are as strong as aluminum; it can withstand much greater vibration than aluminum without failing. Consequently, it is most valuable in construction of airplanes, landing gears, and even artillery wheels, in addition to fire bombs and tracer bullets. Transportation on land, sea, and in the air has been revolutionized.

Although nearly a century and a half have passed since magnesium was identified as one of the metallic elements of the earth's crust, comparatively little was either known or done with the metal until recent years. At the conclusion of World War I, the moderate impetus which had been given to production of magnesium practically stopped except in Germany. The Germans continued experimentation with the metal and by 1937 had become the world's leading producer of magnesium. In the United States, the metal was being produced, but chiefly as a by-product from certain brine wells in Michigan and other parts of the country.

In 1937, the Germans constructed an electrolytic plant for the British near Manchester, England, and the British began to be a significant factor in magnesium production. Thus, the British were supplied by their arch enemies with the technique which may prove to be a deciding factor in World War II.

Before the war began it was known that Nevada had immense deposits of magnesium ores—enough, it was estimated, to supply the world for 150 years. Nevada also had other advantages—the power and water necessary to wrest the magnesium from its ores, made available through the harnessing of the Colorado River by Boulder Dam.

THE project was conceived early in 1941 through the efforts of Basic Refractories Company, Cleveland, Ohio. That company owned a number of mining claims

*Abstracted from "Welcome to BMI" published by Basic Magnesium, Inc., Las Vegas. Nevacia.

THE MINING JOURNAL for SEPTEMBER 15, 1943

So that its employes may have a better understanding of the magnitude and importance of their plant and their jobs, Basic Magnesium, Inc., has published a booklet giving the basic facts about the project, the largest magnesium plant in the world.

in Gabbs Valley, near Luning, Nevada, approximately 330 miles north of the Basic Magnesium Townsite. Deposits were large bodies of dolomite, magnesite, and brucite, and their use prior to the war was almost entirely for the manufacture of refractory brick and tile.

It was decided that the electrolytic method of reducing anhydrous magnesium chloride offered the best possibilities, and to that end an agreement was made with a British company, Magnesium Elektron, Limited, near Manchester, England, for the American rights to the process being used by the British.

In October 1942, Basic Refractories sold its interest to the Anaconda Copper Mining Company which thus made its first entry into the light metal field. Under the direction of Anaconda the tempo of construction was speeded and production was



geared to the war effort. Improvements were made, the organization was streamlined, and metal unit after unit was brought rapidly into production.

AT MEGAS, NEV., REVIEW-JOURNAL

On May 14, 1943, the last brick was laid in the tenth and final unit, completing a job begun in September 1941.

Estimated production at Basic Magnesium is 112 million pounds, or 56,000 tons of magnesium a year. Significance of this figure is seen when one considers that this company alone will produce nearly twice the amount of magnesium produced in the entire world in 1939 when the Germans first marched their legions into Poland. In that year, world production of magnesium was 68,355,000 pounds.

BMI, as the plant is known throughout the country, probably is one of the most phenomenal projects the world has seen; where bricks are laid with a precision which would make a watchmaker proud; where pipe lines are made of silver, lead, zinc, rubber, copper, glass; where enough water and electricity are used each day to supply a city of 1,800,000 inhabitants; where the magnitude of the great desert basin itself dwarfs the plant into relative insignificance; where practically every craftsman has been required to call back into use every trick and skill he ever knew.

To supply the plant with water, a pipe line was constructed from Lake Mead, 15 miles away, lifting the water approximately 800 feet from the surface of the lake to two 15,000,000-gallon reservoirs above and behind the plant. The pump house was constructed on the end of a cantilever bridge which required more than 1,000 tons of steel. The bridge anchor arm is more than 150 feet long and the cantilever arm is 230 feet long. In order to provide for the high and low water levels of the lake, pump shafts were extended down 190 feet from the end of the bridge. Approximately 700,000 pounds of dynamite were used in excavating the trench for the water line. The trench averages 10 feet in depth, 6 feet in width at the top, and 5 feet in width at the bottom.

Two transmission lines bring 200,000 kilowatts of electric power from Boulder Dam to the plant. The electric equipment cost \$12,500,000, and required more than 6,000,000 pounds of copper—including the largest bus-bar installations in the world.

Anderson's Camp, where most of the construction crew and the single men operating the plant are housed in dormitories and tents, has a mess hall capable of seating 2,500 men at one time. Construction engineers all over the world considered Boulder Dam one of the most amazing feats of engineering and construction in the world, and yet at its peak the Boulder Dam job employed only 5,250 men as compared with 13,618 men on the Basic job at its peak.

Germans who believed that English friendship was necessary to the welfare of their country.

While in construction, the BMI plant used certain materials in larger quantities than were over before used on one job, 8,500,000 pounds of bus-bar copper, 50,000 tons of structural steel and 30,000,-000 feet of lumber being necessary.

Everything from platinum to bolts of muslin went into the plant. The largest electrical transformer ever built is used for the electric power which comes across the desert from Boulder dam. The plant uses enough electricity for a dity of 1.000.000 population.

of 1,000,000 population. Ore, chiefly magnesium carbonate, is burned at the mines in the Sierra mountains, to magnesium oxide and is shipped in this white powder form to Las Vegas, where it is mixed with coal and peal moss into pellets shout the size of tennis balls. It is then poured into furnaces into which is pumped shipped in.

Officials of the plant plan for the gigantic structure to be a permanent one. Besides its wartime uses, magnesium is being found to have an increasing number of uses in the production of civilian products, although that will come later.

MINING JR'L PHOENIX ARIZ. 8/15/43

NEVADA MINE EMPLOYMENT HIGHER-BUT STILL TOO LOW

NEVADA reports that on July 1 of this year 10,864 men were employed in mines in the state, while in 1942 mine employment totaled 7,885. However, the state's thirst for manpower continues in spite of the increase of miners amounting to nearly 3,000 men. New mines are being opened, old ones returned to production, and operations at existing mines are being constantly expanded. Three of the largest mine employers in the state are Basic Magnesium, Inc., with a payroll of 5,600 men at the Las Vegas plant, 256 men in the Gabbs oxide plant, and 96 in the quarry; Consolidated Coppermines Corporation, with 840 men; and the Nevada Mines Division of the Kennecott Copper Corporation, employing 413.

NG JOURNAL for SEPTEMBER 15, 1943

L. V. Age 9-17-43 OBSERVATIONS By CHARLES P. SQUIRES

ABOUT MAGNESIUM

For little more than one year we have watched the heroic efforts of Basic Magnesium, Inc., its officials, construction organizations,



It was August 31, 1942, when a group of Las Vegas people witnessed the tapping of the first chlorination furnace and the fiery stream of molten magnesium pouring into the big caldron which carried it to the cells where it was reduced to magnesium metal.

The date marked the first step in production which from that day on continued to increase in volume. Thousands of tons of this vital metal during past months have been pouring from the plant, increasing in amount with the completion of each successive unit until the almost insatiable war demands were met.

Mediterranean area; in the South Pacific, in the Aleutians, in China and India and Burma; on the industrial cities of Japan and most important of all, on Berlin and all the great industrial cities of Europe which had bee

SAN BERNARDING, CALL SEPTEMBER 17, 1943

Tax Valuation Put

Corp., of Basic Magnesium, Inc., in Clark county has been fixed at \$12,749,608 by the Nevada tax commission, it was announced today.

The valuation represented a reduction from the previously assessed valuation of \$14,499,608 and covers real estate only of the plant corporation.

No action was taken by the commission on property owned b B.M.I. or the Defense Plant Corp. in Nye and Mineral counties.

LAS VECAS NEV. ACE SEPTEMBER 17, 1943

Uses of Magnesium Studied at Basic

Mr. Charles H. Mahoney, chief metallurgist for Basic Magnesium. Inc., was introduced by Program Chairman Frank Case as speaker of the day at Thursday's meeting of Las Vegas Rotary Club at Hotel Last Frontier.

In his introduction Mr. Case re-marked that "up to a few months ago our problem was the production of enough magnesium to meet the needs of the war effort. Now the situation is changed and we must find other uses for magne-sium than as tracer bullets, bombs and such."

Mr. Mahoney, who is devoting his organization to the task of developing new uses for magnesium metal and its alloys, said, in part:

"Mr. Case has already made the point that we must give consideration to the wider use of magne-sium metal. A year ago enough of the metal to meet demands was not available. Now we are producing more of the metal than we have uses for.

"In the early 20's it was thought magnesium could be readily fabri-cated ,but it has lagged in its uses. In Europe the situation is some-what different from here. They are using more magnesium in air craft and automobile parts. In Germany at the beginning of the war the production of magnesium was fifty million pounds a year; in England twenty-five million and in the United States about twelve and one-half million and most of our magnesium was used in pyrotechnics-flash lights, fire-works and such. England did a good job but was limited by the shortness of the supply of magnesium.

FEGAS, NEV, REVIEW-JOURNA SEPTEMBER 18, 1943

BMI Group Has Dinner Party

A group of employes from the A group of employes from the auditing department of the Basic Magnesium, Inc., plant met in the Ramona Room of the Hotel Last Frontier last Friday evening for a party. Dinner was served, and dancing provided entertainment for the remainder of the evening. There were 36 in the party, and four of the men expect to leave shortly for service in the armed forces.

AS VECAS, NEV., REVIEW-JOURNAL SE-TEMBER 20, 1943

Magnesium Now

Is Displayed In State Museum

CARSON CITY, Sept. 20 (Special)—A magnesium process dis-play board illustrating in graphic manner the step-by-step proced-ure used at Basic Magnesium, Inc., in the production of metallic magnesium from crude magnesite ore is now on exhibit in the min-eral room at the Nevada state museum, as a result of the efforts of its curator, Mrs. Train.

This carefully prepared chart, gift of F. O. Case, general mana-ger of BMI, measures two and a half feet by four feet in size, and shows by means of glass vials filled with various concentrates, chlorides and acids what happens to the magnesite ore mined at Gabbs Valley after it receives treatment at the Las Vegas plant. The visitor can follow on the chart diagram the different acids used in securing the resulting crude magnesium metal. Cast in the shape of a round "cheese" nine inches high and 12 inches in diameter, this unrefined "cheese" is remelted with suitable fluxes and cast into slender, light, shining bars.

Before the war, magnesium was considered the Cinderella of light metals. Aluminum, in spite of being half again as heavy, was the popular favorite of industry. Statistics show one cubic foot of magnesium metal weighs 60 pounds less than a cubic foot of aluminum. Aircraft designers, faced with the necessity of cutting every fraction of a pound possible from fighters and bombers, became aware of the great possibilities of the Cinderella magnesium metal for lightweight castings in planes. With the discovery of a way to weld it suc-cessfully, this lighter-than-alu-minum metal came into its own. Great quantities of it are likewise

used for incendiary bombs. Accompanying the chart is a full-sized "cheese" which, according to Case, was cast from the initial run made at the Las Vegas plant August 31, 1942—of signifi-cance to Nevadans because it was a part of the first batch of metallic magnesium produced in this state.

The ingot, or refined bar, of magnesium was poured on May 25, 1943, and is likewise of interest, for it marked the date when BMI became the world's largest volucer of magnesium metal. When it is considered that until August, 1941, there had been no commercial production of magne-sium in the United States except by the Dow Chemical plants in Michigan and Texas, this response to the war effort in southern Nevada seems cloaked in magic, it was pointed out.

LAS VEGAS NEV. REVIEW-JOURNAL TEMBER 23, 1943

BMI Pamphlet Tells of Its Work

A new pamphlet entitled "Wel-come to BMT" has been published for circulation regarding the Basic Magnesium, Inc. plant and is being distributed particularly to prospective workers from. If describes the BMI plant as having been "built by deter-mined men, operated by deter-mined men, a big harsh job in a marsh land, with no place for lace-panties," brittle men or prima donnas. This is a place where people take scorching heat, lash-defeated."

Entitled "Miracle in the Des-

L V. R. Journal 9-23-43

BMI Pamphlet Tells of Its Work

A new pamphlet entitled "Wel-come to BMI" has been published for circulation regarding the Basic Magnesium, Inc., plant and is being distributed particularly to prospective workers from other states.

It describes the BMI plant as having been "built by deter-mined men, a big harsh job in a The booklet is designed to in-form newcomers on the import-ance of the BMI plant as a war industry and to prepare them for living conditions in this area. where Japs and Germans will be defeated.

Entitled "Miracle in the Des-

L. V. R. Journal 9-28-43

Soldiers Visit Magnesium Plant

Members of the anti-incendiary squad of the Las Vegas army air field saw for themselves industry's contribution to the national war effort Monday, when they toured the Basic Magnesium, Inc., plant and watched the "miracle of the desert" in action.

Under supervision of Second Lieutenant John B. Hughes of the air field chemical warfare office, the anti-incendiary squad saw magnesium ore processed to the final product of incendiary

the final product of incendiary bomb material. Members of the squad are: Ser-geant Edward Scott, Corporals James C. Baccus, William Pe-sonen, Howard Burleigh, Max Sicher, L. R. Williams, and Rob-ert Brizzolara, and Privates Sterling S. Cairns and Edward Aughtry.

ert," the featured article in the pamphiet opens with this state-ment, "Magnesium is the miracle metal of World war II. It is the metal which enables men to fly higher and faster, to shoot with

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L. V. R. Journal 9-29-43

Kingsley Speaks To Kiwanis Club

Harold Kingsley, president of the Railroad Pass school district, and connected with Basic Mag-nesium, spoke before the Ki-wanis club this noon at the Sal Sagev hotel. His topic was "The Basic Magnesium Plant." Fred Lee of San Bernardino, California, Heutenant-governor of this Kiwanis division, made his official visit to the club to-day.

The Women's Ambulance and Defense Corps presented the club with a check for \$300 to be turned over to the Las Vegas juvenile home, sponsored by the Kiwanis club,

MININO JUL ARIZ.

2/00/20

On the Russian front; in the

defense council meetings will be held at the Basic Magnesium for civilian war services, Representatives from Basic and Boulder City will attend.

L. V. R. Journal

Civilian Defense

Meeting Planned

The first of a series of civilian

9-15-43

A general meeting of all branches of the defense council will be held in Las Vegas Fri-day evening at 7 o'clock in the, district court room in the Clark county court house. Leading civilian defense members who will be present are:

Hugh Shamberger, of Carson City, state director for the office of civilian defense; Pierce Davies, San Francisco, regional director of the office of defense, health and welfare; James Lash, assistant regional director of war-services; Richard Wilson, chief regional director of plant and fa-cilities section, OCD; Barney Chilles section, OCD; Barney Murray, assistant regional di-rector of plant and facilities sec-tion, OCD; Raby J. Newton, of Carson City, state director of plant and facilities section, OCD; and Arthur N. Suverkrup, of Reno, United Press staff corre-spondent. spondent.

At 8 o'clock Friday evening Pierce Davies will speak at the Las Vegas grammar school be-fore the Clark county child care committee on child welfare. 0 10 Alm - R . M -

- -

out the materiel of warfare for the Axis, magnesium explosive bombs and incendiaries and lighting flares and flash lights from Basic Magnesium, Inc., in Las Vegas have been doing a decisive work in the shaping of victory for the Allied Nations.

The cry had been for more and more of the "magic metal" and it seemed that there would never be enough. Basic Magnesium labored sternuously day and night. The estimated output of the plant was far exceeded in actual production. Now, we are told, the demand has been filled. Naturally we wondered what that meant for Las Vegas and the great plant of Basic Magnesium. The answer was clear, simple and convincing. are successfully solving the proolems and that, instead of the war demand being the major means of s utilizing magnesium, the greatest use for it will come in the demands of everyday, peaceful existence following the war. Basic Magnesium takes its place

definitely as a major and permanent industry in the scheme of t the new civilization ahead of us. V V

"The application of magnesium metal and its alloys to constructing use is not as simple as the fabrication of other metals. It is out of the question to consider the substitution of magnesium for other metals on the basis of weight and strength alone.

"The largest use of magnesium metal and its alloys is in the cast field. Magnesium is readily corroded under some conditions such as contact with salt water. One of the most interesting phases of the problem is the fact that magnesium has to stay. We are getting it down to a cost factor comparable in some cases with aluminum. But we must develop new uses for it based on industrial requirements."

Max Kelch of radio station KENO gave an up-to-the-minute account of the battle in Italy and the actions in other parts of the world.

The Rotarians, under the leadership of President Fred O'Donnell purchased a considerable number of tickets for the show, "This Is the Army," which is to be presented for the benefit of the army emergency relief fund.

LOS ANGELES, CALIF. Str TENBER Ch. 243,924

Achievement

One of many gigantic construction feats performed by the McNeil Construction Company was the completion of Basic Magnesium's \$150,000,000 plant in record time. The speed

and efficiency with which this task was handled will go down in years to come as one of the "miracles" performed by American industry in meeting the demands of the war effort.

Robert T. Campbell is at Camp Peary near Williamsburg, Virginia, at the U.S. Naval Construction Training Center. For the past several years he had been with Basic Magnesium, Inc., in southern Nevada.

MINING JENIL

PHON LA ANLZ. 8/00/20 San Francisco, Galifornia. Alexander R. Kingaard is being employed as chief mine engineer at the tungsten operations of Cia. Minera del Gran Oeste in Baja California, Mexico. Previous to his new appointment he had been connected with the McNeil Construction Company as construction engineer on the Basic Magnesium project, Las Vegas, Nevada. Kingaard receives mail at 3602 Indiana, San Diego, California. ** * ** * * ** * **
L.V. Tribune

1-4-44 CITY EDITOR, REPORTED KILLED IN L.A. TIMES DYNAMITING, NOW ON STAFF AT BASIC MAGNESIUM

John L. Von Blon years ago was city editor of the Los Angeles Times.

One night he slipped away from his desk earlier than usual because of a sick headache. Fifteen minutes later the Times plant was rocked by a dynamite blast which killed many and injured many more

Mr. Von Blon was not immediately located, and was believed by his associates to have perished in the dynamiting. His name appeared in the death list.

The next day when apprised of the news, he reported at the Times and informed associates that he was not dead.

For 18 years Mr. Von Blon served the Times as city editor. Now he is member of the office staff of Basic Magnesium, Inc., the company's trade paper, Basic Bombardier, revealed yesterday.

AT HEGAN JOBN REVIEW ODORNAL

JANUARY & 1944

Basic Magnesium Plant Lauded By Phelps-Dodge Firm Official

"Basic Magnesium is just an-|executives left this morning for other example of the splendid Morenci Arizona to be present at iob American industry has done the start of production in the all over the nation in answering new Phelps-Dodge company copthe country's call for vital war per plant there. materials and metals, "Lewis S.

Basic Magnesium Plant Lauded

By Phelps-Dodge Firm Official

"Basic Magnesium is just an-executives left this morning for other example of the splendid Morenci Arizona to be present at job American industry has done all over the nation in maswering new Phelps-Dodge company cop-

the country's call for vital war per plant there.

Cates, president of Phelps-Dodge Copper company said yesterday after a trip through the big plant with F. O. Case, general

"At the start of the war there were 35 strategic metals that were listed as critically scarce. today there is a surplus of every one of the 35," Cates said.

The Phelps-Dodge executive paid tribute to the "miraculous achievement" of Anaconda in bringing the magnesium plant into full production and "ironing out the kinks in a new industry for this country" and character-ized as "splendid" the manner in which Case and his associates have handled the pioneering in this field.

He expressed surprise at the growth and development of the entire area since he was here seven years ago, declaring: "it's hard to believe this is still Las Vegas

Cates was accompanied by Harry Lavender, chief auditor for the company, and the two W. H. Hoover, of the BMI en-

materials and metals, "Lewis S.

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Copper company said yesterday

after a trip through the big plant with F. O. Case, general

"At the start of the war there

L.V.R. Journal 1-5-44

L.V.R. Journal 1-7-44

BMI Old Timers Planning Party

A BMI "Old-Timers" party is being planned for early in February with all those who have been at the plant two years or more being considered in the group.

Plans call for taking over one of the local hotels for the occasion, and it is expected that many of the veterans of the McNeil Construction Company will make the trip to be present for the festivities

Executives of BMI, many of whom have not been here the required two years, wil be guests of the "old-timers" for the even-

gineering department.

Thinking Out Loud

Mining Lining For the

Furnaces Of Victory By EDW. C. UREN

Editor's Note: The following article is taken from the December issue of the magazine "Em Kayan" issued by the Morrison Knudsen contracting firm of Boise, Idaho, whose huge operations carry them from the Alaska Highway to building railroads in Brazil. One small part of their field is keeping the tracks of the Southern Pacific over the hill in condition. In this work several local men are taking a part by commuting between here and Colfax, which is now headquarters

for this work. In west central Nevada, some thirty miles from the south end of Walker Lake, M-K is mining the world's only known deposit of brucite, under a contract with Basic Refractories, of Cleveland,

Ohto. Brueite is a little known mineral named for a New York mineralogist, A. Bruce, presumably its first scientific discoverer. It is a native magneslum hydroxide, which is calcined and used for its great heat resistance to line the open hearth furnaces for steel millis.

And Gabbs, Nevada, has taken its place among the mining towns. of a historic mining state. Driving across the broad, barren and untilled stretches of the Nevada desert you wonder what could possibly be the salvation of these desolute waste lande. But entering the little rallroad village of Luning, you see the gondolas on sidings being loaded with whitish substances from chutes, conveyars and dump trucks. Gabbs is 32 miles away, up a good mounts ain road. Surprising it is to find a community of perhaps 1300 isouls in recently built but com-Wortable homes. A half mile higher pup on the mountain slope is a thuge plant building owned by This operation starts with diamond drilling for samples. Excavation then follows the assay re-

ports of the richest parts of the broad mineral vein. The ore is loaded on dump trucks and delivered to a nearby crusher. Here M.Ks' work stops, but the

ore goes on. Basic Refractories own crusher dumps it into a double ore bin of 250 ton capacity each, from which it is trucked to Luning in 30 ton dump trucks and loaded for shipment to the company's plant at Maple Grove, Ohio. There it is calcined in ten rotary kilns, producing magnesium oxide

1-7-44 Aluminum Oversupply Up; Magnesium's Advantages as Substitute, B.M.I. Hope

Las Vegans interested in the postwar continuance of Basic Magnesium's huge war plant here last night were still wondering just what the reported oversupply of aluminum, plus a new War Manpower Commission suggestion yesterday, all meant.

Last week the War Production¥ Board ordered the closing of four aluminum production lines in the United States, all in the East, the first of a proposed series of curtailments due to the mounting stockpile of aluminum.

L. V. Tribune

Yesterday the manpower commission had suggested the United States work out an agreement with Canada and England by which had been seen as a general po aluminum production would be re- war substitute for aluminum. curtailed in the United States.

that our Allies are in worse shape war is over, or even before. for manpower than we are, and might get proportionately more benefit than the United States by releasing workers from their aluminum plants.

Appley wrote that it would seem expedient to supply Brit-ish needs through lend-lease rather than to have Britain continue to use "manpower

tion to the bombs and tracer bullets.

Transportation on land, sea, and in the air has been revolu-tionized. And in the postwar era what men will do with magnesium can be only imagined."

Production of magnesium at B. M. I. totals 65,000 tons yearly, more than twice the amount L. V. Tribune world 1-8-44

B. M. I. Continues Experiments to Supply Stratosphere Planes **Despite Huge Aluminum Stockpile**

Basic Magnesium yesterday appeared to be little worried about the mounting stockpile in the nation of aluminum and the fear that if there is already too much aluminum in the country there may soon be a similar little use for magnesium, aluminum's substitute.

The Government had ordered* closing of several Eastern aluminum plants, with the threat of closing 20 more, because there was too much aluminum to take

care of the nation's present needs, and the Government had also suggested to Britain and Canada that its aluminum plants be closed and workers sent into other needed fields.

Potential needs of magnesium for stratosphere flying planes and for other, modern develouments for other modern developments still are being studied in Basic's laboratories, Harold Kingsley of B. M. L. said.

rlous uses and production factors now be produced per day. Basic has 80 chlorinators. and methods, with the view to as-suring the economical and practicable production of the metal in

the competition of the postwar period, Mr. Kingsley said. Magnesium is stronger when cold, hence offers great possibilities for use in manufacture of stratoliners to operate at, say, temperatures down to 40 to 60 degrees below zero, he said.

Welding with the helium proc-ess is another phase of research pointing to greater potentialities for magnesium.

The resonance of the metal is another factor he mentioned, which makes it a good material for construction of musical instruments.

"Imagine how easy it would be to support the weight of a French horn made of magnesium," Mr. Kingsley suid.

L.V.R. Journal 1 - 20 - 44

Magnestum also is transpar-

Hundred Millionth Pound of Metal Is is much brighter than it was a month ago." Poured Out at BMI

ent, enough so that it is possi-ble to penetrate a slab two feet thick with X-ray. Production at Basic has gone through two stages, he said, and

s now in the third era, the period f cost reduction, with developing of many short cuts by means of which cost is going to be materially reduced.

Magnesium a few years ago cost \$5 a pound to produce, later \$1 a pound, and now about 22 cents a pound, he stated Also, the process by which the

English produced a maximum of A laboratory second to none among metallurgical laboratories in the country is busy testing va-in the country is busy testing va-

The railroad now moves about 2500 carloads of materials and product a month to and from Basic, and about half of this is outgoing freight.

Bigger trucks are being de-veloped for transportation, also trucks for hot metal transporta-tion, saving the cost-of reheat-ing, he said.

JAHUARY 20 7544

violation. Mr. Killy salu.

THE HUGE PLANT OF Bass, Magnesium, Inc., at Los Vogas, is producing about 10.000.000 pounds of magnesium per manth, reported Dan M. Kelly, vice pres-ident of the Anaconda Copper Company, a visitor here, Mr. THE HUGE PLANT of Basic Company, a visitor here. Mr. Kelly has just completed an in-spection trip to the magnesium plant and stopped in Salt Lake en route to Butte, Mont.

LAS VEDAS, HEY REVIEW BURNAS LAHUARY 20, 1944

Hundred Millionth

claims in this neighborhood in which 62 variously owned mining claims of 20 acres each exist within gunshot of one another. All were discovered by two prospectors named Albert Brown and Harry Springer. A few hundred feet away another prospector found a small, but rich deposit of tungsten-a mysterious "pocket" that yielded two carloads valued at \$60,000, and petered out. Eastern

and total production

critically needed elsewhere in-England." He acknowledged that the United States is committed to buy a stated tonnage of aluminum from Canada in 1944.

Magnesium, utilized now in h cendiaries and other war materiel aluminum production would be re-duced there before it is further with more aluminum now on hand Manpower officials disclosed that Lawrence A. Appley, WMC executive director, told the WPB apparently than is needed, the

One of the answers seemed to lie in the arguments advanced in the earlier days of B. M. I. here that magnesium is better for many peacetime uses than is aluminum.

"Magnesium is the miracle metal of World War II," B. M. I. had claimed in its advertising of the largest magnesium factory in the world. "It is the metal which enables men to fly higher and faster, to shoot with more deadly accuracy, and to sow flame and desolution on the enemy.

"Time was, not many years ago, when men considered magnesium only as a base for various medicines. Later they learned its ores made excellent brick and tile. Still inter this versatile element was used in flares and flashlight powders. Today magnesium, the eighth most abundant metal of the earth. is one of the building blocks of modern warfare.

"This silvery, lustrous element is only three-fifths the weight of aluminum, but its alloys are as strong as aluminum.

"Science has learned an important fact about the metal: It can withstand much greater vibration than aluminum without failing. Consequently, it is most valuable in construction of airplanes, landing gears, and even artillory wheels, in addi-

does not appear slated for any early closing. reports of possible curtailment notwithstanding F. O. Case, general manager, has circulated a plant bulletin announcing to workers that "the outlook for continued production here at B. M. I.



BASIC MAGNESIUM, INC., of Las Vegas. Nev, world's largest magnesium metal plant.

strategic metals that were listed as critically scarce, today there is a surplus of every one of the 35," Cates said. The Phelps-Dodge executive paid tribute to the "miraculous achievement" of Anaconda in bringing the magnesium plant into full production and "ironing out the kinks in a new industry for this country" and character-ized ns "splendid" the manner in which Case and his associates have handled the ploneering in this field. He expressed surprise at the growth and development of the entire area since he was here seven years ago, declaring: "it's hard to believe this is still Las Vegas." Cates was accompanied by Harry Lavender, chief auditor for the company, and the two

as a refractory for steel companies in all parts of the country. Au impressive sight is this open pit mining operation, with a moundain alde laid back into benches that look like a giant's white Mairs when viewed from across cauyon. On the first wide bench three dlamond drills are chatterin sway on one side, while on the her a bull dozer is pushing pay dirt, which has been loosened by blasting, over a cliff. A hundred feet below, a big Northwest shavel picks it up and loads it into the trucks. In addition to the high grade

ore, M-K also selects the second grade and stocks it for future shipment. About 30,000 tons monthly are being excavated and 6600 tons of high grade ore are being shipped.

Basic Refractories has been working the depusit since 1936

further, but no more ore was found, so they leased the claim to the Sierra Magnesite Co. Magnesite is plentiful throughout the area, and dolomite, another magnesium mineral, is abundant but less valuable.

tungsten interests bought the

In charge of the project for Basic Refractories is Charles A. Schwab, a tall, cleancut engineer and geologist who has been here since 1939. Their company formerly owned the controlling interest in Basic Magneslum, which has the big plant nearby, but recently sold it to the Anaconda Copper Company.

Back in Civil War days Nevada mines produced the monetary metals that helped the nation stave off financial collapse. Now those barren looking hills are yielding industrial metals that will help both to win this war and to rebuild the world.

on hand are sufficient to keep the plant in full operation for the next nine

Defense Plant Corp. has just approved \$217,-000 for additional plant changes, including new two-ton molten metal carriers which will obviate the present method of reheating "cheeses" at the refinery. Priority for delivery has been established and the change which will make the magnesium operation a continuous molten metal process is expected to be completed in a few

The new carriers, 12 of which will cost \$107. 000, are comvalent to large thermos bottles was poured on August 30, 1942, mounter on trucks capable of retaining metal molten for some hours. The step will speed production and reduce costs

The one hundred millionth pound of magnesium was poured at 11:30 o'clock this morning from cell number 822 in unit eight at the Basic Magnesium, Inc., plant, The history making magnesium was poured under direction of Emmett Klebba, foreman, by William Owens of Carver Park, who has been employed at the plant for a year.

cell number 322 in unit eight at the Basic Magnesium, Inc., plant. The history making magnesium The magnesium produced at was poured under direction of Emmett Klebba, foreman, by William Owens of Carver Park, who has been employed at the plant is sufficient to have produced 50,000,000 incendiary bombs. for a year.

The magnesium produced at the plant, since the first metal was poured on August 30, 1942, is sufficient to have produced 50,000,000 incendiary bombs.

Pound of Metal Is

Poured Out at BMI

The one hundred millionth

pound of magnesium was poured

at 11:30 o'clock this morning from



This is the stock yard for the many shaped firebrick which were used in the magnesium plant. A roll conveyor, shown in the foreground, carried brick on wood pallets by means of gravity.

How Refractories Are Used in Gigantic Installation at Basic Magnesium, Inc.

High Heat and Acid Resisting Refractories Selected for 80 Wash Towers and 80 Chlorinators-880 Bathtub Cells Each Required 4 Layers of Firebrick-Shapes Ground to Exact Size Before Laying

F. A. McCann

The McNeil Construction Co. was chosen by the Defense Plant Corpora-tion to erect the world's largest refrac-tory installation, officially known as Plancor 201. Basic Magnesium, Inc., was selected to operate the project af-ter construction. It was built from plans furnished by Basic Magnesium, Inc., and based on the plant design of Magnesium Elecktron Ltd. in England. English consultants advised on the con-English consultants advised on the con-struction of the plant. Mr. William Mawdsley coming from England to as-sist in the refractory installation. Basic Magnesium, Inc., is now con-

1943

trolled and largely owned by the Ana-conda Copper Co. The refractories installation was done by the McNeil Masonry Depart-ment headed by E. C. Cleeton as Gen-eral Superintendent. The deportment

was organized in November, 1941, rose to a peak in December, 1942 with over 1,800 masons and laborers. The color-ful life described in the popular magazines did not leave this depart-ment untouched. Temperatures of 120° affect everyone, and much of the work was done under extremely adverge work was done under extremely adverse conditions.

HE problems encountered in the refractories field at Basic Magnesium, Inc. were very interesting, involving many materials, new methods and equipment; they were always on a scale of magnitude never before encountered. An explanation of the process used in

Magnesite ore, mined at Lunning in the northern part of Nevada is ground and roasted in Herreschoff Furnaces. This magnesite property was formerly owned by Basic Refractories of Cleveland, whose president, Howard Eells, was the man who originally founded Basic Magnesium, Inc. The treated ore is shipped to the Basic Magnesium plant, located halfway between Las Vegas and Boulder City, Nev. This extracting magnesium from the ore at site was chosen because of its proximity

BATTLE MOUNTAIN NEV SCOUT

\$801TEM #85 23, 1943

Magnesium Is the Miracle Metal That Lets Men Fly

Magnesium is the miracle metal of World War II. It is the metal which enables men to fly higher and faster, to shoot with more deadly accuracy, and to sow flame and desolation on the enemy. It is the metal which brought about the miracle of Basic Magnesium, Incorporated,

The following account is taken from the booklet "Welcome to B. M. I. published by the Basic Magnesium, Inc., Las Vegas, Nevada. The book- of Basic Refractories company,

let has been distributed to the Cleveland, Ohio. That company employes in the third largest city in the state.

Before the war, the British plant, near Manchaster, was said to be one of the largest in the world. The Basic Magnesium plant is two and one-half times larger. It consists of 10 metal reduction plants ,two chlorine plants, three refinerles and a large preparation plant where the raw metals are made into

is approximately \$140,000,000. BASE FOR MEDICINES

pellets. Total cost of the plant

Not so many years ago, men | Poland. In that year, world proconsidered magnesium only as a base for various medicines. Later they learned that its ores made excellent brick and tile. throughout the country, prob-Still fater this versatile element ably is one of the most phenowas used in flares and flash. menal projects the world has light powders, Today, magnesium, the eighth most abundant a precision which would make a metal of the earth, is one of the watchmaker proud; where pipe essential elements for modern lines are made of silver, lead, warfare.

This silvery, lustrous clement is only three-fifths the weight used each day to supply a city of aluminum but its alloys are of 1,800,000 inhabitants; where as strong as aluminum; it can the magnitude of the great deswithstand much greater vibration than aluminum without fail-

valuable in construction of air- into relative insignificance planes, landing gears, and even where practically every craftsartillery wheels, in addition to man has been required to call fire bombs and tracer bullets. back into use every trick and Transportation on land, sea, and skill he ever knew. in the air has been revolutionized.

AFTER WORLD WAR

Although nearly a century and a half have passed since magnesium was identified as one of the metallic elements of the carth's crust, comparatively little was either known or done with the metal until recent years. At the conclusion of World War I, the moderate impetus which had been given to production of magnesium practically stopped except in Germany. The Germans continued experimentation with the metal and by 1937 had become the world's leading producer of magnesium. In the United States, the metal was being produced, but chiefly

ing. Consequently, it is most ert basin itself dwarfs the plant

owned a number of mining

claims in Gabbs Valley, near

Luning, Nevada, approximately

330 miles north of the Basic Mag-

Estimated production at Basic

Magnesium is 112 million pounds,

or 56,000 tons of magnesium a

year. Significance of this figure

is seen when one considers that

this company alone will produce

nearly twice the amount of mag-

nesium produced in the entire

world in 1939 when the Germans

first marched their legions into

duction of magnesium was 68,-

BMI, as the plant is known

seen; where bricks are laid with

zinc, rubber, copper, glass; where

enough water and electricity are

nesium Townsite.

355,000 pounds.

SEPTEMBER, 1943

W MAY

as a by-product from certain brine wells in Michigan and other parts of the country. NAZIS BUILT BRITSH WORKS In 1937, the German constructed an electrolytic plant for the British near Manchester, England, and the British began to be a significant factor in magnesium production, Thus, the British were supplied by their arch enemies with the technique which may prove to be a deciding factor in World War II.

Before the war began it was known that Nevada had immense deposits of magnesium oresenough, it was estimated, to supply the world for 150 years. Nevada also had other advantages -the power and water necessary to wrest the magnesium from its ores, made available through the harnessing of the Colorado River by Boulder Dam. The project was conceived carly in 1941 through the efforts

SEP 1943

APPLICATION - REFRACTORIES - PRODUCTION

APPLICATION - REFRACTORIES - PRODUCTION

to plentiful and cheap power and water, supplied by nearby Boulder Dam and Lake Mead. The ore is there mixed with carbonaceous matter and magnesium chloride. The mixture is then formed into egg sized lumps and calcined lightly.

These lumps are dropped into the top of brick lined chlorinators which are kept red hot by carbon electrodes. Chlorine gas introduced at the bottom reacts with the charge forming magnesium chloride which is highly fluid at that temperature. This liquid is tapped off and poured into brick lined electrolytic cells where the magnesium chloride is broken down into magnesium and chlorine by a strong electrical current that is passed through the tained on all acid resisting brick work. molten salt-a current of approximately 20,000 amperes.

This current causes the magnesium to separate from the chlorine and come to the surface of the molten material much the same as cream comes to the surface of milk. Recovery of the metal is done by simply ladling it out of the cell by hand. Meanwhile, the chlorine which has been separated passes out of the cell through a pipe and is directed back into the chlorination operation.

Refractories Take Harsh Treatment

During the chlorination operation considerable hydrochloric acid gas is formed, which, with the highly penetrative magnesium chloride added to fluctuating and intense temperatures, make unusually severe demands on the refractory lining. Acid brick lined wash towers are required for the recovery of the hydrochloric acid and chlorine.

roughly divided into three classifications:

(1)-Ability to resist acids primary duty. For this purpose brick with

low absorption and high acid resistance were selected.

(2)-Ability to resist acids, molten salt (MgCl2) high temperatures and spalling. Refractories were especially developed by several manufacturers for this specific purpose.

(3)-Regular high heat and superduty refractories.

Joints Are Precision Ground

The first two classes, involving acid resistance, were all precision ground to size. Grinding to size to obtain a minimum mortar joint was imperative to reduce the possibilities of acid penetration through the joints. Throughout the job 1/32-in, or less joint was main-All material when received was inspected before grinding. After grinding it was reinspected before being sent to the job. About 800 car loads of refractory brick could be stored in the two storage sheds attached to the grinding room.

Several types of grinding equipment were used as follows: 12 Double Spindle-Besly-23" grinders; 24 Single Spindle Grinders 23" to 30", Gardners and Beslys: 2 Bed Grinders-53"-Besly; 6 Bed Grinders-12"-Gardner & Besly; 24 Standard Pedestal Grinders; 75 Clipper Saws; 30 Pneumatic Grinders.

Need Several Cuts to Shape Size

The double spindle grinders were used whenever the shape to be ground had two opposite sides that were parallel. The shape was first clamped onto a fixture that was oscillated by hydraulic pressure between two revolving abrasive rings. Several cuts were used The clay products used can be to bring the shape to the desired size; a touch to an adjusting screw regulated the size of cut. Extremely close tolerances were employed, and parallelism was assured by the rugged construction



Construction view of Harrop ceramic dryer conveyor (Link-Belt) for handling green brick on edge through kiln for dehydration. Harron kilns and dryers were used extensively in this construc-

of the machines which were able to withstand heavy thrusts without "give."

Many types of abrasives were tried out and in general a soft free cutting wheel gave the best results, both from speed and coolness of cutting. This latter characteristic was very important, as an abrasive that tended to cause heating did so to such an extent that strains conducive to spalling were set up within the refractory shape. When too hot the resinous bond used in the abrasive also put a glaze on the brick which retarded further cutting action.

Single Spindle Does Bulk of Work

Surfaces having no opposite parallel faces predominated so the bulk of the work was done on single spindle grinders. The shape was clamped at the desired angle to a fixture which was oscillated against the abrasive disc. The machines were set up for both manual and power driven oscillation.

Many of the most important shapes had surfaces that could only be ground by small pneumatic grinders. These consisted of complicated interlocking shapes used to form various openings in the chlorinators. These shapes were hand fitted around plaster forms shaped to the desired contours. The Clipper Saws were used in the grinding department for all straight cuts and all over the job for final closure cuts.

Some idea of the size of the grinding equipment will be gained if it is realized that the purchases of the machines totaled over \$160,000. The labor cost of warehousing and grinding before sending to the job was \$850,000.

Rotary Kilns Complete Calcining

The portion of the plant known as the preparation area is used for making and calcining the lumps or ore mixture. It consists of two sections, one in which the lumps or pellets are manufactured as such. These pellets



The second section was designed by the Harrop Ceramic Service, represented on the job by Mr. M. S. Bailey. It consists of 6 units, each with extrusion machinery, dryer, tunnel kiln and wash tower. It first blends the ore, magnesium chloride and carbonaceous matter in Hawk pug mills, followed by extrusion into blanks through Hawk auger machines and wire cutting by a machine of the same manufacture.

The blanks, about 2x10x10-in., are conveyed through a dryer and loaded on small kiln cars. Special type Harrop kilns, 220 ft. long, are used for calcining. The creation of acid fumes during the heating period necessitates their removal and washing in specially constructed towers of Harrop design.

Train Muffle Kilns Serve Two Sides

The kilns are the twin muffle type, the middle muffle serving two sides. The sides of the heating zone consist of several separate longitudinal flues which act as muffles to transmit heat to the product. Each muffle section has a separate burner which is located on top of the kiln, the fire travels downward until it reaches the level of the longitudinal muffle it is heating.

The combustion products then make a right angled turn and travel the length of the heating zone, where they are exhausted through a stack. These flues and burners are arranged so that the bottom flue is the longest, thus helping to heat an ordinarily cool portion of the kiln car. Kiln and transfer cars were made by International Clay Machinery Co., Dayton, Ohio.

The temperature in the preheating section is increased by the use of auxiliary furnaces, as the temperature gradient can be very sharp without injury to the product. After firing, the temperature of the blanks is dropped quickly by the use of air and water cooled sheet metal panels. After calcining, the blanks are broken up into the desired size for the chlorination process.

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Wash Towers of Brick and Proflex

The wash towers are 101/2 ft. square and 38 ft. high, constructed of acid resisting brick with a layer of Proflex, an asphalt composition, fused between the inner and outer walls. All brick in the inner wall were laid in Carbo Korez, a resinous type mortar highly resistant to acids and water.

Expressed in nine-in. equivalent 548,000 acid resisting and 884,000 fire brick were used in constructing the preparation area. The ceramic materials were supplied by a large number of manufacturers, those supplying the main items were: Tunnel Kilns-A. P. Green Fire Brick Co., Armstrong Cork Co. Wash Towers-General Refrac-

SEPTEMBER, 1943



Eesley grinders cut brick into 260 different shapes required for plant construction.

tories, Los Angeles Brick Co., Hanley Brick Co. (through Stebbins Engineering Co.). Rotary Kilns-Vitrefrax Corporation. Preheaters -Pacific Clay Products, Gladding McBean &

The next phase of the operation is that of chlorinating the pellets manufactured in the preparation area. The chlorinators,-there are 80 of them, are huge steel cylinders lined with acid resisting fire brick capable of withstanding high and fluctuating temperatures.

Use Potassium Silicate Feldspar

The inside lining consists of layers of brick totaling 20 in. in thickness. These brick shapes had to be free from laminations and ground to a size tolerance of 1/64-in. In each chlorinator were 12,000 pcs. with 260 different shapes ranging in size from 6 to 110 lb. The mortar used was a mixture of potassium silicate and feldspar.

The extreme accuracy demanded in this installation is occasioned by the severe conditions prevailing during operation. Temperatures in localized spots may rise to over 3000" F., hydrochloric acid gas, carbon monoxide, magnesium chloride and chlorine all are present. As the chlorination reaction occurs under pressure, it can readily be seen that the slightest flaw in the brick work will subject the steel shell to corrosive conditions that would result in quick failure.

There are also 80 wash towers, designed by the Stebbins Engineering



A few minutes after this picture was taken a fleet of bulldozers began clearing the landscape. From that moment things have hummed at the mammoth Basic Magnesium plant now operating at Las Vegas, Nev.

Co., used in connection with the chlorinators, to absorb the acid and chlorine gases given off by the chlorination process. The construction of these also required extremely close joints and the masonry was complicated by the great number of shapes required. A special acid proof cement was used throughout the chlorinator washtowers.

There were 2,400,000 nine-in. equivalent installed in the chlorinators and chlorinator wash towers supplied by the following manufacturers:

Chlorinators-Gladding McBean & Co., Harbison Walker Refractories Co., General Refractories; Keagler Brick Co.

Chlorinator Wash Towers-Harbison Walker (through Stebbins Engineering Co.).

Four Layers of Brick Line Cells

After the magnesium chloride has been tapped into large iron ladles, it is poured into the electrolysis cells for separation of the metal. There are 880 of these cells each shaped like a huge bathtub heavily insulated with natural diatomaceous earth brick. The inside of each of these was carefully lined with four layers of 124 different shapes of acid resisting refractory brick. Most of the shapes used in this construction weighed about 75 lb, and were designed so that when the courses were laid up, the vertical joints conformed to the angles of a jack arch. This contributes materially to the strength of the cell

To resist the penetration of the ex-

APPLICATION - REFRACTORIES - P



This temporary shed was constructed to stock the firebrick shapes. Large aisle in the shed made it possible to use trucks for the delivery of brick to the stock pile.

tremely fluid magnesium chloride, all shapes were accurately ground to exact size before laying in a feldsparpotassium silicate mortar. 14,630,000 nine-in. equivalent were used in the cell construction. They were supplied by: Gladding, McBean & Co.; Keagler Brick Co.; Harbison Walker; General Refractories; Johns-Manville. (Insulation)

Try Different Refractories For Burner Blocks

The magnesium refining and alloying is done in three buildings with a total of 37 furnaces. Two temporary refineries with 16 furnaces were also built at the beginning of metal production. These will be torn down when the larger refineries with automatic temperature controls and ingot casting machines are completed. Propane is used as the fuel, being premixed with the proper ratio of air before entering the burners. The magnesium refining occurs in large iron ladles which are lowered into the furnaces by overhead cranes. Temperatures employed are not high except at points of combustion. The burner blocks are designed to permif combustion with a very short flame and heat the ladles largely by the radiation of the incandescent burner face. Several types of refractories are being tried out for these burner blocks, fireclay, mullite, aluminum oxide and zircon.

408,000 refractory brick were used in the refineries coming largely from: Walsh Refractories; Gladding McBean & Co.;* Mullite Refractories; Chas. Taylor Sons Co., General Refractories; Carborundum Co.

Other masonry installations on the project include three B & W boilers, incinerators, many acid tanks and drains. The total nine-in. equivalent laid to 'date is: 18,308,000 acid resisting refractories; 1,501,000 fire clay refractories.

The sodium and potassium silicate used was handled in an interesting manner. The sodium silicate was diluted to the proper working consistency by the manufacturer in Los Angeles. The extra freight charges were more than made up by the savings in labor required for diluting on the job. The quantity of sodium silicate used was 1,013,800 lb. The potassium silicate was originally shipped from the east coast with as high a degree Baume as possible and diluted on the job. The quantity to be used, however, justified the setting up of a special plant for its manufacture from potassium silicate glass. A revolving autoclave which could be steamheated was set up together with a portable boiler and other necessary equipment. This plant made up 2,000,000 lb. of potassium silicate solution during the period of construction.

Retard Set of Cement With Ice

Due to the heat and extreme dryness of the climate (the hµmidity averages around 4% in the summertime) the silicate and resinous cements used had a tendency to set up too rapidly. To avoid this, these cements were mixed just as needed and placed in a V shaped pan which fitted into another pan filled with ice. Only in this manner could the set be retarded sufficiently to permit a working period of about 20 minutes. 115 carloads of ice were thus used on the job.

There are many interesting items not directly connected with refractories which will possibly help convey a better comprehension of the magnitude of the total job. Over 16,000 carloads of freight have been received. The cost of the 40-in, pipe 14 miles long used for bringing in the 30 million gallons of water required daily was over \$7 million. The two electric lines for power cost \$17 million.

Construction Employs 41,000 Men

Toward the end of the job it was decided to use silver instead of copper for bus bars. 800 tons of silver were thus



The firebrick were ground to shape on flat grinding wheels. Important operation was the accurate cutting of brick to specified dimension of 1/64-in.

used. Over 41,000 men have been hired by the McNeil Construction Co., during the construction period. The plant supplying chlorine for the process is the biggest yet constructed. 85 carloads of acid-proof quarry tile from the Murray Tile Co., were used in floors throughout the buildings. The thousands of houses built are a story in themselves.

13/211

All this has occurred on land that for miles around was previously desert. The payoff is that magnesium in vast quantities is now pouring from the plant. The majority of it is being utilized for needed incendiary bombs, tracer bullets and aircraft castings.

Firebrick Shipping Rates To Be Revised

In a recent ICC report, firebrick shipping rates, in carloads, from Cincinnati, Ohio, and Louisville, Ky., to upper Michigan, Minnesota and Wisconsin were declared "not unreasonable," but prescribed nonprejudicial rates on such traffic from St. Louis. In the complaint of the Ohio-Kentucky Associated Industries No. 25473, sub. No. 1, it was alleged that the rates were unreasonable and prejudicial. Relationship between their rates and those maintained from St. Louis gave firebrick manufacturers in Indiana and Illinois undue preference, it was claimed. The rail carriers were ordered to prescribe new rates by November 14, 1943.

Fire Damages Laboratory At Corhart Refractories

Fire resulting from an overheated oven at the Corhart Refractories Co., Louisville, Ky., August 29, caused damage estimated at \$8,000, F. S. Thompson, president of the company, said. He said the fire was confined to a chemical laboratory and much of the damage was caused by smoke and water. MINING JR'L PHOENIX ARIZ. 9/30/43

Fred Creith has gone to Las Vegas, Nevada, where he is employed by Basic Magnesium, Inc. Until recently he operated in the Red Mountain district of Kern County, California.

1943

MINING AND METALLURGY

Copyright by American Institute of Mining and Metallurgical Engineers

New York City

Charles L. Knaus has returned to his former job in the engineering department of the United Air Lines, Cheyenne, Wyo. He worked for a while for Basic Magnesium, Inc., Las Vegas.

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ENGINEERING AND MINING JOURNAL

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

The world's largest producer of magnesinm metal, Basic Magnesium, Inc., is also one of the country's biggest targets for rumor, gossip, and general speculation. In so far as censorship permits, Engineering and Mining Journal will pre-sent next month the truth about the technical side, at least, of this vast undertaking. Accounting in itself for about 30 percent of U. S. magnesium production, BMI sprawls out over a couple of square miles of Nevada desert as though su-premely conscious of its own importance. War, of course, guarantees the present im-portance of BMI, but in the peaceful (we hope) future, who knows? Certainly our govern-ment will not discard lightly our investment in Basic of \$120,000,000, and the plant may come to be as important in peace as in war.

Las Vegaa, Nev. forning Tribune Dec. 15, 1943

B. M. I. a Great Asset to California, Too, Newspaper Writer Relates in Listing Basic Buying From Los Angeles

Basic Magnesium's huge plant is not alone a great asset to Las Vegas and all of Clark County but to Los Angeles as well. Realization of B.M.I.'s importance to the Coast is developed by Carl S. Kelty, financial editor of the Los Angeles Exmainer.

"In the nearer perspective of large war industries closer to home," Mr. Kelty wrote yester-day, "the relative importance of Basic Magnesium's plant at Las Vegas to the Los Angeles economy has been widely overlooked. In has been widely overlooked. In the load factor is important. 1942 alone Basic Magnesium pur-

of merchandise, including equip-ment and supplies, and this did not take in purchases less than \$10,000 in amount. "The purchases have continued all through 1943, but the total has not yet been ascertained.

"In addition a large part of the labor supply for the plant has come from Los Angeles.

"Basic Magnesium represents an investment of \$150,000,000 and is designed to produce several times as much magnesium as the entire world produced previous to the war.

"The McNeil Construction Company poured the first mass concrete for the job just about two years ago, and 10 months later the plant produced its first magnesium.

"The 10 units complete were finished six months ago, and over 10,000 men were em-ployed on the construction job. All the fully integrated units are now turning out maximum quantities of magnesium.

At present the Basic Magnesium plant is employed exclusively in production for war. Magnesium is being poured into incendiary bombs and into metal for industry.

"Because of its extreme lightness magnesium is employed largely in castings for plane parts and other war equipment where light-

chased from suppliers in Los An-geles County \$29,336,361 worth kinds of gadgets, are said to be unlimited.

"The processes employed by Basic Magnesium are too technical for description. Costs will be important after the war, and the costs at Las Vegas are said to be competitive with those in the other important process by which magnesium is extracted from ocean water."

L.V.R. Journal 12-29-43

Basic Magnesium 'More Than War Baby': Reno Newspaper

Nevada's great dream industry the third largest city in Nevada, excome-true, Basic Magnesium, In- ceeded in population only by Reno corporated, is more than a "war Interesting commentary on the

baby"; it will be operated after the development of Southern Califorwar, says Cornelius F. Kelley, chairman of the board of Anaconda Copper Company, chief owner and of commercial announcements by operator of the gargantuan enter-prise. His statement about the future of edition. Most of the firms have

B. M. I., as it is called by war headquarters in Los Angeles. The workers and Nevada desert rats principal building contractor was alike, is one of the features of a McNell Construction Company. special edition of the Reno Eve- Supplying important operating ning Gazette commemorating the equipment was Southwest Welding establishment, building and opera-tion of the industry. and Manufacturing Company of Al-hambra. "A quarter-century ago," Magnesium is used for bombs commented a business man, "the

and bullets, in aircraft manufac- list of participating contractors and ture and many other uses, with as- suppliers would have been chiefly sistance of the Defense Plant Cor- from San Francisco.

poration and other government The Gazette tells in pictures and agencies, huge operations to extruct text, of the rise of Basic Magneand process it from its sources on siunt, including the homes, schools, the Nevada desert, near Las Vegas, churches and stores newly built on were started in 1941. A new indus- the desert.

trial and residential city, called Henderson, was built on the desert. with workers also at Gabbs, Nev., and Las Vegas. Henderson is now

PASADENA, CAL. STAR-NEWS

DECEMBER 21, 1943

Charge Aluminum Firm With Wanting To Scrap BMI Plant

The charge that the aluminum "want to scrap a big magnesium plant in his state of Nevada" is being made in Washington by Senator Pat McCarran according to Ray Tucker, author of the capital column "National Whirl-

Commenting further, Tucker says: "Western senators who fought for construction of Victory plants near natural resources in their commonwealths are again on the warpath. The suspect that certain bigwigs who are al-leged to dictate the policies of the war moduli the war production board and of the army and navy will show favoritism toward eastern cor-porations in the industrial re-shuffle that will follow the

armistice." Other western plants under fire of the big interests, Tucker quotes McCarran as contending are the steel and iron ore concerns in Utah, California and bordering communities. Pennsyl-vania and Alabama manufacturers are determined to curb such competition.

The Tucker comment con-

tinues: "A strong house-senate bloc has been organized to check, in the words of Mr. McCarran, this sinister move.

"He introduced a resolution providing for an investigation of the effect upon interstate commerce of the decentralization of heavy industry in the United States.' It was the first shot in the L.V.R. Journal only 4.8%. 12-21-43

Clark County Shows Gain Over 1942 in Proceeds From Mines

CARSON CITY, Dec. 21 (UP) Clark county nearly doubled the value of its net proceeds from mines in the last year, according to records in the office of George Allard, chief statistician of the Nevada tax commission. The in-crease was from \$425,000 to \$935,803.

\$935,803. Clark county also led in the country improvements in the state. Figures submitted by county officials increased the value of country improvements rom \$4,438,679 to \$17,741,456, Al-ard explained that the huge inand explained that the huge in-herds were noted were Esmer-

Tark county resulted from plac-ing the Basic Magnesium, Inc., plant on the tax rolls under the classification of country improve-lassification of country improve-

ments. Washoe county, as usual had the highest valuation on personal property, both city and country, with Clark county ranking second, The Washoe county figures were listed as \$1,958,125, an increase of slightly more than \$100,000, over 1942, with Clark county having \$907,299 boosted from 1942's total of \$749,055. Despite the 100 per cent in-crease in the net proceeds of mines in Pershing county.

county alone was \$5,536,637. mines in Pershing county, Nevada as a whole experienced a decided slump in that classifica-tion. The comparative figures L.V.R. Journal were given as \$10,613,536 this year and \$10,957,648 in 1942. 1-3-44 This decrease was directly traceable, it was indicated, to the **Copper Executive** federal government's order forcing the closing of gold and silver mines throughout Nevada in an Will Visit BM effort to force such miners into the production of strategic minerin Arizona. Louis S. Cates, of New York City, president of Phelps-Dodge company, one of the nation's largest copper producers, will arrive in Las Vegas tonight to

spend the day tomorrow on a tour of the Basic Magnesium

Wednesday, December 15, 1943

not take in purchases less than \$10,000 in amount. "The pur-

chases have continued all through 1943, but the total has not yet

"In addition a large part of the labor supply for the plant has

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"The processes employed by Basic Magnesium are too tech-nical for description. Costs will be important after the war, and the costs at Las Vegas are said to be competitive with those in the other important process by which magnesium is extracted from ocean water,"

the entire world produced pre-DECEMPER IN. (MA) "The McNeil Construction Com-pany poured the first mass concrete for the job just about two years ago, and 10 months later **Professor Carpenter Speaks to Rotarians**

> Mining Industry Of State Is Topic

Prof. Jay A. Carpenter, director of the Nevada Bureau of Mines and faculty member of the University of Nevada, was the interesting guest speaker at the regular meeting of the Rotary club in Carson City yesterday.

Choosing as his subject, "Nevada's Mineral Industry and Its Problems," Professor Carpenter told of the history of mining in this state from the discovery of the Comstock in the late 1850's to the present boom now being experienced throughout the state. He emphasized that when the mining industry in Nevada flourishes so does the state.

He said that Carson City before 1900 played an important part in the mining activities for at that time this city was the center of the boom.

Professor Carpenter stated that this state's chief industry flourished until after the first world war, then dropped and now during the second war is rising once more to great value particularly in light metals such as is now being produced in great quantities at Basic Magnesium, Inc., at Las Vegas and Gabbs Valley.

L.V.R. Journal 12-16-43 Absentee rate at Basic Magnesium has shown a steady decrease since June of this yearhas been cut almost in half. June figures were 8.7% and November

sterners' fight. "The proposal was reported upon favorably by the Interstate Commerce Committee, which is controlled by men from the wideopen spaces, with a recommendation for a \$10,000 expense fund. "Senator Scott W. Lucas of Illinois, who heads the committee that must approve such expenditures, promised to O. K. the request as soon as his amend-ment on the fathers' draft had been disproved of by congress. "This conflict suggests that re-conversion and reorientation of the nation's industries will bear political as well as economic implications. Every region will attempt to keep in operation its factories, shipyards and other war activities; prewar manu-facturing centers will want the newcomers put out of business."

duction in 1940 was \$43,000,000 he said, it is estimated that in 1943 plant, Manganese Ores and other portions of the industrial area. He will leave Wednesday morning for the company properties

figures will reach \$50,000,000, the greatest in the history of Nevada. The head of the state bureau of mines gave a brief summary of the BMI project adding that the entrance of the Anaconda Copper company as manager of the project has been a great step forward. He said the Anaconda company is now running the plant, which was established according to the English production system, with a staff composed of expert mining men capable of securing the most in efficiency.

He added that BMI now is employing 56 per cent of all men engaged in the mining industry in Nevada and that BMI has played a great part in the population increases of the state which now is said to be approximately 140,000,-

(Continued on Last Page)

Speaks to Rotarians

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Mining Industry Of State Is Topic

Continued from Page One) 000.

In conclusion he discused the possible future of this industry and expressed his concern of its continuance after war ends. BMI will be able to make certain changes in the plant, it was said, in order to remain a substantial industry in post-war times, only with the approval of the Defense Plant corporation and the granting of funds for modifications.

Governor E. P. Carville spoke briefly to the members and guests on the importance of Bill of Rights week appealing to all Rotarians to think about and employ the articles setforth. He added that these rights should be sacred to all especially during the present time when they are fundamentally victory's aim.

E. C. D. Marriage, chairman of Boy Scout troop No. 33, announced the selling of Christmas trees for the benefit of the troop is underway at the armory building in this city. Selling time has been established between 4 and 6 p.m. each day.

It was announced that the annual Christmas meeting and party with Rotary-Anns present will be held at Stewart, Tuesday evening, December 21 in the club Jourge

held at Stewart, Tuesday evening, December 21, in the club lounge. Rev. J. L. Harvey spoke briefly during the business meeting on the 13 prison inmates who volunteered for induction expressing praise due Warden Richard Sheehy for his splendid work in assisting these inmates into the service.

A war savings bond was awarded Joel Snyder.

President C. B. Austin presided and the excellent guest speaker was introduced by the program chairman of the day, George A. Martine

Guests included Professor Carpenter, Stanley G. Palmer of the University of Nevada school of engineering in Reno: Robert Farrar of Reno; Lorr Wright and Jack McCarthy, both of Carson. C-18 Ivesdey, Sept. 28, 1943

Los Angeles Evening Marald-Capress

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Basic Magnesium, Incorporated

Las Vegas, Nevada.

World's Largest Magnesium Plant



Miracle Metal Makes War History Basic Magnesium Plant Amazing Development By JOHN DENNIS KEYES

on German and Italian citiesthe ruin of Hamburg and Cologne-and the air power which overwhelmed Sicily-all had a one-way ticket from the west coast.

Bombers and fighters from the west coast, lightened by the miracle metal of World War II, and carrying that same metal in their bomb bays fresh from the arid mountains of Ne-



F. O. Case is the general manager of Basic Magnesium, Inc., located in Las Vegas, Nev.

vada, flew halfway around the world to shake the foundations of Hitler's citadel and to set up an echoing fear in Tokio.

Hitler had never heard of basic magnesium when he confidently marched his legions into Poland Sept. 1, 1939. He had no way of knowing the terrible ruin of his cities would

One of many gigantic con-

struction feats performed by

the McNell Construction Com-

10 -- 1943

42 BMI Workers

To Get Diplomas

From War School

mines of the University of Ne-

Basic Magnesium is the first

war industry in Nevada to train

employes for key positions within its own organization under the

ESMWT program s

Death and desolation rained come from wind-swept Nevada deserts in planes not yet designed. And small wonderfor at that time basic magnesium did not exist in our most fantastic dreams.

> punch at Pearl Harbor would discovered the industrial giant now sprawling across desert

sands only 300 miles from Los Angeles. HUGE PLANT

If the Basic Magnesium plant were laid down on the city of Los Angeles it would cover an area extending from Temple street to Venice boulevard, and from Los Angeles street to a block west of Figueroa. It is the largest brick, sheet metal, electrical and plumbing job the

world has ever seen. Water from Lake Mead, used in the plant, would supply each man, woman and child in Los Angeles with 17 gallons a day. Electrical power flowing through the plant would light every home in Los Angeles county.

It staggers the imagination that all this work was begun less than two years ago and the first magnesium metal produced 111/2 months was later. It was an "impossible" task accomplished in an arid desert basin, where men

and efficiency with which this

task was handled will go down

in years to come as one of the

ing beyond 140 degrees.

And perhaps Tojo's sneak never had happened if he had looked in the crystal ball and

worked in temperatures rang- deposit, one of the world's rich-

Magnesium is the miracle metal of this war. Only threefifths the weight of aluminum, it can be fashioned into motor parts, airplane fuselages and landing gears, artillery wheels; it is the metal from which tracer bullets and incendiary bombs are made.

SPEED PRODUCTION

Basic Magneslum was conceived early in 1941 through the efforts of Basic Refractories Company, Cleveland, Ohio. This company owned a number of mining claims in Gabbs Valley, near Luning, Nev., approximately 330 miles north of the Basic Magnesium townsite.

56,000 tons of magnesium a The Gabbs Valley magnesite year. Significance of this fig-LAS VECAS, NEV., REVIEW-JOURNAL

OCTOBER 23, 1945

The Answer Hasn't Been Written Yet

In the early days of BMI, Howard Eells, Jr., then president of the company, used to draw glowing pic-tures of Las Vegas as "the Pittsburgh of the light metal industry." That was his vision, his firm belief.

Las Vegas went along with that picture and has kept it constantly in view. It is a definite possibility— one that CAN be realized IF we get the breaks.

Alongside that rosy picture, another has appeared. Nobody has painted it-it has come into being gradually, with circumstances generally wielding the brush. And it is NOT a rosy picture-in fact it is decidedly of the opposite hue. It shows the magnesium plant shut down and abandoned—just another "battleship" useless when the war is won.

You can take your choice and, as things stand at the moment, you might be right either way.

So far as the big plant itself is concerned, BMI has done an outstanding job since Manager F. O. Case took over for Anaconda. A production cost which will be competitive in the post-war era is in sight. Anaconda can make the plant go IF the Defense Plants Corporation gives the green light. Whether that will be forthcoming or not, remains to be seen.

The future of magnesium depends on the manner in which light metals become predominant in the years - Jollowing the war. Their development has been one of the more important industrial results of the conflict. The question is whether the great capacity for production will be curtailed, once the war is over, or whether it will be used to the limit.

The Magazine of Wall Street, which is on top of all such questions, recently said in the regular section devoted to a discussion of events and trends "On The Industrial Front" has this to say:

"Government policy anent post-war use of its huge productive capacity for light metals is definitely hardening in favor of encouragement of far greater intraindustry competition. Intention is to promote wider use of aluminum through lower prices, if necessary by using government plants as a lever to break the existing price leadership.

"Magnesium poses a more difficult problem as conalderable government capacity is uneconomical for peace-time production. But indications are that nothing will be allowed to dampen the impetus that war has

Los Angeles Evening Herald-Express

water, a pipeline was constructed from Lake Mead, 15 miles away, lifting the water approximately 800 feet from the surface of the lake.

Two transmission lines bring 200,000 kilowatts of electric power from Boulder Dam to the plant. The electric equipment cost \$12,500,000.

By way of comparing the Basic Magnesium job, it is noteworthy to use the Boulder Dam job as an example. Construction engineers all over the world considered Boulder Dam one of the most amazing feats of engineering and construction in the world, and yet at its peak the Boulder Dam job employed only 5250 men, as compared with 13,618 men on the Basic job at its peak.

relative insignificance; where The Chlorine Plant at Basic practically every craftsman was Magnesium is one of the three required to call back into use largest in the world, producevery trick and skill he ever ing 225 tons of chlorine each To supply the plant with soda. Approximately 370 tons

of salt a day are dissolved into 300,000 gallons of brine to make the raw materials from which the chlorine and the caustic soda result.

C-9

* Tuesday, Sept. 28, 1943

Before the war the British plant, near Manchester, England, was said to be one of the largest in the world. Basic Magnesium is two and one-half times larger. It consists of 10 metal reduction plants; two chlorine plants; three refineries, and a large preparation plant where the raw materials are made into pellets. Total cost of the plant is approximately \$150,000,000.

Plan Hawaii-to-L. A. Air Line

Transcontinental and Western Air Lines are contemplating the building of a huge base here to be used as a terminal for a proposed Los Angeles to Honolulu air line.

1000

Back From China, Now BMI Guard

Sunday, October 24, 1943

ure is seen when one considers

that BMI alone will produce

nearly twice the amount of

magnesium produced in the

BMI, as the plant is known

throughout the country, prob-

ably is one of the most phe-

nomenal projects the world has

seen; where bricks are laid

with a precision which would

make a watchmaker proud;

where pipelines are made of

silver, lead, zinc, rubber, cop-

per and glass; where the mag-

nitude of the great desert basin

itself dwarfs the plant into

L. V. Tribune

10 - 24 - 43

knew

entire world in 1939.

est and largest, apparently cre-

ated for this emergency, need-

ed only the proper development

and process to bring about its

full development to supply this

nation with an essential war

In October, 1942, Basic Re-

fractories sold its interest to

the Anaconda Copper Mining

Co., which is making its first

entry into the light metal

field. Under the direction of

Anaconda, the tempo of con-

struction was speeded and pro-

duction was geared to the war

The estimated production of BMI is 112,000,000 pounds or

material.

effort.

Regardless of how you look at it, Mark E. Gibson is one man who has plenty of grievances against the Japs. He is now a guard at B.M.I.'s huge plant at Basic Townsite.

In addition to the anger every real American harbors against Tojo, Mark Gibson figures the Nips owe him half a million dollars.

Here's why: When the Japs bombed the U. S. S. Panay in 1938 they bombed other things, too, Including Mr. Gibson's Mongolia lee cream plant in Shanghai. When the Nip planes had left, his life work and his savings were rubble.

He was pretty mad-so he enlsted at once in Gen. Chiang Kaishek's army, serving with the Chi-nese against the Japs for 26 months. The veteran of two armies has nothing but praise for

the Chinese military. Guard Gibson has spent 36 years chinese dialects. As an American soldier in the Philippines he has been on every one of the 7000 slands which make up that group. He says: "I know every hog

trail on Bataan."

In the Philippines he was body-guard to three governors-general —Harrison, Wood and Forbes. After service with the Chinese

Mr. Gibson got back to San Fran-cisco in 1940 and immediately re-enlisted in the American Army. Recently discharged, he tried the ease of retirement, but couldn't stand it. So he picked out B.M.I.



A Nevadan Is Honored

Cornelius Francis Kelley, chairman of the board of Anaconda Copper Company, this week became the second recipient of the Charles F. Rand Memorial medal "for distinguished achievement in mining administration."

Presentation was made at a meeting of the board of directors of the American Institute of Mining and Metallurgical Engineers. First to receive the award was Robert Crooks Stanley, chairman of the Interna-tional Nickel Company in 1941.

Kelley is a native of Nevada. He was born in a little mining camp near Eureka, and is quite proud of his native state. He took his big step in Butte when he made his way from the ranks to the top of the nation's greatest copper mining company.

L. V. Review Journal L. V. Review Journal 10-11-43 McNeil Company Ends Construction Job at BMI Plant

Forty-two employes of Basic Magnesium completing the first 32-hour course in metallurgy under the engineering, science and management war training pro-gram will be awarded diplomas tonight at Henderson school, Basie Townsite, by Jay Carpenter, director of the Mackay school of

from the project. Ed Ball, who with the late Dude Brannon was first on the job for McNeil back in September of 1941, and has been general labor superintendent throughout

pany was the completion of "miracles" performed by Ameri-Basic Magnesium's \$150,000,000 can industry in meeting the deplant in record time. The speed mands of the war effort.

Mighty Achievement

Construction activities at BMI were over Saturday afternoon so far as McNeil Construction company is concerned, and except for

85 employes in the accounting and general store departments, the once vast crew has vanished

the entire period of construction, and G. P. Smallwood, general superintendent of construction, turned in their last shift Satury, and left today for Los An-

the United States office of education and administered by state universities. Two other classes in metallurgy are now being taught and another is scheduled for October 25. Instruction in metallurgy of mag-nesium will begin November 21.

Ball saw his crew grow from. one man beside himself to a total of 10,087 on July 16, 1942, and then gradually fade away again as the various units of the plant were completed.

So splendid a hurry-up con-McNeil company, that the first magnesium was produced August 31, 1942, not quite a year from 1942, not quite a year from the time ground was broken for the plant.

Office buildings, warehouses and other units used by McNeil during their tenure are being turned over to BMI to fit into their operating plant as planned. According to John Pionke, in charge of personnel for McNell during the construction days, now engaged in closing out the project for his company, the last McNell employe will be finished with his work within another month or six weeks.

given magnesium's progress."

The formula, then, appears to be getting the price down to a competitive basis. As we pointed out above, BMI is already in sight of that goal. More than thatthe possibilities from the development of by-products is tremendous. The big question-mark is the attitude of D.P.C. toward making this a permanent industry and giving BMI the support and latitude necessary to bring this about.

So far, it's still a big question-mark, or worse, for admittedly there is nothing particularly encouraging on this score from Washington. Alcoa and Dow Chem-ical have been fighting BMI tooth and nail, seeing in it a dangerous competitor. And D.P.C. apparently listens.

Circumstances, such as development of world markets far beyond the wildest dream of present analysis, sl may compel a change in attitude or may demand the s entire magnesium-producing capacity. There are many other possibilities, also. The final answer has not yet been written, nor is it in the immediate present. If the reverse were true in either case we would have cause for grave concern.

as an important war industry and came to work and says he likes

While its general offices are in New York City, Anaconda has remained a western company down through the years. And it has been most successful in developing many new enterprises in fields rather far removed from its first love-the mining and processing of copper.

cessing of copper. Anaconda got into the light metal field when the company purchased control of Basic Magnesium Incorporated from the Eells interests, and took over active operation of the local industry. It was this connection that brought Kelley back to his home state for the first time in many years, and during his stay here, he evidenced considerable pride in playing a part in bringing to Nevada, its greatest industry. Melley's recognition from the American Institute of Min-mg and Metallurgical Engineers is well deserved. He has been an outstanding figure in the industry for more than a genera-tion. And all Nevada will be proud to know that a native of this state, traditionally famed for its great mines and the part they played in the earlier history of the nation, has been so honored.

UCEON, ARIZ., CITIZEN NOVEMBER L. 194

Friction In workers. And the CTO accuses Xns- Monday, November T. 1943 TUC Nevada Hurts War Effort

Bad Blood In Las Vegas **Threatens Production** Of Magnesium

By DREW PEARSON Bad blood in Las Vegas, Nev.

bombs. Las Vegas is the two-fisted Wild West town that grew out of the desett now neuroleum and the Las Vegas." Bums arrived by the desert, now notorious as the last bus load, worked long enough to

frontler. Washington officials were not worried over "colorful" Las Vegas, the company decided to segregate whites and Negroes. CIO leaders as long as the Basic Magnesium plant nearby continued to produce that precious industrial metal. But they are worried today because bad blood between labor and manage-ment threatens to let the electro-lytic cells get cool, which means have "terminated" in the last few a complete stoppage of production days. for weeks.

The management (Anaconda Copper, under contract with De-to placate the men and urge them to stay. But the company declares fense Plant Corporation) accuses the CIO union of inciting race friction between white and Negro

L.V.R. Journal 11-5-43

Men who know war plants from one end of the country to the other are amazed at the kind of a staff that's now operating Basic Magnesium. They tell me it's al-most unheard of to find men at the head of each department who actually know what they're doing, and what their job's all about, and that in many war industries, production records could be much better if there was more "know-how" spread through the organization.

When the final tale is told, the achievements out here on the hillside at BMI will be one of the most brilliant and outstanding of the entire war effort. There have been more obstacles overcome, more pioneering done, more real genius demonstrated from top to bottom in the big plant than in most any other spot in the nation. Trained and expert englneers who view the plant from the inside are actually astounded at the job that's been done.

The Margine Press NOVEMBER 6, 1941

Alcan Road Film Shown at BMI

Movies showing the construc-ion of the Alcan highway and the various phases of synthetic ubber production in the United States, were shown Thursday in the auditorium at Basic townsite y the Goodrich Tire and Rubber

they were urging the men to quit. recognize the union. War Effort beginning, due to the intense desert the electrolytic cells are cooling off. There seems to be a general general discomfort. Bad food has sent as many as 125 men to the hospital after a single meal, and for a long time the only place to (\$\overline\$1943 United Feature Synd.)

cash a pay check was in a gambling . house.

Work For First Pay To offset labor turnover running threatens to interrupt production of magnesium for airplanes and agement got help from Los Angeles draw their first pay, and quit.

it would quiet race hatred.

CIO sent their stewards to talk to the men. CIO insists they were to stay. But the company declares

AT JEGAS NEW DEUVEN GITHNAL NOVEMBER 6, 1943

BMI President **Is Visiting Here**

James R. Hobbins of New York City, president of Basic Magnesium, Inc., has arrived in Las Vegas on a routine inspection trip and for a conference with executives of the company here and of the Gabbs properties. He is a guest at El Rancho Vegas.

Hobbins is conferring with F. O. Case, general manager of BMI, and with Tom Russell, superin-tendent of operations of Gabbs, during his visit here.

He is one of the nation's leaders in mining and business con-cerns. Hobbins is president of the Anaconda Copper company, a position he has held since 1940. and also is president of the Dia-mond Coal and Coke company, the Butte Water company, the Andes Copper Mining company, the Chile Copper company, and the Chile Exploration company. In addition he is vice-president or director of many mining and business concerns in this country,

AS VEGAT NEV REVIEWS OUDNAL WUVEMBER 7, 1243 BMI to Go on 48 **Hour Work Week**

these 180,000 people from those now living here, as lack of housing prohibits the importing of addi-tional manpower," Mr. Falk said. Ceiling on Employes "A plan is being set up to classify The Basic Magnesium plant "A plan is being set up to elassify to what degree the production of will go on a straight 48 hour week beginning next Monday, it was announced today by F. O. each manufacturer is essential, and it was announce Case, general manager of BMI. ling will be set on the number "We are following out the presidential order to place all war plants on this basis," Case said.

NOVEMBER 12, 1943

(© 1943 United Feature Synd.)

B. and P. W. Club

Plans Session Here

Dorothy Brimacombe, state president of the Business and Professional Women's clubs, an-

nounced today a leadership con-ference to be held in Las Vegas

tomorrow, from 9:30 a. m. to 4:30

p. m. Representatives from Ely,

Pioche, Boulder City, and Las

The morning and afternoon sessions will be held in the Meth-

odist church parlors and a noon

luncheon will be held at the Ne-

vada Biltmore Hotel. Reserva-tions for the luncheon are neces-

A speaker from BMI will be here to talk on "Women and Work at Basic Magnesium." Mrs. L. E. Burr will speak on "Juv-enile Delinquency Problems in Nevada," and Mrs. G. Laurence

Ullom, state chairman of the wo-men's division of the salvage

department, will talk on "Wo-men and Salvage," A state board

meeting will take, place imme-diately following the afternoon

Gov't to Limit

Employees of

SOUTH SAN FRANCISCO.

Nov. 12 .--- (U.P)--- Within the next

six months essential industries ?

in the bay area will require

180,000 additional men and

women, Adrian Falk, member

of the war manpower commis-

sion and chairman of the bay

area manpower mobilization

commission, told a meeting of

Peninsula personnel directors here.

"We are going to have to get

Local Firms

NOVEMBER 12, 1943

VAN MATED, CAL TIMES & LEADER

Vegas will be here.

sary

speeches.

NOVEMBER 12, 1943

AS VERAS, NEV. REVIEW-IQURNAL

MAGIC MAGNESIUM

AT VEGAE NEW ARE

Some people are indulging in a lot of worry lest the end of the war result in decreasing the demand for magnesium to such an extent that Basic Magnesium, Inc. and other plants producing that metal shall be forced to close.

It would be natural, of course, to expect magnesium plants to run at reduced capacity during a few months of the readjustment period following the war. Nevertheless, with the immense resurge of activity from war production to the lines of private enterprise producing to meet civilian needs, magnesium will really come into its own.

In this connection we notice a short article in Time magazine of date November 8, 1943, under the heading of "Chemists at Work" the following:

"The light metal magnesium, virtually ignored in the U.S. before the war, is revolunizing U.S. metallurgy. Thanks to chemists, it is now being produced cheaply and plentifully, playing a big role in the war (e. g., in a four-motored bomber it saves enough in engine weight alone as compared with aluminum, to increase the bombload by 30 lb.) Among its many postwar possibilities, Haynes sees a magnesium grand piano that one husky man can lift by himself."

The truth is that the war, with all its evils and horrors beyond description, has been productive of some good to humanity in the long run. Among the benefits we may name is the introduction of the metal magnesium into the industrial life of America to such an extent as to revolutionize some lines of production and provide for the mass of the people luxuries and conveniences never before known at prices so low that practically all may enjoy them.

LAS MECAS NEV. REVIEW- OLIRNAL NOVEMBER 24, 1943 Special Edition Describing BMI Is Presented Today

The Review-Journal today pre-sents the first complete pictorial of the construction and operation of the big plant of Basic Magnesium Inc. st Henderson.

This presentation, consisting of This presentation, consisting of 32 pages, is being published sim-ultaneously by the Review-Jour-nal and the Reno Evening Ga zette, and distributed to the ma-jority of readers of both news-

papers. The pictorial was made possible through the close cooperation of both papers and the management at BMI, and stories and pictures appearing herein are being giver the public for the first time with full approval of the U. S. Army through which all such copy must pass.

To meet the requirements of newsprint rationing, the Re-view-Journal has found it necessary to make cuts in the regular sary to make cuts in the regular edition of the paper throughout the remainder of this quarter. The number of pages has been diminished, and the Thanksgiv-ing issue, due tomorrow, is being eliminiated entirely.

Because of these requirements, the number of BMI pictorials is necessarily limited. We suggest that if you desire to send a copy

L.V.R. Journal 11-24-43

Special Edition **Describing BMI Is** Presented Today

The Review-Journal today pre-sents the first complete pictorial of the construction and operation of the big plant of Basic Mag-nesium Inc. at Henderson.

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diminiated entirely. Because of these requirements, he number of BMI pictorials is necessarily limited. We suggest at if you desire to send a copy friends, you read your own arefully and mail it on. There will be only a very few available for public sale.

> L. V. Tribune 12-2-43

37 Original **Basic Employes** Still on Job

Two years ago the little group that was then B.M.I. moved from the hangar at Boulder City into the administration building at the Plantsite — one which burned down a few months later. Of the group on the payroll

December 1, 1941, 37 were still on the job just two years later. Two others who were then on the payroll of Basic Refactories are still there. They are Bill Christopher Gravelle, T. W. Harris, Jerome

and Harley Lee.

Three more, now there but who were working away from the pro-ject two years ago, are Robert Schurtz, Donald Musser and Dr. Albert Boyle.

L.V.R. Journal 12-7-43

noster, Asa R. Chase, A. L. Johnson, James Winston, Blanche R. Wyatt, Frank W. Gale and H. A. Reab L. V. Tribune 12-9-43

Basic Guard, Wife Sharpshooting

L.V.R. Journal 12-3-43 BMI Area Has One Of Best Disposal Plants in West

The Basic Magnesium, Inc., plant and adjacent housing areas have one of the most modern sewage treatment plants in the southwest, which during the peak flow the past summer treated one and one-half million gallons of water a day.

The plant is the nineteenth one designed and installed by Ralph O'Neill, who now is superinten-dent of the water system at BMI as well as having charge of the sewage treatment facilities.

Two outfall sewers have been installed, one serving the 1800 housing units and the other lead-ing from the BMI plant. There are 1000 houses in the Townsite proper, 500 in the FPHA area, and 300 in the Carver Park area. In addition the Basic Trailer park is served.

In addition the Basic Trailer park is served. The two sewers lead to a point about a mile east of the housing area, where the plant is located. The sewers come together, and the sewage passes through a grit channel, where sand is removed. It then goes into a Parshall flume, where the total flow is measured. Solids are shredded by a communitor, then settled and measured. Solids are shredded by a communitor, then settled and removed in a clarifier. The over-flow is sprinkled onto the surface of a biological filter by a rotary distributor, where finely divided and colloidal solids are destroyed by surphic bootesis. The filter by aerobic bacteria. The filter distributor is propelled by jet action of the water. The entire plant is so arranged that in case of power stoppage, the plant goes automatically into gravity flow operation.

housing area and recommended as superior to ordinary barnyard fertilizer

The plant has facilities for chlorination of the sewage at several points in the process for odor control and for final sterilization

The gases from the digestion tank, which are mainly methane, are used to fire a boiler from which hot water is circulated through heat exchangers which reduce time required for reduc-tion of the sludge from 95 days to 24 days. Waste gases are burn-ud for oder entrol ed for odor control.

The plant is equipped with a complete sewage works laboratory.

Simpson

Helene S. Eichaker, D. L. Wooster, Camille Zeldin, Elizabeth Keddy, E. H. Clary, R. E. Herrick, Paul T. Barnes, Jay C. Albert Boyle. Others, in the order of seniori-ty are: Max Muller, J. H. Brant, W. B. Dyer, H. W. Gale, Jr., F. V. Weth-eril, Alvin Larson, J. J. Ruiz, G. M. Dyer, Fred D. Gibson, Leona

company, under the direction of District Manager J. E. Wacksmith, assisted by A. B. Crandall, Bob Adams, and Mel Oerter of BMI. The program was arranged at the request of Basic Magnesium officials.

Employees will be staggered as to days off so the plan will continue to operate seven days a week.

of persons any firm or business may employ. Every firm will have to get along with the irreducible minimum of workers. "Our main job now is to recruit

w workers, and since the bottom of the manpower barrel has been scraped, we will have to rely upon the thousands of women shown by our surveys to be available in the bay area. This is particularly true on the Peninsula, where you have a greater number of women avail-able per capita. Form Committee

"A manpower mobilization com-mittee should be formed on the Peninsula. Civic organizations must pitch in and help with such prob-ems as caring for the children of

"This war can only be won if the armed forces have the tools with which to fight. These tools will not be forthcoming in sufficient volume until we supply the missing man-

power." Following Falk's talk, a Peninsula manpower mobilization com-mittee was formed, with Clyde

Earl Lawton of San Mateo, and Robert L. Baker of San Jose. Ship building, radio communica-tion and detection, airplane parts, ineficiting forefighting equipment, Deisel en-gines, and magnesium plants are some of the vital war industries of the Peninsula now in need of additional personnel.

The dogs-two Great Dan four Dobermans and three German Shepherds-came to Basic Magnesium from San Carlos, Calif., under the care of Sgt. Lisle B. Bordwell and Guard W. W. McAnally,

MINING JR'L

PHOENIX ARIZ. 11/15/43

ADVANCE AND BE BITTEN

erful guard around vital areas and in-

stallations at Basic Magnesium, Inc.,

and it ill behooves any one to loiter

around those places, even with the

most innocent intentions. Two Great

Danes, four Dobermans, and three Ger-

man Shepherds, trained as attackers

and defenders, are on duty. The army gives one of the Great Danes a jaw-

power rating of 900 pounds to the square inch. And that hurts!

Army Sends Nine

Watchdogs Here

Nine husky dogs of the

Army's K-9 service have added their watchfulness toward

guarding vital areas and instal-

lations at the Basic Magnesium

To Guard BMI

L. V. Tribune

plant.

11-17-43

The army has thrown a rather pow-

The men had just completed an eight-week course of instruction at the Army's camp there, and are now further training the dogs and instructing other guards in proper methods of handling the valuable animals.

The detachment of nine huskies is an experiment in Nevada. They are the first to be assigned to any war plant in the state and, if proved successful, will be followed by many more from San Carlos, to be assigned to other vital areas.

"These dogs are unbelievably smart and faithful-efficient in patrol, sentry, trailing and attack duty," say their guards.

to friends, you read your own carefully and mail it on. There will be only a very few available for public sale. L.V.R. Journal

11-26-43 **BMI Payday Is Shifted Today**

Payday at BMI will be advanced from Friday to Thursday beginning December 2, it was announced today by F. M. Hanrahan, comptroller.

Beginning next Thursday, all field employes will obtain their checks on the new date at the time offices of the company. Those who have been paid on a semi-monthly basis will be shifted to a weekly status in the near

Set For Tonight

Mass Meeting Is

A mass meeting of BMI workers and other interested residents of this area, will be held tonight in the War Memorial building, Las Vegas, to discuss the pro-posed strike at Basic, a vote on which is scheduled to be taken

December 22. The meeting will get under way at 8 o'clock and will include dis-cussion of the strike, the reason it is being sought, and the prob-able result if it is called.

Speakers from various labor groups are expected to take part in the forum, with many facts scheduled to be brought out which have heretofore not been revealed.

The meeting is open to the public.

Contest Winners Myra Dodge, technical service employe at B.M.I., is

the best proof that her sharpshooting husband, plant guard Marvin Dodge, is a good teacher. Mrs. Dodge has returned from Glendale, Calif., where she chalked up 399 out of a possible 400 score in the Pacific Southwest small bore rifle shot to add a cup and three more medals to the family collection of sharpshoting trophies.

Keen-eyed, steel-nerved Guard Dodge is a marksman of national repute. He has competed in shooting matches in many parts of the country, in pistol, small bore and

blgh power rifle divisions, Shoeting has been a business more than a hobby for Mr. Dodge.

OCTOBER 23, 1912

CONSTRUCTION BATTALION UNIT TO GO UP ON 600-ACRE TRACT

McNeil Construction Company of Los Angeles Awarded Contract for \$4,000,000 Project and Establishes Offices in Pleasanton

officials to Pleasanton last week, the navy moved swiftly to start to acquire title to a tract of land north of Pleasanton on which to begin erection of what is officially described as "a replacement and recuperation construction battalion." Official, also, is the statement that \$4,000,000 will be the initial amount to be spent on the project, although semiofficially it was learned that in all probability the outlay contemplated by the navy may be several times that and Mrs. C. S. Simonsen. amount.

sium plant at Las Vegas, Nev.

power," Curlett stated. "We want 2,000 men, and our personnel director, Ben Harwood, a member of our Pleasanton office force, is now placing advertising in Bay Area newspapers to obtain them. Our center for personnel of the | purchasing agent, A. L. Van Gorden, also a member of the staff here, is already making arrangements for materials and supplies. We plan to use as much local help as possible and patronize Pleasanton business houses every time we can. Already, in our office here, we have employed three assistants who live in Pleasanton, Mrs. A. R. Torrey, Mrs. John J. Amaral,

Exact Location Vague

So much of a surprise, in fact, was the move made by the navy that up to yesterday afternoon, so far as could be learned, not even the owners of the tract of land to be acquired had been advised that their property was to be condemned and then paid for in due time, according to an old navy custom.

Moreover, not even officials of the McNeil Construction Company of Los Angeles who moved into Pleasanton Monday and established offices here are sure just where the land is. All they know is they have the contract to build the center and that the tract, 600 acres, more or less, is north of Highway No. 50 and extends back toward the hills north of Santa Rita, which is about three miles north of Pleasanton. Where the east and west boundaries of the tract are is a matter shrouded in mystery. Some believe it is bounded on the east by the Tassajara Road, while others claim its eastern boundary is farther west than that road. It is believed, however, no matter where the east and west boundaries may be, or what size the tract may eventually prove to be, it is generally understood that it takes in part of the land known as the Dougherty tract.

Contractors Optimistic

Meanwhile, McNeil Construction Company officials, ensconed since Monday in temporary offices in the buildings at 409 and 411 Main Street in Pleasanton which formerly housed the ten-cent store and millinery store, are not worrying. Surveyors will soon show them where the land is, they say, after which work will be started on the project in earnest, following erection of an office building on the tract for occupancy by construction company officials.

According to Wm. Curlett, general manager of the project for

Following a visit of navy | in building a \$100,000,000 magne-Construction Workers Needed We are, however, going to need a lot of help in the way of man-

Year Required To Build

Strutures to be built on the tract north of Pleasanton, Curlett states, will be of frame construction, and will include buildings to house a power plant, central heating plant, etc. The work already contracted for will require at least a year to complete, and if additional construction is demanded by the navy, a longer period will of course be required to complete the project. No estimate is available at this time as to the number of men the project will accommodate when completed, although it is said the

number probably will be in excess of 1500. This will be the first center of the kind to be established in the Pacific Coast area.

LAS MEGAS, NEV., REVIEW-JOURNAL OCTOBER 16, 1745

Traffic System **Changed at BMI**

Effective at 7 o'clock tomorrow morning, all passenger car stickers at the Basic Magnesium, stickers at the basic magnestum, Inc., plant will be void, and new stickers permitting traffic with-in the fenced area will be issued to a limited list of employes, according to an announcement made by H. G. Satterthwaite, general superintendent.

Service by the plant buses now operating inside the fence will be discontinued at the same time. Pony Express buses, on all trips between Las Vegas and the plant at shift change times, will enter gate three and will make two complete circuits through the plant. There also will be regular Pony Express bus service at shift change times between An-derson's Camp, Townsite, Vic-tory Village, Carver Park and the plant. All local passengers will be serviced by these buses. Las Vegas buses will be reserved complete circuits through the

L. V. Age

10-15-43

L. V. Review Journal 10-23-43

The Answer Hasn't Been Written Yet

In the early days of BMI, Howard Eells, Jr., then president of the company, used to draw glowing pic-tures of Las Vegas as "the Pittsburgh of the light metal industry." That was his vision, his firm belief.

Las Vegas went along with that picture and has kept it constantly in view. It is a definite possibility— one that CAN be realized IF we get the breaks.

Alongside that rosy picture, another has appeared. Nobody has painted it-it has come into being gradually, with circumstances generally wielding the brush. And it is NOT a rosy picture—in fact it is decidedly of the opposite hue. It shows the magnesium plant shut down and abandoned—just another "battleship" useless when the war is won.

You can take your choice and, as things stand at the moment, you might be right either way

So far as the big plant itself is concerned, BMI has done an outstanding job since Manager F. O. Case took over for Anaconda. A production cost which will be competitive in the post-war era is in sight, Anaconda competitive in the post-war era is in sign. Anacoura can make the plant go IF the Defense Plants Corpora-tion gives the green light. Whether that will be forth-coming or not, remains to be seen.

The future of magnesium depends on the manner in which light metals become predominant in the years following the war. Their development has been one of the more important industrial results of the conflict. The question is whether the great capacity for production will be curtailed, once the war is over, or whether It will be used to the limit.

The Magazine of Wall Street, which is on top of all such questions, recently said in the regular section devoted to a discussion of events and trends "On The Industrial Front" has this to say:

"Government policy anent post-war use of its huge productive capacity for light metals is definitely hardening in favor of encouragement of far greater intraindustry competition. Intention is to promote wider use of aluminum through lower prices, if necessary by using government plants as a lever to break the existing price leadership.

"Magnesium poses a more difficult problem as considerable government capacity is uneconomical for peace-time production. But indications are that nothing will be allowed to dampen the impetus that war has given magnesium's progress."

The formula, then, appears to be getting the price down to a competitive basis. As we pointed out above, BMI is already in sight of that goal. More than that the possibilities from the development of by-products is tremendous. The big question-mark is the attitude of D.P.C. toward making this a permanent industry and giving BMI the support and latitude giving BMI the support and latitude necessary to bring . L.V.R. Journal this about.

So far, it's still a big question-mark, or worse, for admittedly there is nothing particularly encouraging on this score from Washington. Alcoa and Dow Chem-ical have been fighting BMI tooth and nail, seeing in it a dangerous competitor. And D.P.C. apparently listens.

Circumstances, such as development of world markets far beyond the wildest dream of present analysis, may compel a change in attitude or may demand the entire magnesium-producing capacity. There are many other possibilities, also. The final answer has not yet been written, nor is it in the immediate present. If the reverse were true in either case we would have cause for grave concern.



The set of the second s

. L. V. Age Marine Fighter **Is Basic Guard**

Out of the service less than a month, ex-Marine Leroy Rockwell has joined the BMI plant protection guard force. Rockwell was sent back from the South Seas because of wounds and malaria. He saw a strenuous service there for eight months.

He was a machine-gunner with the raiders—the men who went in first—at Guadalcanal, Tulagi, and other Jap-infested islands. He is credited officially with 150 Nips who will fight no more.

Rockwell says he thought San Diego the most beautiful place in the world when his hospital ship came safely into port there. He must have thought the nurse who received him in the naval hospital the most beautiful woman too, for he married her and brought her to Las Vegas. The former marine, who hails from Kewanee, Illinois, has three brothers in the navy.

> L V. R. Journal 10-29-43



Dr. Gilbert E. Seil, member of the war metallurgy committee, is expected to arrive here short-ly to visit the Basic Magnesium, Inc., plant. He also will go to Gabbs to inspect the BMI properties there.

Dr. Clyde Williams heads the war metallurgy committee, which is composed of several emnent metallurgists who are assisting in the war effort. He also s head of the Pattelle Memorial Institute in Columbus, Ohio, where studies relating to the mining industry are conducted.

10-18-43

42 BMI Workers To Get Diplomas From War School

Forty-two employes of Basic Magnesium completing the first 32-hour course in metallurgy under the engineering, science and management war training program will be awarded diplomas tonight at Henderson school, Basic Townsite, by Jay Carpenter, director of the Mackay school of mines of the University of Nevada

Basic Magnesium is the first war industry in Nevada to train employes for key positions within its own organization under the ESMWT program sponsored by the United States office of edu-cation and administered by state universities.

Two other classes in metallurgy are now being taught and another is scheduled for October 25. In-

L.V.R. Journal 10-28-43

Jay Carpenter Tells Importance Of Nevada Mining

The importance to the state of Nevada of recent mining and milling operations established in Clark county, particularly the Basic Magnesium, Inc., plant and the Manganese Ore company mine and mill were stressed here Tuesday by Jay Carpenter of Reno, dean of the school of mines of the University of Nevada, Carpenter was a guest speaker at the Las Vegas chamber of commerce meeting held at El Rancho Vegas.

Carpenter, who has made a tour of all facilities in this area relating to the mining industry, referred to the history of this area, dating from the establish-ment of the Union Pacific rail-road and the building of Las Vegas, and the factors which have contributed to the phenomenal growth of the population.

Today Las Vegas "is primarily a mining center and is mainly supported by the mining indus try, just as Virginia City and Goldfield were," Carpenter said. "This is difficult to realize because we see no mine shafts here and we hear no whistles blowing," the speaker stated. "Yet the Basic Magnesium plant which has doubled your population is simply the reduction plant and is dependent on mining just as though the mine were on your

front door step." He referred to the history of Nevada, which parallels the history of mining in the state, with fluctuation of population atlend-

ant to mining booms. and to mining booms. Matt Murphy, Nevada mining inspector, recently made a study of the number of men working in mining in Nevada, Carpenter said. His figures show that 57 per cent of the total now are employed in the production of magnesium or manganese, which makes Las Vegas busically a minmakes Las Vegas basically a min-

ing center. Clark county now is credited with the largest population of Nevada, Carpenter said.

Nevada's most serious prob-lem in the mineral industry today is now much of the inst expansion in the mineral industry

pansion in the mineral industry growth and production can be maintained in the post-war period, and Clark county is vital-ly concerned, he said. Much of the present mining activity has been abnormal, in response to war needs.

Greatest hope lies in the wis- the people of Nevada in order t dom of the government to con- insure continuance of industrie

tinue to provide these strategic and mining so vital to the state. materials and buy sufficient stockpiles in order to avoid disaster, Carpenter said. He pointed to the importance of the sen-ate bill of Senator James G. Scrugham of Nevada, which would provide for stockpiling of such materials. Senator Pat Me-Carran of Nevada now is leading a group of western senators to form a block to fight for western industry, he said. By giving our support to other states, we in turn will gain support for ours, Carpenter said. Governor E. P. Carville of Nevada is cognizant of these future problems and has

"For over three-quarters of a century the out-standing authority of the metal and non-metallic, milling, smelting and refining industries." McGraw-Hill, 330 W. 42nd St., New York City 1943 **NCT** Alexander H. Kingaard is now employed as chief engineer and manager for Compania Minera del Gran Oeste at

ENGINEERING AND MINING

JOURNAL

that company's tungsten mines in Lower California, Mexico. The company employes about a hundred men. Previously to his present professional work Mr Kingaard was with the McNeil Construction Co. as construction engineer for its Basic Magnesium project at Las Vegas, Nev.

MINING JR'L PHOENIX ARIZ. 10/30/43

James E. Sellers, who resigned recently as chief engineer with the War Production Board, is connected with the "Amboy' Chemicals, 106 South Marguerita, Alhambra, California. The plant operations of the company, which Sellers organized, are at Amboy, California. "Amboy" Chemicals is reported to have a contract with Basic Magnesium, Inc., for 60,000 tons of rock salt for Basic's plant at Las Vegas, Nevada. The company at present is working out details for establishment of a chlorine plant at Fontana, California, to utilize waste gases from the plant of the Kaiser Company's Iron and Steel Division, in the treatment of dolomite.

onstruction Company. who heads the company's personnel now in Pleasanton, the problems involved in handling the \$4,-000,000 contract, while of some magnitude, are not regarded as appalling by his company, which has just completed \$2,000,000 worth of Coast Guard installations at Wilmington, San Diego, and Santa Catalina, and is at present engaged

Las Vegas buses will be reserved The handsome set, engraved, confor through passengers only. _____ sisted of an alloy magnesium base cast in the BMI experimental foundry, and two pens. It was keenly appreciated.

The donors were English trainees and other associates and the party was given in commemoration of Dr. Fletcher's contribution to the building and development of this project. Present were: J. G. Boddy, H. Raab, W. McClintock, H. Hendrickson, F. Wood-man, G. L. Lee, C. H. Mahoney C. Martin, G. Dyer, A. Ellings, W Holland, B. Harden, T. Turchan C. Berry, F. Gibson, W. Koontz R. Winn, C. Bassett, R. Hauser, A. Newell, F. McEntee, Jr., W. Hoover, J. Ruiz, W. Hoesch, P. Dolley, R. K. Lawson, and the guest of honor-The Bombardier.

Nine "dogs for defense," train-ed for patrol duty with guards, have been loaned by the army for the duration to help safe-, guard vital areas and installations at the Basic Magnemium, Inc., plant.

The dogs-four Dobermans, two Great Danes, and three German Shepherds, were brought from San Carlos, California, remom San Carlos, California, re-cently by Sergeant Lisle B. Bords well and Guard W. W. McAnally. The latter took an eight-week course of instruction at the dog reception and training center at San Carlos, and will further train the animals here and in-struct guards in handling them struct guards in handling them. These are the first dogs used by a war industry in Nevada, and if the experiment proves successful, more dogs will be added at BMI, it was announced.

struction in metallurgy of magnesium will begin November 21.

of these future pro

WINING AND MINING For over three-quarters of a century the anding authority of the metal and non-metal milling, smelling and refining industries.

THE WHY AND HOW OF **BASIC MAGNESIUM**

Presenting facts regarding the unique processes now employed in the biggest single magnesium plant in the world

OUTHERN NEVADA, at first glance, appears to be populated at present largely by soldiers, faro ers, and employees of Basic Magnesium, Inc. In fact, BMI, as they call it down there, takes up more space, is the subject of more gossip, has cost more money, and actually turns out more metal than any other one magnesium plant in the world.

It was reported in August to be operating at about 100 percent of capacity. To give you an idea of what this 100 percent means, BMI at full capacity produces over twice as much volume of metal, measured in cubic feet, as one of our larger openpit copper mines. Furthermore, consider that BMI represents only a part on a site convenient to Boulder Dam months these men did a job that might of our magnesium production capacity, power. The contract was signed on reasonably have occupied a year.

October, 1943-Engineering and Mining Journal

R. H. Ramsey Assistant Edi

Basic Magnesium, Inc., was originally the corporate result of a union between Magnesium Elektron, Ltd., chief British producer of magnesium, which was to furnish the technical know-how, and Basic Refractories, Inc., a Cleveland, Ohio, firm headed by Howard P. Eells, who was to supply the raw material and direct the enterprise. Defense Plant Corp. financed the deal whereby a magnesite deposit in Gabbs Valley, Nevada, owned by Basic Refractories, Inc., would be developed, and a reduction plant erected Aug. 13, 1941; foundations were benitude of this new industry of ours, ing poured in November; and in magnesium in August, 1942, however,

August, 1942, magnesium ingots were onstruction work was largely handled by McNeil Construction Co., of Los Angeles, although MacDonald Engineering Co., Engineers, Ltd., and Fritz Ziebarth, assisted in setting up power lines, pipe lines, reservoirs, and in other jobs. Plant design was directed by two MEL technicians, Dr. S. J. Fletcher, chief chemist, and J. R. Charles, chief engineer, of the British company. At first, Charles and Fletcher were asked to design a plant to produce about 45 tons of magnesium daily, but no sooner had they completed this design than they were asked to more

CHEMICAL & METALLURGICAL ENGINEERING "The Monthly Magazine of the Process Industries" McGrow-Hill, 330. W. 42nd Stallan V

Production at the World's Largest Plant

ROBERT H. RAMSEY Assistant Editor, Engineering & Mining Journal

Chem. & Met. INTERPRETATION_

We have all heard rumors and stories about that plant out in Nevada-Basic Magnesium, Inc. Some have been exaggerations while others, sounding fantastic, have been understatements. In order to get the true story for its readers, our sister publication, Engineering and Mining Journal, sent Mr. Ramsey out to Las Vegas last May. His account of construction and operations at BMI appeared in the October issue of E.&M. J., pp. 61-67. The following description is largely abstracted from Mr. Ramsey's article.-Editors.

S OUTHERN NEVADA, at first glance to produce them in England. In 1936 he was successful and Magnesium Elekent largely by soldiers, faro dealers, and employees of Basic Magnesium, Inc. In fact, BMI, as it is called down there, takes up more space, is the subject of more gossip, has cost more money, and actually turns out more metal than any other one magnesium counts for about 80 percent of Engplant in the world.

Everything about BMI is colossal. It uses all the peat moss Canada can supply, all the power Boulder Dam can spare, all the men it can get, all the electrical equipment three of our largest companies could manufacture, and it is still growing, although BMI was reported in August to be operating at about 100 percent of capacity. percent means, BMI at full capacity produces over twice as much volume mines.

although both Canada and the United States produced some magnesium metal as far back as 1918, Germany has until recently led in magnesium production and technology, chiefly because magnesium is one of the very few metals Germany possesses within her borders. Alloys of magnesium were used by the Germans in the first World War and were manufactured afterward by I. G. Farbenindustrie under the trade name of Elektron alloys, a circumstance to which Basic Magnesium, Inc., owes its existence.

Major C. J. P. Ball, a British officer, became interested in these alloys during the war, and for years thereafter Accompanied by some 3,000 drawings he worked toward forming a company and specification sheets, these two men

98

tron, Ltd., was formed, a company which was able to purchase German patent information and which had the benefit of German experience in magnesium production. At present the big MEL plant near Manchester aclish magnesium production. PLANT HISTORY

Basic Magnesium, Inc., was originally the corporate result of a union between Magnesium Elektron, Ltd., who was to furnish the technical knowhow, and Basic Refractories, Inc., a Cleveland, Ohio, firm headed by Howard P. Eells, who was to supply the To give you an idea of what this 100 raw material and direct the enterprise. Defense Plant Corp. financed the deal whereby a magnesite deposit of metal, measured in cubic feet, as in Gabbs Valley, Nevada, owned by one of our larger open-pit copper Basic Refractories, Inc., would be developed, and a reduction plant erected It must be admitted, however, that on a site convenient to Boulder Dam power. The contract was signed on Aug. 13, 1941; a crew of men went into the desert to cut the sagebrush off the proposed plant site in September; foundations were being poured in November; and in August, 1942, magnesium ingots were being produced. Construction work was largely handled by McNeil Construction Co. of Los Angeles, although several other firms assisted in setting up houses, pipe lines, and other jobs.

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MAGNESUM

Plant design was directed by two MEL technicians; Dr. S. J. Fletcher, chief chemist, and J. R. Charles, chief engineer, of the British company.

left England in May, 1941, on a ship which was torpedoed and sunk in Mid-Atlantic. Fletcher and Charles were picked up by other ships in the convoy, but the drawings were lost. Upon arrival in Cleveland on June 3, they cabled to England for microfilm copies of the entire set, the first of which arrived by special bomber on June 7.

At first, Charles and Fletcher were asked to design a plant to produce about 45 tons daily of magnesium, but no sooner had they completed this design than they were asked to more than triple this output. Naturally this involved more than multiplying everything by three and the result was an enormous amount of work handled by these two men under the greatest possible pressure. In three months these men did a job that might reasonably. have occupied a year in ordinary times

Following the first production of magnesium in August, 1942, however, the output of metal did not come up to expectations. Although the story of what actually went on during BMI's early operations would undoubtedly be a most interesting one, it has never been completely told and will not be told here. Whatever the cause, the effect was that on Oct. 26, 1942, Anaconda Copper Mining Co., at the invitation of governmental agencies assumed direction of BMI by buying



· OCTOBER 1943 · CHEMICAL & METALLURGICAL ENGINEERING

L.V.R. Journal 11-2-43

Marvels Of BMI Plant Described After Tour

By FLORENCE LEE JONES I've just made a tour of the Basic Magnesium, Inc., plant and felt like a modern "Alice in Wonderland." I was led into tunnels, up flights of stairs, into huge buildings, onto elevators, and saw mages of conduits carrying mazes of conduits carrying power cables, a big building filled with marvels of electric equipment all operated by remote control and not a single person inside the structure, millions of dollars worth of silver doing a commercial job for Uncle Sam, and finally watched strange little vehicles operated by omen drivers carrying the mished products - shining magnesium bars-to the loadplatform ready for their Mr job.

go to just to produce a tiny piece of magnesium." Then I realized and factories, dropping magne-sium bombs which spell total deeffort from thousands of workmen far out on the southern Nevada desert.

Vegans Unacquainted

Even the people of Las Vegas, who can stand on the porches of their homes at night and see the bright cross of lights on the hill where three years ago only sand and sagebrush covered the desdo not realize the full magnitude of this great giant of in-dustry. Restrictions on visitors have resulted in a lack of ac-

Gabbs is about \$150,000 per month.

After our interview, we meet ir guide for the day. He is inour guide for the day. structed to show us "everything, and we start out in an automobile to make our tour. We travel over oiled highways from one big installation to another.

We learn the startling fact that about 40 per cent of the gigantic project is underground, and proof comes at our first stop. This big building is known as the electric control house. Outside we see the huge power cables leading to the plant from Boulder dam and Parker dam. Inside is a control room which looks as though it might have been lifted from the great Boulder dam power house itself. A huge wall drawing shows the intricate power system for the entire BMI plant, with power lines, booster plants and all the electrical system necessary Weary at the end of this six-hour excursion, I could think only. "What a lot of trouble to charge of all electrical installa-tions, is not on duty, but M. A. how the enemy must feel as the Allied planes fly over their cities and factories, dropping magne-here. He tells us that all power emanates from this control house. struction and represent so much We go down a steep narrow stairs, through a short inclined tunnel, pass through a heavy steel door and stand in the cen ter of a tunnel one and one-half miles in length.

Tunnel for Cables

Through this tunnel pass conduits carrying power cables. Branching off from this tunnel are conduits leading to each of the big metal units where the magnesium is electrolyzed.

There is a testing laboratory have resulted in a lack of ac-quaintanceship with the big plant by the people whose lives have been so vitally affected by the construction of the project. So come with me on this tour to see the great BML plant for electrical instruments used units for use on the spot. We learn that the electrical in-

ROSEBOWL PIGSKIN TO WAR

Frankie Alberts, left, great Stanford quarterback, now a lieutenant in the Navy, is shown "passing the ball" in a new kind of play. He turned in one of his prized possessions, the football uses in the Indians' victory over Nebraska in the last Rossbowl game, to a Gilmore dealer, to be sent to service men on some "fighting front." Alberts was doing his part in the drive for equipment to give our fighters some much-needed recreation. Play equipment left at any Gilmore station will be given to the Army, Navy and Marine Comm Navy and Marine Corps.

from the same material are allarge cubicles carried on trailers ies are melting furnaces, where to which are linked little "jeep" engines. Seven or eight of these cubicles, each containing about 1000 pounds, are pulled by one engine. The pellets, now cooled, contain magnesite, coal, peat

car are released. We are in what has been dubbed by workmen as the "dust bowl" of the plant. A cloud of time protection of the plant. A cloud of time of the plant duplicates of the original plant in England after which this proj-ect is fashioned. In these build-back at the administration build-Benefit de la construction de the protect.
So come with me on this taur, men to be taken to the various nits for use on the spot.
We arrei we after driving through after which this project we are drived per sentences of the original plant in the decision of the plant. A cloud of fine particles fans out overhead in dis whipped by the wind, but supervised in the main switch yard, compared by the weat on the atmosphere by the wind, but supervised in the main switch yard, compared to the fails of t

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the "cheeses" are melted. matic casting machines are to convert the metal into ingots about 22 inches long and three inches wide.

The magnesium ingots, weighing about six pounds, drop down a slide from the automatic casting machines, where workmen and checkers stack them onto small cars. This finished prod-uct is now ready for its final stage. We see a woman driving a strange electric jeep, with a lift on the front for the load, wheel her vehicle into position to receive the magnesium bars. She drives the jeep out into a spacious room, where many women are employed. She drops her load and leaves for another.

Women then handle the bars, wrapping and stacking them on the loading platform, where they are ready to be placed in a rail-road car to be shipped out for use in making airplane parts and for conversion into incendiary bombs for Hitler's displeasure and discomfort.

We drive past change houses provided for the workmen, canteens operated by the Anderson Brothers Supply company of Nevada, Inc., where hot food is available, we pass one of the most complete electric repair shops in the nation, we see a brick plant, we see storage for salt, we pass huge caustic tanks lined with nickel, we see a tremendous boiler house... all this essential but incidental to the main magnesium process.

nesite from Gabbs, which has ing for the pellets when they are building known as a "rectifier room" and hauled from the preparation learn there are five more just nesite from Gabos, when the been shipped directly to the plant. Inside is a workman op-erating a gigantic "vacuum cleaner" which picks up the "powder" and carries it in a hose to silos, where it is kept until it is ready for the process. Trucks are unloading the same materials into silos. Some of the railroad cars are placed over openings into underground storage units, into which the contents of the contents of the intent which the contents of the magni-tude of man's imagination and

> ing, through the turnstile, and then to the personnel office, where our last credential, duly signed, is returned. We leave a little world all its own behind us. That is the modern "Alice in Wonderland" world, and we are going back to reality.



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Inside the long rambling building containing hundreds of doors and windows, we are greeted by usherettes presided over by Mrs. Ruth Lusch of Las Vegas. They extract one of the sheets from our credentials and send us finally to the office where our real tour begins.

Inside BMI Gates

This procedure seemed like a lot of trouble too, but every American can be glad that it is so difficult to enter these barriers where so much vital war material is produced to help lead the Allies to victory.

Our host signs our credentials to show we actually carried out our announced plans. He gives us a copy of "Welcome to BMI," a pamphlet sent to prospective plant employes telling of some of the problems and kind of job they can expect.

Before our tour starts, we are taken to the office of F. O. Case, general manager, for a short interview on the progress of the plant. He pays tribute to faithful employes, who realize the im-portance of their jobs and carry on day after day, no matter what their personal problems may be. He tells us the production of magnesium is a "continuous proc-ess," and that the plant has been full production since August 1, 1943.

The plant runs 24 hours per day around the calendar, observ-ing no holidays. At present there are approximately 5440 employes at the BMI plant itself and about 500 at Gabbs, where the magnesite ore is produced. The monthly payroll at BMI is approximately \$1,000,000, and at

vent spontaneous combustion come out a dark gray color re-from the drying which results in sembling lava. Pellets produced from the drying which results in this arid climate.

We see the strangest buildings on the project, typical of the English lineage of the plant, which were intended for the peat storage. Their use in the English plant, after which the BMI project is patterned, was success-ful, but the desert climate and the peat moss were not compatabile in an enclosure, officials found, so the outdoor pits are used instead. The two huge buildings, with sharp triangular roofs, intended for this purpose have been converted into ware-house space for the "construction and acquisition" department.

Coal for Process

We see the big storage for the coal brought from Carbon county, Utah, for use in the magnesium plant,

In the "caustic area," where everything is gargantuan, we see where the salt is mixed with water and goes into "raw brine" tanks. We learn a new word, "clariflocculator." We aren't sure of its meaning, except that it is part of the process for the brine. From the clariflocculator, the brine goes into sand filters and turbo mixers to meet the standards of the finished brine. We see railroad cars loaded with fine white powdered mag-

moss, and concentrate. Chlorine, produced from the salt brine by electrolysis, is wait-

removed to the refinery, where they are alloyed and refined, most feather weight when then poured into ingots, billets handled. The pellets fall into or slabs. In each of the refinerL.V.R. Journal 11-19-43

BMI Water System Is Described Today

By FLORENCE LEE JONES

Water from the clear, blue depths of Lake Mead is aiding the allies in the defeat of the axis by supplying the needs of the Basic Magne-sium, Inc., olant and providing for the personal comfort of the workers and for their gardens and lawns at their picturesque homes on the hill overlooking the project.

Under ordinary circumstances the water system would have been a major project within itbeen a major project within it-self. In fact, for many years studies had been made of the practicability of pumping water from Lake Mead into Vegas val-ley. Then under pressure of World war II, with the construc-ton of the BMI plant speeded up beyond imagination, the instal-lation of the water system passed lation of the water system passed with small notice. Now with a constant supply, meeting the varied requirements for the big magnesium plant, the Manganese Ores company properties, and the housing units of the area, the water system is almost "taken for granted.'

Project Extensive

So vast is the project that it takes several hours to visit the various installations, and only a privileged few are permitted to see all the intricate workings of the system. These must be es-corted by an official and make known their definite purpose. Guards are stationed at every point. They scrutinize passes, record the information, and note the time of arrival and departure of all scenarized parties. At pight These must be esthe system. of all escorted parties. At night "war dogs" and their masters, who are specially trained guards, are on patrol.

Ralph O'Neill, superintendent of the water and disposal systems for Basic, who has had a wide background of experience in such facilities, pointed out the huge amount of work to be done, investigations to be conducted, and design to be completed be-fore any part of the construction could be started. Cantilever on Island

Most spectacular of the various Most spectacular of the various installations is the huge canti-lever at Lake Mead, which ap-pears to be a steel bridge. This structure was built on an island, extending from a cliff on the north side and facing the main body of the lake. It has a total length of 386 feet, and the un-supported projection of the canti-lever is 233 feet. lever is 233 feet.

At the end of the structure are six intake pumps with 18-inch columns 196 feet long, which ex-

wooden cover to control algae. Alongside the reservoir is a big well which contains a float switch for each of the pumps located at the lake. When the water drops in the reservoir these float switches turn on the pumps about two and one-fourth miles away. To prevent shock from surge, the pumps start up in measured sequence and are turned off in the same sequence. Big Control House

An all-concrete, modern styled two-story building is located at the foot of the hill near the res-ervoir. Inside are control panels which are duplicates of those at the cantilever control house.

In the building are six horizontal centrifugal pumps, each hav-ing a motor of 1250 horsepower, which lift the water 625 feet and send it on its course to the terminal reservoir above the BMI plant. Float switches at the ter-minal reservoir turn on these horizontal centrifugal pumps in

measured sequence. Power to supply these units and keep the equipment in oper-ation comes from Boulder dam to a substation at the BMI plant. An overhead line leads from the sub-station to the booster pump station, where another sub-sta-tion is located. From that point the power is carried by under-

surge suppressor attached to the required pressure. surge suppressor attached to the training pump goes into action. A pres-sure guage on the wall records every surge wave between the terminal plant and the booster pumping station. A Ventura meter on the wall records the tory, in which routine chemical and bacteriological determina-meter on the wall records the tions are made for the control of the treatment process. By the time the first metal unit went into operation at the BMI plant in September, 1942, an ade-quate water supply had been provided through the permanent system. O'Neill reports there hever has been a time of water taken from the treatment process. amount of water taken from Lake Mead, and from this chart is tabulated the cost of water controlled by the Colorado river

to permit access for maintenance

2 Big Reservoirs

The pipeline leads to the two At the end of the structure are six intake pumps with 18-inch columns 196 feet long, which ex-tend deep into the lake. The sea-sonal variation in the water level at Lake Mead made necessary the length of these pump col-umns. In the large room housing the turbines which operate the pumps the architect took cogniz-mee of the magnificent view and lesigned a huge circular window which frames the blue water of the lake, with Fortification the background on the opposite hore. An "iron-railed deek" is mother indication of his appre-ation of the natural beauty of terminal reservoirs which are lo-

shore. An "iron-railed deck" is mother indication of his appre-ciation of the natural beauty of the setting. As one walks around this deck there is a fueling al-most of being absent. Valve Installation From the esthetic in the purely controlled by an automatic tele-phone system from the booster

water if needed. Chemical tests through temporary mains. are made every two hours and While the project was dependbacteriological tests are made at frequent intervals.

Automatic Chlorinator

inator in use in water treatment after the fire temporary facilities plants has been installed here. from Lake Mead were put into It works automatically from a operation. master meter and feeds a meas-

pumped to the water treatment were placed on a barge in Lake station. For the production of Mead, which discharged water zero hardness water, the stabil-ized water is passed through Zeo-booster pumps then lift ized water is passed through Zeo-lite cells and thence to a stabil-ized water reservoir. For the and carried it to the big reserregeneration of the Zeolite, salt brine is pumped from the BMI chlorine plant and through a pressure filter before use. Mean

blended through automatic mix- island by barges while the causeing valves, and the hardness is way was under construction. ground conduit to the intake pumping station. Surge Suppressors As one of the big centrifugal pumps automatically starts, the

Pipelines lead from the water treatment plant to the BMI plant. April, 1942. commission. From the booster pumping sta-tion the huge pipeline has been laid across the mountains toward Henderson. Tremendous cuts through solid rock were neces-sary along much of the route. A dirt road leads along the route to permit access for maintenance

In the office of Superintendent JDof the line. Air valves are located O'Neill in the water treatment at the crests of hills, and surge plant are recording devices which suppressors are spaced at inter- gve him information on condi-EL in vals all along the line. Some of the pipe is exposed where it crosses deep gullies, but for the most part the line is under ground. 2 Big Reservoirs itself, 01

Plant Costs \$700,000

The cost of the treatment plant ace \$700,000, the am he 15to

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treatment the total hardness of the water is reduced to less than 40 per cent of the hardness of the raw water from Lake Mead and is comparable to the quality of the domestic supply in most cities cities. Several feeders have been in-stalled in the plant to provide for introducing chemicals in the was distributed over the project

ent on this temporary supply, the disastrous fire which destroyed the administration building oc-The very latest type of chlor- curred in March, 1942. Shortly

The first work started by the ured amount of chlorine into the water. Chlorine gas from the BMI plant is used. Caustic soda, a by-product of the chlorine plant, is

Large voirs as soon as they were com-

Supplies on Barge

pressure filter before use. Stabilized water is used gen-erally throughout the BMI proj-ect. Zero hardness water goes to the boiler plant and a few other points in the magnesium plant Beach. A causeway connecting which require this type of water. It is island with the mainland was Tempered water for domestic use, a mixture of zero hardness First supplies for the intake use, a mixture of zero hardness First supplies for the intake water and stabilized water, is equipment were taken to the

pumping station. By the time the first metal unit shortage in the area served since

In addition to supplying the BMI plant and all housing units

phone system from the booster reservoir. No operators are re-quired at the cantilever, and only secasional oiling or maintenance work is necessary. The huge 400-horsepower mo-

The huge a stud-noisepower mo-tors make a singing noise when they are in operation. Under average conditions the pumps can lift 31,000,000 gallons of water per day. Surge suppressors installed at the intake protect the noise suppressors arises. An automatic valve admits just

installed at the intake protect. the pumping equipment against excessive shock. A control house stands along-side the cantilever and houses electrical equipment which oper-the numping units. A large

Pipeline Through Causeway

which runs through the causeway which runs through the causeway that connects the cantilever in-load with the maintaint and about one and one-half miles in-land. The water is lifted approx-imately 150 feet to a million-gallon reservoir at the booster pumping plant. All the pipe is of heavy steel and is welded. The heaviest pipe section has a wall thickness of nine-sixteenths of an inch.

of an inch. At the booster pump station more guards await and more gates must be unlocked to admit the visitor. The manimoth reser-voir is concrete lined and has a

From each reservoir a big pipe

ates the pumping units. A large control panel, completely auto-matic, a battery room, and a room for the guards are included in the structure. **Pinetine Through Causeway Pipeline Through Causeway** The huge pumps force the water into a 40-inch pipeline, the sand filters. In this state of

TENIO NEVI CAPILITE NOMENIES IS, 199

Taxpayers Benefit Because of BMI

Jay Carpenter, Bureau of Mines Head, Tells of Advantages to State

By Jay A. Carpenter, Director of the Nevada State Bureau of Mines Basic Magnesium is outstanding in the entire history of Nevada for First: Being the largest single investment of capital in a mining and metallurgical plant; Second: Being the largest daily consumer of electrical energy of any metallurgical plant; Third: Being the largest employer of labor both as to number and payroll; Fourth: Being the first producer in the field of light metallo

and payroll; Fourth: Being the first producer in the field of light metals; Fifth: Being one of the largest monthly producers of metal in dollar value on record, and Sixth: Being assessed on its property for the largest sum of any mining venture known to our tax records. To the resident of Nevada, it means an increased pride in and benefit from a growing, prosperous state with a substantial saving in his state tax bill due to the huge addition to the tax roll by the BMI

addition to the tax roll by the BMI property.

The interesting story to substantiate the above statements follows, being taken from a recent review of the state's mineral industry problems:

When mining thrives in Nevada, ranching and cattle raising thrive through finding home markets, and there is a general prosperity in the towns.

In early years Nevada's mining industry paid a large percentage of the taxes but in the succeeding decades the assessed value of agriculture and ranching increased more rapidly than that of city property, then in time the public utilities assumed the largest share of the taxes, especially railroads.

An analysis of the state tax levy for 1943 shows an increase from a total tax valuation of \$221,000,000 in 1942 to \$241,000,000 in 1943, a striking increase with over half of this due the Basic Magnesium, Incorporated plant at Las Vegas.

Of the \$241,000,000, \$90,000,000, or three-eighths is assessed against the railroads and the public utili-The next largest division is ties. city and town real estate and improvement: accounting for \$40,-000,000 or one-sixth, while mine plants and improvements amount to but \$13,000,000 or only five per cent. However, the Basic Magne-sium, Incorporaed plant in Clark county is listed as a county im-provement and not under mining as are the mills and smelters located at the mines. Including Basic Magnesium, Incorporated in mining it would raise the assessed value of mining plants and improvements to ten per cent. In addition the assessed value from net proceeds or profits of the mines for 1943 will total about \$10,000,-000 more, thus giving mining as a whole about fifteen per cent of the state's tax burden.

It is interesting to note that Washoe county has the largest assessed value of \$50,000,000, but that in '43 Clark county has stepped to second place with an assessed value of \$42,000,000, doubling in amount since '41, or In two years time.

The importance to Clark county

this also on the basis of conserving our ore resources.

This is the old battle between the producers of raw materials and the manufacturer, and Senator Scrugham is the champion of our metal producers.

With post-war years will come the question of the survival of the new industries of the west based upon western raw resources and low-cost hydro-electrie power vs. the long-established industries in the east. One specific illustration is whether Basic Magneslum, Incorporated, will survive in the face of the competition of the older eastern plants.

Nevada's mineral industry is the state's most important industry, both as to maximum labor employed and as to maximum value of its production.

Nevada was but a desert trail to California until the discovery of the Comstock in 1859. By 1864 it was a camp of many thousands and producing millions and was the economic basis of the entrance of Nevada into the union as a state in 1864.

The constitution and early laws of Nevada emphasized the predominance of the mining industry. First, by law, mines and milling plants are given the right of em-inent domain, that is the con-demning and taking of private property when necessary for their operations. This is a distinct concession to a private industry. Sec-ond, the constitution provided that taxation was to be based on val-uation, except mines and mining claims, the proceeds of which alone shall be assessed and taxed. This means that the under-surface values of a mine are assessed each year at a valuation equal to the profits or net proceeds. This is a distinct differentiation from other types of property, the reason being the extreme difficulty of placing an assessment value on under-ground values. The law requires that every mine shall report its gross production, its costs, and its net proceeds each year. As a re-sult we have a complete official record of the state's production since 1864.

IN NEW BULLETIN

For the first fifty years these statements were filed in the county court houses and have been filed away in the basements and gar-rets. Our Nevada State Bureau of Mines has accumulated this continuous record and will distribute it as a new bulletin next month. It will show the state's total mineral production by years, by counties, and by districts, the counties by years and districts, and the districts by years with the name of any producer in the district in the last eighty years who reported a gross production of over \$5000. This will be a fine contribution of the bureau to the Nevada mineral industry. The figures for the state from the discovery of the Comstock in 1859 to 1940, inclusive, total 168,000,000 tons of ore of a gross value of \$1,442,000,000. The table of yearly production illustrates how closely the mineral production in Nevada is associated with periods of state prosperity and depression. The first great era of prosperity reached its glimax in the '70's with the Comstock at its zenith, "with other camps such as Austin, Belmont, Hamilton and Aurora beginning flush production, and with mines discovered and opened up all over the state.

reduction to metal—an industry built up almost since 1939!

The Basic Magnesium, Incorporated, plant at Las Vegas accounts for 5600 or nearly fifty per cent of the total mining employees and thus accounts mainly for the rapid growth in population of Clark county and its possible closing down at the war's end would likewise jeopardize the livelihood of two-thirds of its people.

With this data given you on the state's rapid growth of mining population and mineral output, you can realize that Nevada's most serious mineral industry growth and production can be maintained in post war years, and thus avert another depression period. This is especially applicable to Clark county.

ABNORMAL NOW

Much of the present mining ac-tivity is abnormal and in response to war demands. In 1910 to 1920 when the state had a population of \$0,000 people, which had then doubled since the period of depression from 1890 to 1900, it was due to the rapid development of the large gold and silver mining camps such as Tonopah, Goldfield, Rochester, Wonder, and a dozen others. The mining of strategic metals such as tungsten, mercury, and manganese had a modest beginning in 1918 during the last World War. The present deposits of magnesium ore were not even located. Today magnesium mining repre-sents one-half of the mining and metallurgical employment of the state, with copper one - fourth, while gold and silver mining is now but a minor per cent of the total, due in part to the closing of many of those mines by government edict

Will gold and silver mining take up the slack in the immediate post-war period? No-even with \$35 an ounce for gold the number of mining employees in Nevada in 1940 hefere the Function 1940 before the European war had had much effect, was only 6262 compared with over 11,000 now. Also the large silver camps of the 1910-1920 period are pretty well exhausted and were mining during a \$1.00 an ounce price for silver in 1920 compared with seventy-one cents today.

and the state of the Basic Magnesium, Incorporated, and the Manganese Ore Company's plants is very evident as they form nearly one-half of the taxable value of the county, and one-tenth of that of the state. If these plants are forced to cease operation after the war there will be a serious question as to the valuation to be placed upon them for assessment and as to Clark county's ability to balance its budget.

Another method of estimating the importance of the mining industry to the state is on the basis of the number of men employed in the industry.

Our state mine inspector, Mr. Matt Murphy, has published a list of mines operating on September 1, 1943, giving the number of their employees as 11,425. In Utah a very careful analysis has been made of all labor in the state. There is dependent on each miner for family support two and a half Individuals. Now Utah is known for its belief in marriage and large families. Suppose we then figure that in Nevada there is only one dependent for each worker, thus giving about 23,000 directly dependent on mining and metallur-gical plants. The Utah study found that three other persons were dependent for a living on the mining population. each of such as store keepers, professional men, amusement men, including their families. For the 23,000 directly dependent on mining there would be 69,000 dependent upon these mining people, or a total then as an estimate of 92,000 people of the state's present popula-tion of about 140,000, or nearly two-thirds of the population of the state directly dependent upon the mining Industry.

WITH MAGNESIUM

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Of this figure of the 11,425 min-ing employees fifty-three per cent were concerned directly with the mining of magnesium ore and its

The only possible cause that could result in a large resumption of prospecting for, developing, and mining gold and silver mines in Nevada in the post-war period would be the marking up of the price of gold and silver in terms of our paper currencysay gold to at least \$70 and sllver to its once former price of \$1.29 an ounce or to higher figures, with the restoration of gold coins to insure future stability.

In my opinion if the war and its consequent inflation continues for three or more years with the corresponding stupendous mounting national debt, revaluation of gold and silver will take place to re-duce the national debt and to give sufficient metal coin to give stability and backing to the paper currency.

It is apparent that the resumption of gold and silver mining at present prices can not begin to absorb the mining and metallurgical labor now employed in the strategic metal and mineral produc-tion. What other solution is there to this problem?

OUR MAIN HOPE

Our main hope lies in the wisdom of the national government in continuing to purchase these strategic metals in immediate postwar years to allow a gradual adjustment, and by that purchase to provide sufficient stockpiles to avoid, in the case of another war. the wild scramble and shortage of the two world wars.

This is the purpose of Senator James G. Scrugham's proposed bill S. 1160 for the continued purchase and stockpiling of strategic metals which has had the national attention and careful consideration of our most important mining men and economists.

There is a strong group in our country who favor the purchase of foreign metals at lower prices to promote and insure trade in our manufactured products, and justi-

In the years '76 and '77 the state's production reached \$45,-000,000 a year, not to be equaled again for forty years. After the '70's there came a

gradual decline to a low ebb from 1890 to 1900. In 1900 the year's production was only \$2,700,000. with the state's population dropping to only 40,000. Then came the discovery of Tonopah in 1900, of Goldfield in 1902, and of large scale milling and smelting of copper ore in the Ely district, with a rise in production to a peak in 1918 of \$48,000,000. Then followed another recession down to a pro-duction of only \$4,000,000 in the depression year of 1932. A dis-tinct revival started in 1937 rising to a production of 43,000,000 in 1940 with a state population of 110,000. Production figures since 1940 are held confidential by the government, but 1943 will, I am sure, exceed \$50,000,00° to be the highest annual figure in the his-tory of the state. From 1940 to 1943 there has been a twenty-five

the output of metal did not come up to expectations. Although the story of what actually went on during BMI's early operations would undoubtedly be a most interesting one, it has never been completely told and will not be told here. Whatever the cause, the effect was that on Oct. 26, 1942, Anaconda Copper Mining Co., at the invitation of governmental agencies, assumed direction of BMI by buying the controlling interest held by Basic Refractories, Inc. F. O. Case is now general manager, H. G. Satterthwaite is general superintendent, and V. E. MacDonell is chief engineer-all of them are Anaconda men. The status of Magnesium Elektron, Ltd., was not affected by this change, and Charles and Fletcher remain at the plant in their former capacities.

Mine and Mill

BMI has grown so hugely in the last year, and is even now changing in so many details, that a description of it is a formidable task. Probably the best place to start is at the mine, some 300 miles north of the reduction plant, and far up on the side of one of those vast Nevada valleys. Here, 31 miles from the railroad and 1,100 miles by rail from the reduction plant, is a concentration of almost pure magnesite (magnesium carbonate). Adjoining it is a large deposit of brucite (magnesium hydrate), but this is being worked by other companies. The magnesite outcrops about halfway up the mountain slope above the valley and consists of a dense, thickly hedded, very hard rock in a formation which is variable but generally dips westward, away from the hill, Color of the magnesite varies between a dark blue-grey and a faintly bluish white, Surrounding the magnesite are dolomites of varying composition, except for the deposit of brucite which adjoins it on the south.

Original development work on the deposit consisted of extensive diamond drilling, which was done on 50ft. centers, and on the basis of which the estimates of available tonnage and composition were made. When the deposit was opened up, however, it was found that serious variation in composition occurred within narrow limits in the deposit, enough, in fact, to render large parts of it unusable. Obviously, this complicated the problem enormously, and for a long time mining was done in a cut-and-try manner, which, though expensive, was made necessary by the need of getting ore to the reduction plant. Anaconda's engineers, however, anticipate more success in working out a suitable mining method, and in a few months

the mining picture may be different. The deposit was entered by drilling and blasting out a series of 60-ft, main benches, each divided into three 20-ft.



sub-benches, to afford the greatest degree of selective mining. Because of the lack of uniformity of the orebody, a great deal of additional sampling was necessary.

In sections where wagon drills are used for primary blast holes, 21-in.

vertical holes are put down on 14-ft. centers, and all drill cuttings, caught in Worthington dust collectors, are assayed. Two samples are taken from each drill hole, the upper 10 ft. making up one sample and the lower 10 ft. making up the second. Results of

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S Y N T HETIC RU

in the Government's synthetic rubber program. Great and perhaps equal credit should be given to those concerns that have contributed most importantly to the process engineering and design of these plants. Included, too, are the companies that have constructed new or expanded facilities for producing essential chemicals, catalysts and feed stocks without which the program would have failed. And, finally, recognition is due the construction companies and the manufacturers of chemical engineering and process control equipment whose joint contributions were essential to the success of the entire project.

To list by name each of the companies that belong in one or more of the foregoing groups is indeed an herculean task and one that lies beyond even the combined knowledge and experience of the Committee of Award. Fortunately, however, the able staffs of the Office of the Rubber Director and the Rubber Reserve Company are available for our consultation and with their cooperation and support, the list is being compiled for publication in our November issue. At that time Chem. & Met. will present in an unusually well illus-

WALTER G. WHITMAN, Mossachusetts Institute of Technology, Cambridge, Mass. GEORGE GRANGER BROWN, University of Michigan, Ann Arbor, Mich.

- CHARLES A. MANN, University of Minnesota,
- JAMES R. LORAH, University of Missouri,
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Oklahoma, Norman, Okla. GEORGE W. GLEESON, Oregon State College, Corvallis, Ore.

Rochester, N. Y.





for CHEMICAL ENGINEERING ACHIEVEMENT

BBER N D USTRY

trated article and report, a more detailed explanation of the manner in which these industries have shared their engineering and material resources in building the American Synthetic Rubber Industry.

> Respectfully submitted, SIDNEY D. KIRKPATRICK, Secretary Committee of Award

> > ** *

NOTE.-The 1943 Award for Chemical Engineering Achievement will be appropriately presented to the American Synthetic Rubber Industry at a subscription dinner to be held in the grand ballroom of the Waldorf-Astoria Hotel in New York City on Wednesday, December 8, 1943, in connection with the 19th Exposition of Chemical Industries. Members of the chemical engineering profession and others interested in celebrating this achievement of American industry are cordially invited to join us on this occasion. For further information, address M. A. WILLIAMSON, publisher, Chemical & Metallurgical Engineering, 330 W. 42nd St., New York, 18, N. Y.

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THIRTY TONS of calcined magnesite is hauled in each truck-trailer unit shuttling between BMI's mine and reduction works

blasting operation. Following the decision as to which

part of the bench will be regarded as Cummins diesel engines are used. ore and which as waste, intermediate wagon drill holes are drilled between worked in this way, but a slightly dif-the sample holes, resulting in 7-ft. ferent scheme has been found feasible holes are loaded with a powder which the sample holes, resulting in 7-ft. ferent scheme has been found feasible spacing for primary blasting. Seven for one bench. Here a 40-ft. bench gives a detonation velocity of 5,000 to Worthington wagon drills are used in is being cut, for the composition of this work. All holes are loaded with the rock is more uniform. Drilling is Primacord. About 18,000 tons of rock 65 percent free-flowing powder and done along this bench by one Bueyrusdetonated with Primacord, Following Eric 29-T churn drill and one old the blast, in which about 10,000 tons Armstrong Model 29 drill, both of is frequently necessary because of the is generally broken, the rock is loaded which put down 9-in. holes. About 20 well-defined and widely spaced fracby 14-yd. Bueyrus-Erie shovels into 9- ft. of hole is drilled before the bits ture planes in the rock, yd. trucks, which haul it down the hill, need resharpening.

this sampling govern the subsequent either to the crushing plant or to the Ten Kenworth trucks powered by

Holes are drilled on 18-ft. centers waste dump as its composition dictates. and samples are taken after every 5ft. advance in the hole, in order to outline the orebody and determine The major part of the deposit is grade as is done in wagon drilling. 7,000 ft. per second, and are fired by is broken per blast on the churndrilled bench, but secondary blasting

As mentioned in the foregoing, ore sent to the mill must meet certain remirements of composition. It must contain not more than: 4 percent insoluble material, 4,5 percent CaO, or 2 percent FeO and Al₂Oz. MgO content should he about 40 percent, About 2,000 tons of ore per day has been mined in the past.

The general flowsheet of the concentrator is shown in the accompanying diagram, but it should be mentioned that it is like a railroad timetable in being subject to change without notice. Certain of the changes recently made or contemplated are discussed, but procedures may be somewhat different even by the time this article is printed.

The trucks coming down off the hill dump their loads directly into the Allis-Chalmers gyratory crusher, and the flow through the ernshing plant is straightforward thereafter. Some 6 percent of the original feed is discarded in the final screening operation as minus-8-mesh material, and is used for road repair. This discard is temporary and will be discontinued when the mine is fully opened.

All minus-11-in. plus-8-mesh material is delivered to a stockpile about 350 ft. in length, containing a max-imum of 45,000 tons. This pile is built up by a Southwestern Engineering Co. 50-ft. stacker mounted on a car which runs back and forth at a constant speed on a track alongside the pile. A good mixing action is thereby

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MOLTEN MAGNESIUM CHLORIDE is formed in the chlorinators, cylindrical electric obtained in adding fresh ore to the furnaces, from magnesia, coal, chlorine. Hole in back of each is for one of electrodes pile. Ore is moved to the mill on a

October. 1943-Engineering and Mining Journal

ate).

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tain requirements of composition. It the BMI process these concentrates the proportioning plant. Here each is must contain not more than 4 percent must contain less than 1.5 percent weighed out of its respective bin by a insoluble material, 4.5 percent CaO, CaO, 1 percent insoluble matter, and Jeffrey feeder and sent by screw conor 2 percent FeO and Al₂O₄. MgO 0.5 percent each of FeO and Al₂O₄. veyor to one of several rotary mixers. content should be about 40 percent. The calcined magnesite is carried to the railroad in trucks with semi-trailers. These have specially-designed bodies made in the form of bottom discharge hoppers, the gates of which are made to fit the unloading bins at part of the raw material. both the railroad and the reduction plant. At present the calcines travel 31 miles by truck, then 1,100 miles by rail to reach the plant; but as soon as sufficient trucks are available, the long rail haul will be eliminated, and calcines will be trucked the 300 miles

directly to the plant.

There is so much going on in the mile-long beehive of BMI's main reduction plant, and it all sprang out of the desert so fast, that one can't avoid a feeling of unreality as he is shown through the huge buildings. In fact, the structures themselves heighten this effect, for they were designed on modernistic lines totally unlike anything ever before seen in an ordinary mining camp. The comparison has been overworked by this time, but the impression is inescapable that these blocky, broad shouldered buildings must have been erected overnight by a crew of genies of the sort who used to handle Aladdin's construction jobs. He got results by rubbing a lamp; we got BMI by writing a check for a hundred million dollars. Personally, I don't believe in either one of these operations, but the reality of BMI is nevertheless incontrovertible.

Sequence of operations in BMI's main reduction plant is as follows: (1) calcined magnesite, mixed with coal and peat and suitably prepared,

REVEALED 898 ONER OF ANACONDA'S rld is changed every e — A quarter - Materials on ange from neo ice cream free fourths acre in Enou FIGURES Equiv, of a area, cir apacit ly a three BMI water tu osal syst certain w at the p ty is esti 112,000. in car minut millic

former capacities.

those vast Nevada valleys.

Here, 31 miles from the railroad and

the controlling interest held by Basic is heated in furnaces (called chlorinat- the feed to the reduction plant are peat units operating elsewhere.

Upon arrival at the reduction works, concrete silos. 1,100 miles by rail from the reduction concentrates are dumped from either plant, is a concentration of almost truck or boxcar into hoppers from pure magnesite (magnesium carbon- which elevators carry the material into one of five 60-ft. silos, each of which nesite, peat, coal, and salts, are re-Ore sent to the mill must meet cer- holds about 5,000 tons. For use in moved as needed by belt conveyors to Not all the concentrate need be cal- From these mixers the charge is fed cined magnesite, however. Up to 75 continuously to several pug mills in percent of the concentrate used can which concentrated magnesium chloride be the carbonate, but ordinarily not solution is mixed with the dry mass this much carbonate is used, and mag- until a thick dough has been produced. nesium oxide makes up the greater This magnesium chloride solution is

Refractories, Inc. F. O. Case is now ors) in an atmosphere of chlorine; moss from Canada, coal from Utah, general manager, H. G. Satterthwaite (2) the anhydrous MgCl, formed in and certain salts of unspecified comis general superintendent, V. E. Mac- the chlorinators is transferred to elec- position which assist in the subse-Donell is chief engineer, all of them trolytic cells wherein molten magne- quent reactions. Coal acts as reduc-Anaconda men. The status of Mag- sium collects in a pool on the electro- ing agent and peat makes the mixture nesium Elektron Ltd. was not affected lyte's surface; (3) dipped out of the porous. Incidentally BMI has by this change and Charles and cell by hand, the molten magnesium is absorbed a substantial part of Can-Fletcher remain at the plant in their then refined and cast into bars. In ada's output of peat and will conaddition to these main units, the prepa- tinue to do so until current experi-BMI has grown so hugely in the ration plant, the chlorinators, the cell ments looking toward the elimination last year and is even now changing in houses, and the refining plant, the com- of peat as a necessary constituent so many details that a description of pany also operates a chlorine plant, are successful. For use in the process, it is a formidable task. Probably the a flux preparation plant, a caustic the peat is shredded in a hammermill best place to start is at the mine, some soda plant, a brine plant, and a to minus 8 mesh. The coal and the 300 miles north of the reduction plant, MgCl, liquor preparation plant, most salts are ground in Raymond pulverlocated far up on the side of one of of which are as large as any similar izers to minus 200 mesh, and all three ingredients are then stored in small

PROPORTIONING PLANT

These five materials : magnesia, magobtained by mixing calcined magnesite The other primary constituents of with HCl obtained from the chlori-

Magnesium ingots, the finished product, are stacked and stored awaiting shipment



CHEMICAL & METALLURGICAL ENGINEERING . OCTOBER 1943 .



duction plant, and it all sprang out of the desert so fast, that one can't avoid a feeling of unreality as he is shown through the huge buildings. In fact, the structures themselves heighten this effect, for they were designed on modernistic lines totally unlike anything ever before seen in an ordinary mining eamp. I suppose the comparison has been overworked by this time, but the impression is inescapable that these blocky, broad shouldered buildings must have been erected overnight by a crew of genies of the sort who used to handle Aladdin's construction jobs. He got results by rubbing a lamp; we got BMI by writing a check for a hundred million dollars. Personally, I don't believe in either one of these operations, but the reality of BMI is nevertheless indisputable.

Reduction Plant Operations

Sequence of operations in BMPs sprawling main reduction plant is as follows: (1), calcined magnesite, mixed with coal and peat and suitably prepared, is heated in electric furnaces (hereafter called chlorinators) in an atmosphere of chlorine; (2), the anhydrous MgCl_z formed in the chlorinators is transferred to electrolytic cells wherein molten magnesium collects in a pool on the electrolyte's surface; (3), dipped out of the cell by hand, the molten magnesium is then 8 mesh. The coal and the salts are

refined and cast into bars. In addition to these main units, the preparation plant, the chlorinators, the cell houses, and the refining plant, the company also operates a chlorine plant, a flux preparation plant, a caustic soda plant, a brine plant, and a MgCl_z liquor preparation plant, most of which are as large as any similar units operating elsewhere.

As indicated in the accompanying flowsheet, upon arrival at the reduction works, concentrates are transferred by Fuller-Kinyon equipment into one of five 60-ft. silos, each of which holds about 5,000 tons. For use in the BMI process these concentrates must contain less than 1.5 percent CaO, 1 percent insoluble matter, 0.5 percent each of FeO and Al_zO_a.

The other primary constituents of the feed to the reduction plant are peat moss from Canada, coal from Utah, and certain salts of unspecified composition which assist in the subsequent reactions. Coal acts as a reducing agent and peat makes the mixture porous. Incidentally BMI has absorbed a substantial part of Canada's output of peat and will continue to do so until current experiments looking toward the elimination of peat as a necessary constituent are successful. For use in the process, the peat is shredded in a hammermill to minus

ground in Raymond pulverizers to minus 200 mesh, and all three ingredients are then stored in small concrete silos.

These materials-magnesia, peat, coal, and salts-are removed as needed by belt conveyors to the proportioning plant. Here each is weighed out of its respective bin by Jeffrey Waytrols and sent by screw conveyor to one of several rotary mixers. From these mixers the charge is fed continuously to several pug mills in which concentrated magnesium chloride solution is mixed with the dry mass until a thick dough has been produced. This magnesium chloride solution is obtained by mixing calcined magnesite with HCl obtained from the chlorinator exhaust gases. Between this point and the chlorination step, two processes are followed. The purpose of each is identical; that is, it is desired to dry the dough in pellet form so that it will make a more suitable feed for the chlorinators.

In one part of the preparation plant, the dough from the pug mills is extruded by a screw conveyor through a rectangular opening about 8x10 in. in size and cut into 2-in. bricks which pass on a metal conveyor through a drying oven. They are then loaded on small cars and conveyed through a tunnel kiln, where a heat is applied sufficient to cement the mix but not hot enough to more than char the peat in the mixture. These hard blocks are then broken up into 2-in. lumps for chlorinator feed.

In the other part of the plant, the dough from the pug mills is fed to rotating cylinders in which the pasty mass is broken up and formed into a collection of balls or pellets averaging about an inch in diameter. These pellets are discharged into dryers and then pass into one of four Kennedy-Van Saun rotary kilns, each 100 ft. long. The same temperature conditions are maintained in these kilns as in the tunnel kilns already mentioned. After passing through water-cooled evlinders, the rotary kiln product is ready for the next step.

The pellets of mixed and dried raw material are transported to the chlorinator buildings in trains of small dump cars, each one a kettle-shaped pot holding perhaps 300 lb. of pellets. These chlorinator and electrolysis buildings are the most prominent feature of the BMI plant. Each one covers about the area of a football field, and they are several stories high. Each building is divided into two main rooms; in one of them are placed eight chlorinators, and in the other and larger room, 88 electrolytic cells. Before going into more detail about these units, however, it might be well to have a look at the plant now supplying chlorine to the process.

With a capacity of about 200 tons



Cell for production of magnesium. Molten chloride is poured in through small doors in front and metal is dipped out through the same openings

three weeks of operation is it necessary to shut the chlorinator down to time

a truck-mounted ladle is moved up underneath the tapping point. The elay plug in the tap hole is driven out and a red, liquid, stream of anhydrous MgCls pours out. The fluidity of the chloride is rather surprising; it flows and splashes like water in contrast to the behavior of molten metal.

When full (each ladle carries about 2 tons) the car bearing the ladle is driven to the nearby banks of electrolytic cells, each one of which has openings in the top fitted with small doors. These doors are opened in turn, a funnel-like apparatus inserted into the opening, and the molten chloride is nel. A ladle-full suffices to re-fill sevimmediately returned to a different chlorinator for another load.

MAGNESIUM CELLS

each, are covered receptacles about the size of two bath tubs placed side by side. Tanks are of steel, but the entire lining is of a refractory material. Through the covers of the cells project the electrodes, 6 steel eathodes and 3 graphite anodes, and an exhaust pipe through which chlorine leaves the cell. forms at the unshielded cathodes and used in the entire plant is 220,000 kw.,

such small amounts, they do not ac- gradually collects in a pool on the sur- enough for a city the size of Los Angeles. In the actual electrolysis, cumulate rapidly and only after about face of the chloride. Looking into the about 8 kwh. are used per lb. of magcell, one sees the bright-red surface of the molten chloride swirling violently nesium produced. Power enters the clean out these residues. Electrodes under the pull of the cell's magnetic "plant at 232,000 volts, is transformed down to 13,800 volts, and the portion are also changed or dressed up at this field. Swept here and there on this surface are numerous shiny globules used for electrolysis is converted to d.e. BMI now has a fine new refining When it is desired to tap a furnace, of metallic magnesium, the drops which plant and others are being built, but eventually coalesce to form a pool of in the early hurry-up days of the opthe metal several inches deep. When eration, magnesium was refined "by this condition has been reached, two hand," so to speak, because demand men dip out the molten metal into a for the metal was so urgent. In fact, gas-heated ladle for transfer to the first casting operation. Thereupon one of the original refining plants is still operating in order to keep the more chloride is poured into the cell and the cycle is repeated. Magnesium flow of magnesium ingots at its maxis removed from each cell about once imum, pending construction of a new refining unit.

a day.

The impure magnesium taken from the electrolytic cells is carried in the truck-mounted ladle to a row of molds at one side of the cell room. In these molds which resemble oversize dish pans, the magnesium is east into short poured into the cell through the fun- cylindrical pigs, each one weighing about 60 lb. These pigs are then reeral cells, and when empty, the ladle is moved as needed to the refining plants. At BMI the electrolytic procedure is simplified to the extent that the chlorinators produce absolutely anhydrous MgCl_z. Efficiency of the BMI The cells, arranged in 8 rows of 11 electrolysis is well over 85 percent, which was the highest mark attained previously.

To supply the 20,000 amp. current required at BMI, both motor-generator sets and mercury-are rectifier equipment are used, with rectifiers supplying 60 percent of the power. No one manufacturer could have furnished The gas escapes at the anodes and is the huge outlay of d.c. equipment recaught by shields which enclose the quired, therefore Westinghouse, Genanodes to a depth well below the elec- eral Electric, and Allis-Chalmers comtrolyte surface. Magnesium metal bined to fill the order. Total power

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Construction view. Cell tanks are retractorylined steel arranged in eight rows of eleven

The new refining unit is housed in a separate building, and in this one unit nearly all of the current output of metal can be refined. Along one side of the central room of the refining plant, large enough to resemble a good-sized copper or lead refinery, is a raised platform built around 11 pot furnaces, heated by oil, and each one holding 2 tons of molten metal. The raw magnesium pigs from the cell houses are melted and purified in these pots. When the sludge has settled to the bottom, the pot itself is lifted bodily out of the furnace by an overhead crane and is transferred to one of three casting machines located along the opposite wall of the room.

These machines consist of an automatically controlled tilting frame to hold the pot of magnesium, and an endless chain of 5-lb. molds to receive the molten metal. The frame is, in fact, a tilting furnace, for it is heated by propane gas in order to keep the metal at the proper temperature dur-(Continued on page 115)

CHEMICAI THE

conveyor running in a concrete tunnel under the length of the stockpile.

Slime, as in most non-metallic flotation plants, is the source of much trouble in the mill. Originally desliming cones were used prior to flotation, and, at one time, feed to the finegrinding circuit was added directly to the classifiers rather than to the ball mills in an effort to cut down slime production. Both these schemes have been discarded, however, and the slime problem is now dealt with by reagent control and by adjustment of the flotation circuit. Grinding is to 55 percent minus-325 mesh.

A number of different reagents have been used as the work progressed, but at present the combination is as follows: aluminum sulphate, sodium metaphosphate, caustic starch, acidified sodium silicate, and naphthenic acid. By suitable adjustment of reagents and circuit control, the recovery of the magnesite contained in the flotation feed has been raised from an initial 48 percent to about 70 percent, and the grade of concentrate has been improved as well.

The flotation machines used are of three varieties, as shown. The Fagergren and the Denver cells are experimental, and the third type, called

"modified" on the flowsheet, was standard but has been radically altered from the original design. As first supplied, these machines were of the individualcell control type, with a weir and a pulp level control for each cell, but they have been altered to hog troughs by cutting openings between each cell to eliminate the weirs. New impellers of the general M. S. type have been substituted for the original rotors, and experiments were made with the addition of air to each cell. The resultant machine is not beautiful in appearance, but improved metallurgical results have been obtained with it.

Truck Transport Used

As shown on the flowsheet, filtered flotation concentrate passes through rotary dryers and on to four 14-hearth Nichols-Herreshoff roasters. Trouble is now being experienced with the dustcollecting system in this part of the plant, and the possibility of bypassing the dryers altogether is being considered. Filtered concentrate would then go directly to the roasters, eliminating some dusty handling of concentrate and dust loss in the drvers.

Calcined magnesite is carried to the railroad by Kenworth truck units, each pulling two 15-ton Fruehauf semi-

trailers. The truck units are powered by Cummins diesel engines, type HBSD6, equipped with superchargers the trailers have specially designed bodies made in the form of bottomdischarge hoppers, the gates of which fit unloading bins at both the railroad and the reduction plant, Unloading is accomplished by suction hoses aided by screw conveyors in the bottom of the trailer. Loaded, the gross weight on the highway of each truck and trailer unit is 105,020 lb. At present, the calcines travel 31 miles by truck, then 1,100 miles by rail, to reach the plant; but as soon as sufficient trucks are available, the long rail haul will be eliminated and calcines will be trucked the 300 miles directly to the reduction works.

Southwestern Engineering Co., Los Angeles, Calif., did the engineering work for the concentrator, and Macdonald Engineering Co. built it. T. C. Russell is superintendent at the mine and concentrator; C. P. Donohoe is assistant superintendent and metallurgical superintendent; K. R. Crocker is mine superintendent; G. W. Nielsen is mill superintendent, with R. V. Thompson and Ray Handy assisting.

There is so much going on in the mile-long beehive of BMI's main re-



TOPS OF CHLORINATORS, in a row at left, include a charging right are exhaust gas scrubbing towers in which magnesium

device for feeding material with minimum escape of gas. At chloride and acid vapors are removed from chlorinator fumes

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Bottom of chloringtors in which molten magnesium chloride is produced from magnesia, coal and chlorine

processes are followed. The purpose of about these units, however, it might be dough in pellet form so that it will supplying chlorine to the process. make a more suitable feed for the chlorinators.

In one part of the preparation plant, the dough from the pug mills is extruded by a screw conveyor through a chlorine plant is one of the largest rectangular 8x10-in. opening and cut ever built. The Hooker cells are into 2-in. bricks which pass on a metal conveyor through a drying oven. They one. Salt is obtained by special govare then loaded on small cars and con- ernment permission from Death Valveyed through a tunnel kiln, where heat is applied sufficient to eement the turbo-agitators. The solution is mix but not hot enough to more than brought to the proper concentration in char the peat in the mixture. These lumps and are ready for the chlorina- amp. is applied to the cell circuit; tors.

dough from the pug mills is fed to droxide, and the residual salt are all rotating cylinders in which the pasty mass is broken and formed into a collection of balls or pellets averaging ally, the hydrogen will be collected for about an inch in diameter. These pellets are discharged into dryers and then pass into one of four rotary kilns, concentrated and re-used. 100 ft. long. After passing through product is ready for the next step.

The pellets of mixed and dried raw material are transported to the chlorinator buildings in trains of small dump cars, each one a kettle-shaped These chlorinator and electrolysis available for sale much of its liquid buildings are the most prominent fea- chlorine production. ture of the BMI plant. Each one covers about the area of a football field and is several stories high. Each building is divided into two main

100



Tops of chlorinators, left, include a charging device which minimizes escape of gas. At right are exhaust gas scrubbing towers

CHLORINE PLANT

of liquid chlorine per day, BMI's housed in two buildings, 450 in each large evaporators and is then pumped of means for their recovery. Eventu-

most of the chlorine used in the chlorinators will come directly from the cell house, and eventually the chlorine plant will be required only to make up losses in the circuit. When this bal-

To get back to the chlorinators, to which the chlorine is pumped in the the chlorinator feed. gaseous state; these are cylindrical

nator exhaust gases. Between this larger room are located 88 electrolytic lining. In this shell are a bell and point and the chlorination step, two cells. Before going into more detail hopper arrangement at the top for introducing the pellets, an inlet for each is identical; that is, to dry the well to have a look at the plant now chlorine gas, six openings through which carbon electrodes project into the interior, a port for the removal of waste residues, an exhaust port where With a capacity of about 200 tons gases escape from the furnace, and a tap hole near the bottom where molten MgCl_z is removed.

Operation of these units appears fairly simple. About 300 lb. of fresh dry mix, prepared as outlined in foregoing paragraphs, is dumped into the ley and is dissolved in water in Dorr top of the chlorinator every hour or so, and the accumulated molten MgCl_g is drawn off below, also about once an hour. Inside the chlorinators, the elechard blocks are then broken into 2-in. through the cells. A current of 750 trodes, arranged in two sets of three each, carry a current which maintains voltage drop is about 3.3 per cell. For an interior temperature of over 850 In the other part of the plant, the the present the hydrogen, the hy- deg. C., or sufficient to permit reduction of the MgO contained in the dry going to waste pending construction mix. Under these conditions magnesia combines with carbon and chlorine to form anhydrous magnesium chloride sale, as will the sodium hydroxide. and earbon monoxide. The molten The remaining salt solution will be chloride collects in the lower part of the furnace in a pool. Exhaust gases Because chlorine is released in the of the chlorinators carry hydrochlorie water-cooled cylinders, the rotary kiln electrolysis of magnesium chloride, acid and some magnesium chloride, as well as carbon monoxide. These gases pass through scrubbing towers and various solution tanks in which the HCl and the MgCl, are dissolved out. The resulting acid solution is then pot holding about 300 lb. of pellets. ance has been attained, BMI will have neutralized with calcined magnesite, evaporated to a high concentration, and stored for use in mixing the "dough" which eventually constitutes

Left behind in the chlorinator is a furnaces about 12 ft. in outside diam- residue composed of silica, alumina, rooms, in one of them are placed eight eter and 25 ft. high, consisting of a , iron oxides, and other impurities. Bechlorinators, and in the other and metallic shell enclosing a refractory cause these impurities are present in

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chlorine plant is one of the largest ever built. Engineered by H. K. Ferguson Co. of Chicago, it uses standard Hooker cells, which obtain chlorine by electrolysis of salt water. These cells are housed in two buildings, 450 cells in each one. Salt is obtained by special government permission from Death Valley and is dissolved in water in Dorr turbo-agitators. The solution is brought to the proper concentration in large evaporators and is then pumped through the cells.

A current of 750 amp. is applied to the cell circuit; voltage drop is about 3.3 per cell. Chlorine is evolved at the anode in the upper part and removed through the top of the cell. Hydrogen gas forms at the cathode and is removed through the back of the cell. Sodium hydroxide also forms at the cathode and passes out of the cell with the waste liquor, which contains about equal parts of salt and sodium hydroxide in solution.

Because chlorine is released in the electrolysis of magnesium chloride, most of the chlorine used in the chlorinators will come directly from the cell house, and eventually the chlorine plant will be required only to make up losses in the circuit. When this balance has been attained, BMI will chloride and carbon monoxide. The have available for sale much of its molten chloride collects in the lower two tons) the car bearing the ladle

of liquid chlorine per day, BMI's excess production of liquid chlorine. part of the furnace. Exhaust gases To get back to the chlorinators, to which the chlorine is pumped in the gaseous state: These are cylindrical furnaces about 12 ft. in outside diameter and 25 ft. high, consisting of a metallic shell inclosing a refractory lining. In this shell are a bell-hopper arrangement at the top for introducing the pellets, an inlet for chlorine gas, six openings through which carbon electrodes project into the interior, a port for the removal of waste residues, an exhaust port where gases escape from the furnace, and a tap hole near the bottom where molten MgCl_a is removed.

Operation of these units appears fairly simple. About 300 lb. of fresh dry mix, prepared as outlined in foregoing paragraphs, is dumped into the top of the chlorinator every hour or so, and the accumulated molten MgClz is drawn off below, also about once an hour. Inside the chlorinators, the electrodes, arranged in two sets of three each, carry a current which maintains an interior temperature of over 850 deg. C., or sufficient to permit reduction of the MgO contained in the dry mix. Under these conditions magnesite combines with carbon and chlorine to form anhydrous magnesium

of the chlorinators, which carry hydrochloric acid and some magnesium chloride as well as carbon monoxide, pass through scrubbing towers and various solution tanks in which the HCl and MgCls are dissolved out. The resulting acid solution is then neutralized with calcined magnesite, evaporated to a high concentration, and stored for use in mixing the "dough" which eventually constitutes the chlorinator feed.

Left behind in the chlorinator is a residue composed of silica, alumina, iron oxides, and other impurities. Because these impurities are present in small amounts, they do not accumulate rapidly, and only after about three weeks of operations is it necessary to shut the chlorinator down to clean out these residues. Electrodes are also changed or dressed up at this time.

When it is desired to tap a furnace, a truck-mounted ladle is moved up underneath the tapping point. The clay plug in the tap hole is driven out and a red, very liquid stream of anhydrous MgCl, pours out. The liquidity of the MgCl_z is rather surprising; it flows and splashes like water in contrast to the behavior of molten metal.

When full (each ladle carries about



one shown above, with 88 of them in a unit. Electrodes project in front. molten metal is dipped out through the same openings

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from a space undergoing evacuation. weight of material, that the size and limitation imposed by cross-sectional that as the piston of a reciprocating or rotary pump retreats, it creates an extra space into which some of the gas molecules diffuse as a result of their natural motion. Once in this extra space, and before more than a few have had a chance to diffuse backward out of the space, they are trapped by a valve or by the motion of the piston and are then expelled from the pump cylinder to a region of higher pressure, such as the atmosphere. The mechanism differs somewhat in the case of a centrifugal or jet pump, but the principle remains, namely, that vacuum pumps of all kinds can do nothing more than provide a space into which molecules

pelled from the system. This principle has an extremely important corollary affecting the concept of pumping capacity. Since molecules can enter a pump only by their natural diffusion, then any cause which inhibits such cause. Even more important, perlooked, is the capacity for molecular flow of the pipe which connects the pump intake with the evacuated space.

from the evacuated space can diffuse.

where they are then trapped and ex-

of the connecting pipe.

FLUID FLOW

consider that a fluid flows from a point of higher pressure to one of lower pressure. Actually, when the mechanism of flow is regarded from the molecular viewpoint, it becomes obvious that the pressure is merely a byproduct of the concentration of molecules and of their velocity, and that flow is only natural diffusion which seeks to equalize the concentration throughout the system. Viewed from this standpoint it becomes apparent that the rate at which molecules can diffuse from a point of higher to a point of lower concentration must depend on the distance they can travel between collisions with other molecules, as well as on the distance they can their entrance decreases the pump ca- move before striking a wall. Since their pacity. Resistance of the valve is one motion is completely haphazard, then a general drift in one direction can be haps, because it is more easily over- produced only by an excess of collisions behind the moving drift. However, proximity of a wall normal to the direction of drift has an effect similar Since this capacity varies with the to a high molecular concentration and length, diameter and straightness of the tends to cause a cross drift which interpipe, it follows that the pipe should be feres with the main flow. It is reasonas large and as short as possible and able to suppose, therefore, that the have a minimum of bends. It is a com- walls of a passage through which mole--mon misconception, since a high vac- cules are diffusing have a limiting efuum pump handles only a negligible fect on the flow rate over and above the

Fig. 1-National Research Corp. mercury diffusion pumps evacuating retorts in the Michigan magnesium plant of Ford Motor Co.



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MAGNESIUM ELECTROLYSIS is accomplished in cells like the through the top, molten chloride is poured in through small doors

portant. Actually, nothing could be shows. The performance of the evacua- of wall surface. ting device is completely at the mercy

What actually happens, of course, is length of the intake pipe are unim- area, and that the magnitude of this effect is a function of molecular speed farther from the truth, as this analysis and concentration, as well as the area

Actually, this is a fact. Knudsen studied the resistance of pipe to flow of gases at low pressures and found that the character of the resistance At higher pressures it is usual to introduced by the pipe wall varies with the pressure, that is, with the concentration of molecules. At high pressures the flow may be calculated by conventional methods in terms of length, pressure difference, and a friction factor dependent on the Reynolds number. In the low-pressure range it may be considered that there is a stationary "tube" of molecules of considerable thickness against the pipe wall, the thickness varying in a complex manner with the molecular concentration. The high-pressure concepts of laminar and turbulent flow no longer hold. At pressures in the neighborhood of 1 mm., Knudsen found that the stationary molecule "tube" was relatively thin and that the resistance to flow varied directly as the length of the pipe, and inversely as the fourth power of its diameter. From 1 mm. down to 1 micron, he found the wall interference effect increasing rapidly to a maximum at about 1 to 10 microns, and that the relation between resistance, length and diameter was affected complexly by the concentration of molecules. At still lower pressures, however, where the mean free path becomes comparable to the pipe diameter, he found a decreasing resistance, which may be considered as a reduction in thickness of the tube of stationary molecules. Here the resistance was found to vary directly as the pipe length and inversely as the cube rather than the fourth power of the diameter. The curves of Fig. 2 illustrate the effect of this varying resistance in the cases of 1-in. and 1-in. pipe.

> Flow in a low-pressure system is not ordinarily expressed in terms of weight, but, rather, as the volume of molecules at the existing pressure which passes a given cross-section of the conduit in unit time. Flow rate is often referred to as "speed," and its units are usually liters per second, or cubic feet per minute. Thus, the speed of a pump is the volume of molecules it can admit, while the speed of a pipe (Fig. 2) is the volume it can pass, both in unit time. Since flow capacity of a pipe varies inversely with its length, its speed is commonly expressed as volume per unit time and unit length. The total flow resistance of the component parts in a low-pressure system is calculated by adding the

is driven to the nearby banks of electrolytic cells, each one of which has openings in the top fitted with small doors. These doors are opened in turn, a funnel-like apparatus is inserted into the opening, and the molten chloride is poured into the cell through the funnel. A ladle-full suffices to re-fill several cells, and when it is empty the ladle is immediately returned to a different chlorinator.

RAL

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These cells, arranged in eight rows mum, until new units can be built. of eleven cells each, are low receptacles about the size of two bathtubs placed side by side. Tanks are of steel, but the entire lining is of a refractory material. Through the covers of the cells project the electrodes, six steel cathodes and three graphite anodes, and an exhaust pipe through which chlorine leaves the cell. The gas escapes at the anodes and is caught by shields which inclose the anodes to a depth well below the electrolyte surface. Magnesium metal forms at the unshielded cathodes and gradually collects in a pool on the surface of the chloride. Looking into the cell, one sees the bright-red surface of the molten chloride swirling violently under the pull of the cell's magnetic field. Swept here and there on this surface are numerous shiny globules of metallic magnesium, the drops which eventually coalesce to form a pool of the metal several inches deep. When this condition has been reached, two men dip out the molten metal into a gas-heated ladle for transfer to the first casting operation. Thereupon more chloride is poured into the cell and the cycle is repeated. Magnesium is removed from each cell about once each day.

Enormous Power Outlay

The impure magnesium taken from the electrolytic cells is carried in the truck-mounted ladle to a row of molds at one side of the cell room. In these molds, which resemble oversize dishpans, the magnesium is east into short cylindrical pigs, each one weighing about 60 lb. These pigs are then removed as needed to the refining plants. Efficiency of the BMI electrolysis is well over 85 percent.

To supply the 20,000-amp current required at BMI, both motor-generator sets and mercury are Ignitron rectifier equipment are used, with rectifiers supplying 60 percent of the power. No one manufacturer could have furnished the huge outlay of d.c. equipment required; therefore Westinghouse, General Electric, and Allis-Chalmers combined to fill the order. Total power used in the entire plant is 220,000 kw., enough for a city the size of Los Angeles. In the actual electrolysis, about 8 kwh. are used per pound of magnesium produced. Power enters the plant at 232,000 volts, is transformed down to 13,800 volts, and

the portion used for electrolysis is then converted to d.c.

BMI now has a fine new refining plant, and others are being built, but in the early hurry-up days of the operation, magnesium was refined "by hand," so to speak, because demand for the metal was so urgent. In fact, one of the original refining plants is still operating in order to keep the flow of magnesium ingots at its maxi-

Old and New Refineries

In this plant the impure magnesium pigs are melted in one of a series of small pot furnaces. A flux, consisting largely of powdered metal chlorides and fluorides, is then stirred through the molten metal and the resulting sludge is allowed to settle. When the magnesium is judged sufficiently pure, it is poured into a series of 5-lb. molds lined up on a nearby bench. Two men handle the pot, which is supported by a block and tackle from an overhead track, and one man stands before the mold bench tossing occasional handfuls of sulphur into the ladle and over the molds as they are filled. This latter also skims the film of oxide from any of the ingots upon which it seems to be forming too thickly. It is obviously a stopgap method which filled in until the new refining plants could be built, but it served its purpose for "immediate production.

The contrast between the old and the new plants is amazing. The new refining unit is housed in a separate building, and in this one unit nearly all of the current output of metal can be refined. Along one side of the central room of the refining plant, large enough to resemble a good-sized copper or lead refinery, is a raised platform built around eleven pot furnaces, heated by oil, and each one holding two tons of molten metal. The raw magnesium pigs from the cell houses are melted and purified in these pots by the method already described. When the sludge has settled to the bottom, the pot itself is lifted bodily out of the furnace by an overhead erane and is transferred to one of three casting machines located along the opposite wall of the room.

These casting machines, made by International Derrick & Equipment Co., consist of an automatically controlled tilting frame to hold the 2-ton pot of magnesium, and an endless chain of 5-lb. molds to receive the molten metal. The frame is, in fact, a tilting furnace, for it is heated by propane gas in order to keep the metal at the proper temperature during the pouring. Tilting of the frame is synchronized with movement of the mold chain so that each mold is filled with exactly the right amount of metal. One side of each mold is built up in a V

the neighboring mold, so that no metal is spilled as the chain advances. Movement of both furnace and chain is entirely smooth at all times, and the choking atmosphere of SO₂ which surrounds the hand operation is absent. A reducing atmosphere does surround the molten metal until it solidifies, but none of the fumes escape.

Care is taken to prevent pouring out of the pot any of the sludge which has settled to the bottom of it, and when all possible pure metal has been poured out, the tilting furnace is returned to an upright position and the pot taken out of it. The empty pot is transferred to the cleaning room nearby and a fresh pot is immediately placed in the casting machine. Two overhead cranes serve the refining room, and so rapidly do they carry the 2-ton pots on the round from furnace to casting machine to clean-up and back to furnace that there is never a break in the procession of trucks leaving the refining room loaded with magnesium. Even when an empty pot is exchanged for a full one at one of the casting machines, there is only a short pause in the steady clinking of ingots dropping from the end of the mold chain.

Women Handle Ingots

In the cleaning room, the pots are entirely emptied of sludge, and as much metal as possible is recovered. After a rapid inspection and cleaning, the pots are swung out again and put back into the nearest empty furnace to be refilled with raw magnesium.

Adjoining the refining room is storage space for ingots awaiting sampling, inspection, and weighing. Beyond the stacked ingots are assemblyline arrangements run by women, in which approved ingots are wrapped for shipment. This bare statement of fact does these women an injustice, however, for they work with a sort of desperate urgency unmatched anywhere else in the plant.

One could easily, and perhaps someone will, fill a book with the whole story of this enterprise. Aside from building the main plant, the erection of the workers' townsite, complete with air-conditioned houses, schools, and stores, is a major achievement, as is the construction of the power lines and pipe lines into the plant. Every type of engineering skill and experience had a part in this project, and is working right now to expand its production even beyond the incredible limits set originally. As to the future of this young giant, your guess is as good as anyone's, but its present and its past are written large across a square mile of Nevada desert and hundreds of square miles of Axis sky. BMI's men don't worry about tomorrow just yet; they are too busy turnshape which overlaps the low side of ing out the magnesium we need today.

individual resistances exactly as in a necessary to extend the molecular viewseries electrical circuit, If $R_1 = 1/S_1$, point used in the preceding section to where R_1 is the resistance of some show how high vacuum makes distillapart of the system and S_1 is its volume tion and evaporation possible. If the flow capacity, or speed, then the re- liquid is confined in a vessel, molesistance of the entire system is the cules will leave the surface and pass sum of the individual resistances in into the vapor space until the number series, and the reciprocal of the speed returning equals the number leaving, of the entire system is equal to the at which time an equilibrium will be sum of the reciprocals of the speeds reached and the concentration of vapor of each individual part, or 1/S = $1/S_1 + 1/S_2 + \ldots$, etc.

Obviously, the effective speed of a character of the material and its tempump cannot be greater than the speed of the system which it is exhausting. This emphasizes the importance of analyzing carefully the speed of the pipe connection between the pump and the evacuated space, and insuring that its size is great enough and its length short enough to give a speed equal to that of the pump.

VACUUM VAPORIZATION

Since the principal reason for employing extremely high vacuum in industrial chemical processes is to permit the distillation or evaporation of





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molecules (vapor pressure) will be a definite value, depending only on the perature. At any temperature above the absolute zero a definite vapor pressure will be reached, whether or not there are other molecules of an inert gas present in the vapor space.

If some means is provided for drawing off the vapor molecules continuously from the vapor space, vaporization will continue because equilibrium cannot be reached. This vaporization is low or high, the only effect of temperature rise being to increase the rate of vaporization owing to increased

ization, simply for the reason of physical interference with the vapor molecules as they leave the liquid surface and attempt to diffuse away from it.

If the temperature is high enough to give the vapor molecules a vapor pressure equal to the inert gas pressure, and the process is not confined, then the inert atmosphere will be pushed back and vaporization will proceed so rapidly as to be called "boiling." If the vapor pressure is less than that of boiling, even if the process is not confined, diffusion of the vapor molecules outward through the inert molecules will be slow, and vaporization may then not be rapid enough to be perceptible.

There are several ways in which vapor can be drawn off continuously so as to bring about continuous vaporization. It can be done by condensing the vapor molecules on a colder surwill proceed whether the temperature face (condenser), as rapidly as they diffuse to it from the evaporating surface, as in stills and evaporators; by pumping them from the vapor space, velocity of the molecules. If inert gas as in jet refrigeration; or by sweeping materials which otherwise could not molecules are present in the vapor them away by moving the inert gas, be vaporized at a useful rate, it is space, however, they will inhibit vapor- as in spray ponds and cooling towers.



• OCTOBER 19/3 • CHEMICAL & METALLURGICAL ENGINEERING

New Type Concentrator Cuts

Here is the first published description of a 1,000-ton gravity concentration unit which occupies a space no larger than your living room, employs no moving parts, requires practically no supervision, yet equals or betters metallurgical results of conventional methods

John B. Huttl, Assistant Editor



Fig. 1 . . . Heart of the Humphreys concentrator is this cast-iron spiral launder system. Centrifugal force does the work. Fig. 2 . . . Cross-section of launder showing product distribution and methods of supplying wash water and splitting out concentrates

NLY RARELY is it possible for a technical publication to record the development of an entirely new metallurgical process or method. and that rarity makes it particularly gratifying to describe the new chromite concentrator being operated by Humphreys Gold Corp. at its property near Bandon, Coos County, Ore. By a simple enough application of centrifugal force, consisting of passing pulp through a system of spiral launders, metallurgical results have been achieved which equal or surpass those of orthodox methods, and a remarkable degree of simplicity and economy has been maintained.

Invented by I. B. Humphreys, vice president of the company, the spiral launder system was developed, after considerable test work, with the purpose of using it on the company's dragline dredges for recovering fine gold. The mine closing order intervened. however, and the company transferred its activities to strategic mineral production, particularly the recovery of chromite from marine black sand deposits in Oregon. Unable to obtain quick delivery of conventional concentrating equipment, Mr. Humphreys tested the spiral launders on the chrome-bearing material, and when the results were more than satisfying, the company erected a 1,000-ton concentrator using the new apparatus.

Elements of the present plant include: a diesel-powered dragline with a 14-yd. Esseo bucket for mining the material; a preliminary screening and washing plant mounted on caterpillar treads; a desliming unit of unconventional design; and the spiral launder concentrator unit. These, together with accessory pumps, a classifier, another small dragline, and a few trucks, make up the equipment with which the company mines 1,000 tons per day of material containing 6 percent CraOs and concentrates it to 25 percent Cr:O: with a recovery of better than 90 percent.

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mental industrial diffusion pumps in sizes from 4 to 10 in.

With the first two methods, of course, if a high vapor pressure of inert gas is allowed to exist in contact with the evaporating surface, vaporization will necessarily be slow. On the other hand, if the inert gas concentration can be kept low, the inhibiting effect of the inert molecules will be slight. As the inert gas concentration is reduced, the temperature required to maintain rapid vaporization (boiling) can be made progressively lower, until a concentration is finally reached below which no further lowering of the boiling temperature will take place.

It is not generally realized that the boiling point cannot be reduced indefinitely by pressure reduction. Why this should be true is readily apparent, however, from a consideration of Table I. At a pressure of about 1 micron the mean free path of inert gas molecules in contact with an evaporating surface becomes so great that the inert molecules no longer exert an appreciable effect on the rate of vaporization. Hence, nothing is gained in a distillation or evaporation operation by attempting to reduce the inert gas pressure below about 1 micron. On the other hand, it is equally clear that pressures in the micron range are comparable in vaporization operations to theoretical cases where no inert gas exists, and so make possible the continuous vaporization of all materials. If the molecules are extremely large and their velocity at the available temperature is low, the resulting vaporization may be too slow to be of practical value, but it is obvious that the use of such pressures tremendously extends the list of materials that can be vaporized at useful rates. It is equally obvious that a useful rate can be obtained with many materials which are injured by high temperature.

liters. The various types of mechanical pumps have different ranges in which they achieve their best performance. A reciprocating pump, for example, is an efficient device if the pressure is near atmospheric, but operates at low efficiency in a single stage at pressures below about 25 mm, as shown in Fig. 3. Vane type rotary pumps are capable of working at somewhat lower pressures, but still are inefficient even when multi-staged, at pressures below about 10 mm. The oil-sealed rotary eccentric-cylinder high-vacuum pump which has been used so extensively in vacuum tube work is capable of efficient operation well below 1 mm., and in the com-

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Theoretically, there is no reason why mechanical vacuum pumps cannot be used to reach the extremely low pressures discussed here, provided only that their lubricants do not themselves have vapor pressures as high as the pressures to be maintained. Practically, however, mechanical pumps cannot be used for the very low pressure range if there is a continual evolution of inert gas in the system. since it is ordinarily not feasible to attain a sufficiently large displacement rate. This is obvious from the fact that to obtain a displacement of a few hundred enbic feet per minute by means of a reciprocating or rotary piston requires either extremely large size or very high speed. Yet, at micron pressures an almost negligible . weight of gas will occupy a tremendous volume. As an example, consider 1 ee. of gas at atmospheric pressure. If the pressure of the gas is reduced to 1 micron, its volume will expand 760,000 times, to 760

VACUUM PUMPS

pound type, as in Fig. 4, can exhaust to less than 10 microns in systems without a continuous evolution of gas.

Corp. industrial diffusion pump

None of these methods, however, is of sufficient capacity for work at micron pressures when considerable gas evolution is encountered. At such pressures there are totally unexpected sources of gases. All materials contain both absorbed and adsorbed gases which are given off at extremely low pressure, especially at high temperature. Metals, for example, contain a volume of occluded gas (as measured at atmospheric pressure) at least equal to the volume of the metal, and often several times this volume. Many liquids, especially those of high viscosity, can contain enormous quantities of absorbed gases.

Obviously, then, evacuating methods which do not demand a tremendous physical displacement are called for in extreme low-pressure work. Conventional steam jet ejectors are inherently capable of large capacity with moderate size apparatus, as shown in Fig. 5. Furthermore, they are readily operated in multi-stage, frequently having two or three stages, and sometimes as many as five or six. Ejectors with several stages have operated at pressures as low as 25 microns and above, and equally low pressures have been achieved with fewer stages when ejectors were arranged to discharge against low forepressures, such as can be produced by mechanical pumps or water jet ejectors.

Still, steam ejectors of present types are not the answer when pressures of a micron or below are required. Another type of jet device known as the diffusion pump, however, has proven eminently successful, first as a laboratory device, and very recently as a

(Continued on page 108)

Calculating Mixed Acids to Achieve Acid Equilibrium

E. BERL and G. A. STERBUTZEL Carnegie Institute of Technology, Pittsburgh, Pa.

- Chem. & Met. INTERPRETATION-

In the April, 1939, issue of Chem. & Met., page 225, Dr. Berl described the use of the Gibbs trilinear system of plotting in the computation of plant mixing problems involving three components. The present article explains an improved method of using this system in the reinforcement of spent nitration mixed acid, so that the resulting quantity of one of the acids to be mixed will of mixed acid equals the original quantity. The method is applicable to rapid routine calculations and should be of great assistance to the nitration industry .- Editors.

IN NITRATION OPERATIONS the spent acid which results not only differs in composition from the original fresh mixed acid, but it is also less in quantity. The ideal method of reinforcing the spent acid is to add nitric acid and oleum in such proportions that the weight (volume) and composition of reinforced acid equal that of the original fresh mixed acid. The solution of this problem is extremely time-consuming by mathematical computation (Berl - Lunge, " Chemisch - Technische Untersuchungsmethoden," Sth Ed., Vol. 2, p. 674) but is readily accomplished graphically through the use of the Gibbs triangle, as shown in Figs. 1 and

In Fig. 1 point L represents the composition of the spent acid resulting from a nitration, while M is the composition of fresh mixed acid which is to be produced by reinforcement. The ratio of the quantity of spent acid, to the quantity of reinforced fresh acid which is to be produced, is expressed on the chart by the length of line drawn through M and L. Assume that the fresh acid is 17 units, the spent acid 16 units, and the consumption in nitration 1 unit. Then the line AML is drawn so that AM equals 16 units (the spent acid); ML equals 1 unit (the reinforcing acid to be added); and AL equals 17 units (the reinforced acid).

If M and L are close together, as they are in the nitration of cellulosic materials, it is difficult to draw the line AML as accurately as must be done, since the

This work was made possible by a grant to Carnesis Institute of Technology from the Buhl Foundation, for which the authors ex-press their appreciation.

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precise location of point A is imperative for subsequent steps. Point A can be located graphically by magnifying the small triangle 1, 2, 3, in which M and Lare situated, to the size of the entire Gibbs triangle. With this done, points L' and M' occupy the same relative loca-tions in the whole Gibbs triangle as do points L and M in the small triangle 1, 2, 3, and the slope of the line M'L'is determinable with high accuracy. This magnification of 10 times is readily accomplished by noting that the base of the triangle 1,2,3, represents 10 per-cent H₂O, its left side 60 percent H₂SO, and its right side 20 percent HNOs. These quantities are subtracted from These quantities are subtracted from the coordinates of the points M and Land the results multiplied by 10, and plotted as M' and L. For example, point L has the composition 12.5 percent $H_{\rm NO}$, 63 percent $H_{\rm SO}$, and 24.5 percent $H_{\rm NO}$. The indicated subtraction gives for point L' the coordinates (12.5-10) x10=25 percent $H_{\rm SO}$; (63-60)x10=30 percent $H_{\rm SO}$; and (24.5-20)x10=45 percent $H_{\rm NO}$. The position of point A' is found gra-phically by means of similar triangles

The position of point A is found gra-phically by means of similar triangles. Owing to the magnification, M'L'=10ML. Lay off M'B equal to 10 units of any convenient length and extend M'B to a length of 16 units. Then draw line CA' parallel to the known line BL', thus locating point A'. Now, M'A'=1.6 M'L'or 16 ML. Therefore, AML can be drawn parallel to M'A', with the length AMequal to that of M'A', thus giving the accurate location of A.

the pivot through which all straight lines joining the compositions of possible reinforcing acids must pass if both the composition and the quantity after each cycle to prevent the accuof the reinforced acid are to be correet. It can be considered that there phuric acid, oxalic acid, alcohol nispent acid reinforcing problems, inacid (or nitric-sulphuric mixture); the must be used to compensate for the

composition of the sulphuric acid (or sulphurie-nitric mixture); and the quantity of mixed acids. As in the ase of the phase rule, if two of these "freedoms" are fixed by choice, the third can no longer be chosen freely. Hence, if the quantity of mixed acids is fixed, then the choice of composition automatically fix the composition of the other.

The situation is illustrated by line NS on Fig. 1. Point S, the proposed composition of sulphuric acid (oleum) to be used might have been chosen at any point along the H-SO,-H-O axis, but to do so would automatically fix the composition of nitrie acid to be used as the other end of the straight line SA prolonged to the nitric acid side of the triangle. Obviously, since the possible compositions of HNO, are limited, this also imposes a practical limit on the composition of H_SO, used. However, it should be noted that the mixing constituents need not be the compositions at the ends of the lines. A mixture of nitric and sulphuric acids and water, such as at point D, could be mixed with a mixture of oleum, nitric acid and water. such as E, if desired.

As the problem is illustrated in Fig. 1, the chosen oleum composition is 20 1, the chosen oleum composition is 20 percent, or 104.5 percent H_SO_4 . This fixes the nitric acid composition at 89.5 percent HNO_8 and 10.5 percent H_2O_4 . The proportions of acid N and acid S which must be added are determined by the relations of the length of lines AS and NA, where AS represents the weight of N, and NA the weight of S. The weight can be determined graphically by laying off FS equal to the number of units of reinforcing acid needed. Then line AG, drawn parallel to NF, locates point G and SG equals the number of units of N, and GF the units of S.

The methods just described can be extended to cases in which it is de-Point A has the property of being sired to add more or less reinforcing acid than corresponds to the acid equilibrium. For example, one may wish to eliminate part of the spent acid mulation of impurities (nitrosyl-sulare three "degrees of freedom" in trates, and nitro aromatics) beyond a certain level. In this case an addicluding the composition of the nitric tional amount of reinforcing acid

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Table I-Summary of Problem With Acid Equilibrium

	HNOs, Tons	HaSO4, Tons	HrO, Tons
Spent acid, 470.5t Rs. 13.17t Ns. 16.33t	115.3 0.79 14.02	296.4 13.49 ³	58.8 -1.11 ² 2.31
Total	130.11	309.89	60.0
Resulting composition by graphic method, % Desired composition, %	26.02 26.00	61.98 62,00	$12.00 \\ 12.00$
1/0 04 × 1.00 × 13.17) 1.13.17 - (13)	(9 + 0.79)		

spent acid so eliminated. On the other x = 100(1-ky) / (y + 1), where x hand, if reinforcing acids which are is the percentage excess or deficiency of too strong are used, a deficiency of reinforced acid results. This case is of little practical interest since it is hardly likely that acids of excess strength would be used on account of their cost. However, if such acids were used, the acid equilibrium could be restored by adding fresh mixed acid of composition M, which could be obtained by mixing any combinations of acids on opposite sides of M lying on a straight line through M.

The chart of Fig. 2 shows the same problem as Fig. 1, except that the line AML has been extended downward toward point B in the "supernitric"" region. The line is then calibrated to show excess or deficiency of spent acid. Compositions falling on lines passing through A achieve the acid balance, while those falling on lines below A, such as point D, give a deficiency of reinforced acid, and those falling on lines above A, such as point C, give an excess of reinforced acid. The calibration may be accomplished by using the equation

* Supernitric acid has been prepared by dis-solving the anhydride of nitric acid, NsOs in water-free HNOs. This acid, which has ad-vantages that doubtless will sometime make it commercially available, is comparable to olsum which is a solution of the anhydride of sulphuric acid in water-free sulphuric. Like olsum, it can be considered as more than 100 percent of the acid.

Fig. 1-Graphical method of calculating reinforcing acids to attain acid equilibrium



three possible cases then include:

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Components Spent Acid L Fresh Acid M H.SO. HNO. 63 24.5 12.5 H.O The original quantity of fresh mixed acid is 500 tons, the loss in the proc-

cy); k is the ratio of the weight of

reinforced acid to weight of spent

acid, in this case 17/16=1.0625; and

y is the ratio of MC to ML, where C

is any point along BL through which

the line connecting the compositions

The figures used in setting up Fig.

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2 include the following compositions:

of the acids to be mixed may pass.

ess 29.5 tons, and the quantity of spent acid 470.5 tons. Therefore, k=500/ 470.5 = 1.0625 and ML=AL/17= AM/16. As has already been pointed out,

the exact location of point A is of great importance. Furthermore, all acid compositions on a line through A, when on opposite sides of A, can be mixed to give the acid equilibrium; while acid pairs on the opposite sides of LAB, which are connected by a line intersecting above or below A, give an excess or deficiency, respectively, of nitrating acid mix.

Table II-Summary of Problem With Acid Excess

	HNOs, Tons	HaSO4. Tons	H ₂ O, Tona
Spent acid, 458.4t	112.3	288.5	57.3
S ₂ , 9.7t R ₁ , 31.9t.	17_65	10.134	3.21
Total	129.95	309.97	60.08
Resulting composition by graphic method, % Desired composition, %	25.99 26.00	61.99 62.00	$\substack{12.02\\12.00}$

* (9.7 × 1.045). * (9.7 - 10.13).

1. Acid equilibrium.

2. Reinforcing acid excess, in which spent acid (a plus sign representing an ease some spent acid must be eliminated to produce the desired quantity excess, and a minus sign a deficienof reinforced acid.

3. Reinforcing acid deficiency, in which case fresh acid of composition M must be added to produce the desired quantity of reinforced acid.

Case 1, Acid Equilibrium-Spent acid of composition L, to the extent of 470.5 tons, is to be reinforced so that 500 tons of reinforced acid of composition M results. This can be done by the mixing suits. This can be done by the mixing of acid pairs on the opposite sides of Awhich fall on any line through A. For example, if oleum of composition R_s is selected, consisting of 94 percent of 40 percent oleum and 6 percent of HNO unkide has a function with of 20percent oleum and 6 percent of HNO₂ (which has a freezing point of -23deg. C.), then nitric acid of composi-tion N₂, consisting of 85.8 percent HNO₂, must be used (or some composition fall-ing along N₂A. The 29.5 tons of total reinforcing acid will consist of (29.5× N₂A/N₂R₂)=13.17 tons of R₂ and (29.5 ×AR₂/N₂R₂=16.33 tons of N₂. Table I shows a summary and check of these figures. It will be observed that the accuracy possible with a Gibbs triangle accuracy possible with a Gibbs triangle of usual size (11.5 in. on a side) greater than the accuracy of the data, which introduce errors owing to the difficulty of securing representative samples for analysis.

Similar results can be obtained if, fo example, oleum of composition F (111 percent H_2SO_4) is substituted for R_2 . In this case, 12.22 tons of F would be added to 17.28 tons of N_2 to attain the desired mixture.

Instead, if reinforcing acid of com-

Fig. 2-Development of graphical method for problems where spent acid is in excess, deficiency or equilibrium

The

Table III-Summary of Problem With Acid Deficiency

	HNOs, Tons	HaSOs, Tons	HgO, Tons	
Spent acid, 470.5 t. H ₃ SO ₄ , 7.16 t; HNO ₅ , 12.34 t. L (to make up deficiency), 10 t.	115.3 12.34 ⁸ 2.45	296.4 7.16 [‡] 6.3	58.8 1.25	
Total	130.09	309.86	60.05	1
Resulting composition by graphic method, % Desired composition, %	$26,02 \\ 26,00$	61.97 62.00	$\substack{12.01\\12.00}$	And in the local division of the local divis

*(19.5 × 36.7/100), *(19.5 × 63.3/100)

position E is available (47.8 percent H₂SO_s and 52.2 percent of HNO_s) the desired mixture could be made from 28.23 tons of E and 1.27 tons of water, as shown by the line E-H₂O.

as shown by the line E-H₂O. One further example is the use of 11.98 tons of a mixed acid of compo-sition of R. (55.3 percent HNO, 34.6 percent H₂SO, and 10.1 percent H₂O) mixed with 17.52 tons of water-free mixed acid of composition NS (46.5 percent HNO₂, and 53.5 percent H₂SO₄). E (55.3 percent H₂SO₄).

HNO₃₂ and 53.5 percent H_2SO_4). *Case 2, Acid Excess*—If a mixture were made consisting of 470.5 tons of spent acid L, with reinforcing acid R, (34.6 percent H_2SO_4 , 55.3 percent HNO₅₂ and 10.1 percent H_3O) and S_2 (104.5 percent H_2SO_4), the line R_1S_2 shows (where it crosses the excess scale AL at C) that an excess of 2.5 percent of re-C) that an excess of 2.5 percent of re-inforced acid would result, and that 2.5 percent of the spent acid must be elimi-nated. The spent acid L to be used, therefore, is $470.5 \times 0.975 = 458.4$ tons therefore, is $470.5 \times 0.97.5 = 438.4$ tons and the reinforcing acid is 500 - 458.4 =41.6 tons of R_1 and S_2 . The required quantity of R_2 is $(41.6 \times CS_2/R_1S_2) =$ 31.9 tons, and of S_2 is $(41.6 \times R_2/R_1S_2) =$ 9.7 tons. Table II shows a summary and check of these figures.

Case 3, Acid Deficiency—If a mixture composed of 100 percent HNO₃ and 100 percent H₂SO₄ should be used for rein-forcement of 470.5 tons of spent acid of composition L_i the intersection D of the line HNO₂-H₂SO, with the deficiency scale AB, shows that a deficiency of 2.1 percent would result. Instead of 470.5 tons of spent acid, 470.5/(100-2.1)=480.5 tons should be used, to 2.1)=480.5 tons should be used, to which 500_480.5=19.5 tons of the cor-rect mixture of 100 percent H₂SO₄ and HNO₂ should be added to produce mixed acid of composition *M*. This is accom-plished by adding to 470.5 tons of spent acid of composition *L* a mixture of (19.5 \times 36.7/100) = 7.16 tons of 100 percent H₂SO₂ and (19.5 \pm 63.3/100) = 12.34 tons of 100 percent HNO₂. How-ever, this mixture will amount to only ever, this mixture will amount to only 490 tons, so 10 tons of acid of composition L must be added. Since the above calculation is based on 480.5 tons of spent acid, and only 470.5 tons was recovered, the remaining 10 tons of L may be made of fresh acids. The mixture may be made of H_sO_4 and HNO_4 , or of $H_sO_4 = HNO_5$ mixtures which are on opposite sides of a line through L

If the spent acid contains impurities which do not contribute to the nitration process, the analytical value and hence are capable of working at of these impurities (for instance, nitro- even lower pressures. syl-sulphurie acid, SO_NH, and organic materials like oxalic acid, glycerine pump consists merely of a water-jackmono- and dinitrate, etc.) must be sub- etcd tube in which a number of jets tracted from 100 and the analysis re- of the motive vapor issue radially able assistance by Richard S. Morse, calculated to 100 percent for the sum from holes in a central pipe beneath president of the National Research of the percentages of H₂SO,, HNO₃ and a conical umbrella which directs the Corp., Boston, for which acknowledg-H₂O. For example, with 5 percent im- jet downward and toward the walls ment is hereby made.

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purities and 23.3 of the tube, as in Fig. 7. As molecent HNOs, cules of the gas which is being evacupercent ated diffuse into the curtain of motive O, and 11.9 vapor they are mechanically entrapped cent H₂O, the and moved beyond the curtain which ctive percentof HNOs is in the desired direction. This is not 3/0.95 = 24.5 to say that molecules of the gas canent HNO,; of H-SO, is 59.8/ 0.95 = 63.0 per-

cent H₂SO₄; and of H₂O is 11.9/0.95 = 12.5 percent.

The graphic method described above it is possible to remove the molecules is rapid in use and avoids the errors that are readily made in computations. Furthermore, it has the great advantage of permitting the discovery of optimum reinforcement conditions un-

HIGH VACUUM (Continued from page 105)

large capacity pump for industrial operations. (See Fig. 6.) In fact, there is no theoretical reason why diffusion pumps of any desired capacity (speed) up to many thousands of cubic feet per minute cannot be built. Pumps already built have eapacities as high as 30,000 cu.ft. per min. at pressures as low as 10⁻⁴ mm. and there is no reason why pumps of several times the diameter and many times the capacity cannot be constructed if the demand for them should in Fig. 7. Oil vapor pumps with such arise.

HOW DIFFUSION PUMPS WORK

The diffusion pump was developed by Langmuir in the United States about ever, can discharge directly to the 1913, and by Gaede in Germany at atmosphere, all requiring operation in about the same time, or shortly thereafter. In the earlier types, and, in another ejector. All diffusion pumps fact, until quite recently, such pumps require an efficient condensing arrangewere always constructed of glass and hence were not adapted to large size. In the early pumps mercury vapor with the gas being evacuated. Merwas the motive fluid, and it is still used to a considerable extent owing to the small and simple boiler required, compared with other fluids which can is to be avoided. Some of the higher be used. However, certain hydro-car- boiling organies can be condensed with bon oils and other high-boiling organic higher temperature water, so their use liquids have been used successfully and offer advantages under proper operating conditions, in that they are available. of lower vapor pressure than mercury

In its simplest form a diffusion

from the system by means of a mechanical pump or steam ejector. Meanwhile, the curtain of motive vapor, having accomplished its purpose, reaches the water-cooled wall and condenses, flowing back to the boiler where it is re-vaporized for return to the jet. Pumps with only the umbrella type of jet are capable of operating at extremely low pressure, for example, at 10" mm. or even lower, using a low vapor pressure oil and properly designed baffles to prevent the motive vapor from backing up into the evacuated space, but they cannot operate with forepressures higher than about 0.25 mm. Therefore, the mechanical pump or jet which is used to discharge the trapped molecules must be capable of high efficiency at a relatively low pressure. Much higher forepressures are made possible by combining the umbrella type of diffusion pump with a stage of ejector type jets as shown jets can operate at forepressures of several millimeters, and mercury pumps of this type at forepressures as high as 25 mm. No diffusion pump, howseries with a mechanical pump or ment for the motive fluid to prevent its loss in the form of vapor, along cury pumps, for example, require cooling water at a temperature below about 80 deg. F., if loss of mercury may be indicated where a reliable

has, of course, a component of motion

not diffuse backward through the cur-

tain, for some of them do, but about

half of those which diffuse through do

not return and the concentration below

the curtain increases to the point where

In the preparation of this article and its drawings, as well as a second article which will follow in a later issue, to deal with applications of extreme high vacuum in the industrial field, the writer was given much valu-

source of low-temperature water is not

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MAGNESIUM (Continued from page 101)

ing the pouring. Tilting of the frame is synchronized with movement of the mold chain so that each mold is filled with exactly the right amount of metal. One side of each mold is built up in a V shape which overlaps the low side of the neighboring mold, so that no metal is spilled as the chain advances. Movement of both furnace and chain is entirely smooth at all times, and the choking atmosphere of SO₂ which surrounds the hand operation is absent. A reducing atmosphere does surround the molten metal until it solidifies, but no fumes escape into the room.

Care is taken to prevent pouring out of the pot any of the sludge which has settled to the bottom, and when all possible pure metal has been poured out, the tilting furnace is returned to an upright position and the pot removed. The empty pot is transferred women, in which approved ingots are today.

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to the cleaning room nearby and a wrapped for shipment. This bare statefresh pot is immediately placed in the casting machine. 'Two overhead cranes serve the refining room, and so rapidly do they carry the 2-ton pots on the round from furnace to casting machine to clean-up and back to furnace that there is never a break in the procession of trucks leaving the refining room loaded with magnesium. Even when an empty pot is exchanged for a full one at one of the easting machines, there is only a short pause in the steady clinking of ingots dropping from the end of the mold chain. In the cleaning room, the pots are entirely emptied of sludge, and as much metal as possible is recovered. After a rapid inspection and eleaning, the pots are swung out again and put back into the nearest empty furnace to be refilled.

sampling, inspection, and weighing. Beyond the stacked ingots are as-

ment of fact does these women an injustice, however, for they work with a sort of desperate urgency unmatched anywhere else in the plant. One could easily, and perhaps some-

one will, fill a book with the whole story of this enterprise. Aside from building the main plant, the erection of the workers' townsite, complete with air-conditioned houses, schools, and stores is a major achievement, as is the construction of the power lines and pipe lines into the plant. Every existing type of engineering skill and experience had a part in this project, and is working right now to expand its production even beyond the incredible limits set originally. As to the future of this young giant, your guess is as good as anyone's, but its present and its past are written large Adjoining the refining room, is across a square mile of Nevada desert storage space for ingots awaiting and hundreds of square miles of Axis sky. BMI's men don't worry about tomorrow just yet; they are too busy sembly-line arrangements run by turning out the magnesium we need

