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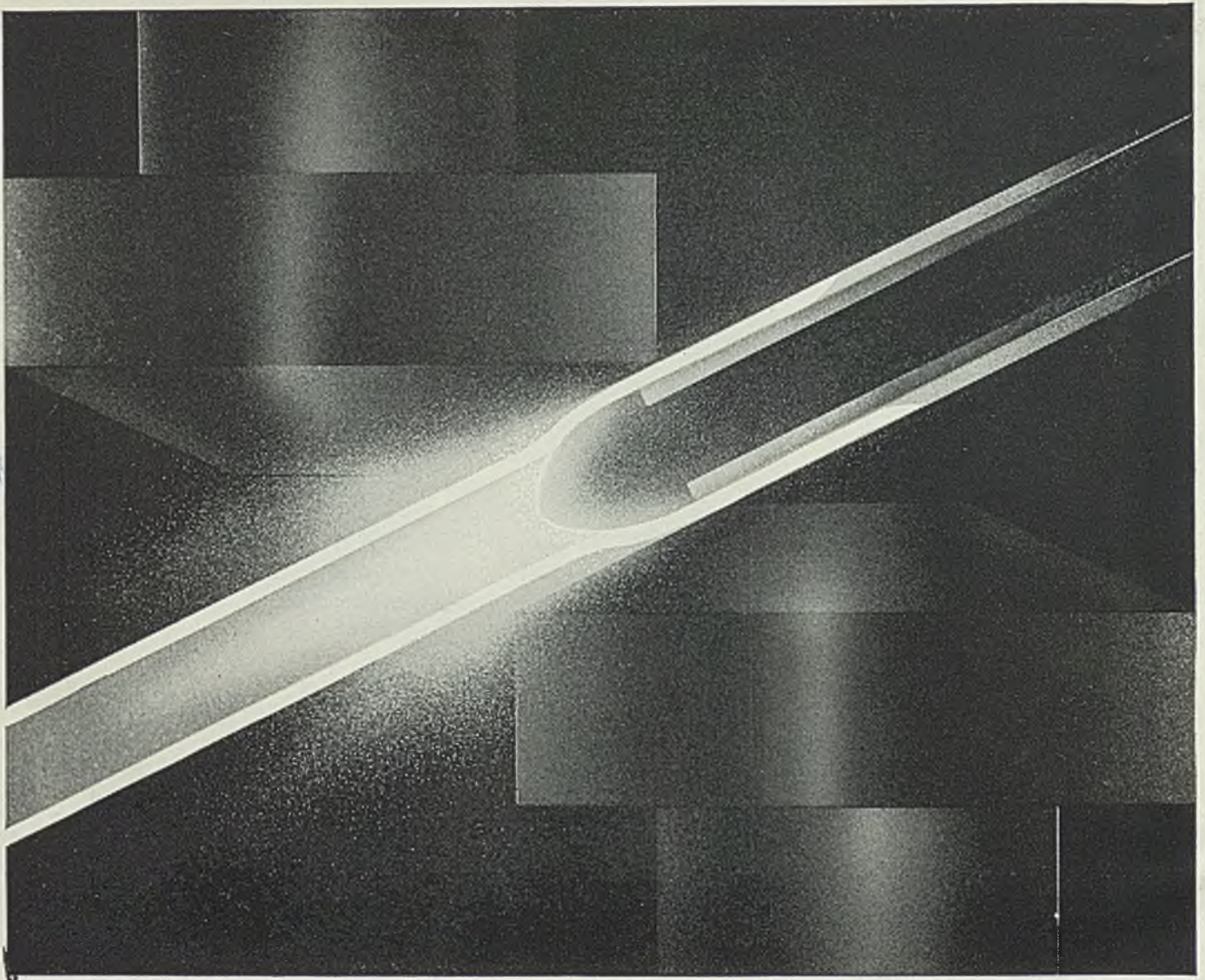
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## As the Editor

## Views the News

**T**ESTIMONY presented at the basing point hearings on Thursday and Friday by the presidents of the two leading steel interests emphasized two important points. Eugene G. Grace of Bethlehem warned that if the purpose of the anti-basing point bill is "to force steel prices still lower" (p. 14) it is a "direct attack upon wage rates, . . . because savings from increased efficiency have already been reflected in lower prices." W. A. Irvin of United States Steel testified that his corporation would suffer less than its competitors if basing points were abolished because of the wide geographical distribution of the plants of its subsidiaries.

These points, considered in conjunction with opinions expressed by others earlier in the hearings, should carry sufficient weight to cause all proponents of and sympathizers with the Wheeler bill to ask themselves whether they are sure that the proposals of the bill will bring about the results desired. It is doubtful whether the sponsors of the bill desire to create a situation that would afford new advantages to the largest producers over their smaller competitors. Nor do the proponents desire to batter down wage rates. Legislators will do well to go slow as long as there is reasonable doubt as to how their bill will work.

Industrial activity has rebounded buoyantly from the restrictions of the March floods. The rate of steelworks operations for the week ending April 4 is 63.5 (p. 18), which is the highest figure recorded since the last week of June, 1930. Automobile assemblies have mounted to 108,426 units (p. 22), which is a new high for 1936 and the highest weekly output since the last week of August, 1929. These encouraging

signs in two major branches of industry helped to lift STEEL's index of activity to 91.4 (p. 30), which is a new top for 1936 and, with the exception of a peak of 91.7, 91.8 and 91.9 established in three consecutive weeks of December, 1935, is the highest point attained by the index during the recovery period. With this exception, the current figure is the highest since the last week of June, 1930.

Another indication of the strong position of the metalworking industries is found in STEEL's compilation of pig iron production for March.

### More Stacks in Blast

Output ran ahead of January and February (p. 19) and on the last day of the month the number of active stacks was the greatest in five and one-half years. The compilation throws a sidelight on the extent of the curtailment caused by flood conditions. Eighteen of 36 active stacks in the flooded area were forced to suspend. Lost time aggregated 119 days, which represents a loss in production of 60,000 tons, or the output of four furnaces for a month. Rehabilitation work in flood-invaded mills (p. 16) is bringing to light numerous stories of ingenious drying and cleaning methods

A sure sign of the arrival of spring is the announcement of programs for April and May conventions. By mid-April the convention season will be in full swing.

### Convention Season Here

In rapid succession will be held meetings of the American Management association, American Gear Manufacturers' association, Association of Iron and Steel Electrical Engineers, joint chapters of American Society for Metals (p. 48) and American Foundrymen's association (p. 46). The exposition to be held in conjunction with the latter convention promises to be one of the largest in recent years. The meeting of the American Iron and Steel institute is scheduled for May 28. The convention fare for the spring of 1936 will be sufficiently varied and abundant to satisfy all tastes.

*E. L. Shaner*

# Basing Point Hearing Part of New Deal Price Control Urge

**I**NCREASINGLY it became apparent last week that so controversial a measure as the Wheeler-Utterback anti-basing point bill will not be forced through a congress that is eager to adjourn and go home to mend its political fences for the November election.

But Sen. Burton K. Wheeler, co-author of the bill, realized an ambition when he succeeded in bringing Eugene G. Grace and William A. Irvin, presidents, respectively, of the Bethlehem Steel Co. and the United States Steel Corp., before his committee on interstate commerce.

Lending color to the proceedings, which are thinly disguised as an effort to put big industry on the grid-dle, was the dramatic interjection of Sen. James Couzens, of Michigan, who in the past has been critical of many practices of the steel industry, especially its price for rails.

## Producers in Quandary

Unexpectedly displaying a show of interest in the measure, Senator Couzens acridly pointed to the inconsistency of the anti-basing point and the Robinson price discrimination bills with some decisions of the federal trade commission.

"How can a producer know on which road he is going?" demanded Senator Couzens. "He will be seeing back and forth and won't know what the hell to do."

Last week, too, the house committee on judiciary made a favorable report on the Robinson bill for the prohibition of price discriminations.

The definition of price in the bill is "the amount received by the vendor after deducting actual freight or cost of other transportation, if any, allowed or defrayed by the vendor."

This is an oblique attack upon the basing point system. In fact, the committee report discusses steel and cement basing points, citing practically identical bids received on government tenders.

"It should be noted that under the basing point system, as applied in the iron and steel industry, there is practically no competition, price quotations are with very few exceptions

delivered prices and are fixed by the base price on a multiple base system," says the committee report, which draws the conclusion that with the United States Steel Corp. controlling the Universal Atlas Cement Co. "we cannot expect real competitive conditions between the iron and steel industry and the cement industry, to say nothing of expecting competitive conditions in those industries separately."

Appearing before the senate committee Friday, and largely in response to its interrogations Mr. Irvin said:

"The United States Steel Corp. would be the least harmed of anyone in the industry if the basing point system were abolished; however, changing the system would be harmful and substantial evil would be apparent at once. . . . Passage of this bill might disrupt whole communities and mean that many factories would have to move. . . . No program has been proposed so far that works as well for the steel industry as the basing point system, but I have an open mind on the subject, and providing the Steel corporation has an even break with its competitors, we would have no objection to abolishing the system. . . . We seek no advantage for ourselves and want our competitors to get none. Abolishing it would hurt many small producers. . . . The Steel corporation does make some f.o.b. mill prices,

including rails, semifinished materials, and merchant pig iron. . . . We sell steel rails in South America and get a higher price there than in this country. . . . We sell 6 to 7 per cent of our production for export, mostly to South America and East Africa, receiving some preference on rails in South America. . . . On a per pound basis we get less for rails and more for watch springs than any of our 50,000 products. . . . There has been a vast improvement in rails in 20 years despite the fact the price has gone down. . . . The Steel corporation pays the highest wages of any steel interest and our wages are the top in all districts. . . . The public gets the immediate benefit of reductions in the cost of production. . . . Objections to the basing point system are largely theoretical. . . . The Steel corporation generally sets prices, unless someone else thinks the price is too high or wants the business more than the Corporation does. . . . Effect of passage of the Wheeler bill would be to start a downward spiral of prices at once, because no one would know just what prices are for some time. . . . Cross hauling is bad and uneconomical.

## The Corporation's Creed

"During all my 41 years of service with the Steel corporation we have sought to serve the public, conform to the law, pay the highest going wage in the industry, and finally make a profit for the 232,000 owners of our stock. The United States Steel Corp. is more than a mere corporation for profit; my problem would be much simpler if my responsibility were one of profit only. . . . The basing point practice is not the device of one man or of a group of men; like Topsy, 'it just grew'.

## Service Man's Nightmare

**F**AMILIAR scene during the week of March 23 at the renewal parts plant of Westinghouse Electric & Mfg. Co. in Pittsburgh, as fire hoses are turned on mud-caked motors to clean them off before reconditioning. Seventeen special drying ovens were hurriedly set up to handle a daily load of about 500 motors, coils, regulators, control boards and similar devices trucked to the plant for repairs



So far we have not found a different selling program that would not damage competitors and consumers who have located their plants under the present method of selling. This program that would not do untold damage to settled communities of workers and increase costs to consumers has not been found . . . As I have stated previously, the changes as suggested would be least harmful to the Steel corporation, because of its plant locations in various parts of the country, and in my opinion in the long run it would benefit the Steel corporation, which, however, has never sought to profit by the ruin of its competitors."

Testifying on Thursday, Mr. Grace, who is president of the American Iron and Steel institute as well as the Bethlehem Steel Co., denied that prices are dictated by the Institute, or that there are price agreements among producers. In detail he explained the sale of sheets from the Sparrows Point (Baltimore) and Buffalo plants of Bethlehem, although neither is a basing point.

#### Says Wages Would Be Lower

Eliminating the basing point system would have a tendency to increase prices through a decrease in competition, Mr. Grace maintained. Conditions existing during the period of the steel code are not representative of either prices or methods. Bethlehem did not buy the Cambria mill at Johnstown because it was cutting prices, he insisted. Incidentally, he said there are some 130,000 steel buyers in the country.

Net billing of Bethlehem in 1935 was \$11 per ton less than in 1923, due, according to Mr. Grace, to improvement in processes. In this period the steel industry has spent about \$1,000,000,000 in improvements. Meanwhile, the wage scale has risen from 40 cents an hour in 1923 to 47 cents in 1935.

"If it is the purpose of the proponents of the anti-basing point bill to force steel prices still lower, they are making a direct attack upon the wage rates of the industry," Mr. Grace charged. "Any further substantial reductions in steel prices at this time would adversely affect wages, because savings from increased efficiency already have been reflected in lower prices, and wages remain the only flexible cost factor."

Answering a question of the chairman, Mr. Grace stated that his company several times had considered going into the Chicago area for production, but never has.

He testified that his company sells a general line of steel products abroad, principally in the South American markets, and that the prices varied as compared with prices in the United States.

Senator Wheeler asked Mr. Grace

if he could give him producing costs at various points of production and the witness stated that he would consider that insofar as his own plants are concerned.

The witness stated that the outlook for the steel industry in the second quarter is very encouraging and he looked for better business than for a long time.

Mr. Grace stated that he never took the threat of the automobile manufacturers of going into steel production very seriously.

#### Lower Costs Are Goal

The witness, talking generally, said that he thought the country should work toward lower costs and lower prices rather than higher prices and higher costs and he said that if the country had reduced costs by 25 per cent when the slump came along that we would be much further along the route to permanent recovery than we are now. He stated also that in his opinion there is need for a reasonable balance between industry and agriculture.

Answering Senator Wheeler, Mr. Grace stated that the tariff on steel into this country amounts to nothing and he called attention to the fact that imports of steel increased 50 per cent in 1936 over 1934.

The question of manganese came up, and Mr. Grace said that if domestic producers could produce the right ore at the right price they would get

the business. He said his company would rather buy American manganese than Russian.

Mr. Grace stated that the Japanese market for American steel is about over. He said that most of the steel products imported into the United States are from Germany and Belgium.

#### Do Not Compete on Price

Hugh E. White, economist for the federal trade commission, who went with that body in 1919 in connection with the Pittsburgh-plus investigation, testified that "there is competition in the steel industry but not in price. There are pretty friendly principles of competition which to my notion are plainly violated in this situation." He denied that abolition of the basing point system would put everybody out of business.

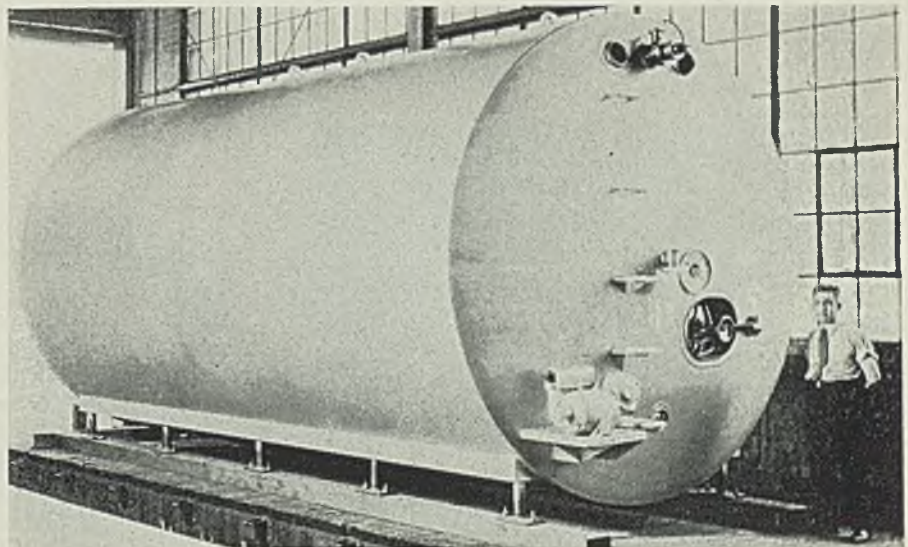
Other witnesses last week, all in opposition to the bill, included B. F. Affleck, president, Universal Atlas Cement Co., other representatives of the cement industry, and several flour and milling men.

#### Reports on Range Boilers

FEDERAL trade commission last Monday forwarded to congress a study of the zone-price formula used by the range boiler industry.

Authorized by congress in 1933 to make the study, the trade commission temporarily suspended it during

#### World's Largest—Maybe



*STAINLESS steel derby, started several weeks ago in STEEL, in addition to several record-size plates and tanks, has a new entrant in the above 12,000-gallon ammonia-cooled milk storage tank. Measurements: Inside diameter 118 inches, outside diameter 130 inches, waist length 246 inches, overall length 294 inches. Material was Republic Steel Corp.'s Enduro 18-8, No. 14-gage with No. 4 polish on the inside. Total weight of steel used was 2900 pounds. Tank was fabricated by York Ice Machinery Corp., York, Pa., for Hershey Chocolate Corp., Hershey, Pa. Stainless also was used for fittings, manhole cover and frame and other accessories. Can anyone beat this for size?*

NRA, but resumed last year. The commission made no recommendations, merely transmitting an explanation of the manner in which the industry operates, which includes the basing point principle.

The range boiler industry sells on a delivered price basis. For destinations in zone A, now comprising all states east of the Mississippi river, the published delivered price is uniform, that is, the price is f.o.b. plant, full freight allowed. For destinations in other zones, the same published price is applicable, but with only partial freight allowances.

Incidentally, the simplified practice recommendation for range boilers and expansion tanks has been reaffirmed without change by the standing committee of the industry.

## Flood Handicap to Steel Fades Fast

AS THE Pittsburgh and Wheeling districts slowly made progress in rehabilitation work through last week, the three rivers in the Pittsburgh district had returned to below flood stage for the first time in two weeks. Recession of the waters enabled engineers in the district to prepare for quick replacement of river lock damage.

By the middle of the week the Allegheny river, which had diverted its channel at Braeburn, Pa., and wrecked the office of the Braeburn Alloy Steel Co., had been conquered

through dumping about 15,000 tons of stone into a 200-foot channel on the east bank, so that the waters were back in their original channel at lock No. 4.

In an emergency contract to construct the lower gates for a large lock in the Ohio river at Emsworth, Pa., Dravo Contracting Co. was awarded the contract at \$88,800, with delivery specified for 45 days.

Many steel companies in the Pittsburgh district were in the midst of tedious repair jobs last week to their stocks of finished steel products which were immersed. Many tin plate producers had stocks under water, and in these cases the tin plate base boxes had to be opened and each sheet of tin plate dried and repolished.

Kegs of finished nails and spikes which were subjected to flood waters had to be opened and nails put in tumblers to knock off rust. Drawn wire which had been rusted was being redrawn to a smaller size.

A number of steel companies were co-operating fully in flood rehabilitation work in residential districts close to their plants through contributions to the Red Cross and gifts of executives.

### Makes Additions to Plant

Central Iron & Steel Co., Harrisburg, Pa., employed to advantage the several days shutdown caused by the recent heavy floods in Pennsylvania to proceed with its program of expansion.

This will include two large additions to the shearing, assembling and shipping buildings. One extension

will connect the flanging department with the large sheared plate mill, which with its equipment will permit continuous routing from raw material through finished product to railroad cars.

Another extension will provide increased shearing, inspection and assembling facilities for the main sheared plate mill. Several large additional shears of improved type will greatly increase the special shearing and resquaring requirements of the trade.

An additional modern roll shop has been built which will contain four lathes for turning plate mill rolls, as well as for cutting the patterned rolls used in production of the several designs of Central nonskid rolled steel floor plates.

### New Equipment Installed

The flanging plant has had two additions made to its main building and additional punches and hydraulic presses have been installed to improve the quality and increase the output of flanged products.

The company engineers have completed plans for a new power plant, consisting of a boiler plant, with modern, high pressure boilers, steam turbines and generators to generate the plant's electric power requirements. It is now adequately equipped with hydraulic and steam power for its various departments.

The company experienced some delay due to partial submergence of electrical equipment and the lack of power, but flood losses were negligible and full operations have been resumed.

## Would Serve Mermaids!



*Chairs were never made for river bottoms, but this aluminum furniture gave a good account of itself in the recent Pittsburgh flood. At its peak, water stood 8 feet deep in the delicatessen store where they were used, but soap and water speedily removed the film of mud and they were ready for business as usual*

## Rolling Mill Exhibit Wins

Exhibit of the American Rolling Mill Co., Middletown, O., won first prize in an industrial show sponsored recently by W. J. Holliday & Co., Indianapolis, distributor of iron and steel supplies. About 40 companies competed for the award. Stainless steels and their applications featured the display.

The show marked the 80th anniversary of the founding of W. J. Holliday & Co. It was designed to acquaint fabricators in their district with the uses of various metals (full details on Page 35).

## Extends Time for Answer

Federal trade commission has extended from April 2 to May 2 the final date for the filing of answers by producers of tin plate to its complaint that the termination of stock tin plate sales violates the federal trade commission act. STEEL, March 23, page 25.)



# Financial

**C**OMMON stockholders of the Youngstown Sheet & Tube Co., Youngstown, O., last Tuesday released their pre-emptive rights to not exceed 600,000 authorized but unissued common shares, thus providing convertible privileges for debentures.

On Friday Sheet & Tube filed with SEC at Washington a certificate for \$60,000,000 first mortgage bonds and \$30,000,000 convertible debentures as part of its refunding operation involving \$84,962,000.

Further details of Sheet & Tube's financial experience in 1935 disclose these encouraging gains: Gross sales \$86,788,923, up 37.4 per cent; net profit \$1,597,521, equal to 64 cents a share on the common, after deducting one year's dividend on the preferred, compared with a loss of \$2,665,119 in 1934; bank loans reduced from \$3,500,000 on Dec. 31, 1934, to \$1,500,000 on March 21, 1936; expenditure of \$9,348,847 for plant improvements and betterments.

## SHARON PAYS \$15.25 FOR PITTSBURGH STEEL COMMON

Sharon Steel Corp., Sharon, Pa., formerly Sharon Steel Hoop Co., in its annual statement just released reveals that it paid an average of \$15.25 per share for the 37,200 shares of Pittsburgh Steel Co. common stock which it acquired in January.

At that time the shares, representing about 15 per cent of the Pittsburgh Steel Co.'s outstanding common securities, were bought for \$567,300. At approximately the same time, Sharon Steel Corp. sold certain of its marketable securities for approximately \$262,400, proceeds of which were to assist in the purchase of Pittsburgh Steel Co. common stock.

## NATIONAL RE-ELECTS DIRECTORS, PAYS 37½c DIVIDEND

Annual meeting of stockholders of the National Steel Corp. was held at Pittsburgh, March 30. E. T. Weir, chairman of the board, presided, and the following directors were re-elected: Frank W. Blair, Maurice Falk, George R. Fink, Howard M. Hanna, George M. Humphrey, Edmund W. Mudge, Carl N. Osborne, Charles M. Thorp, Ernest T. Weir, and John C. Williams.

At a meeting of directors following the stockholders' meeting, the regular dividend of 37½ cents per share was declared for the first quarter of 1936, payable April 30 to April 20 record. Directors' meeting was moved forward from April 10, its regularly scheduled date, to have it

coincide with the annual meeting of stockholders.

## URGE PRESSED STEEL PLAN

Thirty-three industrial concerns in the Pittsburgh district have advised the trustees of the Pressed Steel Car Co., Pittsburgh, that they favored the company's plan for reorganization. Last week federal court at Pittsburgh authorized the trustees to

issue an additional \$500,000 in certificates of indebtedness. The company's orders exceed \$8,000,000.

## GULF DIRECTORS CONTINUE

Following the annual stockholders' meeting of the Gulf States Steel Co., Birmingham, Ala., at Wilmington, Del., March 31, William H. Coverdale, Gulf States president, stated that he had been advised that the Republic

# Lewis To Join Jones & Laughlin

**H**E. LEWIS, chairman of the executive committee of the Jeffrey Mfg. Co., Columbus, O., since November, 1930, and prior to that executive vice president of the Bethlehem Steel Co., will shortly become a director and chairman of the board of the Jones & Laughlin Steel Corp.

He will succeed George M. Laughlin Jr., who has been chairman since 1928, and who is the son of Maj. George M. Laughlin and the grandson of James Laughlin, one of the two original partners in Jones & Laughlin's Ltd. Mr. Laughlin's resignation will be effective upon completion of the present financing of the company.

Mr. Lewis, widely-known in the steel industry and versed in finance as well as operations, will be the first outsider—that is, someone other than a representative of either the Jones or the Laughlin families to be chairman of the board. Born in Wales, he came to this country in early childhood, worked for the Carnegie Steel Co. in Pittsburgh, then went with Bethlehem, becoming vice president. He resigned this post in 1930 to go with the Jeffrey company.

He also is a director of the Kelsey-Hayes Wheel Corp., Detroit.

Last week a syndicate marketed \$30,000,000 of first mortgage bonds bearing a 4¼ per cent coupon maturing in 1961 and priced at 97. In addition, directors made five-year bank loans in the amount of \$5,000,000. Directors also are returning to the general working fund of the company cash and government securities of a total value of \$4,700,000, heretofore segregated by the board to cover various reserves set up on books.

This program replaced the original proposed issue of \$40,000,000 in first mortgage bonds approved by stockholders Feb. 14. Incidentally, Jones & Laughlin last week estimated that repairs and replacements caused by the recent flood will cost \$750,000 to \$1,000,000, to be charged against the company's \$3,000,000 reserve for contingencies.

The Mellon Securities Co. Inc., underwriting \$10,500,000, headed the underwriters offering the bonds. Of the \$5,000,000 borrowed from banks for five years, \$3,500,000 is being supplied by the Union Trust Co., and \$1,500,000 by the Mellon National bank, both of Pittsburgh.



H. E. Lewis, to become a director and chairman of Jones & Laughlin

Steel Corp., which has a stock interest in the company, had solicited proxies to elect directors but had not voted them. The five Gulf States directors were re-elected. For several years rumors have linked Gulf States as a southern steel unit for Republic, which now has merchant blast furnaces in the Birmingham district.

#### EARNINGS STATEMENTS:

☐Milton Mfg. Co., Milton, Pa., reports net loss of \$16,960 in 1935, compared with net loss of \$12,296 in the year preceding, due largely to substantial declines in prices received for its products.

☐Vlchek Tool Co., Cleveland, 1935, net profit of \$181,787; 1934, net profit of \$30,018.

☐Baush Machine Tool Co., Springfield, Mass., 1935, net loss of \$794,248; 1934, net loss of \$250,723.

☐Carrier Corp., Newark, N. J., 1935, net loss of \$335,063, 1934, net loss of \$86,582.

☐Fansteel Metallurgical Corp., North Chicago, Ill., 1935, net of \$78,797; 1934, loss of \$8019.

☐Gloss-Sheffield Steel & Iron Co., Birmingham, Ala., 1935, net loss of \$25,220; 1934, net loss of \$15,838.

☐Graton & Knight Co., Worcester, Mass., 1935, net income of \$227,737; 1934, net loss of \$199,257.

☐Steel Co. of Canada Ltd., Montreal, (Please turn to Page 90)

## Institute

**A**MERICAN IRON AND STEEL INSTITUTE, New York, reports the following conclusions to surveys:

Imports of iron and steel in 1935 deprived steel workers of an average of \$16 in wages.

In that year imports of foreign-made iron and steel totaled 405,221 gross tons, an increase of 49 per cent over 1934. Approximately 13,414,000 man-hours of work—equivalent to 6450 full-time jobs—would have been required to have made the equivalent of these imports. The total loss in wages was \$9,500,000 of which steel mill employes were deprived of \$6,700,000, miners of iron ore, coal and limestone, \$1,500,000, and employes of railroads and ore carrying steamship companies, \$1,300,000.

Of all steel products made in 1935, 45.6 per cent, can be classified as "light products." In 1934 this percentage was 42.9. Almost 12,500,000 gross tons of light steel products was consumed in 1935, against 9,071,000 tons in 1934. More than 80 per cent of the sheets, strip, wire and tin plate can be traced to such ultimate destinations as automobiles, tin cans, furniture, refrigerators, farm equipment, and other similar consumer goods.

## Nearly Billion Tons of Steel Now in Use

**S**TEEL now in use in the United States is estimated at 954,000,000 tons, or 16,800 pounds per person by the American Iron and Steel Institute, New York. This is based upon actual production of steel from 1865, the year in which the bessemer process was perfected, through 1935, with allowance made for deterioration and retirement through scrapping. Every form of steel from skyscraper skeletons to hairpins is included.

Much steel produced many years ago is still in service including, for example, the 24,000 tons in the Brooklyn bridge, erected in 1883, most of the 38,500,000 tons of rails that have been rolled in this country, the 26,000 passenger automobiles and trucks in service, and many steel-framed buildings erected prior to 1900.

## Production

**S**TEELMAKING hit a new high last week, rising 5 points to 63½ per cent, and representing the highest level reached since the last week of June, 1930, when the rate was 64 per cent. This spurt is attributed in part to the strong wave of specifications against first quarter contracts, resulting in heavy bookings on which production and shipments will proceed the balance of this month. Indications point to further gains, in view of increasing demand from the heavy industries. Further details follow:

**Youngstown**—Held at 74 per cent last week. Republic Steel Corp. took off one unit for repairs at mid-week, the number of active open hearths dropping off to 62 out of a total of

83. Youngstown Sheet & Tube Co. may put its Campbell works bessemer plant into action this week. Farrell, Pa., works of Carnegie-Illinois Steel Corp. now has ten open hearths operating, the first time since 1930. The past several weeks it had been scheduling nine.

**Pittsburgh**—Up 6½ points last week to 52 per cent. A strong wave of specifying against first-quarter contracts resulted in heavy bookings the early part of last week, on which production and shipments will proceed for the rest of April. Carnegie-Illinois operated last week at 48-50 per cent, Jones & Laughlin at 54 per cent, Pittsburgh Steel at about 60, and rates of the smaller independents averaged 58-60 per cent.

Blast furnace schedules are now entirely on the pre-flood basis, with 27 out of 60 steelworks stacks in blast. Carnegie-Illinois has 11 of 32 on, National Tube, 2 of 4; Jones & Laughlin, 7 of 11 Bethlehem, 4 of 7 at Johnstown, Pa., and Pittsburgh Crucible Steel, Pittsburgh Steel, and American Steel & Wire, 1 of 2 each.

**Detroit**—Up 6 points to 100 per cent, with all 17 open-hearth furnaces of the two district producers making steel.

**Wheeling**—Up 3 points to 76 per cent last week, as 28 out of 37 open-hearth furnaces were operating in the four district plants.

**Cleveland-Lorain**—Down 1 point to 81 per cent. Republic Steel Corp. operated 12 of 14 open hearths at the Corrigan-McKinney plant; National Tube Co., Lorain, all of its 12. Otis Steel Co. had seven on at the beginning of the week, raised to eight in midweek, and then cut back to seven. Blast furnace operation: Corrigan-McKinney plant, all four on; Otis, its two stacks; National Tube, three of its five.

**Cincinnati**—Reopening of one mill in the Ohio river district was delayed by prolonging of high river stages, and steelmaking was held to 55 per cent. Definite plans to restore four open hearths, for a total of 18 out of 24, will restore the rate to 76 per cent this week.

**Central eastern seaboard**—Increased 2 points last week to 40 per cent, highest point this year, and further gains are expected as the month advances. There are indications, in view of the better demand from the heavy industries, that this district will make a relatively better showing this quarter than it has in several years.

**Chicago**—Increased 3½ points to 67½ per cent, a new peak for the year and the best rate since June, 1934, when operations were stimulated by approaching price advances. Several mills continue to operate at capacity, and prospects are favorable for a maintenance of production near

## Steelmaking Operations

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended		Same week	
	April 4	Change	1935	1934
Pittsburgh .....	52	+ 6½	34	36
Chicago .....	67½	+ 3½	50	48½
Eastern Pa.....	40½	+ 2	29½	35
Youngstown.....	74	.....	50	55
Wheeling .....	76	+ 3	76	62
Cleveland .....	81	- 1	69	67
Buffalo .....	62	+15	32	50
Birmingham...	60	None	55½	52
New England	72	+ 5	53	82
Detroit .....	100	+ 6	88	88
Cincinnati ....	55	None	†	†
Average.....	63½	+ 5	44	48

†Not reported.

its current level for the balance of April. Another blast furnace has been lighted at South Chicago, giving the district 21 active stacks out of 41. One interest plans to light another furnace the middle of this month.

**Buffalo**—Up 15 points last week to 62 per cent, high point of recent years. Mills are reported solidly booked for April, and it will not be surprising if there are further gains in production by mid-April. Twenty-three furnaces are active.

**Birmingham**—Held at 69 per cent last week, with 15 open hearths melting. No immediate change is looked for.

**Pueblo, Colo.**—Colorado Fuel & Iron Co. has increased ingot production at its Minnequa plant to 75 per cent. Two open hearths were added, making 12 of the company's 16 active.

**New England**—Up 5 points to 72

### MARCH IRON PRODUCTION

	No. in blast last day of Mar. Feb.		Total tonnage Mer- chant Nonmer- chant	
	Ohio .....	32	31	80,378
Penna. ....	36	34	52,832*	456,824*
Alabama ....	12	12	87,755*	84,909*
Illinois .....	11	10	52,444	147,086
New York....	9	8	72,238	71,932

Colorado .....	2	2	3,860*	352,808
Indiana .....	10	10		
Maryland .....	4	3		
Virginia .....	1	1		
Kentucky ....	1	1	6,400	137,219
Mass. ....	0	0		
Tenn. ....	0	0		
Utah .....	1	1		
West Va. ....	2	2		
Michigan .....	4	4		
Minnesota....	1	1		
Missouri .....	0	0		

Total ..... 126 120 355,907\* 1,690,214\*

\*Includes ferro and spiegeleisen.

per cent, with indications of a further advance this week of 6 points.

### CANADIAN STEEL OUTPUT OFF AS IRON RISES

Canadian production of iron and steel ingots in February totaled 93,365 tons, a decline from the January figure of 100,225 tons, but a substantial increase over the 56,006 tons produced in February last year.

Pig iron output in February totaled 55,751 tons, a 50 per cent gain over the corresponding month of last year, but a decline of 9 per cent from the 61,336 tons produced in January. Output included 1999 tons of malleable, 10,064 tons of foundry iron, and 43,688 tons of basic.

Ferroalloys totaled 5115 tons, an increase over the January output of 4324 tons, and the February, 1935, total of 2700 tons.

For the two-month period, ingots and castings totaled 193,590 tons, against 115,532 tons in 1935.

# March Iron Production Up as Six More Furnaces Blow In

**H**URDLING the obstacle of floods, blast furnaces in the United States made in March more pig iron than in either January or February and on the last day of the month active stacks were at the highest total in five and a half years. Pro-

the calculated loss was about 60,000 tons, equivalent to a full month's output for four furnaces.

In the first quarter, production has aggregated 5,914,357 tons, this being a gain of 21.6 per cent, or 1,050,019 tons, over the first three months of 1935.

On the last day of March, 126 blast furnaces were making iron, an increase of 6 over Feb. 29, and the highest since September, 1930, which also recorded 126. In March, a year ago, 97 furnaces were operating. During the month, 8 steelworks or non-merchant stacks resumed operation and 1 was blown out. One merchant stack was blown out and none resumed.

Blast furnaces blowing in during March were: In Ohio: River No.

### AVERAGE DAILY PRODUCTION

	Gross Tons			
	1936	1935	1934	1933
Jan. ....	65,461	47,692	39,537	18,348
Feb. ....	63,111	57,675	45,385	19,752
Mar. ....	66,004	57,120	52,438	17,484
Apr. ....	55,719	57,873	20,736	
May .....	55,986	66,370	28,784	
June .....	51,949	64,563	42,165	
July .....	49,043	39,630	58,108	
Aug. ....	56,767	34,199	59,137	
Sept. ....	59,009	29,969	50,264	
Oct. ....	63,818	30,689	43,824	
Nov. ....	68,876	31,930	36,124	
Dec. ....	68,242	33,161	38,456	
Ave. ....	75,982	57,694	43,774	36,223

duction was the best for any March since 1930. High water affected operations at many furnaces, but iron-making was resumed after short suspensions.

Average daily production in March was 66,004 gross tons, a gain of 2593 tons, or 4.1 per cent, over February. This was the largest since last December with 68,242 tons and compares with 57,120 tons in March a year ago.

Total production in March was 2,046,121 tons, against 1,838,932 tons of February, an increase of 207,189 tons, or 11.3 per cent. March, of course, was a 2-day longer month than February. The March total was the largest since December, 1935.

In the Pittsburgh and Ohio river districts affected by floods are 73 blast furnaces, of which 36 were operating when the water rose. Eighteen were forced to suspend for 3 to 14 days, making a total of 119 days of lost time. Figuring each stack capable of making 500 tons of iron per day,

### MONTHLY IRON PRODUCTION

	Gross Tons		
	1936	1935	1934
Jan. ....	2,029,304	1,478,443	1,225,643
Feb. ....	1,838,932	1,614,905	1,270,792
Mar. ....	2,046,121	1,770,990	1,625,588
Tot. 3 mo. ....	5,914,357	4,864,338	4,122,023
Apr. ....	1,671,556	1,736,217	
May .....	1,735,577	2,057,471	
June .....	1,558,463	1,936,897	
July .....	1,520,340	1,228,544	
Aug. ....	1,759,782	1,060,187	
Sept. ....	1,770,259	899,075	
Oct. ....	1,978,379	951,353	
Nov. ....	2,066,293	957,906	
Dec. ....	2,115,496	1,028,006	
Total.....	21,040,483	15,977,679	

### RATE OF OPERATION

(Relation of Production to Capacity)

	1936 <sup>1</sup>	1935 <sup>2</sup>	1934 <sup>3</sup>	1933 <sup>4</sup>
	Jan. ....	48.2	34.2	28.3
Feb. ....	46.6	41.4	32.5	14.3
Mar. ....	48.5	41.0	37.5	12.7
Apr. ....	.....	40.0	41.4	15.1
May .....	.....	40.2	47.5	20.9
June .....	.....	37.2	46.3	30.6
July .....	.....	35.2	28.4	42.4
Aug. ....	.....	40.7	24.5	42.8
Sept. ....	.....	42.5	21.5	36.4
Oct. ....	.....	45.8	22.1	31.8
Nov. ....	.....	49.5	22.8	26.2
Dec. ....	.....	49.0	23.7	27.9

<sup>1</sup>Based on capacity of 49,777,893 gross tons, Dec. 31, 1935; <sup>2</sup>capacity of 50,845,741 gross tons, Dec. 31, 1934; <sup>3</sup>capacity of 50,975,561 tons, Dec. 31, 1933; <sup>4</sup>capacity of 50,313,975 tons, Dec. 31, 1932. Capacities by American Iron and Steel institute.

1 and Youngstown No. 4, Republic Steel Corp. In Pennsylvania: Duquesne No. 5 and Carrie No. 3, Carnegie-Illinois Steel Corp.; one Swede, Alan Wood Steel Co. In New York: Buffalo No. 1, Republic Steel Corp. In Illinois: South Works New No. 8, Carnegie-Illinois Steel Corp. In Maryland: Maryland C. Bethlehem Steel Co.

Stacks blowing out or banking during the month were: In Ohio: One Hubbard, Youngstown Sheet & Tube Co. In Pennsylvania: Cambria J, Bethlehem Steel Co.

With Virginia Iron, Coal & Coke Co. announcing dismantling of its Dora furnace, Pulaski, Va., total number of potential furnaces is reduced from 266 to 265. The Dora stack, last operated in 1920, was built in 1891-92 and had an annual capacity of 60,000 tons of foundry iron.



# Mirrors of

# Motor-dom

**N**OW that Chevrolet engineers have placed the final approval on the 1937 model, the entire program has passed a very definite stage. The Chevrolet for next year is now in the hands of the various production planning departments whose job it is to make preparations for changeover.

Though that moment may be some four, five, or even six months off, nonetheless all of the retooling necessary must make allowances for time. The change of models must be swift, yet efficient.

So, to a privileged few in Detroit, the chance has been given just the last week or so to see what this General Motors unit will have on the streets later this year.

Keeping the slate clean for at least one significant and progressive change a year, Chevrolet has uncovered a new selling point for 1937. This year it was hydraulic brakes, last year steel top, the predecessor of which was knee action, but next year it will be an entirely new motor.

The change will be to a novel modification of an L-head motor, away from the present valve-in-head design. It very definitely will have six cylinders, not eight as some would guess, and the power plant will accent economy.

## Will Ease Production Problems

At present, Chevrolet and its overhead valve motor is quite alone in the low-priced field. Ford, Plymouth, Terraplane, Lafayette and Willys, to name those most closely associated in price, are all valve-at-side power plants, or L-head as they are often spoken of.

In fact you have to travel up the price scale through Pontiac, the Nash 6, Dodge, Studebaker, Hudson, Olds, Auburn, Graham and Hupp until you arrive at the Buick "40" before you find another car with overhead valve.

The Nash 8, the rest of the Buick

lines, and the Cadillac 12 and 16, (but not the 8) are the only other compatriots of the present Chevrolet valve design. All the rest in motor-dom are L-head.

From a manufacturing standpoint, this change to come for Chevrolet will solve many a production manager's headaches. It will eliminate such delicately-made parts as push-rods and rocker arms, the corresponding parts of which on an L-head motor are simpler as a rule, and will obviate a special lubricating system.

From a cost standpoint, the new motor will mean a saving, which according to a conservative estimate made to this department by a reliable motor authority last week, will be at least \$5 per car.

Finally, from the public's standpoint, the promise Chevrolet is making of a variation to the L-head power plant that will mean a decided economy to the driver, should be a big benefit.

## Other Changes Pending

Along with the change are others in the overall design of the motor. The Chevrolet program at Flint has been an outstanding one in a retooling market still generally inactive in Detroit.

Presumably, the present 3 5/16-inch bore and 4-inch stroke will be altered slightly. In this connection, observers point to the change in bore and stroke made by sister Pontiac this year, and say this was a forerunner for Chevrolet. Incidentally, the particular modification of L-head may be also adopted for Pontiac.

Of other Chevrolet changes, inquiries are out in a purposely disjointed manner, obviously to insure secrecy. Nonetheless, the past week stamping shops have been invited to submit figures on such items as the running boards (which are much narrower), frame cross members and other parts. Another item on which some shops have blueprints is the frame and fender cross braces. The

hydraulic brake assembly will be enlarged and strengthened considerably.

Fisher Body is doing most of the new die work for the Chevrolet body panels in its own shops, much to the disappointment of tool and diers on the outside. Another thing to make this trade downcast is the rapidly rising Grand Rapids plant. Soon, it may nearly make General Motors self sustaining on dies, stampings and most parts.

In tool and die circles there are rumblings of some labor uneasiness. It has not reached a strike threat stage, but the embers are smoldering. This time it is not recognition, it is work.

This trade was promised a big sheaf of orders for March 1, then delayed until March 15, April 1, and now the latest promise is "somewhere around April 15."

The reason shops have not had the business is a combination of two facts: Assemblies on 1936 cars are going great guns again, and only the farsighted are thinking of this fall; some like General Motors with its Fisher Body subsidiary are doing a lot of work internally.

## Revising Schedules Upward

Of labor troubles, General Motors hears nary a peep within its own four walls. The \$5,000,000 Christmas bonus of \$25 for each man turned out to be the cheapest kind of insurance.

So much for behind the scenes at Chevrolet. Its assembly schedule for April, revised upward from an original 110,000 thirty days ago, now stands at 125,000-130,000, with 140,000 the goal, though the former spread is more reasonable. It made its 500,000th car of the 1936 lines a week or so ago, and wants to hit a million before the changeover. Yet, it wouldn't be disappointed with 900,000 of the 1936 edition.

With Chevrolet down for, say, 125,000 in April, Ford is a close second at 120,000 and Chrysler Corp. has set

a goal of 112,000 for its four makes for the month. Add those three together and you have 357,000 cars—and that, even though it should be 80 per cent of the total, excludes such as Studebaker, Hudson, Nash and Packard.

Thus, on the assumption that the last four independents and their smaller brethren realize as much as 20 per cent of April's production, it is within the realm of possibility that the total for the month would be 490,000 automobiles.

An 80 per cent figure of the total for combined General Motors, Ford and Chrysler total was used because this was the share garnered in February—last month on which final figures are available. Perhaps it may be a bigger wedge out of the total in April—if it is, obviously the industry's total will be slightly modified.

But, as some in Detroit reckon, if 490,000 cars in April is so clearly a possibility, good weather and consequently booming retail sales, may well push the assembly total to over the half-million mark. For one month's production, this is a record since early 1929.

### 30,000 Tons of Steel Daily

As it is, virtually all of the motor plants here are working a full five-day week and most have two and occasionally three shifts on. April, for its 22 full working days, should set the high for this spring.

Say that 500,000 cars are touched this month, divide this figure by 22 and you have 22,500 cars a day rolling off all the lines here in Detroit. Translated into steel, that means a consuming group that is working up better than 30,000 tons of finished steel a day.

And speaking of steel brings to mind these days discussion of the new method of pricing the steel producers have had in official effect since last Wednesday, April 1. By and large, the reception by the automobile purchasing agents is favorable.

True, in some cases even the largest concession for quantity will represent around a \$2 a ton advance from some of the cut prices in effect in the first quarter. But the reassuring factor that has won over steel buyers here is that they will know what price their competitors are paying.

Detroit has often heard the story that automobile purchasing agents are not so much interested in chiseling prices as they are in knowing that their competitors are not beating them to it on material costs.

Some opposition to steel's new quantity-pricing method is voiced from the smaller users. Take one typical case in this city, a small

stamper using strip steel. It uses from four to five carloads a week, but it schedules its inbound shipments of strip so that the steel is unloaded right off the freight car and taken directly into the press.

Its four or five carloads weekly consequently arrive at carefully predetermined intervals and thereby this shop saves double handling of the steel, storage charges and other costs. Yet, under the new plan, though it may use 150 tons weekly, concessions are only for "one shipment at one time." Its only comeback seems to be to requisition five cars of strip at once and pay demurrage.

### Flood Backwash in Detroit

There was a heavy volume of orders for sheets, bars, and strip placed by buyers here on the mills' books up until last Tuesday, which marked the end of the first quarter. Deliveries will now string out over the month of April, doubtless beyond the 15th of the month, for it would be impossible to make all deliveries by the middle of next week.

Incidentally, the eastern floods had their repercussions in Detroit. Several steel buyers and auto traffic managers in the motor plants here made hurry-up airplane trips to the Pittsburgh district to get reassurances on deliveries. It was particularly important to them in such items as steel for auto hardware, etc., where the mills had set up special rolls and new sources could not be found overnight as they might have been in sheets.

Another backwash has been the return of hundreds of new automobiles to Detroit factories the past week, all of these models having been under water in dealer's showrooms. Some flooded dealers knocked \$100

and \$150 off brand new cars on the spot in a quick effort to clear the decks, but the factory in most cases has preferred to get the damaged goods back for entire overhauling.

### Parts Divisions Humming

At Ford, a more liberal view is being taken on some parts' inventory items. The assembly lines are running five days, and one day last week they accounted for better than 5070 jobs, but some divisions tributary to the assembly lines are humming at even a faster clip.

The Flat Rock lamp division, for example, has been turning out parts at a pace for 6000-car days, and so has the hub cap unit. In general, Ford likes to hold to a 20-day bank on parts, but this policy is seemingly being relaxed.

On such material as cold-rolled sheets it has been necessary to liberalize. Under today's conditions, many mills cannot enter an order today and have this type of finished steel shipped in three weeks.

Most of the investigation at Ford's purchasing division regarding steel purchases made out of warehouse seems to have quieted down. Several weeks ago the subject was being surveyed in all its details, especially from the angle that too much jobbing material in relation to mill shipments was being received.

Contrary to a report in these columns March 9, Ford specifications meet the requirements of either Ford or Lincoln Zephyr production wherever the parts are used interchangeably. Some erroneous report had been circulated that certain inspection at Lincoln had reverted to a change in Ford specifications.

At Chrysler the 112,000-car schedule for April is an ambitious one, for it roughly doubles the February assembly record and is a 30 per cent increase over March. Of course, the largest share will be Plymouths, probably 60,000. Dodge may account for 35,000, and the 17,000-car balance will be distributed between Chrysler and DeSoto.

Chrysler views the coming months with extreme bullishness, one indication of which is a contemplated plant expansion program that, running into seven figures, had been tentatively set down to start July 15.

Last week the expansion had been sidetracked until at least mid-August, so it looks as though their appraisal of the early summer market is one for steady assemblies.

### UNEMPLOYMENT INCREASES

National Industrial Conference board, New York, estimates unemployment in February at 9,848,000, an increase of 48,000 over January, but a decrease of 324,000 from February, 1935.

## Automobile Production

Passenger Cars and Trucks—U. S. Only  
By Department of Commerce

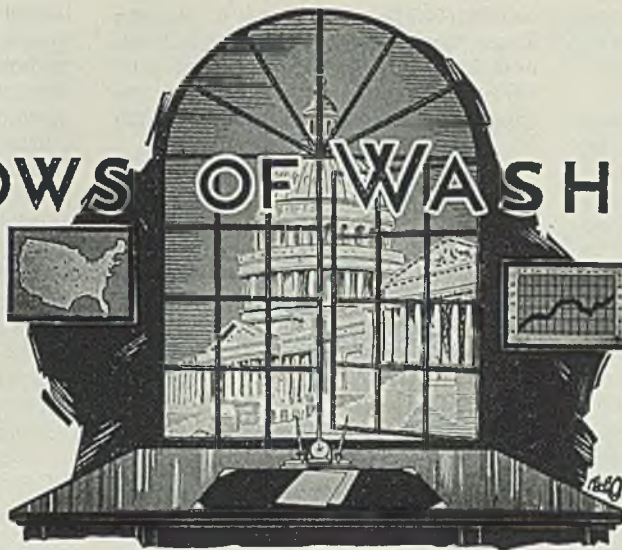
	1934	1935	1936
Jan. ....	155,666	292,785	367,252
Feb. ....	230,256	335,667	290,964
Mar. ....	338,434	429,793	*400,000
3 mo. ....	724,356	1,058,245	1,058,216
Apr. ....	352,975	477,691	.....
May ....	330,455	364,662	.....
June ....	306,477	361,248	.....
July ....	264,933	336,985	.....
Aug. ....	234,811	239,994	.....
Sept. ....	170,007	89,804	.....
Oct. ....	131,991	275,024	.....
Nov. ....	83,482	398,039	.....
Dec. ....	153,624	407,804	.....
Year .....	2,753,111	4,009,496	.....

\*Estimated.

Estimated by Cram's Reports

Week ended:	
March 21 .....	95,223
March 28 .....	98,415
April 4 .....	108,426

# WINDOWS OF WASHINGTON



## WASHINGTON

**T**HE NRA—as such—passed out of the picture on April 1, but as pointed out in these columns last week the President by executive order created a committee for industrial analysis consisting of the secretaries of commerce, labor, and agriculture.

As the Blue Eagle organization passed out of existence 800 employes automatically lost their jobs, and did they raise a fuss! The NRA lodge of the A. F. of L. of government employes did everything it could to have these employes held in government service in some way or other.

Eventually it is expected that some of them will get their jobs back, working for the new division of industrial economics which will come directly under the three secretaries mentioned above. The great trouble, and that about which the union is so disturbed, is the fact that these employes will have to work on a security wage of \$55 a month—because the \$100,000 for this purpose was taken by the President from PWA funds. Effort is now being made to see if this security wage cannot be excepted in this case.

### Everyone Wants To Be Boss

There is considerable ill feeling about the continuance of this NRA work on Capitol Hill, where some of those who have opposed NRA all along have called attention to the fact that congressional action “killed” NRA on April 1 and to all intents and purposes the President extended its life by resorting to an executive order.

There are a lot of interesting stories about this executive order. Secretary Roper wanted to do away with this work, but when he saw the cards were stacked against him he is said to have worn a path between the department of commerce and the White House so that what is left of

the organization would stay under his control.

Madame Perkins peeped out her window and saw what was going on. There are said to be some interesting labor statistics in the NRA files, so she wanted to get her hand in the pie—and she did.

Just how Secretary Wallace got into the picture no one seems to know, but he may have been put on the new committee as a balance wheel between commerce and labor.

Anyhow, they are all on the committee, which had a preliminary meeting this week just to keep things going and appointed Dr. Leon C. Marshall chief of the new division, with C. R. Chambers assistant chief. About 50 employes of NRA were taken over with the new committee, the purpose of which is to study the accomplishments of the NRA. The committee of secretaries will have its next meeting on April 10, when a more definite program will be sought.

### BERRY BECOMES FAIR-HAIRED BOY OF ADMINISTRATION

Maj. George L. Berry, co-ordinator for industrial co-operation, had a fight with “Uncle Dan” Roper, secretary of commerce, regarding the continued existence of the council for industrial progress, and the former won out hands down when President Roosevelt stopped long enough on his fishing trip to extend Major Berry and his lieutenants in office for another year from April 1.

There is no discounting the fact that this is a great blow to Secretary Roper, because he and his assistants were determined to exterminate this office—if possible.

It is one of the mysteries of this administration where Major Berry gets his apparent “pull” with the President, but he has it. Even those close to the President profess not to know how it comes about.

In an executive order which the

President issued last week he continues the work of Major Berry in seeking greater avenues of employment for the jobless throughout the country.

In his order the Chief Executive says Major Berry is “to arrange for and supervise, subject to the direction of the President, conferences of representatives of industry, investors, labor and consumers for consideration of means of supplementing the government's efforts by providing employment for the greatest number of employable persons and of improving and maintaining industrial, commercial and labor standards as they affect employment, and to submit reports and recommendations to the President with respect thereto.”

### “Amazing” Accomplishments

In view of the fact that Major Berry has not had any luck at all getting any large industries to co-operate with him, much interest attaches to this latest step of the President, especially in view of the fact that Major Berry cannot hope to help the unemployment situation without the active backing of big business. Anyhow, the major is very optimistic about it all.

“The council will be particularly pleased,” said Major Berry on hearing that his term had been extended for another year, “that the President has made known to the country in this manner his satisfaction with the amazing accomplishments of its brief existence.”

The major said also that “in its declaration of national industrial policy adopted by unanimous vote of industry, management and labor, the council has recorded its belief that limitation of production is unwise, except in emergencies; that purchasing power should be increased by some control over hours and wages; that unfair competitive practices should be curbed; and that there

should be a continuing study of the national income as it affects industry and the prevention of unemployment."

In this statement it is interesting to note that Major Berry speaks of the "unanimous vote of industry." The fact of the matter is, as pointed out several times, that industry as such is not even represented on the council.

#### DEMANDS STEEL BE MADE WITH GUFFEY COAL—OR ELSE!

Washington representatives of steel interests have had their attention called, for the first time, to a provision of a government contract asking for bids affecting the steel industry, wherein the contractor must agree to purchase his coal from mines which are co-operating with the bituminous coal commission. Mention has been made in these columns several times of the possibility of just such a provision.

Bids are to be received on April 13 by the reclamation bureau at Denver for welded plate steel outlet pipes and there is a provision in the specifications on the question of the purchase of coal reading as follows:

"In accordance with the provisions of section 14(b) of the bituminous coal conservation act of 1935 the contractor agrees that he will buy no bituminous coal to use on or in the carrying out of this contract from any producer except such producer be a member of the bituminous coal code set out in accordance with section 4 of said act as certified to by the national bituminous coal commission."

Up to the time this is written, no protest has been lodged with the government by any steel company against this provision, although it is quite likely to keep some steel firms from bidding.

#### TAX MATTERS UNSETTLED, BUT HERE ARE FACTS TO DATE

There seems to be considerable misunderstanding throughout the country relative to the tax program that has been worked out up to this time, and, believe it or not, there is considerable misunderstanding right in congress itself and, carrying it further back, right in the ways and means committee itself—not only as between Democrats and Republicans but among the majority party itself.

The program up to this time is not a tax bill. It is in the form of suggestions made by a subcommittee of the ways and means committee to the full membership of that committee. No bill has been drawn to this time. It will be at the conclusion of the present hearings.

The hearings are being held in connection with the suggestions of the subcommittee so that witnesses will at least have something to shoot at.

The recommendations of the sub-

committee are with respect to the taxation of undistributed income of corporations, elimination of the present corporation tax, termination of the capital stock tax and excess profits tax and related matters.

The subcommittee recommended that there be substituted for the present graduated corporation tax a tax on the income of corporations graduated according to the percentage of their income which is undistributed.

The corporations are divided into two classes on the basis of their net income.

In the case of corporations with adjusted net income of \$10,000 or less—if there is no undistributed net income, there shall be no tax on the adjusted net income.

If the undistributed net income is 10 per cent of the adjusted net income the rate of tax on the adjusted net income shall be 1 per cent.

For 20 per cent the rate shall be  $3\frac{1}{2}$  per cent; if 30 per cent the rate will be  $7\frac{1}{2}$  per cent; if 40 per cent the rate shall be 13 per cent; if 50 per cent the rate will be  $18\frac{1}{2}$  per cent; if 60 per cent the rate will be 24 per cent; if 70 per cent the rate shall be  $29\frac{1}{2}$  per cent; and if 70.3 per cent the rate shall be 29.7 per cent.

#### Higher Rates on Others

For corporations with adjusted net incomes of more than \$10,000—if there is no undistributed net income, there shall be no tax of the adjusted net income. If the undistributed net income is 10 per cent of the adjusted net income, the rate of tax on the adjusted net income shall be 4 per cent; if it is 20 per cent the rate shall be 9 per cent; if 30 per cent the rate shall be 15 per cent; if 40 per cent the rate shall be 25 per cent; if 50 per cent the rate shall be 35 per cent; if  $57\frac{1}{2}$  per cent the rate shall be  $42\frac{1}{2}$  per cent.

Hearings were held all of last week, and many business interests took a crack at the various taxes proposed by the subcommittee. It was indicated last week that the hearings would probably be completed by April 6 or certainly shortly thereafter. Following that the full committee will go into executive session and write the new tax bill.

Guy T. Helvering, commissioner of internal revenue, appearing before the ways and means committee last week said that "it must be said that as far as we have been able to make the calculations based upon the proposals of the subcommittee, it appears that they will not fully cover the needs for additional revenue set forth in the President's message."

The commissioner said that "there has been considerable discussion about the necessity for the accumu-

lation of corporate reserves and surpluses; and a great deal of misapprehension has arisen respecting the effects of the subcommittee's proposal in this connection."

The witness called attention to the fact that the proposal involves no new corporate taxation whatever with respect to existing surpluses. Also, the commissioner said that the proposal does not at all affect the provisions of present laws for the deduction of ordinary operating reserves, such as those for depreciation, depletion, obsolescence, bad debts, and the like, from taxable income. All such reserve allowances will be deductible as at present from the taxable incomes of corporations.

Mr. Helvering said that "corporations that directly retain from current earnings more than 40 per cent in the case of smaller corporations and more than 30 per cent in the case of larger corporations would pay higher taxes under the subcommittee's proposal than they pay under the present law. These higher rates for corporations withholding a very large proportion of their current earnings are necessary both in the interest of fairness and to compensate the federal government for the loss in surtax revenues that results from such retention."

## Died:

**G**EORGE BARTOL, 79, vice president and director of the Otis Steel Co., Cleveland, in Cleveland, April 3. Mr. Bartol was born in Lancaster, Mass., and after graduating from Massachusetts Institute of Technology, he went to Cleveland in 1879, starting with the Otis company as a chemist. In 1897, six years after two-thirds of the Otis stock had been sold to a British syndicate, he was made manager in America and the following year president of the company. In 1925, when E. J. Kulas was elected president, he was made vice president.

◆ ◆ ◆  
C. G. Emil Larsson, 71, prominent bridge engineer and for many years affiliated with the American Bridge Co., Pittsburgh, in Winter Haven, Fla., April 1. Born in Sweden, Mr. Larsson studied engineering there before coming to the United States. He became associated with the Edgemore Bridge Works, Wilmington, Del., which subsequently was merged with the American Bridge Co. He remained with this organization until 1933, acting successively as division engineer, assistant chief engineer and consulting engineer.

◆ ◆ ◆  
Edward Wright Arms, 90, who was a pioneer in the development of the



automatic screw machine in Troy, N. Y., March 31. Mr. Arms was graduated from Rensselaer Polytechnic institute in 1869, and last June received an honorary degree of doctor of engineering from the institution for his development of precision instruments, among them the automatic screw machine.

♦ ♦ ♦  
 Edward W. Curtis, 74, president of the Curtis Machine Co., Jamestown, N. Y., in that city, March 27.

♦ ♦ ♦  
 J. Edwin Swanson, 60, chief estimator for the Jamestown Metal Corp., Jamestown, N. Y., in Jamestown, recently.

♦ ♦ ♦  
 Charles A. Bertsch, 84, president and founder of Bertsch & Co., machinery manufacturer, Cambridge City, Ind., March 25.

♦ ♦ ♦  
 Walter L. Fay, 77, founder of the Fay & Bowen Engine Co., Geneva, N. Y., in that city, March 28, where for many years he had been engaged in boat manufacturing.

♦ ♦ ♦  
 Henry Diegel, 69, superintendent of foundries at the main works of the Allis-Chalmers Mfg. Co., Milwaukee, in Milwaukee, March 29. He entered the works in 1896 and was promoted to superintendent in 1916.

♦ ♦ ♦  
 Edward B. Miller, 77, retired president of the Akron Iron Works, Akron, O., in Fort Lauderdale, Fla., March 27. He had made his residence there since last November, when he retired from active business.

♦ ♦ ♦  
 Alexander H. Boyd, 61, electrical engineer who perfected several devices used in the electroplating of metals, in East Orange, N. J., March 28. At the time of his death he was New York manager for the Hanson-Van Winkle-Munning Co., Matawan, N. J., manufacturer of electroplating machinery. He was born in Montreal, Que., and as a young man entered the employ of the General Electric Co., Schenectady, N. Y., and was an executive in its Philadelphia branch for nearly 15 years. For several years he was a consulting engineer.

♦ ♦ ♦  
 Mrs. Pauline A. Farabaugh Schwab, 93, mother of Charles M. Schwab, chairman of the Bethlehem Steel Corp., at her home in Loretto, Pa., March 30. It was her great pride that during her lifetime, 70 years of which she spent in and near Loretto, she had seen one of her sons rise from a \$1-a-day stake driver to the presidency of the United States Steel Corp. and later the chairmanship of Bethlehem. Her husband died in 1924.

# Ries, McLain Win Medals

**D**IRECTORS of the American Foundrymen's association, acting on the recommendation of its board of awards, is granting the Joseph S. Seaman medal to Dr. Heinrich Ries, in recognition of his outstanding services to the foundry industry and to the association in the field of foundry sand research and control. To David McLain, it has awarded the J. H. Whiting medal, in recognition of his contributions to the foundry industry in stimulating better melting practices. The presentation of these medals will be made at the annual dinner of the association held during the 1936 convention in Detroit, May 5-9.

Doctor Ries, professor of geology and head of the department at Cornell university, Ithaca, N. Y., was one of the first to direct scientific attention to foundry sand, having presented before an A.F.A. meeting in 1905 a paper on this subject, written as a result of his findings in making a geological survey of the sands of Wisconsin. When the Engineering Research council, in 1920, organized the joint committee on sand research.

Ceramic society and of the Geologic Society of America.

Mr. McLain, president and founder of McLain's Systems Inc., Milwaukee, was born in Belfast, Ireland, and when five years old came to this country with his parents, settling in Pittsburgh. He obtained his first foundry experience when less than ten years old, twisting hay into



David McLain

ropes for core barrels. At the age of 15, he was a molder in the first successful steel foundry in this country, and after working in various steel foundries, became a foreman at 23, and had charge of the first bessemer converter steel foundry. From 1897 to 1900, Mr. McLain operated a crucible steel foundry in Milwaukee.

While superintendent for the Christensen Engineering Co., Milwaukee, now the National Brake & Electric Co., he completed his experiments on using large percentages of steel in cupola iron mixtures. From 1904 to 1908, while engaged in systematizing foundries, he conceived the idea of incorporating his melting experience in textbook form and he initiated McLain's Systems.

Through his educational work Mr. McLain has been instrumental in creating improved melting practice. Following the development of his course in iron foundry melting practice, he completed in 1910 his system of steel foundry practice, giving advice on making steel castings by the electric, converter, and open-hearth processes.

Mr. McLain is an honorary member of the Institute of British Foundrymen.



Dr. Heinrich Ries

he was called upon to aid in this co-operative work, and since that time has been a leader in the field, at the present time being technical director of the A.F.A. committee on foundry sand research.

He is an honorary member and a past director of the A.F.A., a member of the American Institute of Mining and Metallurgical Engineers, Canadian Mining institute, Ceramic Society of England, and a member and past president of the American

# Men of Industry

**J** K. BEESON, manager of manufacturers' products sales of Pittsburgh Steel Co., Pittsburgh, has been appointed assistant general superintendent of the company. He is a son of C. E. Beeson, vice president and treasurer, and has been associated with the company since 1929.

J. D. Case, who has been superintendent of the finishing department of the Monessen, Pa., works, has been made superintendent of the rod and wire mills, and will have charge of all finishing departments.

Andrew J. Snow has been appointed assistant manager of sales



Andrew J. Snow

at Washington for the Carnegie-Illinois Steel Corp., Pittsburgh. Mr. Snow has spent his entire business career with the company, graduating from Carnegie Institute of Technology in 1912, and having served in various capacities in the mills, in the general offices, and since June, 1931, as a salesman in the Washington office.

F. Hughes Moyer is now associated with the William M. Bailey Co., Pittsburgh, with special charge of the sale of the company's equipment in the Cleveland, Chicago, Detroit and Buffalo districts. Mr. Moyer has had a long service in the steel and machinery industries. He formerly had been affiliated with the Pittsburgh Crucible Steel Co. and United Alloy Steel Co.

E. T. Weir Jr. has been made district sales manager at Boston for the

Weirton Steel Co., Weirton, W. Va., succeeding R. B. Sanders, who has been transferred to Weirton as assistant general manager of sales in the sheet and tin plate division.

Mr. Weir had been serving in the New York office of the company for the past year, and prior to that was located in Philadelphia. Mr. Sanders has been in Boston the past year and previous to that was in the New York office for a number of years.

Claude M. Nelles, steel buyer for the Ford Motor Co., returned to his desk in the general offices of the Rouge plant in Dearborn, Mich., April 1, completely restored in health by an extended vacation.

George Lee Miller, vice president and works manager of the Diebold Safe & Lock Co., Canton, O., has resigned effective April 1. Mr. Miller will take several months' vacation, after which he will devote his time to research work in the further development of bullet-proof steel used for



H. G. Mullen

Newly appointed manager of the industrial department, Tide Water Oil Co., 17 Battery place, New York, as noted in STEEL for March 30. A native of Youngstown, O., he joined the Carnegie Steel Co., Pittsburgh, in 1906, working in the accounting department, and in 1908 was transferred to the ore dock division. He later joined Pickands, Mather & Co., Cleveland, and was engaged in the construction of by-product coke ovens and a blast furnace at Canton, O. In 1923 he joined the Tide Water Oil Sales Co. in a sales capacity, for a while serving in the export branch of the business, and in 1925 became general sales supervisor of industrial products for the Tide Water Oil Co.

armor plate. Over the past two years, Mr. Miller, in conjunction with the Republic Steel Corp., Cleveland, and the army ordnance department at Washington, has developed a successful thin armor plate for the new high-speed army tanks. He plans to continue work on further development of this type of plate.

F. C. Crawford has been re-elected president of Thompson Products Inc., Cleveland. Other officers re-elected include L. M. Clegg, vice president; W. M. Albaugh, secretary-treasurer, and W. E. Close, assistant secretary-treasurer. Messrs. Crawford, Clegg, Albaugh, J. L. Deegan, S. W. Emerson, E. A. Hahn, F. H. Ginn, J. A. Krider, S. L. Mather and R. V. Mitchell have been re-elected directors of the company.

W. V. Peters, formerly district sales manager at Cleveland for the Truscon Steel Co., Youngstown, O., has been made manager of Truscon's steel window and door department.

Entering the employ of Truscon 17 years ago, Mr. Peters' first duties were as sash salesman in the Cleveland office. Following this, he was promoted to the post of manager of the steel sash and door department of the Detroit district sales office. He was then, successively, special representative in the East, with headquarters in Philadelphia, and district sales manager of the Cleveland office, where he remained for over four years, or until his promotion to his present position.

E. L. Solomon, Max Solomon Co., Pittsburgh, chairman of the arbitration committee of the Institute of Scrap Iron and Steel Inc., New York, has appointed the following to his committee:

M. Levenson, Roxbury Iron & Metal Co., Dorchester, Mass.; Arthur Price, Price-Watson Co., Chicago; Mose Duberstein, Duberstein Iron & Metal Co., Dayton, O.; D. Holub, Holub Iron & Steel Co., Akron, O.; Joseph Maher, Pennsylvania Wood & Iron Co., Buffalo; H. Lenick, E. Lenick & Co., Saginaw, Mich.; A. J. Reichman, Reichman & Hoffman Bros., Newark, N. J.; Tom Allen, Continental Iron & Steel Corp., New York; T. Bantivoglio, Camden Iron & Metal Co., Camden, N. J.; T. Rosenthal, Eastern Iron & Metal Co. Ltd., Los Angeles; M. W. Singer, M. W. Singer & Co., Pittsburgh; Alvin Wolff, Wolff Pipe & Iron Co., St. Louis; M. Breman, Breman Iron & Metal Co., Atlanta, Ga.

George L. Erwin Jr., for nine years sales manager of the Kearney & Trecker Corp., Milwaukee, manufacturer of milling machines, resigned April 1 to accept an executive position in Chicago. The name of his new connection will be announced shortly.

Mr. Erwin joined Kearney & Trecker as a salesman 14 years ago, and was advertising manager before taking charge of sales in 1927.

Walter B. Rogers has become associated with Egan-Webster & Co. Inc., Pittsburgh, maker of refractory clays.

C. S. Roberts, for 16 years associated with the Bethlehem Steel Co. at Chicago in a sales capacity, has opened a sales agency with headquarters at room 1008, 7 South Dearborn street, Chicago. Mr. Roberts has specialized in sales engineering and promotional work in building



**John C. Miller**

Appointed manager of sales of the aeronautical section of the industrial department of General Electric Co., Schenectady, N. Y., as reported in STEEL for March 16

products and will engage as manufacturers' representative.

B. F. Mercer is now affiliated with the Pittsburgh Steel Foundry Corp., Glassport, Pa., in the sale of steel castings in the Pittsburgh district. Mr. Mercer was formerly with the National-Erie Corp., Erie, Pa.

John P. Moran has been appointed Chicago sales manager for the Wilson & Bennett Mfg. Co., manufacturer of steel pails, drums and barrels, with factories and offices in Chicago, Jersey City, N. J., and New Orleans. Mr. Moran has been associated with the company for nine years and is especially well known in the Chicago area, and in addition to his new duties, will also assist in directing sales activities in some other territories.

Grant S. Smith, formerly vice

president in charge of sales of the National Steel Barrel Co., Cleveland, has been made manager of sales of food container drums for the company.

Athel F. Denham, for many years associated with the Chilton Co., Philadelphia, publisher of business papers, has organized Denham Co., with offices in the Book building, Detroit. The organization is set up to provide assistance to manufacturers on problems of market analysis, development of sales plans, industrial and trade advertising, literature and sales helps, consumer research as applied to the industrial and trade fields, and publicity.

George A. Neesham, assistant treasurer and purchasing agent of the Wyckoff Drawn Steel Co., Chicago, has been elected vice president of district No. 3 of the National Association of Purchasing Agents. For the past year Mr. Neesham was national director of the association and previously served as president of the Chicago branch. He is also a vice president of the Illinois Manufacturers' Cost association and is instructor in purchasing at De Paul university, Chicago.

Eugene P. Thomas has been elected president of the newly-formed National Foreign Trade association, which



**C. J. Duby**

Who will preside as general secretary at the spring engineering conference of the Association of Iron and Steel Engineers, Empire building, Pittsburgh, which is to be held in Youngstown, O., April 22 and 23. Seven papers are to be presented at this meeting, and on Thursday afternoon at the conclusion of the two-day session, an inspection trip will be made to the new continuous mill of the Carnegie-Illinois Steel Corp., McDonald, O.

will co-operate with the National Foreign Trade council, 1 Hanover square, New York, and the American Manufacturers Export association. Mr. Thomas has been a member of the National Foreign Trade council since it was organized in 1914, and in 1932, was elected president. He has been identified with the foreign trade of the United States Steel Corp. for 30 years. He was president of the United States Steel Products Co. from 1911 to 1928, when he became vice president of the Corporation in charge of sales.

L. J. Borinsteln, of A. Borinsteln, Indianapolis, chairman of the legis-



**Ernest F. Fisher**

Who as noted in STEEL for March 23, has been appointed superintendent and assistant manager of Illinois Foundry Co., Springfield, Ill.

lative committee of the Institute of Scrap Iron and Steel Inc., New York, has appointed the following to the committee:

Joseph V. Kiley, of T. J. Kiley & Son, Boston; M. Zalk, of Duluth Iron & Metal Co., Duluth; Harry Goldberg, of Goldberg Iron & Steel Co., Columbus, O.; Louis Miller, of Columbia Iron & Metal Co., Cleveland; Saul Frankel, of Rochester Iron & Metal Co., Rochester, N. Y.; W. E. Ceeley, of Simon Iron & Steel Corp., Lansing, Mich.; James J. Brady, of Federal Iron & Metal Co., Newark, N. J.; Harris Piestal, of Grace Iron & Steel Corp., Brooklyn, N. Y.; Lewis Raphaelson, of Wilmington, Del.; O. Goldblatt, of R. Rosenberg & Sons, Sacramento, Calif.; H. N. Trimble, of H. N. Trimble Co., Pittsburgh; J. S. Schapiro, of United Iron & Metal Co., Baltimore; C. C. Cohen, of I. J. Cohen & Son, Kansas City, Kans.; Charles Temerson, of Charles Temerson & Sons, Tuscaloosa, Ala.

# Activities of Steel Users and Makers

**VIRGINIA BRIDGE CO.** is the new name adopted by the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., for its new subsidiary which formerly was the Virginia Bridge & Iron Co., at Roanoke, Va. The Virginia company will be operated, with very few exceptions, by officials formerly in charge of it.

California Chemical Co., 220 Bush street, San Francisco, has taken over the Red Mountain magnesite mine at Patterson, Calif.

Vanadium Corp. of America, New York, has moved its offices in that city from 120 Broadway to 420 Lexington avenue.

Van Auken-Ragland Inc., Madison, Canal and Washington streets, Chicago, advertising agency, will move into larger quarters May 1 in the Twenty North Wacker building.

F. L. Jacobs Co., Detroit, automobile accessories and parts manufacturer, has purchased the business of Anderson Mfg. Co., Cambridge, Mass., also a maker of accessories and parts for the automotive industry.

Fate-Root-Heath Co., Plymouth, O., has booked an order for two 70-ton double unit propane electric Plymouth locomotives, one for the La-Salle & Bureau County railroad, La-Salle, Ill., and one for the Joplin-Pittsburg railroad, Pittsburg, Kans.

Hoover Steel Ball Co., Ann Arbor, Mich., has changed its corporate name to Hoover Ball & Bearing Co. The change was made so that the firm's name shall be in keeping with and more descriptive of the products manufactured. Management, personnel, financial structure and policies remain the same as before.

Cooper-Bessemer Corp., Mt. Vernon, O., has been awarded a contract by the Panhandle Eastern Pipeline Co., Kansas City, Mo., for 14 twin-tandem gas-engine-driven compressor units. Largest order since 1930 for equipment of this kind, it calls for twelve 1300 horsepower units, and two 1000 horsepower units. The engines will pump natural gas from the Texas panhandle to the city of Detroit.

The Panhandle, one of the longest natural-gas pipe lines in the world, was built in 1930, and equipped with Cooper-Bessemer engines and compressors. The present system extends a distance of 1350 miles between western Texas and a point north of Indianapolis. This natural-

gas carrier will supply the new line being laid by the Columbia Gas & Electric Co. from eastern Indiana to Detroit.

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Pratt Industries Inc. has taken over the entire business of the Pratt Chuck Co., Frankfort, N. Y., and will operate from the same offices and plant. Winthrop T. Scarritt is president and treasurer of the new organization; George Sicard, vice president and director of sales; Alexander Pirnie, secretary. The Pratt Chuck Co., well-known in the production of electrical goods, automobile mufflers, chucks, and stampings, went into receivership in September, 1932, and continued operations until the present reorganization, which provides for ample financing, extension of plant operations, and additional products.

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Timken Roller Bearing Co., Canton, O., and the United Engineering & Foundry Co., Pittsburgh, together have produced two new 16 millimeter sound-film moving pictures that are now available for public showing.

One film is of the new 43-inch 4-high hot continuous strip mill of the Carnegie-Illinois Steel Corp. at Youngstown, O. The projection time of this film is about 11 minutes.

The other film is of the new 56-inch 4-high hot and cold strip mills of the Ford Motor Co., Dearborn, Mich. This film covers the operations of the blooming mill, the 4-high hot strip mill, and 3-stand tandem cold strip mill, and the 2-high roller bearing planishing mills.

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George A. Fernley and his associates—H. R. Rinehart, P. F. Hord, G. W. Eckhardt and T. A. Fernley Jr.—have issued a handsomely illustrated brochure commemorating fifty years of association work. It was on March 6, 1886, that the late T. James Fernley was elected secretary-treasurer of the Hardware Merchants' and Manufacturers' association of Philadelphia. With the management and direction of trade associations, which has risen to the status of a profession, the name of Fernley has since been associated. Present headquarters are at 505 Arch street, Philadelphia.

According to the brochure, the fundamental objectives of a well-managed trade association are: Increased profits for members; correction of basic trade evils, attention being concentrated on those which tend to minimize profits; improved competitive relations among members of the industry; stabilization of conditions and protection of markets; improvement of relations with sources of supply and consuming markets; service to individual members, especially of the type that will assist them with their particular problems.

# Convention Calendar

**April 13-17**—American Chemical Society. Semiannual convention in Kansas City, Mo. Dr. Charles L. Parsons, 723 Mills building, Washington, is secretary.

**April 14-18**—Oil Burner Institute Inc. Twelfth national convention at Statler hotel, and show at Convention Hall, Detroit. G. Harvey Porter, 30 Rockefeller Plaza, New York, is managing director.

**April 16**—National Council of American Shipbuilders. Annual convention at Whitehall club, New York. C. C. Knerr, 11 Broadway, New York, is secretary.

**April 16-17**—American Management association. Annual conference of production divisions at Hotel Statler, Cleveland. Alvin E. Dodd, 330 West Forty-second street, New York, is executive vice president.

**April 16-17**—American Institute of Mining and Metallurgical Engineers. Meeting of open-hearth committee at Hotel Statler, Detroit. L. F. Reinartz, works manager, American Rolling Mill Co., Middletown, O., is chairman.

**April 18**—Spring Manufacturers association. Annual convention at Hotel Commodore, New York. L. A. Wheeler, 4 School street, Bristol, Conn., is secretary.

**April 20-21**—American Gear Manufacturers association. Twentieth annual convention at Adelphia hotel, Philadelphia. J. C. McQuiston, Penn Lincoln hotel, Wilkinsburg, Pa., is manager-secretary.

**April 20-21**—American Zinc institute. Eighteenth annual meeting at Hotel Statler, St. Louis. Ernest V. Gent, 60 East Forty-second street, New York, is secretary.

**April 20-22**—Concrete Reinforcing Steel institute. Twelfth annual meeting at Homestead hotel, Hot Springs, Va. W. S. Thomson, 201 North Wells street, Chicago, is secretary.

**April 20-23**—American Hardware Manufacturers association. Convention at Hotel Peabody, Memphis, Tenn. Charles F. Rockwell, 342 Madison avenue, New York, is secretary.

**April 20-24**—Midwest Power Engineering conference and Midwest Engineering and Power exposition. Conference at Palmer House, exposition at International Amphitheatre, Chicago. G. E. Pfisterer, 303 West Washington street, Chicago, is secretary.

**April 21**—American Society for Metals. Annual tri-chapter meeting of Cincinnati, Columbus and Dayton chapters at Alms hotel, Cincinnati. Kurt Siems, Cincinnati Milling Machine Co., Cincinnati, is secretary of the Cincinnati chapter.

**April 22-23**—Association of Iron and Steel Electrical Engineers. Spring engineering conference at Ohio hotel, Youngstown, O., under auspices of combustion engineering division. Brent Wiley, 1010 Empire building, Pittsburgh, is managing director.

**April 22-23**—National Metal Trades association. Thirty-eighth annual convention at Waldorf-Astoria hotel, New York. Harry S. Flynn, 122 South Michigan avenue, Chicago, is secretary.

**April 27-30**—Chamber of Commerce of the United States. Annual meeting in Washington. D. A. Skinner, 1615 H street, N. W., is secretary.

# Editorial

## Protecting Incompetency Does Not Help Small Business

**A**NYONE who spends much time in Washington soon arrives at the conclusion that many senators and representatives, to say nothing of numerous advisers to the President, are thoroughly convinced that they are doing a real service to this nation when they wage war against industry, capitalists, bankers, public utilities, employers and anything that represents bigness or power.

After one has talked with government people of this type, he instinctively divides them into two classes. First are the political racketeers, who, realizing that damning the powerful, big and rich is profitable from a vote getting standpoint, frankly are making the most of the situation. Second are the sincere, conscientious individuals, of whom Senator Borah is a good example, who believe that they are assisting the weak, oppressed and unfortunate to a better break in life.

Strangely enough, both groups have one common weakness. They do not know enough about business—even small business—to be able to understand the effect of much of the legislation which they sponsor or support.

### Undue Protection Against Competition Abets Incompetence and Injures All Consumers

Recently a senator, whose sincerity in working on behalf of the small business man is not questioned by anyone who knows him intimately, was discussing pending anti-business legislation before a group of visitors. He pictured the plight of small companies, and while he spoke in terms of small, local merchants, he intimated that his remarks would apply also to owners of small industrial enterprises.

He told a pitiful story about the manner in which the independent grocer, hardware store owner, drug store operator, etc., is ground down by the powerful competition of chain stores and mail order houses. By inference, he intimated that the small industrialist likewise is subject to comparable acts of oppression at the hands of powerful, arrogant industrial corporations. It was plain that he considers himself a champion of the rights of the little fellow.

But throughout the interview it was plain that this senator possessed only a rudimentary knowledge of the basic principles of business. In his zeal to protect the weak and to punish the

strong, he is in danger of injuring both, with no compensating benefits to either, because he does not know enough about business to appreciate how the laws he favors will react. While he does not realize it, his beliefs are based upon the dangerous principle that the inefficient, shiftless and totally unfit outfit in commerce or industry should be protected. If he had his way, the rules would be changed so that the standards of eligibility—the requirements for surviving the ordeal of competition—would be lowered to the level of incompetency.

### Champions of Small Business Should Obtain Impartial Facts for Constructive Use

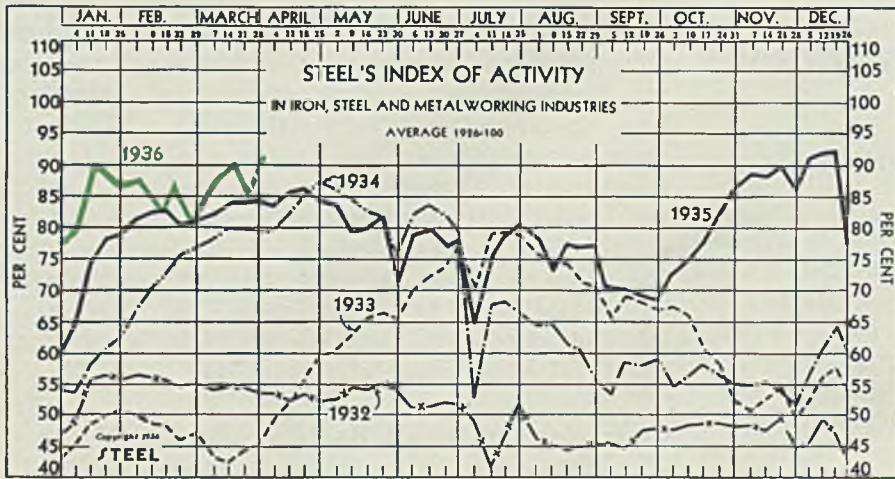
It happens that this senator also considers himself as a great champion of the common people, which should mean that he is sympathetic to the interests of consumers. Yet apparently it has not occurred to him that the two roles are not consistent. On one hand, he believes that anyone able to scrape together several hundred dollars should be permitted to start in business, and that federal laws should protect him from the competition offered by chain stores or other efficient operators. In the same breath, he declares that the man in the street—the consumer—is entitled to lower prices than prevail today. That the protection of inefficiency means higher prices to the consumer is overlooked.

Unfortunately, there are too many men of this type in Washington. Their influence is reflected in the tax proposal, which would discredit thrift and prudence in the handling of company finances. It is apparent in the Wheeler anti-basing point bill, which while aimed at the big corporations, really would play havoc with the small, independent producers. It is also reflected in senate bill 3154, which is intended to prevent price discrimination in favor of chain stores, but which would encourage incompetency.

Of course, legislators really could obtain valuable information from merchants, industrialists and others if such information were sought honestly and sincerely. However, in many of the hearings, and particularly in Senator Wheeler's technique of questioning, the impression is given that many of the people's representatives in congress want to hear only their side of the argument. They prefer to remain in blissful ignorance of the facts.

We believe that the honest, efficient operators of small enterprises in commerce and industry need and deserve better representation in Washington. To date, many congressmen who loudly proclaim their sympathies for the little fellow have done him more harm than good.

# THE BUSINESS TREND



STEEL'S index of activity in the iron, steel and metalworking industries gained 5.4 points to 91.4 in the week ending March 28:

Week ending	1936	1935	1934	1933
Jan. 18	89.3	78.1	60.9	49.8
Jan. 25	86.0	79.5	62.3	50.8
Feb. 1	86.5	81.8	66.9	49.9
Feb. 8	83.8	82.7	70.7	48.7
Feb. 15	85.9	82.8	72.4	48.3
Feb. 22	81.8	80.5	75.5	46.0
Feb. 29	83.4	81.1	76.8	47.4
Mar. 7	87.7	82.0	78.6	43.4
Mar. 14	89.7	84.0	79.9	42.7
Mar. 21	86.0†	84.0	79.7	44.6
Mar. 28	91.4*	84.3	79.3	45.2

†Revised. \*Preliminary.

The index charted above is based upon freight car loadings, electric power output, automobile assemblies (estimated by Cram's Reports) and the steelworks operating rate (estimated by STEEL). Average for 1926 equals 100, weighted as follows: Steel rate 40, and car loadings, power output and auto assemblies each 20.

## Industry Is Approaching New Postdepression High Mark

A RAPID rebound in steelworks operations from the flood interruption and continued gains in automobile output were responsible for lifting STEEL'S index of activity for the week ending March 28 to 91.4. This represents a gain of 5.4 points and establishes a new high mark for 1936.

The index undoubtedly would have gone higher if transportation and electric power facilities had rallied from high water troubles as promptly as steelworks operations. Revenue freight car loadings gained moderately from the preceding week. Apparently the railroads were more seriously handicapped by the dis-

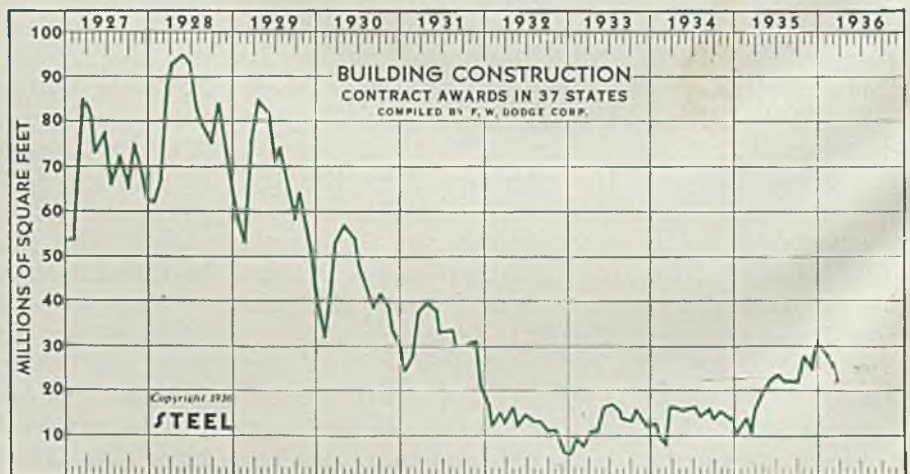
aster than was realized at the time. A slight increase in electric power output was reported, but the total still is somewhat below normal for this time of the year.

Automobile production, which lagged behind the other components of the index in February, is staging a strong comeback. Weekly output has gained in five consecutive weeks, from a low of 62,813, to 95,223 weekly. This last figure, representing the number of assemblies in the week ending March 28, is the highest recorded since the second week of January.

Operations in steelworks set a new high mark for 1936 and are still rising. In fact the current rate is close to the peak of June, 1934. The average for the week ending April 4 (see p. 69), which will be compiled after this is written, may set a new postdepression maximum.

The strong trend in most lines of industry probably will carry STEEL'S index for the week ending April 4 to a point above 91.9, thus establishing a new recovery high.

	1936	1935	1934
Jan.	27,053,300	11,245,100	9,568,700
Feb.	20,856,700	9,670,300	8,176,300
Mar.	15,873,100	14,788,900	
Apr.	19,981,100	14,207,100	
May	22,276,200	14,664,400	
June	22,878,800	13,986,500	
July	21,565,900	13,250,000	
Aug.	21,545,400	14,259,000	
Sept.	21,365,700	12,510,300	
Oct.	27,775,900	15,098,100	
Nov.	24,120,700	12,780,800	
Dec.	33,441,900	9,188,700	



### Commodity Index Registers Third Consecutive Decline

	1936	1935	1934	1933
Jan. 1 .....	\$10.86	\$9.49	\$9.01	\$6.53
Feb. 1 .....	10.02	9.78	9.26	6.53
Mar. 1 .....	9.92	9.79	9.17	6.54
Apr. 1 .....	.....	9.66	9.16	6.98
May 1 .....	.....	9.79	9.14	8.02
June 1 .....	.....	9.90	9.24	8.34
July 1 .....	.....	9.84	9.32	9.01
Aug. 1 .....	.....	9.91	9.48	8.99
Sept. 1 .....	.....	10.00	9.45	9.05
Oct. 1 .....	.....	10.17	9.27	8.84
Nov. 1 .....	.....	10.28	9.29	8.81
Dec. 1 .....	.....	10.40	9.49	8.83

### Industrial Production Down Slightly in February

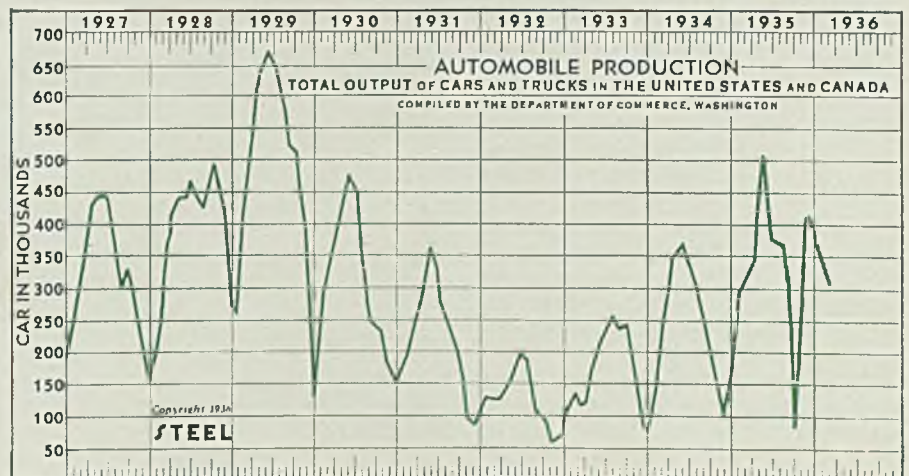
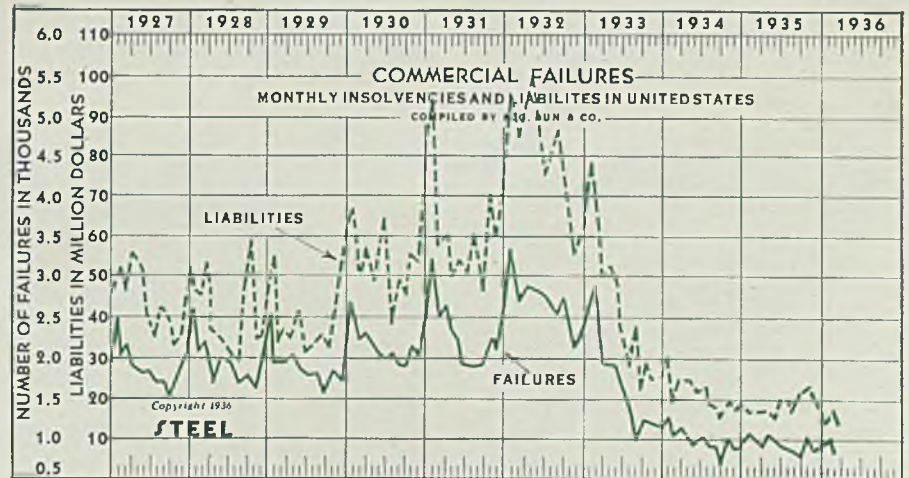
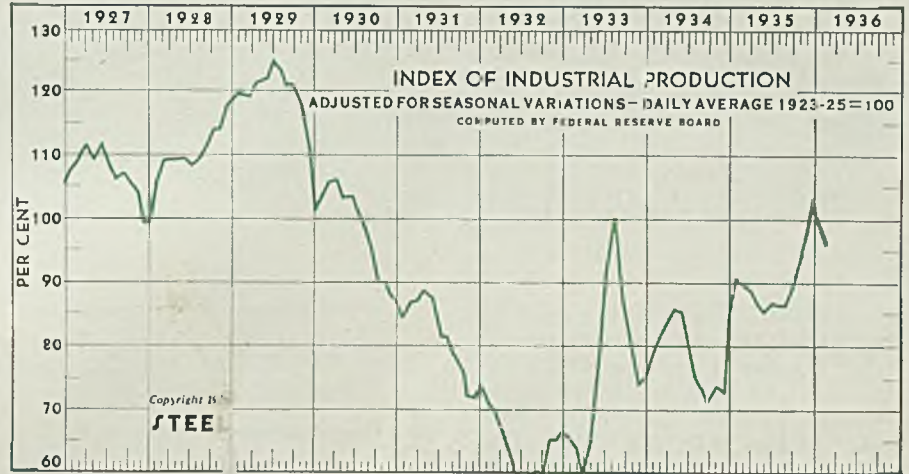
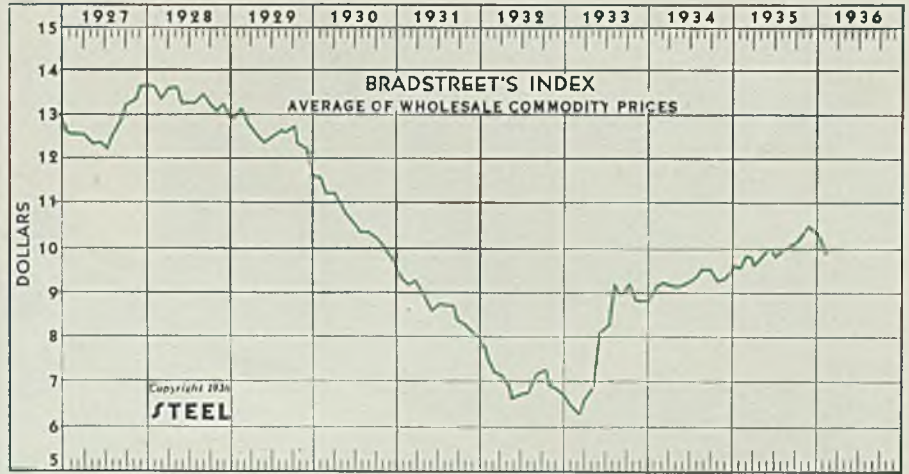
	1936	1935	1934	1933
January .....	98	91	78	65
February .....	95	89	81	64
March .....	.....	88	84	60
April .....	.....	86	85	67
May .....	.....	85	86	77
June .....	.....	86	84	91
July .....	.....	86	75	100
August .....	.....	87	73	91
September .....	.....	89	71	84
October .....	.....	95	73	77
November .....	.....	98	74	73
December .....	.....	104	86	75

### Commercial Failures Decline In February; Liabilities Down

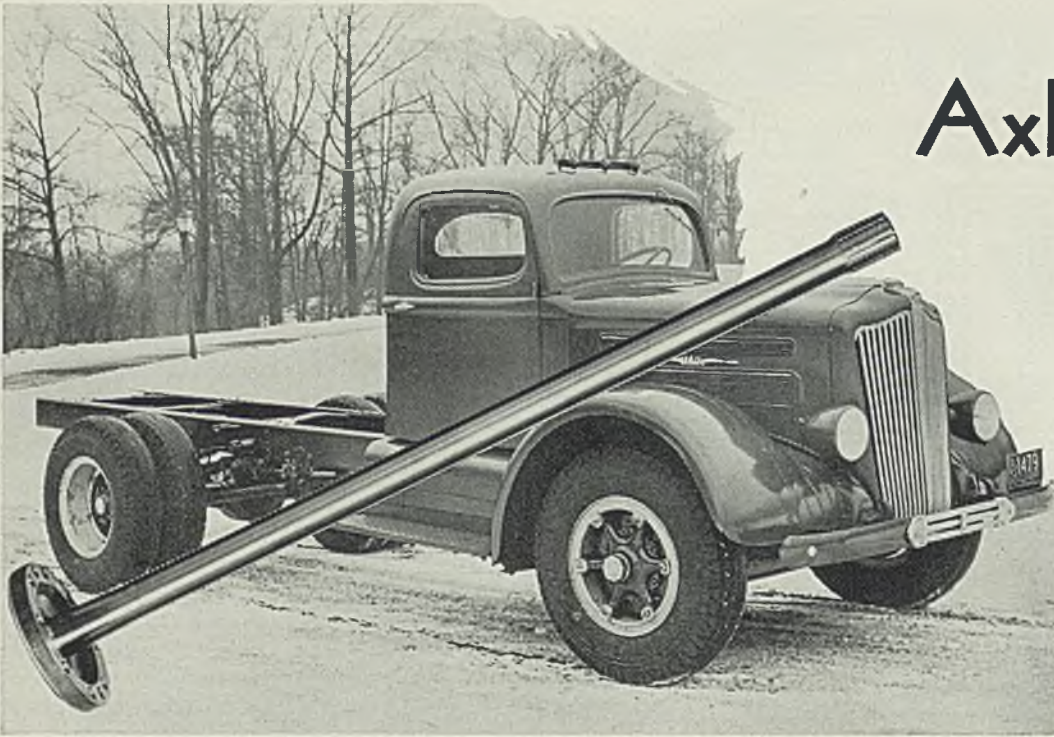
	Failures, Number		Liabilities, Dollars (000 omitted)	
	1936	1935	1936	1935
Jan. ....	1,077	1,184	\$18,104	\$18,823
Feb. ....	856	1,005	14,089	18,737
Mar. ....	.....	976	.....	18,522
Apr. ....	.....	1,115	.....	18,063
May ....	.....	1,027	.....	15,669
June ....	.....	961	.....	20,463
July ....	.....	931	.....	20,446
Aug. ....	.....	910	.....	17,845
Sept. ....	.....	806	.....	21,837
Oct. ....	.....	1,097	.....	22,243
Nov. ....	.....	927	.....	20,023
Dec. ....	.....	940	.....	17,442

### February Automobile Output Continues Downward Trend

	1936	1935
January .....	380,554	303,392
February .....	304,232	353,781
March .....	.....	451,763
April .....	.....	501,814
May .....	.....	385,364
June .....	.....	376,993
July .....	.....	350,054
August .....	.....	247,686
September .....	.....	95,127
October .....	.....	283,337
November .....	.....	411,535
December .....	.....	421,579



# Axle Shafts



*NEWEST truck in the White heavy-duty line for 1936, model 720. Inset shows the full-floating alloy steel rear axle shaft*

**M**ODERN motor trucks must be built to take a terrific pounding day in and day out—probably more so than any other transportation vehicle. Naturally, such severe service calls for metal parts of the highest order of strength and durability. Two important factors involved in meeting these demands are selection of the proper steel, and the development of the best machining and heat treatment practice for this steel.

Much can be accomplished in automotive parts production by effective heat treatment. This is exemplified by practice of the White Motor Co., Cleveland, which has developed special heat treatments for a wide range of parts and assemblies entering into the construction of its trucks.

## Standard Procedures Varied

While much of this work involves pack or gas carburizing operations, or hardening, quenching and drawing treatments, a number of interesting procedures have been worked out for certain parts, which vary considerably from the routine in heat treating. Consider, for instance, the full floating rear axle shaft, through which all power is transmitted to the wheels. Here is a part which absolutely demands high strength, hardness, careful machining to avoid flaws which might be the start of fatigue cracks, as well as perfect accuracy to assure smooth, quiet operation.

The shaft is made in three sizes, of chrome-nickel-molybdenum steel, corresponding to S.A.E. 4345 analysis. White specifications call for

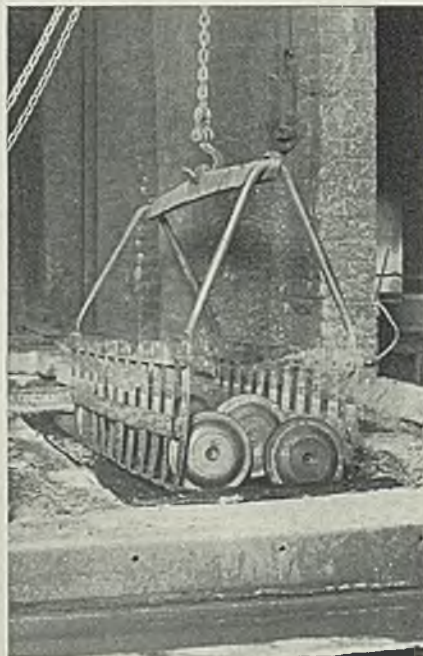
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BY A. H. ALLEN  
Associate Editor, STEEL

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0.55-0.85 per cent chromium; 1.60-2.10 per cent nickel; 0.15-0.25 per cent molybdenum; and 0.40-0.50 per cent carbon, with preference on the upper end of this range.

In forming the shaft, bar stock is



*A charge of shafts is drawn for 2 hours in this oil-fired salt bath at 900-1000 degrees Fahr.*

upset hot on both ends, on one end for the wheel flange, and on the other for the splines on which the differential gear is fitted. After the upsetting operation, the shaft is machined, this being necessary before heat treatment because after heat treatment the part is of such hardness that it is practically unmachinable. Hardness before heat treatment ranges from 220 to 250 brinell.

The shaft is first cut to length by milling. It is then centered, and straightened in a flexible straightening press. Body and flange are rough turned; then the flange and body are faced or finish turned, except that stock is left for finish machining on the inside face of the flange. Flange holes must be drilled after heat treatment and this calls for special tempering treatment of the flange, which will be described later. The splines are hobbled and the shaft is dipped in hot water to remove all grease, dirt and oil.

## Spline Kept Scale-Free

Next a coat of scale preventative is brushed on the spline. This material, known as Noncase, is a mixture of kaolin and sodium silicate and is applied to insure against any scaling on the spline, which must be held to close dimensions. Heat from the hot water rinse is sufficient to dry the coating and a second coat of the mixture is applied.

The shafts are then charged into an oil-fired furnace, in a single layer crosswise on the furnace hearth. About 10 or 12 shafts are charged at a time they rest on three rails which support both ends of the shaft and the center. The furnace is under-



# Are Given Unusual Heat Treatment

fired by two oil burners. Atmosphere is manually controlled and is maintained at a slightly reducing to neutral condition, by proper manipulation of oil and air supply to the burner. Air pressure is about 15 ounces.

Temperature of the furnace is brought up to 1500 degrees Fahr. and held at that point for 15-20 minutes and then cut down; temperatures of shafts and of the furnace come down together to 1270 degrees Fahr., for the smallest size shaft, slightly higher for the larger shafts. This temperature is about 5 to 10 degrees above the upper or  $A_1$  critical point.

The steel used has a differential critical lag of about 200 degrees and on the cooling cycle the upper critical point is about 1260 degrees Fahr. Experiments have shown that less distortion and less liability of cracking result by quenching from as close to the upper critical point as possible, always being sure to keep above it at least a few degrees. It

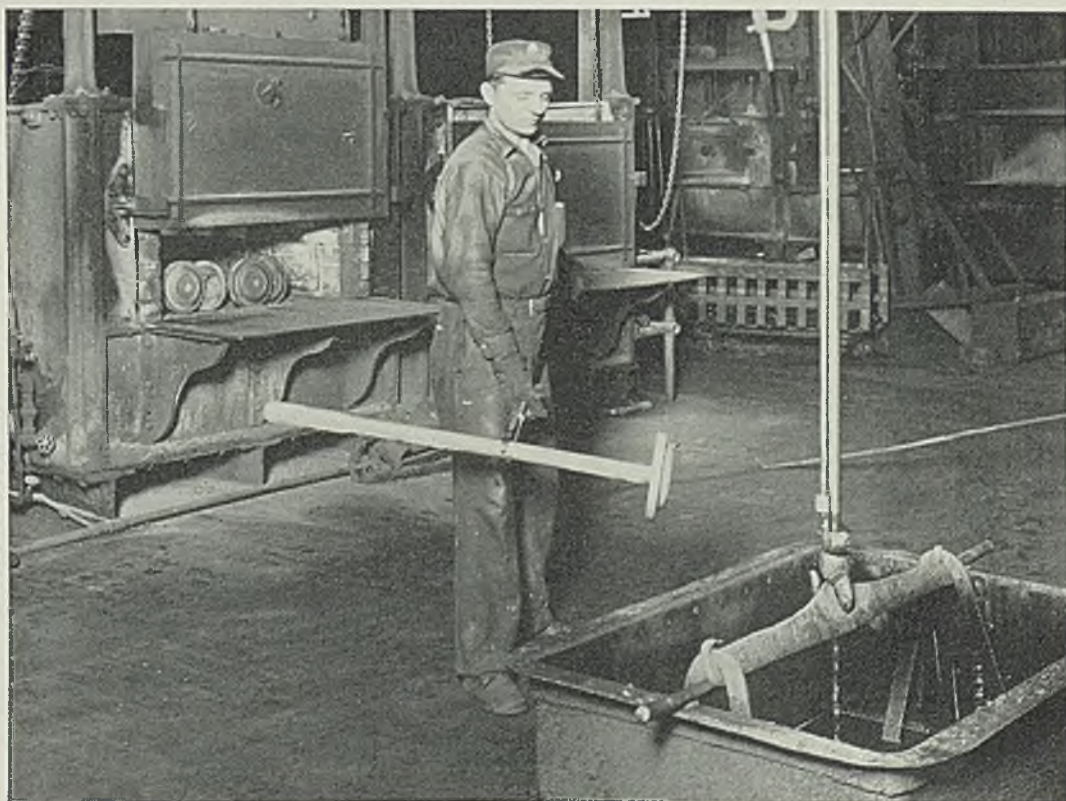
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THE combination of special alloy steels and ingenuity of modern metallurgists has contributed much to the sturdiness and long life of heavy-duty motor trucks. This is nicely exemplified in the rear axle shafts used in White trucks where demands for high strength and long-wearing qualities have called for special technique in machining, hardening and drawing, as outlined in the accompanying article.

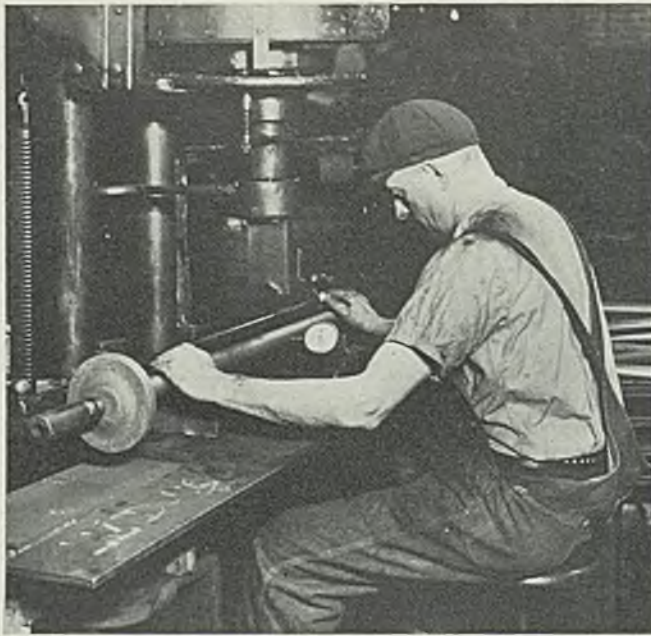
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requires about 2½ to 3 hours to bring the charge down to this quenching temperature from the 1500-degree initial temperature.

Speed in quenching is essential and when the shafts have reached the proper temperature they are transferred one at a time to the oil quenching bath in which circulating oil is held at a temperature of 140-160 degrees Fahr. The shafts are placed in an oscillating basket and are left in the quench about 2 or 2½ minutes. When removed they are still at a temperature of 250-300 degrees Fahr. and are immediately placed in a salt bath for drawing. The draw furnace is a cast iron pot in which the salt—sodium nitrate—is heated to 900-1000 degrees by oil burners. The shafts are lowered in baskets into the salt, each pot accommodating the full heating furnace charge, and are drawn for 2 hours. They are then quenched in hot water which removes any adhering salt and most of the clay scale preventative previously applied to the spline. Following this final quench, the shafts are brinelled in two places. Hardness after heat treatment varies from



*OPERATOR transferring a heated shaft from the furnace in the background to the oil quench in the right foreground. Speed is essential to avoid temperature drop*



*SHAFTS are held true within 0.005-0.010-inch by two separate straightening operations in this press*

supporting the weight of the truck, the axle serving only to transmit power to the wheels. There are, of course, two of these shafts per axle, one on each side of the differential.

It should be pointed out that the previously outlined heat treatment was not evolved overnight. Careful and thorough experimentation was required to work out all details. The important parts of the treatment are careful regulation of furnace temperature and atmosphere to prevent scaling, quenching from a temperature only a few degrees above the upper critical point to avoid distortion or cracking, and speed in transfer of the shaft from the furnace to the quench.

#### Other Heat Treating Work

Many other parts entering into White trucks are heat treated or carburized with similar precision. Camshafts, crankshafts, gears, bushings, bolts and pins are a few on the list. Cylinder blocks are annealed to relieve casting strains before assembly and installation. Localized carburizing of camshafts is accomplished by copper plating the parts of the shaft which are not to be given a case. Certain small bushings are packed with clay to prevent carburization of the inner surface.

Frank M. Bender, vice president in charge of operations for White since last October, has made a careful study of heat treating operations at the plant. In this connection, he states: "Over a period of some 25 years, various combinations of heat treatment have been developed, and our experience with millions of parts has made it possible to insure high

368 to 388, usually nearer the upper end of this range.

To facilitate drilling bolt holes in the flange, the outer rim to a depth of about half the distance to the center is drawn further in a lead pot. An operator places the edge of the flange in the lead bath which is heated to 1400 degrees Fahr., and rolls it around several times. This brings the hardness down to about 250 brinell.

The treated shafts are then taken to a rotary sandblast machine and given a light sandblasting. A second straightening operation is the next step, truing the shafts to within

0.005-0.010-inch. Inside face of the flange then is turned, bolt holes are drilled and the entire surface given a finish grinding operation to remove all tool marks which might become focal points for the start of fatigue cracks.

The shafts, when completed for installation, show a minimum elastic limit of 160,000 pounds per square inch, ultimate strength of 180,000 pounds per square inch, elongation of 15 per cent in 2 inches and reduction of area of 50 per cent.

The full floating axle shaft is carried in a heavy chrome-nickel-molybdenum steel seamless tube, the latter



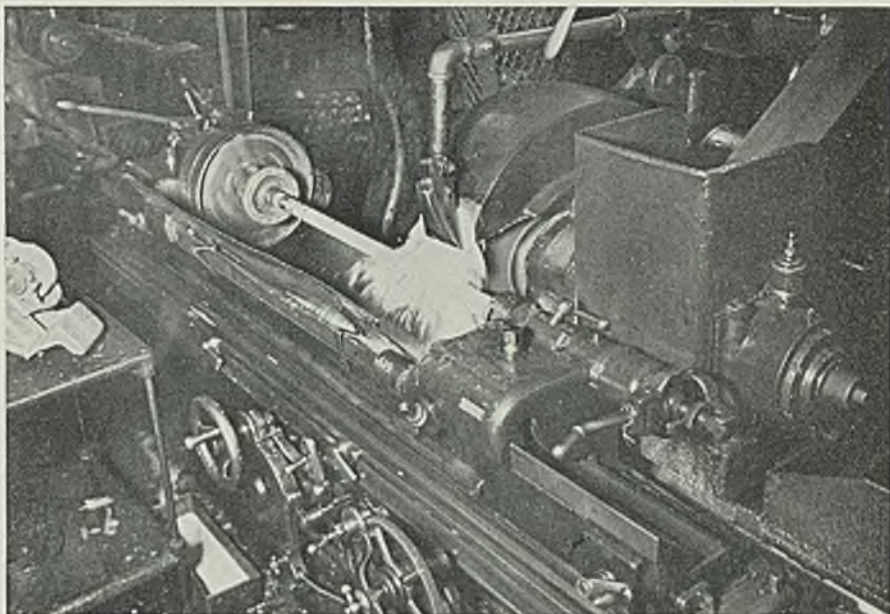
*DRAWING back the outer rim of the flange to facilitate drilling bolt holes. This is done by rolling the flange in a lead bath heated to 1440 degrees Fahr.*

strength and unusual wear resistance. Our metallurgists and engineers have worked unceasingly in the development and refinement of heat treating processes, with a view to building into the part the necessary stamina for heavy-duty truck service."

## Bulletin Lists Numerous Uses of Lignum-Vitae

A new bulletin entitled *Lignum-Vitae Fact Flashes* will be of interest to many industrial concerns. It is published periodically by the Lignum-Vitae Products Corp., 96-100 Boyd avenue, Jersey City, N. J., and is available upon request. A booklet entitled *The Industrial uses of Lignum-Vitae, Champion of Hardwoods* is being compiled and will be supplied to those receiving the bulletin as soon as it is published.

Although thousands of bowling enthusiasts handle this wood in the form of bowling balls every day, there is little general knowledge concerning its many other uses. Its use in water-lubricated roll neck bearings in steel mills and submerged bearings in hydroelectric plants and steamships is only one small field of application. Lignum-vitae is hard and close grained, having a specific gravity of 1.14 (80 pounds per cubic foot) and is



*Final operation on the machined and heat treated shafts is a light finish grinding to remove all tool marks from the surface*

capable of withstanding a working pressure of 2000 pounds per square inch. These properties make it an excellent material for many types of mallets, wheels, pulleys and other articles. It is resistant to acids and alkalis and finds many uses in electroplating and chemical plants.

six acres of floor space, is modernly equipped and carries a complete stock of steel products. Land is available for additional expansion when necessary. In addition to the Indianapolis property, the company also operates a warehouse at Hammond, Ind. This was established in 1930 to serve the Chicago district.

Forty-one manufacturers of various industrial supplies for which the Holliday company serves as distributor conducted exhibits at the plant during the two-day anniversary observance.

The new equipment for cold-finishing steel bars, completed only recently, was shown in operation. Equipment installed in this unit includes two of the latest types of draw benches, one of which is capable of drawing three bars simultaneously. A wire drawing block also has been installed, in addition to bar and coil straightening machinery and shears.

## Eightieth Anniversary Commemorated by Exhibit and Opening of New Mill

IN 1856, W. J. Holliday founded W. J. Holliday & Co. at Indianapolis by purchasing a small iron store in Richmond, Ind., and moving it to the state capital. On March 27 and 28 of this year the company celebrated the eightieth anniversary of its engagement in the iron and steel warehouse business by being host to about 5000 people at an industrial exhibit at its plant. The occasion also marked the opening of a new cold-finishing mill by the Monarch Steel Co., a Holliday unit.

Among the guests were several individuals who had been customers of the company for more than 50 years. It is interesting to note that years ago a steel warehouse was not designated by that name. One of the souvenirs presented each visitor was a duplicate of the company's original "Iron and Steel Depot Catalogue and Price List." Being dated prior to the Civil war, iron products naturally predominated.

The company has occupied several

sites in Indianapolis during its long tenure in business. Its first location now is in the heart of the city's retail district. Seven years after being established, these quarters proved inadequate, and the company erected a building on a site two blocks away. By 1902 additional space was required. W. J. Holliday had retired and J. S. Holliday, a son who had taken over the management, saw that the trend was toward the heavier products which required more space.

### Modern Warehouse Erected

A quarter block was purchased and a modern, five-story brick building was erected. A few years later another tract was bought, upon which was built the first modern steel warehouse in Indiana. This plant had all the latest equipment such as high-speed cranes, punches, shears and friction saws, and was not outgrown until 1925.

In the latter year a complete new plant was erected. It contains about

## Conference Will Study and Rate Industrial Films

A national conference on visual education and film exhibition will be held at the Francis W. Parker school, 330 Webster avenue, Chicago, June 22-25. This conference, formerly known as the DeVry summer school of visual education, is the sixth session sponsored by the National Conference on Visual Education, 1111 Center street, Chicago. No charge is made for membership and admission.

Purpose of the conference is to show and discuss selected industrial and educational films as examples of best current practice.

# PREFABRICATED BUILDING UNITS OF STEEL FOR

**M**ETALS, particularly steel, are important materials in a new system of residential building construction developed by the Reynolds Corp., 19 Rector street, New York. In working out this system, the company carefully has refrained from any methods of prefabricating that would have the effect of hampering the architect, builder or home owner in the creation of homes to meet individual preferences. Instead, it has evolved prefabricated building materials and building units which offer entire freedom in executing building plans.

The company's specifications and products, manufactured in its plants at Kearny, N. J., Sparrows Point, Md., Milwaukee and Louisville, Ky., result from extensive research work over a period of several years. This research work continues to be pushed. The company is investigating many products and methods, and proposes to enlarge its present specifications as developments warrant. The conception on which this undertaking is based is that present building materials and methods can be improved and rendered less costly and homes can be made safer, more comfortable and durable, without sacrifice of individual taste, by applying factory production methods which are based on research findings.

The Reynolds so-called "Type A specification" includes floor joists, studs and other framing members which are fireproof and termite proof. They are made by rolling galvanized

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BY E. C. KREUTZBERG  
Engineering Editor, STEEL

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steel sheets to the desired form and filling these forms with a special nailing concrete. The sheets are sufficiently thin to be pierced easily by nails, and the nailing concrete grips and holds as tenaciously as wood. Another item is a plaster base fabric or lath which is built up of V-shaped steel ribs, spaced 4 inches apart horizontally, electrically welded to vertical cross wires which are woven through waterproof paper. The wire forms the keys which hold the plaster.

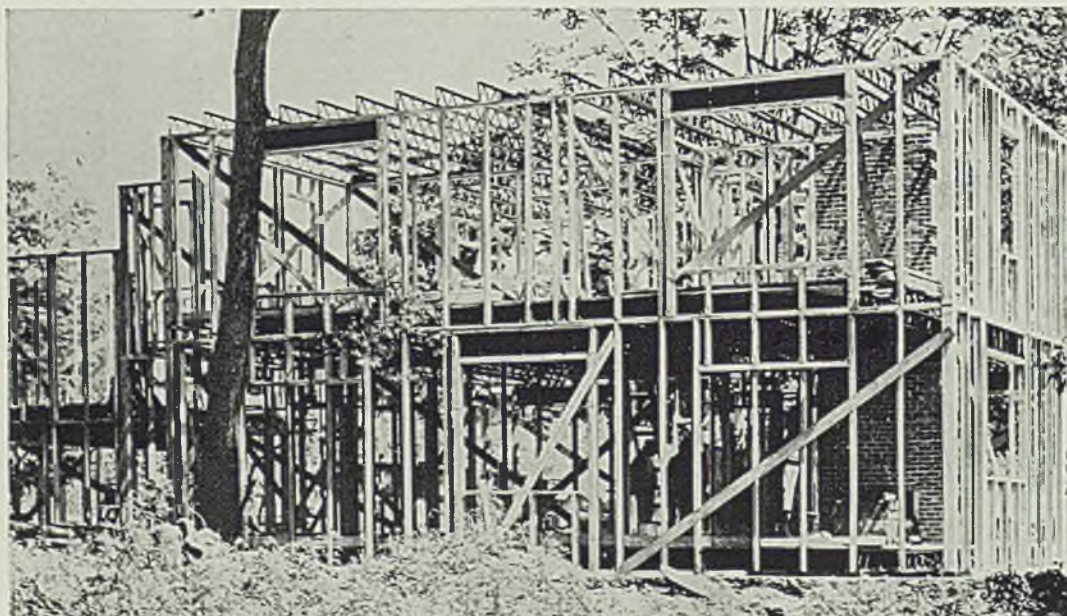
#### Insulated with Aluminum

Another feature comes under the head of insulation. This provides, through the use of aluminum foil, properly applied, for keeping homes cooler in summer and warmer in winter. This foil may be used alone or it may be applied directly to the plaster base fabric. The system includes floor slabs formed by casting nailing concrete on a fabric backing heavily reinforced by steel wire. It includes so-called "liquid insulation" which involves the use of aluminum paint. It includes complete copper roofing, with copper gutters, downspouts and other building parts that must resist the weather. It includes

complete heating and air conditioning systems, complete plumbing systems and steel windows.

At the present time, a house built to the "A" specification costs approximately 10 per cent more than when conventional building methods are used. This means that this specification is used when considerations of quality, safety and comfort are regarded as outweighing the extra cost. For meeting cost restrictions the company has set up "B" and "C" specifications. The "B" specification is modified to the extent that the construction, aside from the first-story floor joints and floor slabs, is of wood, thus resulting in a house that is fireproof and termite proof at the foundations. The "C" specification eliminates the floor joists, studs and floor slabs entirely but retains all the other features. It is expected that when volume affects costs, these houses will have the advantage in competing with conventional building methods.

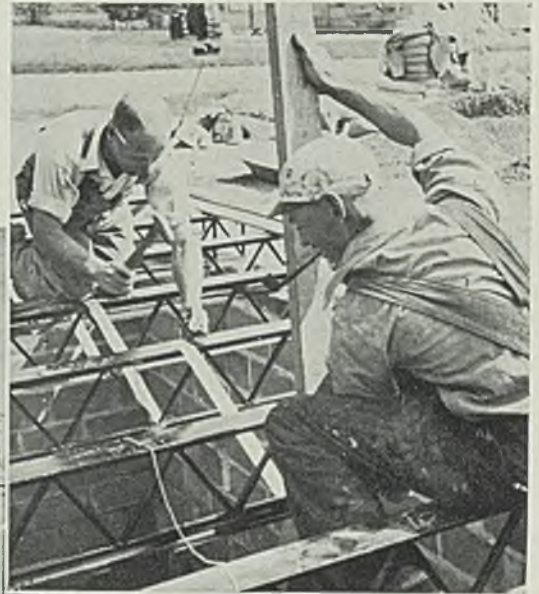
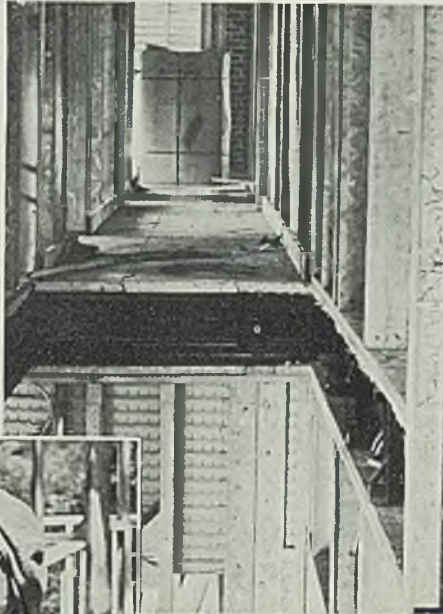
Under the Reynolds system, the company's engineers go over the architect's drawings and develop the necessary framing plans and the layouts for the plumbing and air conditioning installations. These layouts are sent to the company's plant where all framing members and other units are prefabricated so that only assembly is required at the building site. The only building members not cut to exact length at the plant are the sills and certain other small members which are shipped in random lengths



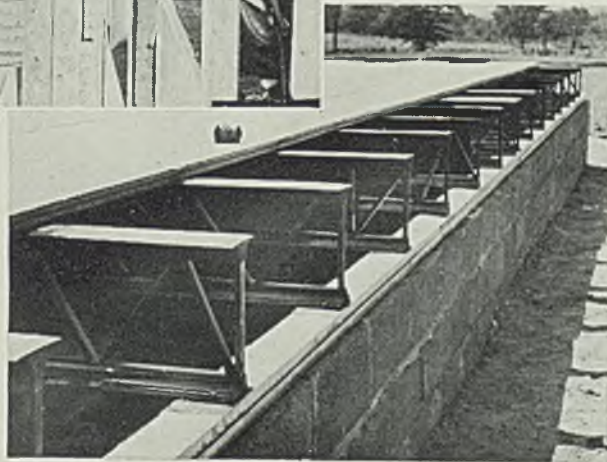
**C**OMPLETE assembly of prefabricated framing members, ready to receive exterior and interior finishing

# RESIDENCE CONSTRUCTION

*AIR conditioning ducts, plumbing and electric wiring are concealed in walls and partitions, as indicated by the view at the right showing cutaway section of second-story hall. Below a workman is cutting by hacksaw one of the prefabricated members shipped in random lengths to the job*



*Floor joists are on 2-foot centers, bridged every 8 feet with 2-inch steel bands nailed to them*



*Floor joists are placed on the sills which are lined on the foundation walls. Floor slabs, of heavy nailing concrete, are nailed to joists*

to be cut to length by means of hacksaws at the building site.

Under this system the company also provides for complete and effective co-operation with the architect, the builder and the building supplies dealer; as an example, the company has arranged an extensive advertising campaign, using newspaper space which will identify architects, builders and dealers associated with this undertaking to create safer, more desirable homes. It has other ways of assisting these interests in promoting their business. For instance, the Reynolds Fiscal Corp. has been organized to finance the purchase of residences when local facilities are not available.

The first Reynolds specification house was completed in the spring of 1935 at Hempstead, N. Y., for E. A. Ruscher, from plans by Holden Mc-

Laughlin & Associates, New York architects. Since then many others have been completed and a large number are under construction. The company has signed contracts with selected builders located in the greater New York area, St. Louis and Detroit, by which these builders will follow its specifications. As an example of what it already has accomplished, one of these contracts is with Mott Bros., Hempstead, N. Y., who have several developments under way; one of them alone, in Garden City, N. Y., is to consist of 900 new homes. Another community which will be built to the company's specifications comprises 300 projected homes at Mayfair Acres, near White Plains, N. Y. Contracts involving other similar developments now are being negotiated.

The floor joist in the Reynolds sys-

tem is a prefabricated member designed like a bridge truss. It has top and bottom flanges rolled from 16-gage galvanized steel sheets; the nailing surfaces are of 22-gage sheets. These flanges are closed by electric welding and then filled with nailing concrete. The trusses are rolled from 16-gage galvanized steel sheets into channels which are welded into truss grooves in the flanges. Ends of the joists are closed by means of shearing plates also formed from galvanized steel sheets and joined by welding. The completed floor joists are 10 inches high and 35/16 inches wide. They can be used for safe spans up to 18 feet.

Studs and plates are rolled from 26 or 28-gage galvanized steel sheets and welded, after which they are filled with nailing concrete. They are made in various shapes and sizes

to meet different requirements. Standard studs are formed in a rectangular section  $4\frac{1}{2} \times 1\frac{3}{4}$  inches externally but, to decrease their weight and increase resistance to buckling, the wide sides are curved inward to form concave surfaces. This results in reducing the center thickness to about  $\frac{3}{4}$ -inch. For door and window frames, to increase the strength and facilitate nailing, the studs are made of the same outside dimensions but with one side straight. Plates are rectangular, of the same width as the studs but with thickness of only 1 inch. The sides of the plates are straight but are rolled with grooves to stiffen them. For nonload-bearing partitions such as closets and minor rails, 1 x 2-inch studs are furnished. As in wood construction, members of any desired strength can be obtained by nailing studs and plates together in various combinations.

At the building site the foundations are built in the conventional manner, after which the prefabricated framing is placed in the same way as wood framing. Sills are laid to conform to brick veneer, stucco or any other desired exterior finish. Floor joists are placed on the sills on 2-foot centers, bridged every 8 feet with 2-inch galvanized steel bands which are nailed to the joists. Floor slabs, cast



*View upward from first floor, showing construction details of joists and flooring above*

from heavy nailing concrete and reinforced by steel wire, are laid on the joists, after which the standard studs and window bucks which constitute the outside framing are placed on 16-inch or 2-foot centers. The second floor framing then is placed, after which the first and second floor wall framing is placed.

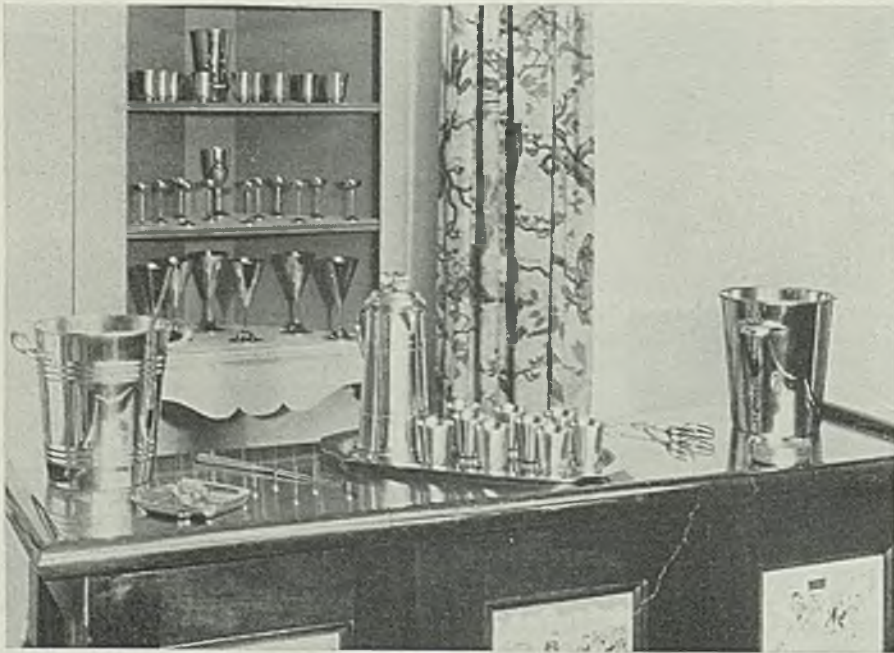
Interior partitions are framed with

studs on 16 or 24-inch centers. Partitions are set up for division of space. Air conditioning ducts, plumbing and electric wiring are concealed in the walls and partitions. All assembling is done by means of nailing. After installation of the air conditioning and plumbing systems and other units, plaster base fabric is applied and the interior finish then may be completed.

The air conditioning system developed by this company is unique in that it is made complete at the plant, from burner to grilles, and merely assembled at the building site, thus eliminating the necessity for the usual sheet metal work. This is due to the standardization of air ducts, made from galvanized steel sheets. To reduce costs and insure correct fabrication, the company has designed standard conduit sections, including straight runs, bends and reduction sections, which may be used in any installation. The duct sections are completely interchangeable. As a result, they may be taken from stock and shipped ready for assembly. The duct sections are locked together by air-tight snap joints, thus reducing assembly time. Depth of the main conduits has been standardized at 8 inches to insure maximum headroom in cellars. The main conduits are suspended from cellar ceilings by galvanized steel bands.

The air conditioning units mounted in a housing formed of galvanized steel angles and sheets. The unit itself includes all the mechanical devices required to clean, heat and humidify, or cool and dehumidify air and circulate it.

## Stainless Steel in Modern Motif

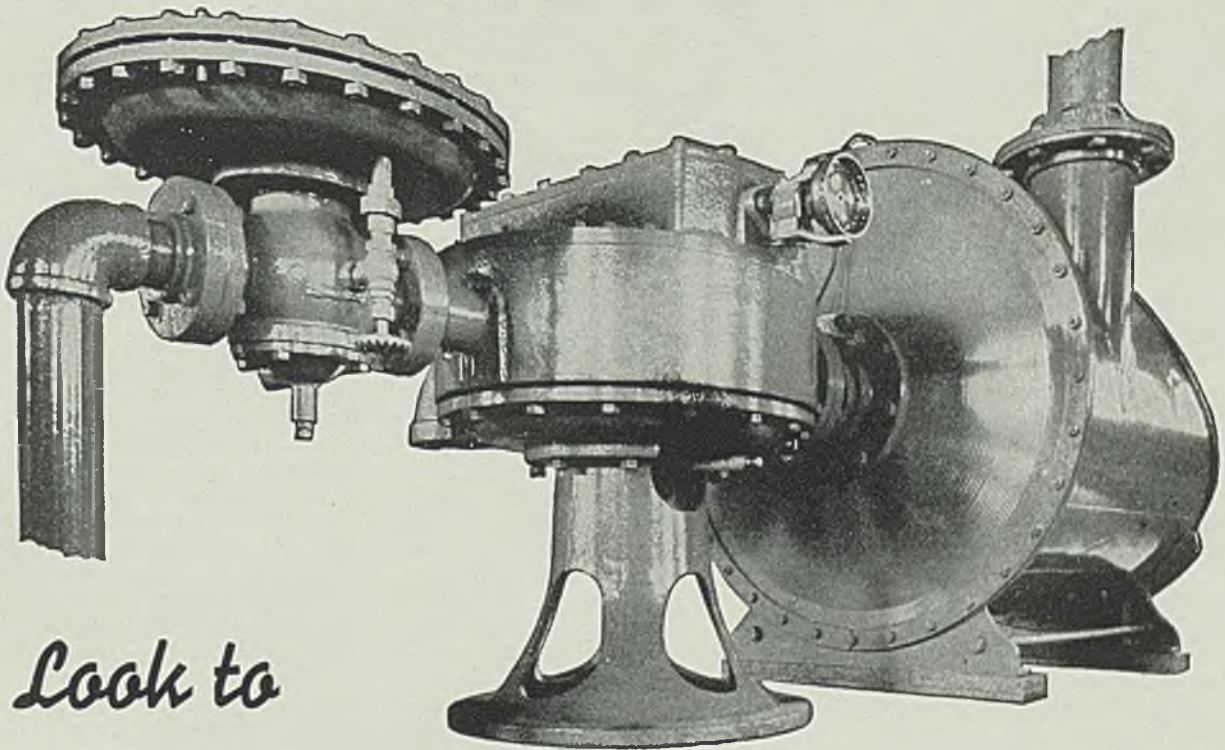


**T**HESE home bar accessories present an interesting example of the rapidly increasing number of applications of stainless steel. The illustration is from a booklet entitled *New Ways to Increase Sales and Profits with Silcrome Stainless Steel*, just published by the Ludlum Steel Co. Watervliet, N. Y. Twenty eight profusely illustrated pages review applications of stainless steel to such uses as household furniture and appliances, food manufacturing equipment, bar and restaurant fixtures, hospital equipment, railroad trains, architectural decoration, and various industrial uses

## Metals Groups Inspects Large Nickel Mine Hoist

Some 300 members and guests of the Montreal chapter of the American Society for Metals recently visited the Rockfield plant of Canadian Allis-Chalmers Ltd., Montreal. The group inspected a large mine hoist to be shipped shortly to the International Nickel Co., Sudbury, for its Creighton mine. This machine is said to be the largest electric mine hoist built on the North American continent and equals any thus far built in Europe.

The hoist is powered with two 1250-horsepower, 25-cycle motors to operate at a hoisting speed of 3000 feet per minute. Total weight exceeds 1,250,000 pounds, the shafts alone weighing 38 tons each. The visitors also were shown the company's modern machine tools and work in progress, including crushing and grinding mills, centrifugal pumps, rubber-lined sand pumps, power drives, hydraulic turbines, and various types of special equipment.



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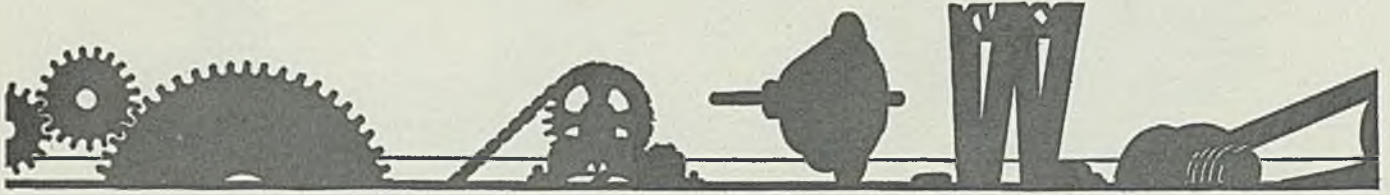
We believe some further detail will be decidedly interesting to you and we shall be glad to provide it upon request. **Just have your secretary write the C. M. Kemp Manufacturing Co., 405 East Oliver Street, Baltimore, Maryland.**

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**K E M P   o f   B A L T I M O R E**

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# Power Drives



## Lubrication Experience

**F**ORCING oils to stay where they belong is one of the main problems of lubrication of plain bearings which do not have any special retainers. Oils too light are not only squeezed out at the pressure line but flow out the end of the bearing too quickly, thus leaving the bearing without lubricant and also dripping or flowing over the machine. This is not only wasteful but messy.

Oils too heavy in body work out more slowly but may be so heavy as not to flow back into the pressure line when they are squeezed out under operating pressures. Thus, while an ample supply of oil may be in the bearing, it may not flow quickly enough to provide proper lubrication.

Proper lubrication therefore requires the use of an oil of a viscosity or rate of flow, most suitable to the type of bearing, pressure, and speed. Since the action of the oil in the bearing is beyond observation and is only known by experience and a thorough familiarity with the action of oils of different types under varying conditions the plant engineer will find it advantageous to consult trained lubrication engineers on such problems.

Such service is available from several reliable sources, not only to recommend the most suitable lubricant and method of application but also, in practically all cases, to reduce the cost of lubricant and increase its service and satisfaction. Lubrication is a specialized subject and should receive special attention.

## "White Collar" Maintenance

**O**NE of the most difficult things for the old-type maintenance man to learn when he was promoted from the gang to be its foreman was that handwork was less important than headwork, an axiom which is true in any position of responsibility. To impress this upon a newly promoted maintenance foreman in one large plant the superintendent stated that he expected his new foreman to wear a white shirt and collar every day and keep them clean. This re-

striction naturally prevented his "taking a hand."

Since this new foreman had between 30 and 40 men to supervise, it was a large plant and maintenance men do not all work together, he was kept busy inspecting the plant, planning the work, estimating costs and requirements, and checking up on progress and activity. Working with his hands he would not have been worth more than 5 cents per hour more than any of the other men. Planning ahead so as to keep his men at work to the best advantage gave him control of the activity of all of them.

One of the common mistakes of management in connection with maintenance is not to provide enough supervision. Working subforemen are to be expected on small gangs working together as a unit. But maintenance men are scattered and so require what might be termed "roving supervision." Also, since one of the most important considerations in maintenance is its prevention by anticipation someone must have the time and opportunity to "anticipate."

Smooth operation cannot result unless the maintenance supervisor is on top of his job. If he buries his hands in grease the job will soon get on top of him. His white collar will keep him out of the grease and also give him a feeling of greater responsibility.

♦ ♦ ♦

## Lineshaft Speeds

**I**NCREASES in lineshaft speeds have not kept pace with the increases in machine and operating speeds. In the old-time plant shaft speeds were relatively low, partially because of the large diameters of main shafts but largely because the science of lubricants and lubrication had not developed to a point which would permit much higher speeds with a minimum of operating trouble.

The use of modern motors with speeds of 1200 and 1800 revolutions per minute led to some increases in speed. However, common practice still gives lineshaft speeds of 180 to

250 revolutions per minute. This necessitates either a relatively high reduction or often a double reduction. Reductions above 5 or 6 to 1 require special consideration in designing the drive because of the decrease in the arc of contact of a belt or fewer teeth in contact on a chain.

If properly engineered, larger reductions are possible, but generally are to be avoided where other arrangements can be made, especially with severe service conditions or heavy loading. Extra long center distances partially compensate for high reductions by slightly increasing the arc of contact on open belt drives.

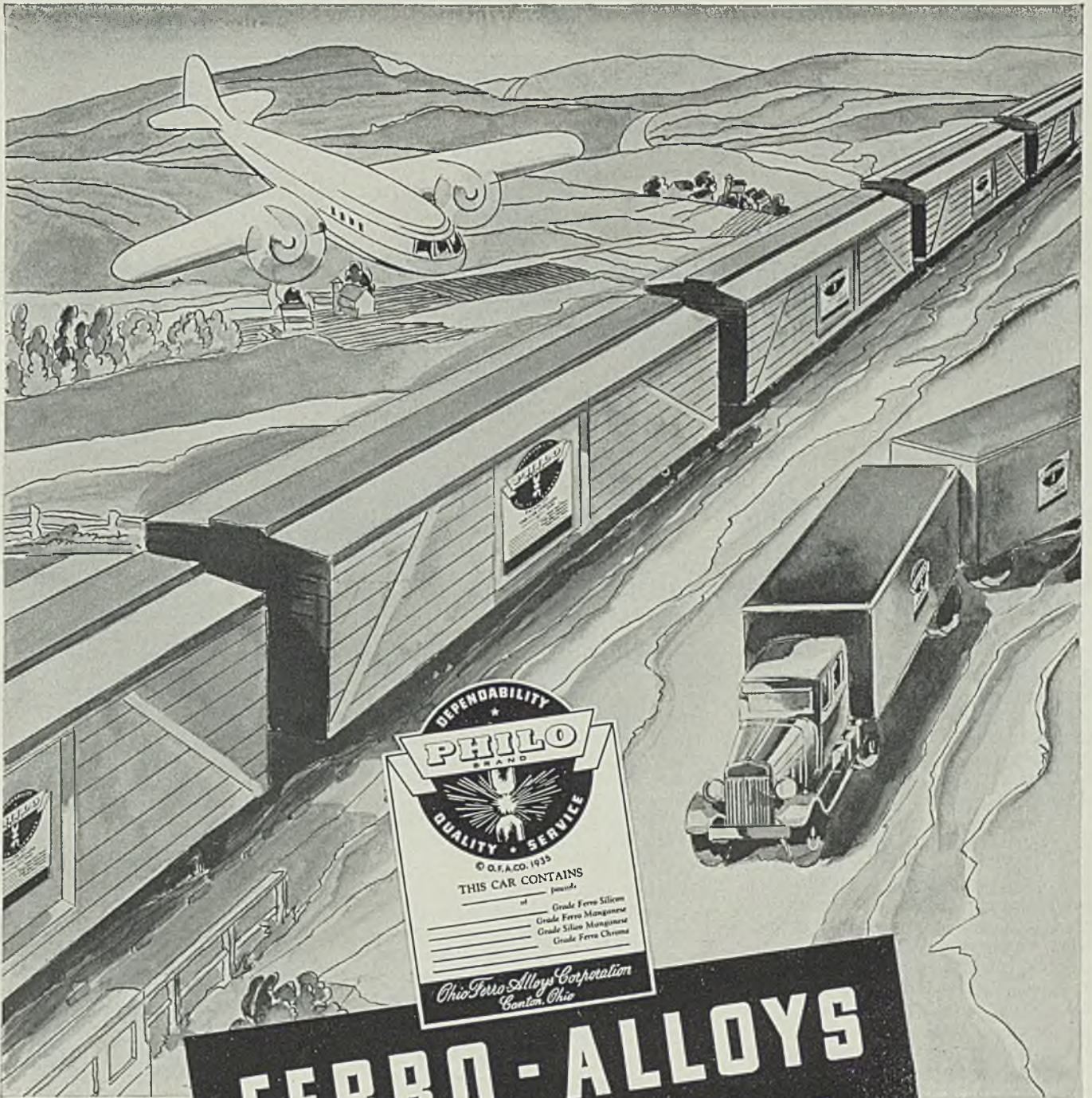
## Higher Speeds, Economical

A careful study of lineshaft speeds usually indicates that for many machines the speed is again increased. This is especially true in connection with grinding and polishing wheels. For example, in one plant recently visited, the lineshaft was supposed to be driven at about 190 revolutions per minute with a 6 to 1 reduction from the motor. Then each grinder had a large lineshaft pulley again stepping up the speed two or three times to the grinding and polishing spindles. Would it not have been as well to have made less reduction in speed on the first step down rather than to have made such a high reduction only to step back up again?

Another plant drives its lineshaft for similar work at 600 revolutions per minute. This is entirely feasible with modern antifriction bearings. Also, the speed reduction is not so great with the consequent lower loss in transmission, speed reduction and in not stepping up again. In addition, there is a common belief that losses are greater where speed is increased over a corresponding reduction in speed. This drive eliminates the necessity of again increasing the speed.

Even on many other types of work, lineshaft speeds of 250 to 300 revolutions per minute would be more advantageous, especially with the modern high-speed tools and machines. This is a point to bear in mind when laying out new installations.





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# Surface Treatment

## Accelerated Tests Aid in Selection and Comparison of Metal Finishes

**L**ARGE consumers of finishing materials often are confronted with a sudden need for a quick change in the type of finish used on their products. The prudent manufacturer hesitates to change until he is assured the new finish will be as good or better than the old one, and the need for haste often forces him to take steps against his better judgment. With the exception of corrosion resistance, all the physical characteristics of a finishing material can be determined in a week or, at the most, two weeks. Such characteristics as color fastness, abrasion resistance, electrical resistance, impact resistance, flexibility, and many others can be determined with speed and accuracy in a modern laboratory.

Accurate accelerated corrosion tests have been the object of much research and considerable progress has been made but the services of an expert are required to interpret the results, and even his judgment will be qualified at times. The conditions of high concentrations of ultraviolet light and moisture, extreme temperatures and the use of corrosive gases which characterize the present accelerated tests, lead to distorted conditions which will never be met under normal use, and failure of finish result which are far from a true evaluation of the finishing material. This is especially true when it is desired to compare an electroplated coating with an organic one.

The reader must not be led to believe, however, that accelerated tests are without value; on the contrary, they are valuable for comparing finishes of similar composition, and

sometimes for those of radically different composition, under the direction of a competent technician. While considerable work has been done to calibrate some of the accelerated tests, to date, no one can place a material under such a test and then definitely state that it will last so many months or years in the field. It is doubtful that this ideal condition ever will be reached.

**T**O ILLUSTRATE just how these tests may be used to advantage and also show their limitations, the problem of a large user of light colored finishes will be taken as an example. The method of attacking this problem and the time required to allow a decision to be made are all typical of good modern practice in finish testing.

This firm found that its electrogalvanized apparatus was discoloring rapidly in the field and since appearance was an important factor a substitute finish or some method of preventing this discoloration had to be found. After considerable deliberation it was decided that aluminum enamel would be an ideal substitute because of the fact that it was light in color, presented a somewhat similar appearance to the zinc finish, and it could be touched up in the field when slight defects appeared.

The question of maintenance is a considerable factor in the selection of any finish and in this case aluminum seemed to present many advantages over zinc. While it was known that baked aluminum finishes were rugged and corrosion resistant, there

was considerable hesitation about replacing a proved finish like zinc until a thorough testing program revealed it advisable. The finish engineers of this company outlined a program of tests and at the end of six months were able to render a decision. To give the reader a complete picture of how this was done, so that he may some day use a similar one, an abstract of the engineers' report will be given:

**A** NUMBER of test panels were made up of the electrogalvanized finish and also four different systems of aluminum finish. These finishes will be referred to in this discussion by the number which appears before the following description of each.

No. 1—50 milligrams per square inch of electroplated zinc.

No. 2—One coat baked aluminum over sandblasted steel.

No. 3—Two coats baked aluminum over sandblasted steel.

No. 4—One coat baked aluminum over phosphate processed steel.

No. 5—Two coats baked aluminum over phosphate processed steel.

Several panels of each type of finish were exposed to the following tests: Industrial atmosphere, weatherometer, aerated water, high temperature—high humidity, and roof exposure. The conditions of each of these tests were as follows:

### *Roof Exposure*

Three panels of each type of finish were mounted at 45 degrees facing south in racks on the roof of a New York city building and were inspected at regular intervals.

### *Weatherometer Test*

In this test, panels of each finish were exposed to cycles of strong ultraviolet light, combined with a water spray and sharp changes in temperature to simulate extreme weather conditions.

### *Industrial Atmosphere Test*

In this test a mixture of 1 per cent, by volume, of sulphur dioxide; 5 per

# and Finishing

cent, by volume, of carbon dioxide; and 94 per cent, by volume, of air was passed into a chamber containing the panels for a period of 5 hours. During this interval the chamber was maintained at a temperature of 120 degrees Fahr. The flow of gas was then shut off and a water spray turned on, which was allowed to run for one hour. The chamber was then opened and the panels dried and inspected. The process was repeated until the panels had failed.

## Aerated Water Test

This test is described in STEEL, Feb. 7, 1936, page 45. In this particular case the panels were suspended in the water bath which was kept saturated with air by passing fine bubbles of air through it continually. Care was taken that no bubbles were allowed to come into direct contact with the panels. After a 48 hour continuous exposure the panels were removed and inspected. If additional exposure was required they were replaced for another 48 hours.

## High Temperature-High Humidity Test

In this test the panels were mounted on racks in a room which was maintained at 95 degrees Fahr. and 95 per cent relative humidity. The panels were inspected at intervals of one month.

The results of each test are tabulated as follows:

## Roof Exposure (at end of six months)

General		
Finish No.	Appearance	Remarks
1.	Poor to fair	Coated with dull gray-black film.
2.	Poor to very poor	Marked pinhole rusting. One panel 70 per cent failure.
3.	Good	Slightly darkened. One panel showed a slight pinhole rusting.
4.	Good	Slightly darkened.
5.	Good	Slightly darkened.

## Weatherometer Test

General		
Finish No.	Appearance	Remarks
1.	Poor	Marked pinhole rusting and some gray-black discoloration.
2.	Poor	Failed in 3 weeks.
3.	Poor	Failed in 10 weeks.
4 & 5	Fair	Moderate discoloration after 10 weeks.

## Industrial Atmosphere Test

General		
Finish No.	Appearance	Remarks
1.	Very poor	90 to 95 per cent base metal rust. Edges alone still coated with zinc.
2.	Poor	Slight pinhole rusting, plate mottled with yellowish red discoloration.
3.	Poor	Uniform yellow discoloration over entire surface.
4.	Poor	Mottled yellow discoloration with dots of black phosphating showing through.
5.	Poor	Uniform yellow discoloration over entire surface.

This test evidently does not give a fair basis of comparison for the zinc and aluminum finishes, since the zinc failed to a considerable extent after one cycle in the tank. All the finishes were exposed to five cycles in the tank.

## Aerated Water Test

General		
Finish No.	Appearance	Remarks
1.	Poor	100 per cent coated with white corrosion products.
2.	Good	Finish showed a few streaks and spots together with a general darkening. No rust spots.
3.	Good	Finish darkened slightly, but no rust.
4.	Good	Same as No. 3.
5.	Good	Same as No. 3.

## Humidity Test (6 months exposure)

General		
Finish No.	Appearance	Remarks
1.	Good	Darkened slightly and dotted with white corrosion products.
2.	Good	A few pinhole rust spots and areas in which varnish showed through.
3.	Very good	No pinhole rust. One panel with few spots in which varnish showed through slightly.
4.	Very good	No pinhole spots.
5.	Very good	No pinhole spots.

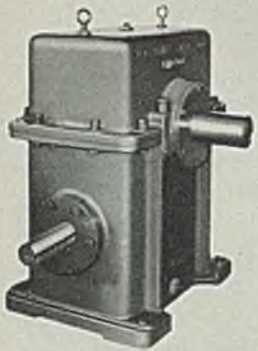
From the data thus shown, the engineers rated the finishes in the following order beginning with the finish rated as best: Nos. 5, 4, 3, 1 and 2. However, it is to be distinctly understood that the tests were not pushed to completion in the ordinary sense of the word before rendering the decision. It will be noted from the data that some of the panels had not failed when the tests were halted. No attempt is made to prove that zinc is an inferior type of finish; it was merely proved that the aluminum finishes would give ample protection from corrosion and at the same time resist discoloration far longer than an electrogalvanized surface.

It is also to be remembered that the problem of maintenance in the field was an important factor. The aluminum finishes were easy to "touch up" in the field and this was not true of the zinc finish. One other factor now enters for consideration and that is the expense of the original finish. From the results of the data, it was decided to use finish No. 4, since it was a one coat finish and could be applied at a lower cost than zinc. Finish No. 5 would have cost more than zinc to supply and would have afforded a greater degree of protection but since finish No. 4 withstood the tests even better than the zinc which had given satisfactory service from the standpoint of corrosion resistance, economy demanded its use.

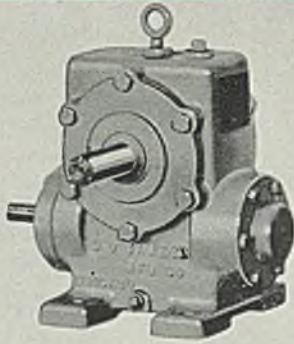
## Improves Refrigerator Finish

Improvements in its synthetic refrigerator finish are announced by the Zapon-Brevolite & Lacquer Co., North Chicago, Ill. These involve better adhesion, higher resistance to salt spray, greater resistance to discoloration by ultra-violet light and more permanent whiteness. The finish is sprayed over a primer coat. The primer is baked 20 minutes at 350 degrees Fahr. and the finishing coat 70 minutes at 260 degrees Fahr.

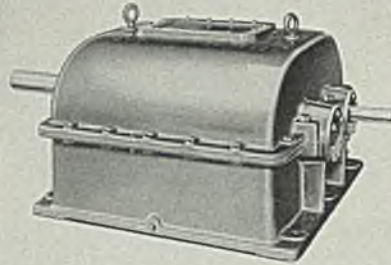
# SPEED REDUCERS



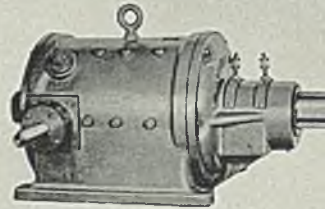
Heavy Duty  
Worm Gear Reducer



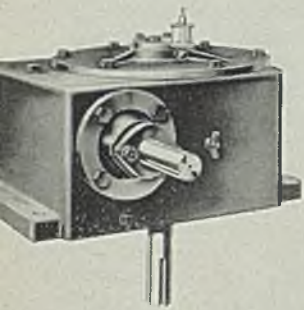
Small Heavy Duty  
Worm Gear Reducer



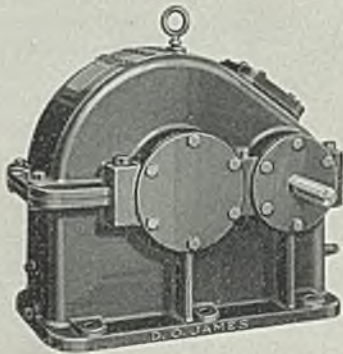
Double Herringbone Reducer



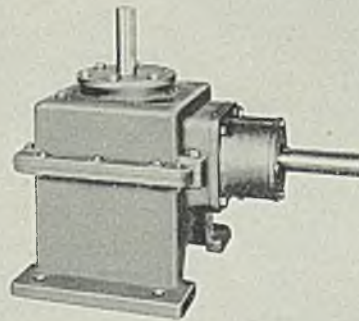
Right Angle Planetary  
Spur Gear Reducer  
With Large Reduction



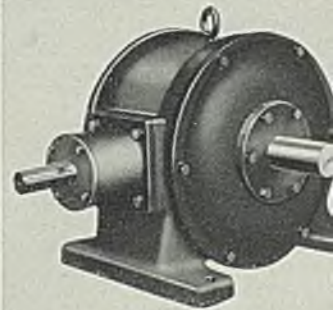
Heavy Duty Vertical  
Worm Gear Reducer



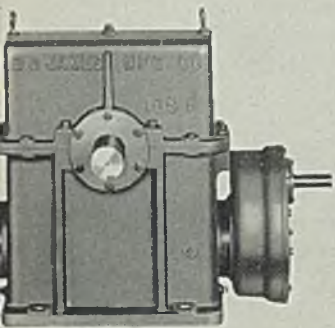
Single Herringbone Reducer



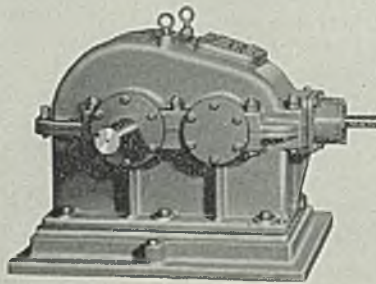
Vertical Type  
Spiral Bevel Gear Reducer  
Shaft Extended Upward



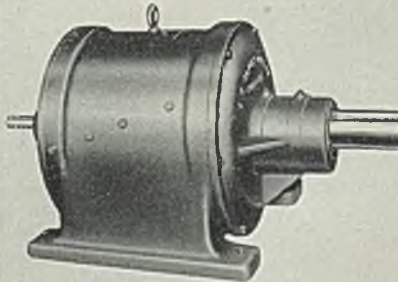
Spiral Bevel Gear Reducer



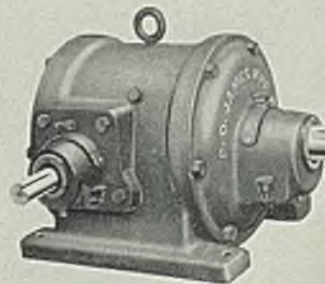
Helical Worm Gear Reducer



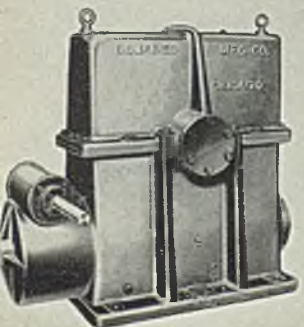
Spiral Bevel  
Herringbone Reducer



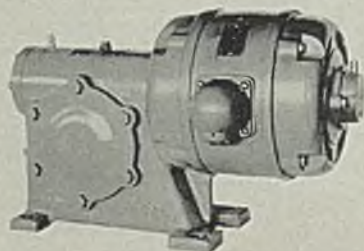
Planetary Gear Reducer



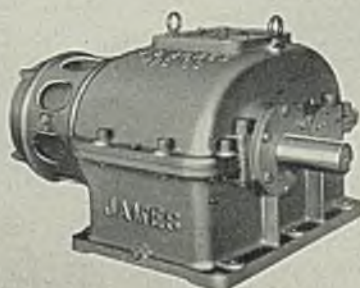
Spiral Bevel  
Planetary Gear Reducer



Motorized

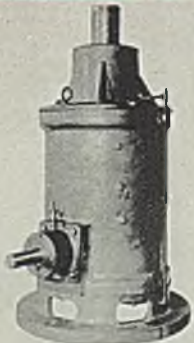


Motorized



Vertically Motorized

*all types for all purposes*



Spiral Bevel Gear  
Vertical Planetary Reducer  
Mash Tub Drive



Vertical Type  
Planetary Gear Reducer



Spiral Bevel Planetary  
Gear Reducer—Vertical Type

The progress and development of industry in the past fifty years has been paced in a most accurate manner by the progress and development of the D. O. James Speed Reducers. The thought and craftsmanship that created some of the earlier types of reducers is still a paramount feature of our organization. TODAY we make every known type of speed reducer and make them to meet any demand that industry puts upon them. Our policy of a complete line of speed reducers has caused many thousand industrial and manufacturing organizations to look upon the D. O. James Reducer as standard equipment. The development of testing machinery with resultant proof of the quality and longevity of our reducers was another step in establishing D. O. James Speed Reducers as the best obtainable—some of them lasting upwards to twenty years and performing with the minimum of operating trouble. Our stock of standard sized units is most complete and immediate shipment can be made. Other sizes can be assembled quickly, and made ready for you on very short notice. The facilities of a very extensive engineering and drafting department are available for the designing of special units when faced with unusual conditions. May we have the opportunity of serving you?

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# Foundrymen Arrange Program for Detroit Convention



**A** WELL-BALANCED array of papers and reports on practical operating problems in all branches of the foundry industry have been scheduled for the fortyleth annual convention of the American Foundrymen's association to be held in Convention Hall, Detroit, May 4-9. A Foundry and Allied Industries exposition will be held in conjunction with the convention, and, according to all indications, this exposition will be one of the largest held, presenting a great number of working exhibits, showing many new developments in foundry equipment and supplies.

Among sessions of outstanding significance listed in the tentative program just announced by the association is one on progress in the medical, legislative and engineering aspects of safety and hygiene in the foundry. Another important session will be conducted on apprentice training. These two subjects are of greatest current interest.

## Many Papers Offered

Heat treatment of cast iron, effect of alloys, and melting practice, will be given the greatest share of attention by gray iron foundrymen. Nonferrous foundry sessions will feature papers covering shop practice in the production of special bronzes. Malleable division papers will cover sands, annealing, and temperature control. General interest papers will include several on refractories and sand research. One meeting has been arranged for discussion of shop training in engineering schools. Three papers in the program will be contributed by European foundrymen.

Technical sessions for plant execu-

tives, engineers and metallurgists, shop course meetings for the practical production man, and roundtable luncheon meetings for informal discussion of representative foundry problems, will provide an extremely busy week for those attending the convention.

All sessions, except those on Wednesday evening will be held at Convention Hall. The latter are scheduled for Hotel Statler. The Tuesday evening dinner and smoker will be at Hotel Statler and the annual dinner on Thursday evening at the Book-Cadillac hotel.

Formal opening of the exposition in Convention Hall will take place at 9 a.m. Tuesday morning. It will be open daily from 9 a.m. to 6 p.m., except Saturday when the closing hour is set at 4 p.m.

The detailed tentative program for convention sessions is as follows:

### Monday, May 4

Registration at Convention Hall and plant visitation.

### Tuesday, May 5

#### MORNING

#### Cast Iron Shop Course

Session 1—"Cupola Operation and Repair."

#### Opening Meeting

Address of welcome, by Harvey Campbell, Detroit board of commerce. President's annual address, by D. M. Avey, editor, *The Foundry*, Cleveland.

#### Nonferrous Casting Practice

"Manganese Bronzes," by Dr. F. R. Hensel, P. R. Mallory Co., Indianapolis.

"Pressure Castings in Aluminum Bronzes," by H. T. Ganzauge, Goulds Pumps Inc., Seneca Falls, N. Y.

Annual business session of nonferrous division. Election of officers. Report of committee on recommended procedure for analysis of defects.

#### Malleable Cast Iron

"Malleable Sand Control," by H. W.

Dietert and F. Valtier, H. W. Dietert Co., Detroit.

Report of committee on specifications.

#### NOON

Luncheon and roundtable discussion for engineering instructors.

#### AFTERNOON

#### Sand Research

"Constitution of Bonding Clays and Its Influence on Bond Properties," by R. E. Grim, R. H. Bray and W. F. Bradley, Illinois State Geological survey, Urbana, Ill.

"Deformation of Molding Sand," by H. W. Dietert and R. A. Dietert, H. W. Dietert Co., Detroit.

"Practical Sand Control in Gray Iron Foundries," by H. Deane, Deere & Co., Moline, Ill.

"Foundry Sand Testing Problems at High Temperatures," by P. E. Kyle, Massachusetts Institute of Technology, Cambridge, Mass.

#### Sand Control Shop Course

Session 1.

#### EVENING

Joint dinner and smoker. Foundry Equipment Manufacturers' association, American Foundrymen's association and Detroit chapter of the American Foundrymen's association.

### Wednesday, May 6

#### MORNING

#### Cast Iron Shop Course

Session 2.—"Fundamentals in Welding Cast Iron."

#### Cast Iron

"Control of Manganese in the Cupola," by M. T. Davis III, General Electric Co., Schenectady, N. Y.

"Determining the Height of Molten Metal in the Cupola," by Carl Harmon, Chevrolet Motor Co., Saginaw, Mich.

"Effect of Coke Below Tuyeres," by H. Johnson and James T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala.

#### Malleable Cast Iron

"Measuring and Controlling Pouring Temperatures," by C. F. Joseph, Saginaw Malleable Iron division, General Motors Corp., Saginaw, Mich.

"Metallographic Changes During Cooling Between First and Second Stages of Annealing," by H. A. Schwartz and C. H. Junge, National Malleable & Steel Castings Co., Cleveland.

"Selection of Melting Furnaces for Malleable Iron," by M. G. Girshovitch and H. F. Landa, Central Institute of Scientific Research for Machine Construction, U. S. S. R.

#### NOON

Luncheon and roundtable discussion of nonferrous division.

#### AFTERNOON

#### Apprentice Training

"Foundry Apprentice Training," by Franklin R. Hoadley, Farrel-Birmingham Co., Ansonia, Conn.

"Apprentice Training in Detroit Industries," by H. W. Boulton, Murray Corp., Detroit.

"Training Foundry Apprentices in Cleveland," J. R. Goldie, Cleveland Vocational school, Cleveland.

#### Sand Control Shop Course

Session 2.

#### EVENING

#### Foundry Refractories

"Behavior of Cupola Refractories Under Severe Operating Conditions," by J. L. Lowe, Campbell, Wyant & Cannon Foundry Co., Muskegon, Mich.

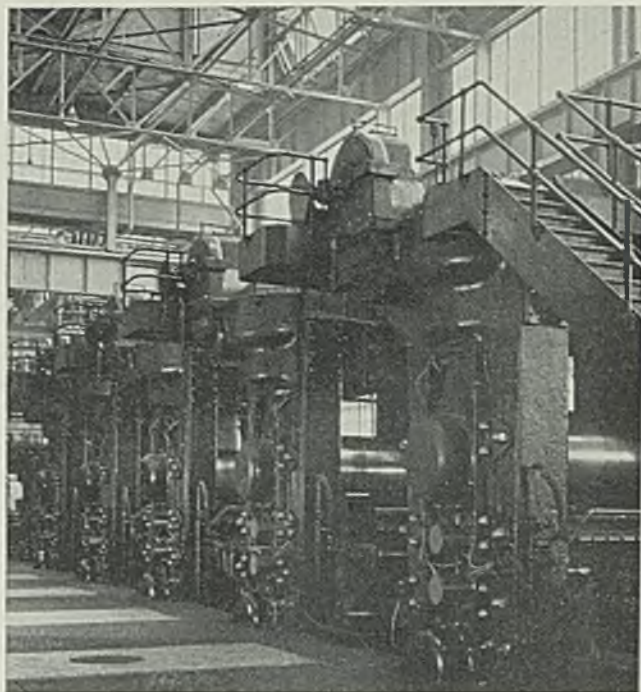
"Notes on Some Foundry Refractories," by J. D. Sullivan, Battelle Memorial institute, Columbus, O.

"Overcoming Spout Trouble by Use of a Monolithic Refractory Tile Trough," by J. A. Bowers, American Cast Iron Pipe Co., and Charles Green, Alabama

# UNITED AGAIN!

CRAMP'S *Super-Strength* BRONZE  
AND  
UNITED'S ENGINEERING SKILL

Cramp's Super-Strength Bronze was specified by the Engineering Department of the United Engineering and Foundry Company for the Screw Down Nuts and Worm Gears in this, another of United's outstanding installations.



*Finishing mill which includes five 21 and 16 x 56-inch stands of 4-high rolls and delivers at a maximum speed of 1500 feet per minute*



*Roughing mill which comprises one stand of 2-high and two stands of 4-high rolls. Each of these stands is preceded by edging rolls*

Approximately 180,000 pounds of Cramp's Super-Strength Bronze castings were delivered for use in this complete unit.

Tensile strength in excess of 100,000 pounds per square inch—yield point 60,000 pounds—Brinell Hardness 200—and a readily machinable metal is obtainable with Cramp's Super-Strength Bronze.

*“Super-Strength”* — THE STRONGEST BRONZE

Copy of our Super-Strength Bronze Folder  
will be forwarded on request.

**CRAMP BRASS and IRON FOUNDRIES CO.**  
Paschall Station - Philadelphia, Pa.

NEW YORK

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MILWAUKEE

SAN FRANCISCO

April 6, 1936

**STEEL**

47

Clay Products Co., Birmingham, Ala.  
Open forum on insulated ladles.

#### Steel Founding

"Cleaning Steel Castings," by Paul Dougher, American Steel Foundries, East Chicago, Ind.  
Report of committee on test coupons.  
Report of committee on radiography.  
Report of representative on A. S. T. M. committee on specifications.

Thursday, May 7

MORNING

#### Cast Iron Shop Course

Session 3—"Alloys—Why Used and What They Do to Cast Iron."

#### Cast Iron

"Notes on Fatigue Properties of Alloy Cast Iron," by H. L. Daasch, Iowa State college, Ames, Iowa.  
"Heat Treated Cast Iron," by M. Ballay and R. Chavy, Paris, France. Exchange paper of French Foundry Technical association.  
"Heat Treatment by Hardening and Tempering," by J. E. Hurst, president, Institute of British Foundrymen. Exchange paper of British Institute of British Foundrymen.

#### Nonferrous Castings

"Sand Castings of the Copper-Silicon Alloys," by H. A. Bedworth and V. P. Weaver, American Brass Co., Waterbury, Conn.  
"Founding Aluminum Bronzes," by J. E. Crown, naval gun factory, Washington.  
Report of committee on recommended practices.

NOON

Luncheon and round table discussion of steel division.  
Luncheon and roundtable discussion of malleable division.

AFTERNOON

#### Annual Business Meeting

Election of officers.  
Committee reports.

#### Sand Control Shop Course

Session 3.

EVENING

Annual dinner of American Foundrymen's association.

Friday, May 8

MORNING

#### Cast Iron Shop Course

Section 4—"Use of Pulverized Coal-Fired Rotary Furnace in Melting Cast Iron."

#### Steel Founding

"Free and Hindered Contraction of Alloy Steel Castings," by C. W. Briggs and R. A. Gezelius, naval research laboratory, Washington.  
Report of committee on methods of manufacture of liquid steel for castings.  
Report of representative on committee on foundry sand research.

#### Cast Iron

"Copper and Copper-Manganese in Cast Iron," by L. W. Eastwood, C. T. Eddy and A. E. Bousu, Michigan School of Mines and Technology, Houghton, Mich.  
Symposium on alloy cast iron. Reports of committees on foundry practice, specific applications and heat treatment.

AFTERNOON

#### Progress of Medical, Legislative and Engineering Aspects of Safety and Hygiene in the Foundry

"Medical Aspects," by Dr. R. R. Jones, past assistant surgeon, division of labor and standards, United States department of labor, Washington.  
"Legislative Aspects," by Voyta Wrabetz, chairman, industrial commission of Wisconsin.  
Open forum.

## Announce Program for Gear Makers' Annual Meeting

Eleven addresses and papers will be presented at the twentieth annual meeting of the American Gear Manufacturers association to be held at the Adelphia hotel, Philadelphia, April 20-21, according to the announcement of J. C. McQuiston, manager-secretary. Speakers and their subjects are as follows:

Address of welcome by George L. Markland Jr., president, Philadelphia board of trade.

"Industrial Problems," by John W. O'Leary, president, Machinery and Allied Products institute, Chicago.

"What's Ahead in Sales," by F. B. Heitkamp, Lyon Metal Products Inc., Aurora, Ill.

"Gear Noise—Causes and Corrections," by W. E. Sykes, Farrel-Birmingham Co. Inc., Buffalo.

"Gear Cost Estimating," by G. H. Holbrook, Charles E. Crofoot, Gear Corp., South Eaton, Mass.

"Let's Laugh," by Charles H. Grakelow, past president, City Business club, Philadelphia.

"Marine Gearing," by Ira Short, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

"Cast Steel and Welded Plate Combination Gear Housings," by Everett Chapman, Lukenweld Inc., Coatesville, Pa.

"A Standard Procedure in Determining the Size and Horsepower Capacities of Gears of Different Materials," by G. E. Katzenmeyer, National-Erie Corp., Erie, Pa.

"Use of Tapered Roller Bearings in Gear Reduction Units," by S. M. Weckstein, Timken Roller Bearing Co., Canton, O.

"A Purchasing Agent's View of the Gear Salesman," by Donald Clarke, Brown & Sharpe Mfg. Co., Providence, R. I.

## Steel Engineers Announce Spring Meeting Program

Seven technical papers are listed for presentation before the spring engineering conference of the Association of Iron and Steel Electrical Engineers to be held at the Ohio hotel, April 22-23, under auspices of the association's combustion engineering division. A special feature of the meeting will be an inspection trip to the new 43-inch hot strip mill of the Carnegie-Illinois Steel Corp., McDonald, O., on Thursday afternoon, April 23.

Technical papers and their authors have been announced as follows:

"Descaling Hot Steel Hydraulically," by J. E. Holveck, Worthington Pump & Machinery Corp., Harrison, N. J.

"Circular Furnace for Ingot Heater," by M. H. Mawhinney, Salem Engineering Co., Salem, O.

"Tension Control in Cold Strip Rolling," by F. Mohler, industrial engineer, department, General Electric Co., Schenectady, N. Y.

"Measurement of the Temperatures of Hot Moving Objects," by A. E. Krogh, Brown Instrument Co., Philadelphia.

"Refractories in the Steel Industry," by L. J. Trostel, General Refractories Co., Cleveland.

"Control and Recording of Rolling Mill

Pressures," by M. Stone, United Engineering & Foundry Co., Pittsburgh.

"A Description of the 43-Inch Hot Strip Mill, Carnegie-Illinois Steel Corp., McDonald, O.," by L. N. McDonald, general superintendent, Carnegie-Illinois Steel Corp., Youngstown district, Youngstown, O.

## Six A. S. M. Chapters To Hold Penn State Meeting

The second biennial interchapter meeting of the Pittsburgh, Philadelphia, Lehigh Valley, York, Southern Tier and Penn State chapters of the American Society for Metals will be held at State College, Pa., May 1-2. The program will include technical sessions on Friday afternoon and Saturday morning and a dinner on Friday evening at the Nittany Lion Inn.

Each of the six chapters is sponsor for one of the speakers at the two technical sessions. Speakers and their subjects have been announced as follows:

"Austenitic Grain Size in Steel," by Edgar C. Bain, assistant to vice president, United States Steel Corp., New York.

"Variants Affecting the Grain Size Rating of the McQuaid-Ehn Test," by Reinhold Schempp, metallurgist, Halcomb Steel Co., Syracuse, N. Y.

"Invisible Rays in Modern Engineering," by Dr. Gilbert E. Doan, associate professor of metallurgy, Lehigh university, Bethlehem, Pa.

"Austenitic Alloys of the 18-8 Type," by Dr. V. N. Krivobok, professor of metallurgy, Carnegie Institute of Technology, Pittsburgh.

"Grinding Strains and Grinding Cracks in Hardened Tool Steel," by James G. Morrison, metallurgist, Landis Machine Co., Waynesboro, Pa.

"Welding Viewed from a Somewhat Different Angle," by Dr. T. Holland Nelson, consulting metallurgist engineer, Philadelphia.

## Program for Management Conference Is Arranged

Details of the program for the annual production conference of the American Management association to be at Hotel Statler, Cleveland, April 16-17, have been announced by Alvin E. Dodd, executive vice president. Theme of the conference will be "Today's Problems of the Manufacturing Executive," with sessions scheduled for morning and afternoon of the two days. The annual dinner will be served on Thursday evening. Headquarters of the association at 330 West Forty-second street, New York.

Subjects to be discussed and speakers are as follows:

Thursday, April 16

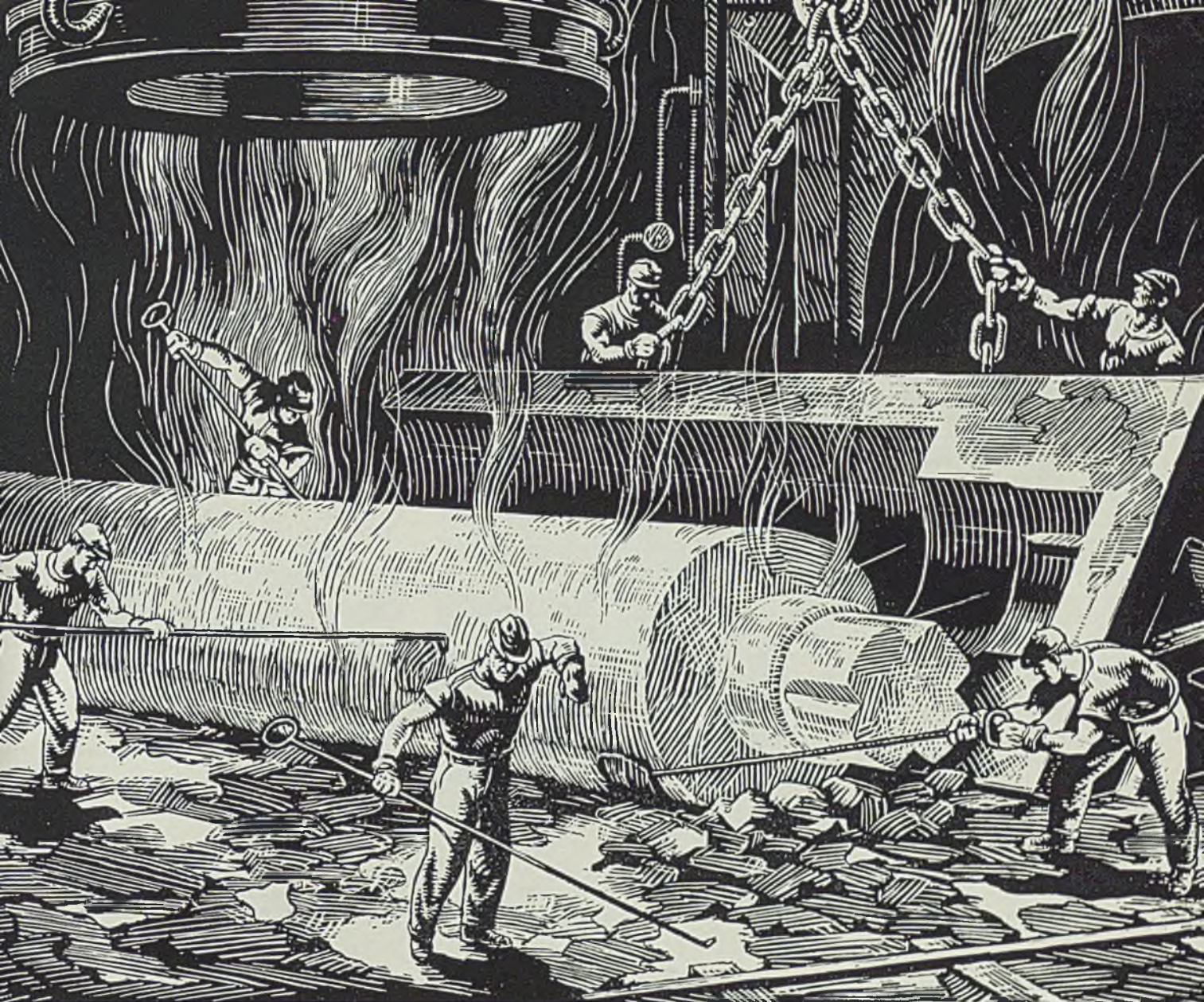
MORNING

"Rebuilding the Working Force." Speaker: C. J. Freund, dean, college of engineering, University of Detroit.

"Revamping Equipment and Layout." Speakers: F. J. Van Poppelen, indus-

(Please turn to Page 66)





## MODERN ROLL TECHNIQUE

From top to bottom, the ambition of every department of the Pittsburgh Rolls organization has been coordinated to produce better rolls. This specialization in the development of just one product has resulted in the expressed

satisfaction of the mills and their preference for PHOENIX products. There is a PHOENIX roll for every purpose, a quality roll to give tonnage and finish for all the exacting requirements of modern rolling mill practice.

### PHOENIX ROLLS

PHOENIX STEEL for unusual strength; PHOENIX "A" (steel alloy), for strength and wear; PHOENIX METAL—PHOENIX "K", for strength, wear and finish; PHOENIXLOY (uniformly hard), for flat rolling where high finish of extremely thin gauge of material is required to be free from all marks or defects. Also tube mill rolls of quality material best suited to the kind of service required; PHOENIX CHILL; PHOENIX NICKEL CHILL, for all flat rolling requiring finish.

# PITTSBURGH ROLLS CORPORATION

PITTSBURGH, PA.



# Why the Swing to Great Lakes Steel?

1930  
1931  
1932  
1933  
1934  
1935  
1936

Although this company started producing steel only six years ago, a strong and steadily increasing demand has already led to a greatly augmented capacity. The reasons for this rapid growth are simple but important.

Great Lakes Steel Corporation offers steel products of the kind, size and quality most acceptable to users; it has an advantageous location; and it gives really good service. Your inquiries invited.



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## PRODUCTS

HOT ROLLED STRIP  
CARBON STEEL BARS  
SPRING STEEL  
BILLETS  
COLD ROLLED SHEETS  
PICKLED SHEETS  
BLACK SHEETS  
MICHIGAN METAL  
*for Vitreous Enameling*

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## LOCATION

A satisfying delivery service to more steel consumers than could be rendered from any other place.

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## SERVICE

Alert, helpful negotiation and conscientious execution of all contract obligations.

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# GREAT LAKES STEEL

GREAT LAKES STEEL CORPORATION

*Division of National Steel Corporation*

DETROIT, MICHIGAN

# Methods and Materials

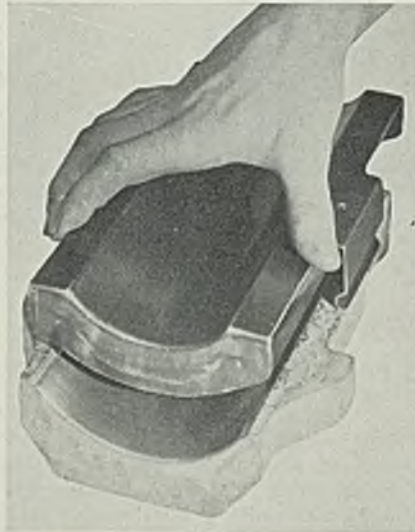


## Railway Journal Bearings Protected by Steel Guard

Many railroad car hot boxes are attributed to damaged journal bearings, the damage consisting of nicks, dents or scratches inflicted upon the linings of the bearings in the period between manufacture in the foundry and installation in journal boxes. One competent railroad man has estimated that 60 per cent of new brasses are so injured before they are used.

To eliminate this damage to bearings in shipment and handling, the Lewis Bolt & Nut Co., Minneapolis, has recently developed a simple steel protector. Known as the Macer journal bearing protector, this guard is press formed from hot rolled, pickled and oiled, deep drawing steel. It is made in a number of sizes and gages of steel, depending upon the dimensions of the bearings to be protected.

The accompanying illustration shows one of the protectors being placed on a bearing. Integral



*When this pressed steel protector is used, railroad journal bearings cannot be damaged in shipment or handling*

spring clips, one on each side, hold it firmly in place, and the curve

in the top is of such a radius that the metal is not in contact with the bearing surface. It will be noted that protection is given to ends of the bearing as well as the surface.

The protector is applied quickly by putting one side completely on the bearing and pushing the other side down with the heel of the hand until the clip engages. It is removed as easily by lifting one side completely off by raising the spring clip with the right hand while holding the brass down with the left hand on the stop lug.

It is claimed by the manufacturer that journal bearings protected with this steel guard can be loaded, unloaded, piled, dropped, thrown on and off cars, and given almost any normal abuse without harm to the soft babbitt surface. Need for protection is particularly great when bearing surfaces have been broached at extra cost. The protector can be used many times and with reasonable care should last for years.

\$ \$ \$

## Slag Skimmer for Air Furnace Is Water Cooled

Constant purchase of new material combined with the expense of fabrication led a midwest malleable foundryman to construct a water-cooled skimmer for removing the slag from the iron bath in an air furnace. The unit is made up of an inside and outside pipe connected at one end with a hollow skimmer blade. Whereas former daily replacement was necessary, the water-cooled skimmer has been in constant use for nearly a year and apparently is in as good condition as it was the first day.

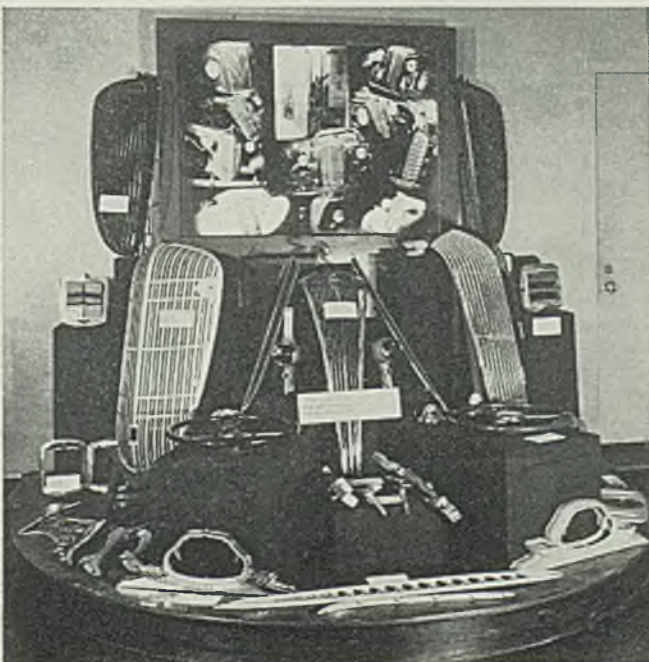
\$ \$ \$

## Machines Heat Material By Electrical Resistance

The electric resistance method of heating stock for forging, upsetting, hardening or tempering is being used more extensively. By this method, heating of the material is localized to the section to be worked or heat treated.

A well-known manufacturer of

## Die Castings in Spotlight



**L**ARGEST consumer of die castings is the automotive industry. Here are a few representative types of automotive die castings, on display at the recently opened exposition of the American Die Casting Institute in quarters of Metal Products Exhibits Inc., Rockefeller plaza, New York (see STEEL, March 30, p. 36)

equipment for this purpose has recently introduced two new machines, both of which are equipped with photoelectric cells or electric eyes to control the time of heating and thereby insure a temperature which is accurate. In one machine, an electric time clock is provided to permit a soaking period if desired.

The larger machine is a three-electrode unit for heating stock of

any diameter from  $\frac{1}{4}$  to  $2\frac{1}{2}$  inches, and giving any length of heat from 1 to 24 inches, at the end or at any point on any length of bar. The smaller unit provides heat on the end of any material ranging from  $\frac{1}{4}$  to 1-inch or more in diameter. The work is placed between the electrodes and a heat one and a half times the diameter of the piece is obtainable.

turer is as follows: Carbon, less than 0.12; silicon, trace; manganese, 0.20 to 0.80; phosphorus, 0.05 to 0.15; copper, 0.35 to 0.75; nickel, 0.25 to 0.75; and molybdenum, 0.05 to 0.25 per cent.

Yield strength is reported as 47,000 pounds per square inch; tensile strength, 67,000 to 70,000 pounds per square inch; and elongation in 2 inches, 28 per cent.

It is claimed that this steel has an impact tensile strength of 5000 foot pounds per square inch. Corrosion resistance is four to six times that of ordinary steel. Sheets and plates are offered in 20-gage and heavier, in all the sizes and finishes ordinarily supplied in mild steel, hot and cold rolled grades.

## Skid-Mounted Milk Tanks Suitable for Transportation by Rail or Truck

**A** NEW use for stainless steel in the dairy industry, centering around the use of interchangeable stainless steel containers in connection with a specially adapted railroad flat car, has recently been perfected by the Motor Terminals Co., New York.

The containers, built by the Davis Welding & Mfg. Co., Cincinnati, are of a double-shell type. The inner shell is of 10-gage 18-8 stainless steel produced by Allegheny Steel Co., Brackenridge, Pa., jacketed with  $2\frac{1}{2}$ -inch cork insulation; the outer shell is of 12-gage mild steel produced by the American Rolling Mill Co., Middletown, O.

### Slid from Cars to Trucks

Last month the Motor Terminals Co., in conjunction with the New York, Ontario & Western railroad and the Dairymen's league, completed a series of tests to determine adaptability of the tanks for handling milk from country stations to a central pasteurizing plant. This type of equipment, each tank holding 2000 gallons, is being proposed for quick and efficient collection and distribution of milk.

As the accompanying illustrations show, the steel underframe railroad car has been equipped with anchorage rails on which rides a 50-inch

skid platform holding the tank. Motor truck trailers are provided with rails onto which the tanks are drawn by means of a special chain drive attachment on the trailer.

## Low-Alloy High-Tensile Steel Offered to Industry

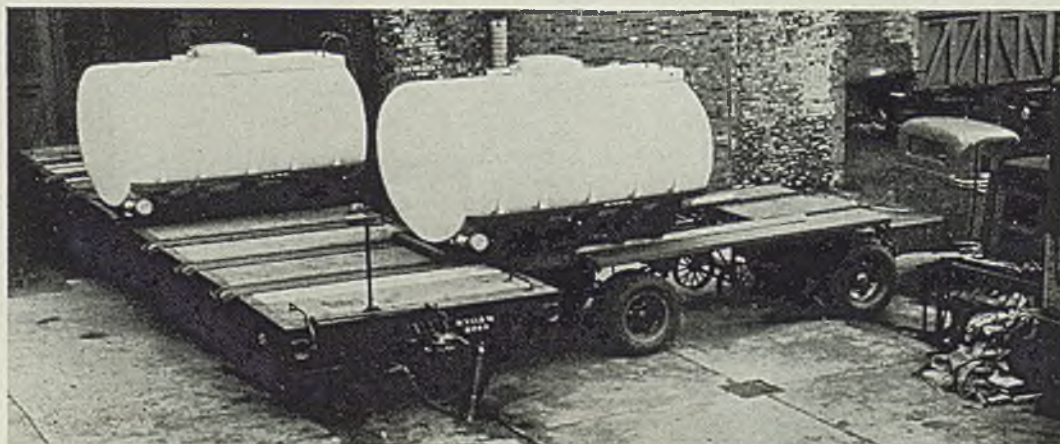
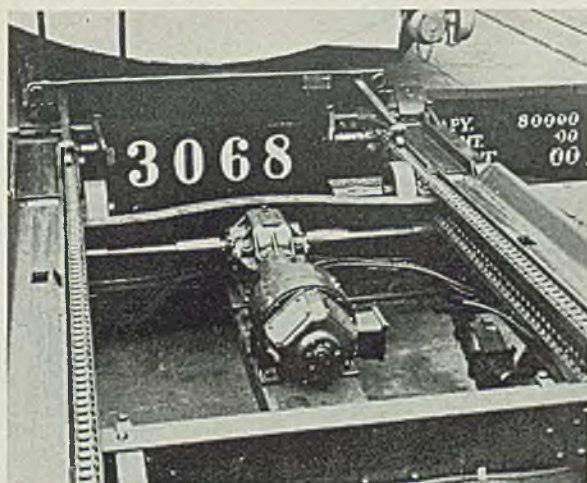
A special low-alloy high-tensile steel, known as Armco H.T.-50, has been developed by the American Rolling Mill Co., Middletown, O. Analysis submitted by the manufac-

## Builds Arc Welded Barge For Ohio River Shipping

Barge line operators on the Ohio river are showing great interest in an all-welded steel coal barge constructed by the Dravo Contracting Co., Pittsburgh. This new carrier, shown in the illustration on Page 54, is 175 feet long over all, 26 feet beam, and 10 feet 8 inches deep. Its capacity, fully loaded is 850 to 1000 short tons. The draft light is  $15\frac{1}{4}$  inches.

The hull transverse framing and

**A** SIMPLE, rugged chain drive transfers the tanks from one vehicle to the other



**THESE** milk tanks of stainless steel are mounted on transverse rails and are readily transferred from cars to truck trailers



## *This wire can take it*

Good springs, made from "Gamma", the trade name of *Wissco Upholstery Spring Wire*, always create a feeling of richness and give upholstery added sales appeal. That is why "Gamma" is so generally in demand for making inner spring mattresses, bed springs, upholstered furniture and automotive upholstery. Furthermore, "GAMMA" withstands the abuse of use which is as important to the reputable manufacturer

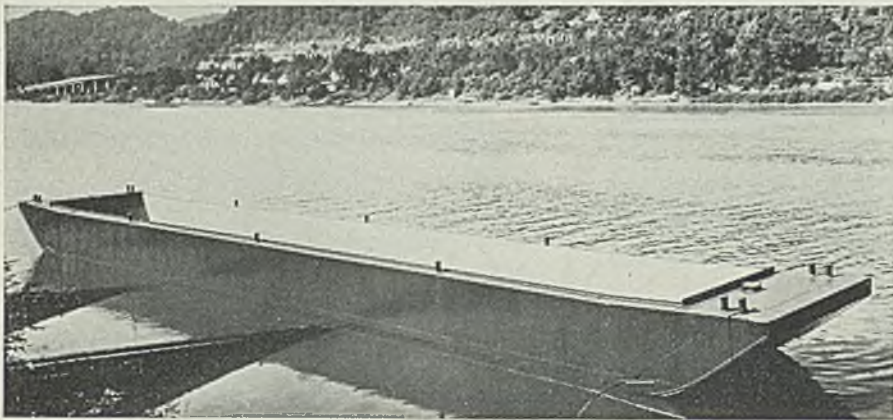


as the luxuriousness it gives. "Gamma" is a typical example of a special purpose *Wissco Wire*, developed in the *Wickwire Spencer Laboratories*, to meet a definite set of conditions. There are other *Wissco Wires* that satisfy other requirements including yours. Inquire about them. Write today.

**WICKWIRE SPENCER STEEL COMPANY**  
 New York City, Buffalo, Chicago, Worcester;  
*Pacific Coast Headquarters:* San Francisco;  
*Warehouses:* Los Angeles, Seattle, Portland.  
*Export Sales Department:* New York City.

*Wickwire Spencer* manufactures High and Low Carbon Wires—in various tempers, grades and finishes—for your specific purpose. Hard-Drawn, soft or annealed Basic or Bessemer Wires—Hard-Drawn annealed, or oil-tempered Spring Wire, Chrome Vanadium Spring Wire—Valve Spring—Music—Clip—Pin—Hairpin—Hook and Eye—Broom—Stapling—Bookbinding—Machinery Spring Wire—Reed Wire—Clock—Pinion—Needle—Bar—Screw Stock—Armature Binding—Brush—Card—Florist—Mattress—Shaped—Rope—Welding. Flat Wire and Strip Steel, High or Low Carbon—Hard, annealed or tempered—Clock Spring Steel—Corrosion and Heat Resisting Wires. Consult the *Wissco* technical man on your wire problems, however large or small.

**WISSCO WIRE**  
*by Wickwire Spencer*



*Standard type coal barge, 175 feet long, 26 feet beam, 10 feet 8 inches deep, built entirely of steel arc welded*

rake frames are of special design developed by the builder to provide maximum strength. The welding method and procedure was carefully planned and required extensive and accurate shop fabrication; also sub-assemblies of various units as a part of the shop fabrication.

Procedure was planned so as to obtain a maximum amount of position welding for all assemblies. Special equipment for position welding

was employed in the shop. Accurate shop assembly was obtained by special jigs and fixtures.

The Dravo company, designers and builders of floating and terminal equipment, dock and material handling installations, is one of the pioneers in arc welded steel barge construction. The shielded arc process is regularly employed. Extensive use is made of equipment supplied by the Lincoln Electric Co., Cleveland.

## Employ Models of Plaster To Measure Strengths of Engineering Structures

**U**SE of small plaster models in testing the strength of everything from small parts to tall skyscrapers and other large structures built by man is seen as a result of investigations carried on by faculty members of the college of mechanics and engineering at the University of Wisconsin, Madison, Wis.

Results of the investigations, which may play an important part in making large construction projects of the future safer for mankind's use, are contained in a bulletin of the university's engineering experiment station. The investigations were carried on by Raymond J. Roark, professor of mechanics, and Richard S. Hartenberg, instructor in mechanics.

### Is Pioneering Work

The pioneering investigations carried on by these men comprised selection of suitable model material, development of satisfactory technique for making and testing models and specimens, comparison of the mechanical properties of the model material with those of various structural materials, and finally comparison of tests on fairly complicated structures with tests on models of them to ascertain

the accuracy and reliability of the plaster model method of strength prediction.

A grade of commercial gypsum plaster known as number one mold-

ing plaster was adopted as the model material and a good deal of experimentation was required to develop a technique that made possible the reproduction in plaster of complicated structures, especially castings of irregular form, the bulletin reveals. A special testing machine had also to be designed and constructed for the purpose of testing the models and model materials.

### Had to Compare Results

To ascertain the practicability of strength prediction by the use of models, the investigators had to compare the results of tests on structures of some complexity with the results of tests on corresponding plaster models, it was explained.

The bulletin reviews the various procedures which engineers use in investigating the strength of an actual or proposed structure, and points out that all of the present methods are subject to certain limitations or disadvantages.

"The best way to ascertain the strength of a structure is to test the structure itself, or a duplicate, to failure, under conditions as nearly as possible identical with those of service," the authors explain in their bulletin. "This is usually difficult and expensive and often impracticable, and as a substitute measure, the test of a scale model, made of some weaker and more easily fabricated materials, such as plaster, suggests itself.

"It would appear that if a plaster model method of strength prediction could be perfected, it would have potentially certain distinct advantages over mathematical analysis and over other experimental methods," the bulletin continues.

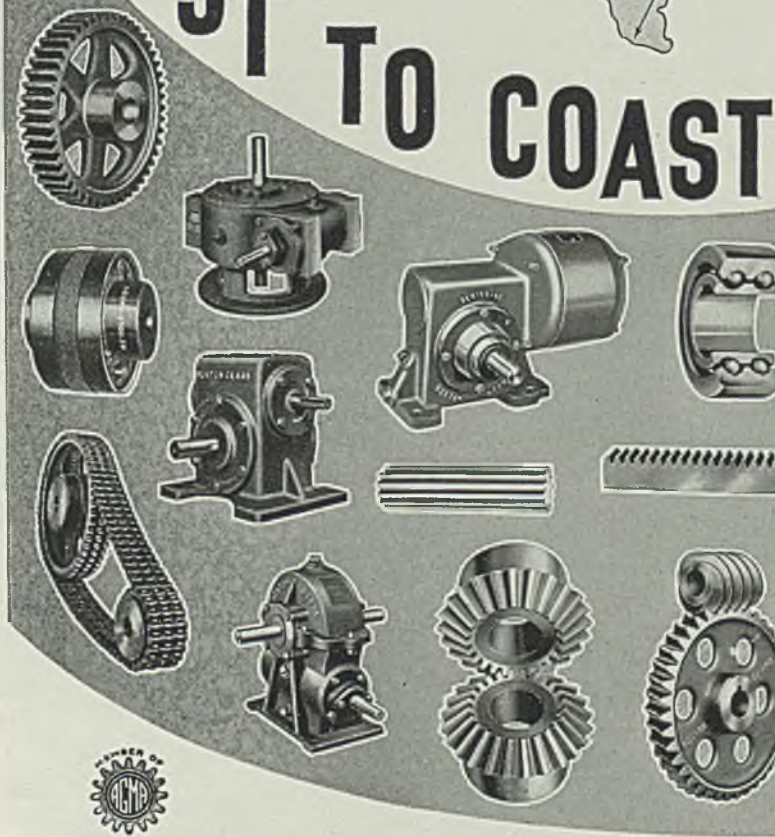
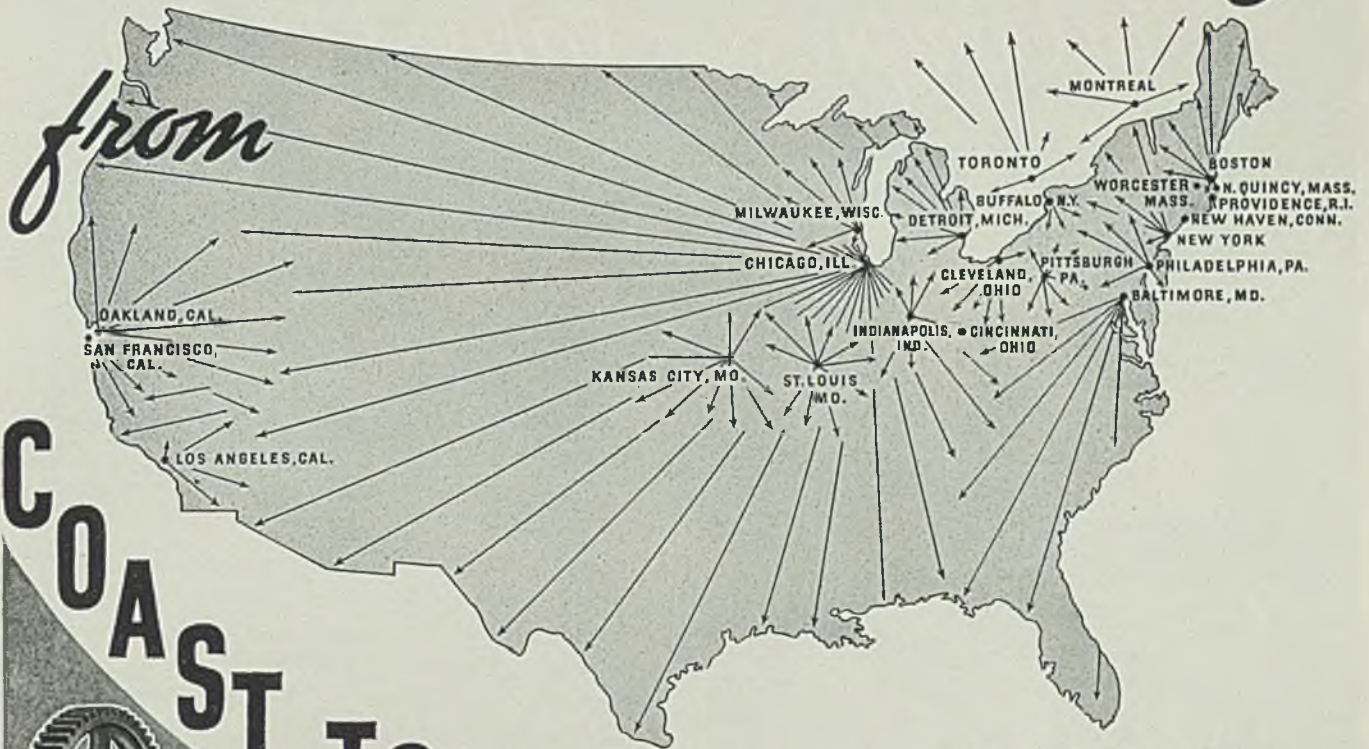
"Such a method is applicable to structures of any form and size; it takes into account both the intensity

### Steel House for Country Estate



**A**RTIST'S sketch of prefabricated two-story steel panel dwelling, designed for year-round occupancy and being built by General Houses Inc., Chicago. It is to be equipped for summer and winter air-conditioning, summer cooling to be effected by using cold water from a deep well. The house will have four bedrooms and four baths, three roof decks for living and recreation purposes, a large living room and library, a recreation room in the basement and a screen porch. Fourteen-gage copper-bearing steel panels form the walls, and the house will be insulated throughout. Howard T. Fisher is the architect

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MORE THAN 2000 DIFFERENT TYPES AND SIZES OF GEARS!

SPEED REDUCERS IN 700 DIFFERENT RATIOS, TYPES, AND SIZES!

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Products are ready for immediate installation and are IN STOCK in principal industrial centers from coast to coast.

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SEND FOR CATALOG S450 giving complete prices and specifications and listing all distribution points.

**BOSTON GEAR WORKS, INC.**  
NORTH QUINCY, MASS., U. S. A.

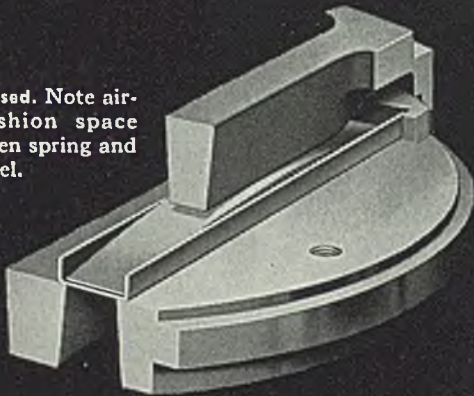
A. T. & T. CO. TELETYPEWRITER CONNECTIONS

# BOSTON GEAR STOCK PRODUCTS

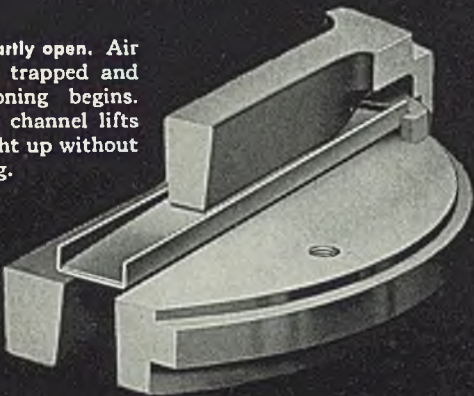
# The Greatest Advance Ever Made in Compressor Valve Design

## The CHANNEL VALVE

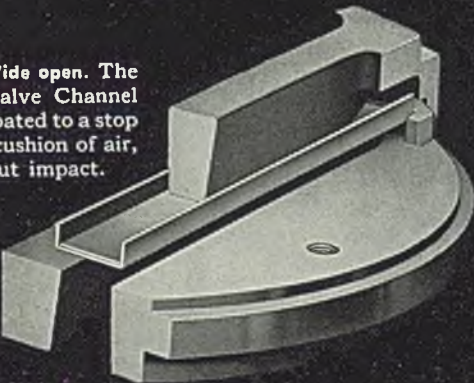
**1** Closed. Note air-cushion space between spring and channel.



**2** Partly open. Air is trapped and cushioning begins. Valve channel lifts straight up without flexing.



**3** Wide open. The Valve Channel has floated to a stop on a cushion of air, without impact.



This new development utilizes a greater portion of the available valve openings than in any other plate valve that Ingersoll-Rand has ever used. The resulting slower air speeds through the valves mean higher efficiency.

Light weight, rigid valve channels lift straight up without flexing, returning to the same positions on the seat. In raising, however, air trapped between springs and channels forms cushions which prevent impact. (See Figs. 1, 2, 3). Springs and channels are stainless steel.

Thus the Channel Valve is silent, and its original high efficiency is sustained throughout a long uninterrupted life.

### Send for New Bulletin

Our new bulletin describing the Channel Valve is so unique that we are safe in saying that nothing like it has ever before been printed. Copies will be sent on request. Write 11 Broadway, or any Ingersoll-Rand branch office.



## Ingersoll-Rand

11 BROADWAY, NEW YORK CITY  
274-1

### Be Sure Your Next Compressor Has Channel Valves



of stress and the circumstances under which it occurs; it shows both the method of failure and the load required to produce it, and infallibly discovers the weak point in the design; it permits, by virtue of the easily worked material used, repeated tests on progressively varied designs, directed toward greater strength or greater economy; and finally, it is a method that requires relatively little laboratory equipment, and one which can be carried through in a short time and at little cost."

## Investigates Deterioration Of Insulating Oils

Thin films of metals deposited on glass by volatilization in vacuo were used by P. J. Haringhuizen and D. A. Was, physical laboratory, University of Utrecht, Utrecht, Holland, in studying the deterioration of insulating oils in contact with tin, copper and lead. The results of the researches carried out on behalf of the International Tin Research and Development Council have been issued as the council's technical publication Series A, No. 29.

The amount of sludge formed and the darkening of the oil after 1000 hours at 90 degrees Cent. were quantitatively determined. The deterioration shown by these tests was less with tin than with lead, copper and the blank experiments, from which it appears probable that tin may perhaps act as an anti-oxidant, as it was shown to do in lubricating oils by Mardles (technical publication Series C, No. 2.)

Tests made every 200 hours over a period of 1600 hours revealed that the ultimate increase in acidity was least in the oil in contact with tin. The information should be of value in indicating how the deterioration of insulating oils may be minimized.

Copies of this paper may be obtained without charge by addressing L. J. Tavener, United States representative, International Tin Research and Development Council, 149 Broadway, New York.

## Address Surveys Future of Engineering Education

Rensselaer Polytechnic institute, Troy, N. Y., has published in pamphlet form an address, "The Future of Engineering Education," presented in Washington, Feb. 1, by Dr. William O. Hotchkiss, on the occasion of his induction to the presidency of the institute. The address was made before the midwinter reunion and banquet of school's alumni association.

# Welding, etc. . . .



by Robert E. Kinkead

## Fashions in Welding

IN OHIO, at least 15 manufacturers are equipping plants for welded steel construction. The situation is the same in other states and in other countries.

Certain important facts have an acute bearing on how such enterprises are erected. Due recognition should be given to the rapidity with which welding practice changes. For instance, until a year ago, an installation in which each man could deposit 12 pounds of weld metal per hour represented a modern plant indeed. Today it is possible for a welding operator with the latest equipment to deposit 150 pounds of weld metal per hour. Any capital expenditure made on a welding department should anticipate the present fashions in welding practice by at least a year, otherwise the installation may be obsolete before it gets a good start.

Nor is the situation with reference to design of welded structures one which may safely be left to chance. It is a common experience to reduce the welding cost of a structure by two-thirds by design based on the limitations of the welding process used. The best solution to the design problem is the designer who knows about his line of equipment and who later learns about forming and welding of metals from someone who has had experience.

Profitable results from a welding department do not just happen; they must be carefully planned.

\* \* \*

## Wise Guys

RECOGNIZING the need for an incentive system for arc welding operators, a manufacturer checked the welding rod out of the storeroom to the operators, charging them with the pounds of rod obtained. On return of the stubs, he had the difference, which presumably was the amount of metal deposited, credited to the man for figuring his pay. After the system was in operation for six months, he found that he was

IN THIS column, the author, well-known consulting engineer in welding, is given wide latitude in presenting his views. They do not necessarily coincide with those of the editors of STEEL.

not getting production although he was paying pretty high wages. It developed that several of the boys were burying their welding rod and buying stubs from another plant.

\* \* \*

## Sparks and Flashes

Purdue, Illinois, Ohio State, Massachusetts Institute of Technology and other engineering schools offer short elective courses in welding. There are no "welding engineer" degrees. Many practical men consider this an advantage. The welding man can cite only experience as a qualification for employment. An academic degree certifies merely that a man has studied certain theories, which are probably 20 years old and of which at least 50 per cent are obsolete.

\* \* \*

Good showmanship is appropriate in the steel industry's efforts to capture new markets for steel. It has cost the industry millions to learn it. But it should not be forgotten that the steel industry, which is the Gibraltar of American business, was founded and grew to prosperity on the principle of allowing a low price to do most of the talking. The automotive industry learned the trick from the old steel masters.

\* \* \*

In welding, as in other manufacturing processes, low cost production depends on adequate capital investment. Twelve thousand dollars per productive operator is a fair average although much higher figures are permissible. That represents 100 per cent burden on direct labor to begin with. Nonproducing management and service personnel will put another 100 per cent burden on direct labor. All of which means that methods must be excellent or there will be no profits.

# Progress in Steelmaking



## Valve with Stainless Steel Disks Is Designed for Hot Gas Service

**S**ERVICE in hot dirty gas is one of the latest applications of a recently designed valve for coke oven and blast furnace gas. The valve seats and the valve itself are enclosed completely in a single steel casting which is sufficiently strong to resist any movement of the gas mains. The unit is built with two stainless steel disks which are expanded against the seats by high pressure, mechanically applied. Further possibility of leakage is prevented by venting the space between the disks to the atmosphere when the valve is closed.

The valve turning and expanding mechanism is enclosed in a gas-tight housing, suitably lubricated, and actuated from a singly manually-operated drive wheel or motor-driven

unit. Reversal is effected from 20 to 40 seconds and by the application of push button or remote control.

Because of its compactness, strength and economy in overall dimensions the valve can be installed in a minimum of space and in any position. Since no expansion joints are required the valve housing is fastening directly to the gas mains. The valve, a product of Arthur G. McKee & Co., Cleveland, formerly was used only for cold, washed gas.

### Changes the Odor of Paint

Frequently when paint is applied to the interior walls of steel plant offices the odor becomes offensive

to many of the employees. However, the odor of the paint may be changed to one that is more satisfactory and non-nauseating by the addition of ordinary vanillin in the proportion of one part in 2000 parts of paint. It will be found more convenient to dissolve the vanillin either in turpentine or linseed oil to make a concentrated base and add it in the previously mentioned proportion when treating interior paints.

### Employs Advisory Control

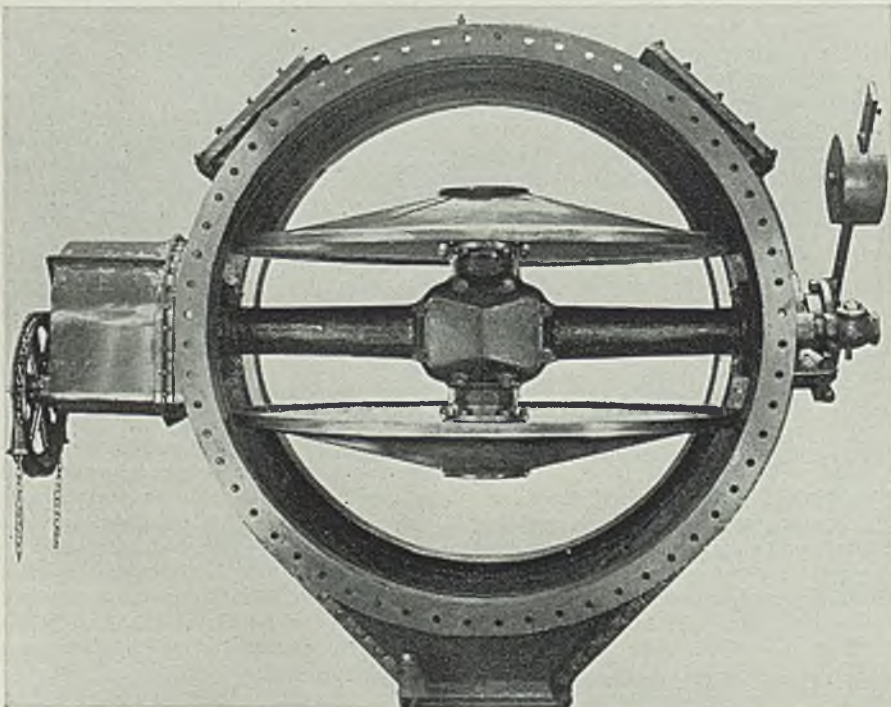
Automatic and remote control of all gas consumption at a steel plant in the Great Lakes district will be accomplished by a single dispatcher. This system, which will be operated electrically, is said to be the first supervisory control unit to be operated in conjunction with industrial gas. The dispatcher operating the control board will be able, by manipulating switches and buttons, to maintain a balanced load condition throughout the plant. Many thousands feet of new pipe will be required to carry coke oven gas to various plant departments. One branch alone, that to the steel mills, will be nearly a mile long.

### Provides Even Flow of Oil

Preventing the clogging of burners caused by too rapid a flow of heavy fuel oil or tar has been made possible by the development of a new type oil valve. A V-shaped opening for the outlet permits a steady even flow of oil. The unit especially is suited for installation on furnaces having oil feed pipes of  $\frac{3}{4}$ -inch diameter or less.

### Pouring Rate Is Increased

Ladle nozzles made of fireclay are subject to greater erosion by steam than those made of magnesite. Test conducted abroad discloses that when fireclay nozzles are employed the pouring rate increases as teeming proceeds; with magnesite nozzles, however, the rate of pouring decreases because of less erosion and the decreasing ferrostatic pressure of the metal.



*Double disk valve for handling hot and cold by-product and blast furnace gas shown in the open position*

# always specify **Oxweld**

## when ordering **WELDING ROD**

### **Oxweld No. 1 HT. PATENTED**

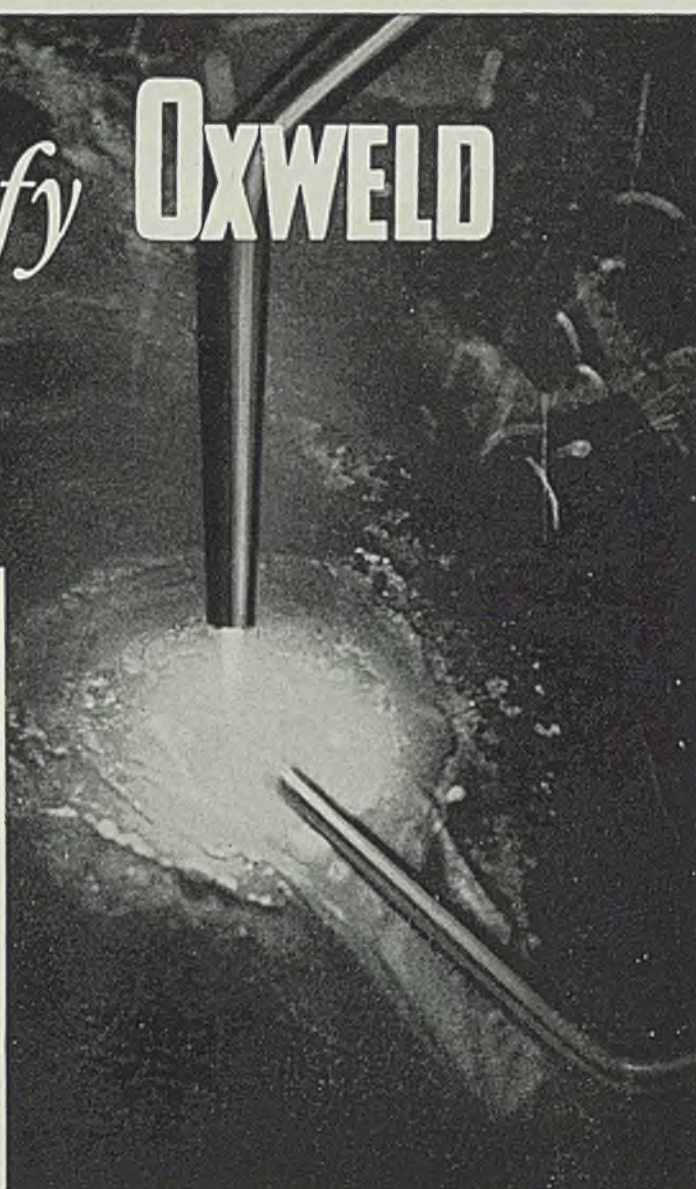
A self-fluxing rod possessing *unique* welding characteristics and producing welds in tensile strength consistently over 60,000 lb. per sq. in.

### **Oxweld No. 25 M. BRONZE PATENTED**

This rod is essentially non-fuming. Its constituents are such that fuming is reduced to a minimum. It combines ease of application with speed of operation. Welds in steel plate show a tensile strength 40 per cent higher than welds with conventional bronze rod under like conditions. Its hardness (96 Brinell) makes it unsurpassed for building up wearing surfaces.

### **Oxweld No. 23 ALUMINUM**

An all-purpose rod of lower melting point than aluminum or its alloys and thus remains molten or plastic until the base metal has solidified. This permits absorption of any contractional stresses in the still plastic weld metal. It is unequalled for welding aluminum alloys as well as pure aluminum in any form.



There are *Oxweld* rods for every metal that can be welded. Using them will convince you of their quality.



Send for these  
**WELDING  
ROD BOOKS**

The Linde Air Products Company  
Unit of Union Carbide and Carbon Corporation

**UCC**  
NEW YORK

# Everything for Oxy-Acetylene Welding and Cutting

LINDE OXYGEN • PREST-O-LITE ACETYLENE • Oxweld APPARATUS AND SUPPLIES

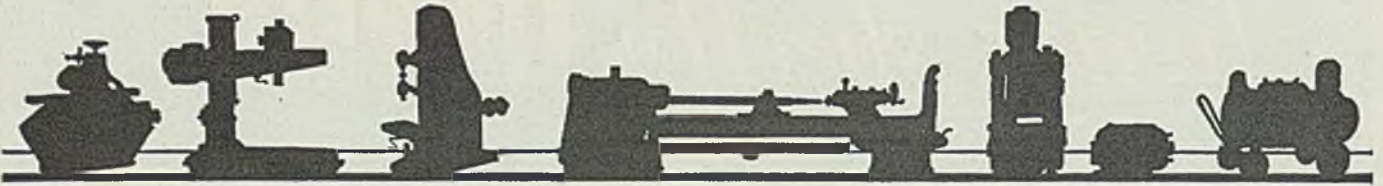
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LINDE

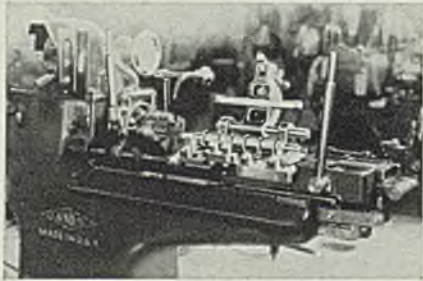
UNION CARBIDE

# New Equipment



## Work Holding Fixture—

Landis Machine Co. Inc., Waynesboro, Pa., is announcing a work holding fixture designed to maintain concentricity between both ends of a



*Landis work holding fixture applied to threading machine*

threaded part. The illustration here shows this fixture applied to a Landis single head leadscrew motor-driven threading machine for threading both ends of a diesel engine camshaft. A  $\frac{7}{8}$ -inch hardened and ground Lanco head is used for cutting the threads. The fixture is attached to the carriage of the machine and can be adjusted to obtain the required alignments. Rear locating plate can be adjusted for different lengths of camshafts. Because of the flexible design of the fixture it can be readily adapted for holding other types of work.

## Flexible Couplings—

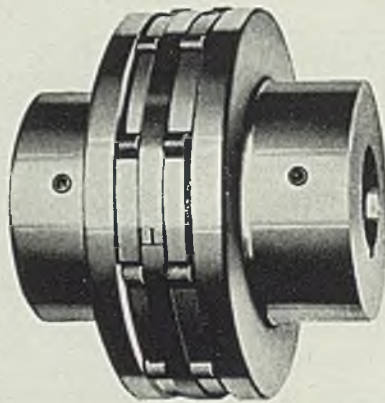
Lovejoy Tool Works, 4973 West Lake street, Chicago, is manufacturing a new type nonlubricated heavy-duty flexible coupling designated as L-R type W. As shown in the accompanying illustration, the individual load cushions are free-floating between the metal jaws and rest upon the central hub, being firmly and safely secured in place by a spiral steel spring. Cushions are free to move and adjust themselves instantly to any momentary position of the jaws. Because of this improved method of retaining the load cushions, larger hubs are possible and design likewise permits greater load carrying surfaces and increased load carry capacity. Load cushions are readily inspected and easily removed and replaced when necessary. No

metal-to-metal contacts exist in this design. In operation, one-half of the cushions are idlers (except on reversing loads), hence there always is a new set of cushions in the coupling. Three types of resilient cushioning materials are available. Couplings also are furnished with one body made as a flange for bolting to a flywheel.



## Lift Truck—

Towmotor Inc., 1226 East 152nd street, Cleveland, recently brought out a new model L lift truck de-



*Lovejoy flexible coupling*

signed for wider versatility of operation and application. With standard fork equipment, the unit is employed for handling material on skids, and

tin plate in bundles. It is particularly adapted for moving in and out of box cars and for stacking in warehouses.

The same lift truck when fitted with a ram is employed in picking up, transporting and stacking coils of wire and strip stock. With a scoop type shovel in place of the ram, the truck has a wide range of uses in moving bulk material such as stone, lime, coal, cinders, etc., being designed to pick up and shovel at floor line or at any height within the range of its lift.

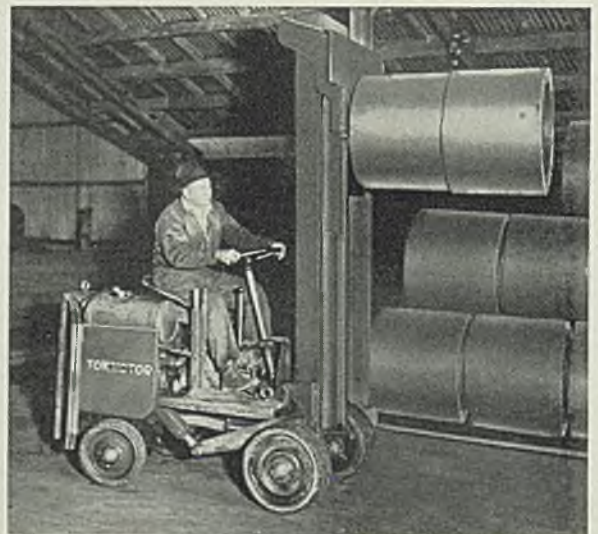
The new model L unit, shown here-with, is gasoline-operated. Lifting operation, tilt of the mast and operation of the scoop are controlled hydraulically. Height of the lift is varied to suit requirements. Lifting and moving capacity is 4000 pounds, with the center of gravity 24 inches ahead of the carriage. It is designed to carry the load over the drive wheels and to steer on rear end to make short pivot turns, as well as to operate with equal speed in both directions. Speeds for lift or travel are furnished to meet plant requirements.



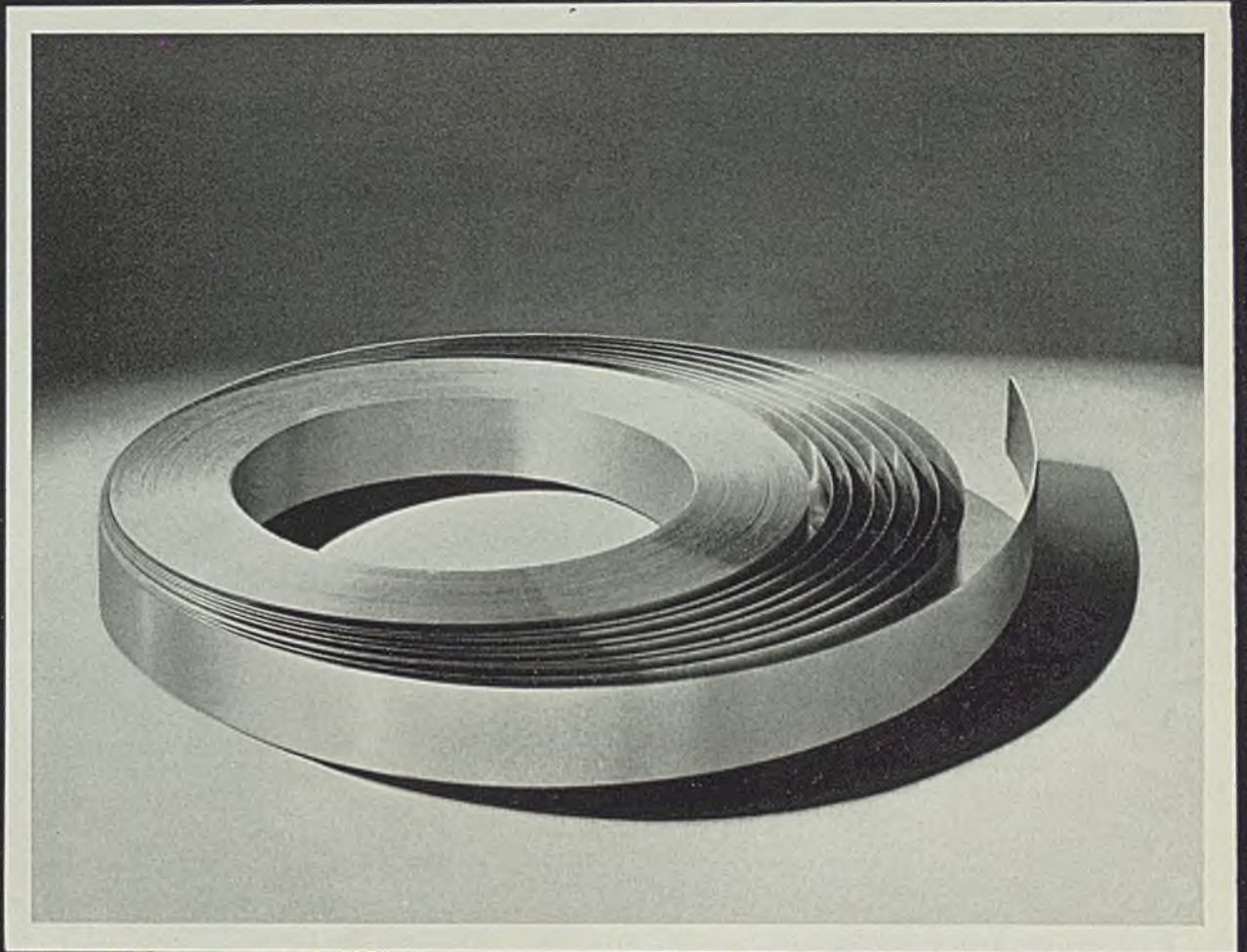
## Three-Phase Transformer—

Forbes & Myers, 172 Union street, Worcester, Mass., is announcing a three-phase transformer of the semi-portable type. It handles easily and can be placed on the floor, bolted to

*TOWMOTOR lift truck is designed for a variety of applications. Equipment includes a standard fork, a ram for picking up, transporting and stacking coils of wire or strip stock, and a scoop type shovel*



**Better FLAT STRIP**  
**makes better parts for you**



To obtain uniform parts you must have uniform metal. It must have an acceptable chemical composition; it must be clean both on surface and inside; it must have the correct heat treatment to give the desired resilient qualities; it must have been worked sufficiently to give the correct microscopic structure for the greatest toughness; the size of the strip must be uniform within very narrow limits and the surface and edges must be unblemished.

Washburn Flat Strip is made from our own open hearth furnaces to final operations under the watchful eyes and constant care of highly skilled wiremakers. . . . Many of our foremen and department heads obtained their diplomas in the old Washburn-Moen days.

We will be pleased to submit samples, or work with you to produce a uniform material to your special specifications.

**WASHBURN  
FLAT STRIP**

Washburn Flat Strip is obtainable in cold-rolled high or low carbon steel, in widths from  $\frac{1}{8}$ " to 4" and thicknesses from .004 to .125 and in various finishes including tinned, galvanized and bronzed. Write for quotations.

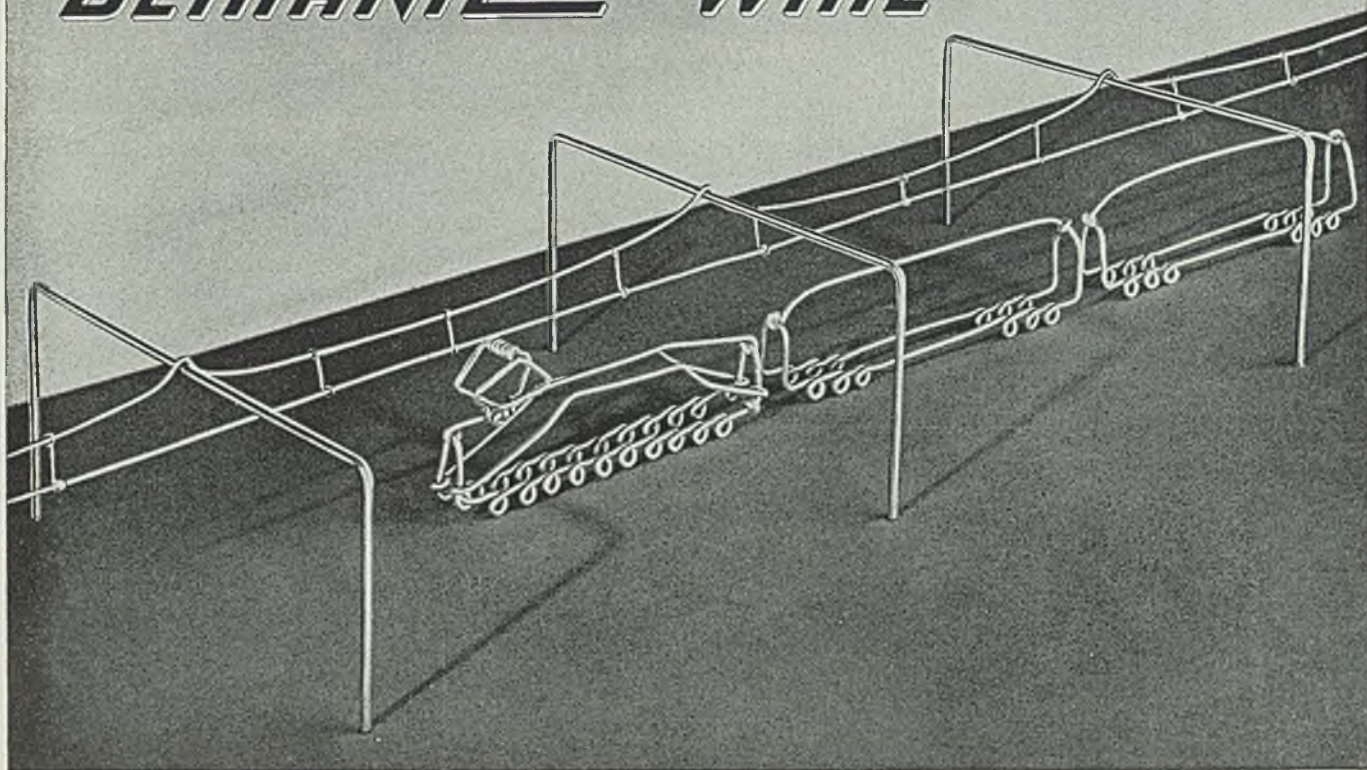


WASHBURN WIRE CO., PHILLIPSDALE, R. I. . . . WASHBURN WIRE CO., INC., NEW YORK

**WASHBURN**

CLEAN UNIFORM BILLETS - STRIP - RECTANGULAR, ROUND, FLAT RODS  
TEMPERED AND UNTEMPERED FLAT AND ROUND HIGH CARBON WIRES

# BETHANIZED WIRE



*Wiregraph by Alexander Calder,  
made of Bethanized Wire*

## IN STRAND, FOR EXAMPLE

BETHANIZED WIRE, the new zinc-coated wire, is finding one of its most important uses in strand. Here, where dependability is essential and replacement costs are high, Bethanized Wire is setting standards of service that are without precedent. In many cases extra-heavy coatings are found economical in replacing expensive alloys.

The Bethanized coating is applied by a process far in advance of hot-dip galvanizing. It is the purest zinc coating that has ever been produced. It is more uniform, more tightly bonded to the steel base, more ductile. And it can be applied, when desired, in weights two, three or more times heavier than standard hot-dip coat-

ings. Even in these heavy weights Bethanized Wire stands up to stranding without danger of flaking or scaling.

Strand is only one of many products made of galvanized wire that have been improved through the use of Bethanized Wire. Chain-link fence, woven fence of all types, telephone wire and a long list of galvanized wire products are now being made of Bethanized Wire—with resulting higher standards of service, economies in production and added sales appeal.

If you are making a product of galvanized wire, it is suggested that you investigate Bethanized Wire. It assures the greater value of far superior zinc protection. Its lustrous, silvery appearance adds to marketability. It lends itself to many products and uses that are new for zinc-coated wire. Bethlehem metallurgists will gladly give advice covering the adaptability of Bethanized Wire for any application.



## BETHLEHEM STEEL COMPANY

GENERAL OFFICES: BETHLEHEM, PA.

the wall or hung from the ceiling. No oil is used, cooling being obtained by circulation of air through ventilating openings. These transformers are regularly equipped with terminals for 220, 440 and 550 volts, all three-phase 60 cycle. Standard sizes are from 1 to 50 kilovolt-amperes.

◆ ◆ ◆

### Horizontal Grinder—

Williams, White & Co., Moline, Ill., is building an Osterholm horizontal grinder that has several interesting features. The single machine is designed for small production, while the tandem arrangement, shown herewith, is built for relatively high production. One hundred and fifty to 175 engine blocks per hour can be handled and operation is continuous. Wheel mount is set in position so that the cylinder wheel cuts on both edges, giving a double cut on the single machine and four cuts on the tandem grinder. A variable linear feed ranging from 12 to 72 inches per minute is provided. Machines are furnished with dresser brackets for either star dressers or



*Osterholm horizontal tandem grinder built by Williams, White & Co.*

diamond fixtures. These grinders can be arranged universally for flat grinding from the rough where single operations are essential. Where parallel surfaces are required, fixtures are necessary.

◆ ◆ ◆

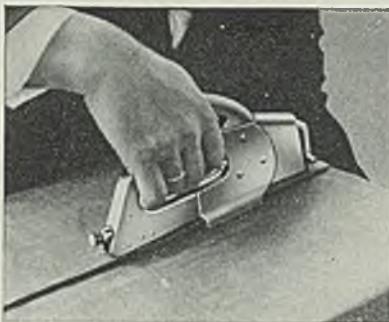
### Air Circuit Breaker—

General Electric Co., Schenectady, N. Y., announces that its type AF-1 air circuit breaker which replaces fuses, has been redesigned to provide a mid-position of the handle to indicate automatic tripping. Upon automatic tripping the handle now assumes a position between the "on" and "off" positions.

◆ ◆ ◆

### Carton Sealer—

Paslude Co., 293-A North Bank drive, Chicago, is introducing a tool for sealing corrugated and fiber shipping containers, which eliminates the glue problem, speeds up sealing and produces a better package. The device, shown herewith, is an entirely new type of stapler known as a



*Paslude carton sealer*

carton sealer. It staples the flaps of any type of corrugated or fiber container of the overlapped type. A special "S" anvil construction permits it to be slid along the overlapped flap, during which the staples are driven from end to end in one operation.

◆ ◆ ◆

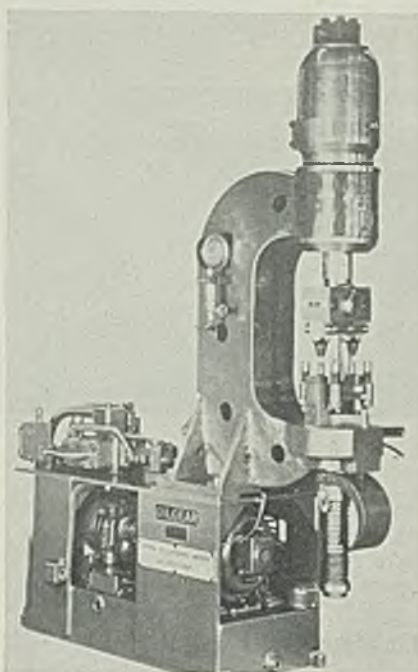
### Voltage Regulator—

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., recently brought out a voltage regulator without contacts or any moving parts. In this device rectified alternating current proportional to the load is used to compound the exciter field, varying with the load on the generator. Energy for required additional voltage corrective effect is obtained from generator potential and through a combination of reactor, resistor and dry type rectifier circuits.

◆ ◆ ◆

### Electric Hydraulic Riveter—

Hanna Engineering Works, 1765 Elston avenue, Chicago, recently de-



*Hanna electric hydraulic riveter*

veloped an electric hydraulic riveter featuring flexibility of speed and load ratio, cushioned application of forces and ability to take peak loads smoothly and without damage to mechanism. The unit illustrated herewith is equipped with an Oilgear fluid power pump direct driven by an electric motor through a flexible coupling. Pump, motor, valves and circuits are mounted on a rigid combination base and oil pot. Initial work or closing movements are performed at high speed and low pressure. At maximum pressure of 3000 pounds per square inch this riveter exerts 80 tons on the dies. It also is available in capacities of 20, 40 and 60 tons. Reach and gap may be varied to suit the work.

◆ ◆ ◆

### Automatic Lathe—

Wickes Bros., Saginaw, Mich., is bringing out a model DA-8 automatic duplex crankshaft lathe, an extra heavy duty machine designed especially for machining heavy diesel type and tractor type crankshafts. After



*Wickes automatic crankshaft lathe*

the operator has chucked the crankshaft in the machine, it merely is necessary to depress the electrical start button. The unit then automatically goes through the entire work cycle and stops in the unloading position. The lathe shown in the accompanying illustration is set up for checking, turning and filleting Nos. 1 and 4 crankpins on a diesel crank. Additional length of lathe bed is provided to take longer 6-throw and 8-throw crankshafts.

◆ ◆ ◆

### Excavating Machine—

Bucyrus-Erie Co., South Milwaukee, Wis., recently brought out a 48-B excavator that can be converted easily into a shovel, dragline, clamshell or crane. There is a choice of three mountings, standard, oversize and special oversize. Centrally located shipper shaft, twin 42-inch sheaves, arc welded outside dipper handles, and a powerful positive chain crowd are some of the outstanding features of the new unit, shown on page 64. The design also embodies a new idea in smooth and accurate control of the clutch and brake. Dragline-crane boom is built of alloy steel angle chords with weld-



*Bucyrus-Erie excavator is easily converted into a shovel, dragline, clamshell or lifting crane*

ed tubular cross bracing and is available in lengths from 50 to 100 feet.



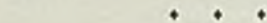
### Portable Screw Driver—

Independent Pneumatic Tool Co., 600 West Jackson boulevard, Chicago, announces a portable electric screw driver capable of driving all screws from No. 4 to No. 12, simply by changing finder and bit. This new Thor hand tool is small in size



*Thor portable electric screw driver*

and light in weight, and because it is only 10½ inches overall, can be used in places ordinarily inaccessible.



### Electric Hoists—

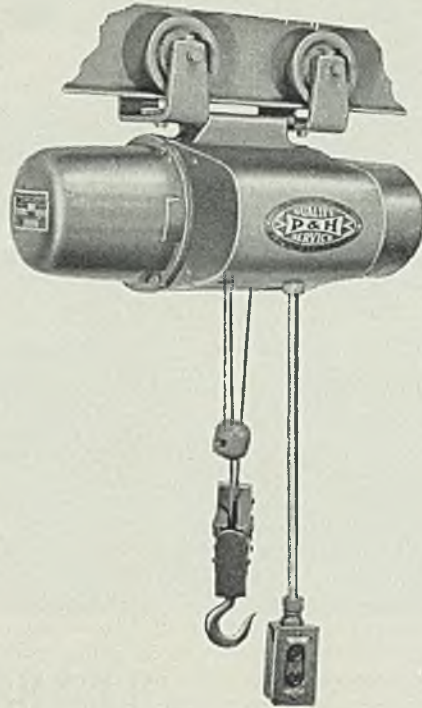
Harnischfeger Corp., Milwaukee, is marketing a new line of electric hoists known as "Zip-Lifts." These units, one which is shown herewith, have capacity ratings from 250 to 500 pounds. Designed primarily for spot handling work in machine shops, welderies, storage booths, foundries, etc., the units are light in weight, embody all-welded construction, and have hoisting speeds up to 32 feet per minute. Pushbutton or pendant rope control is furnished. To simplify installation, complicated wiring has been eliminated. Positive safety is assured by a limit switch, solenoid dry disk motor brake and

ratchet and roller type mechanical brake. Standard units are furnished with or without trolley.



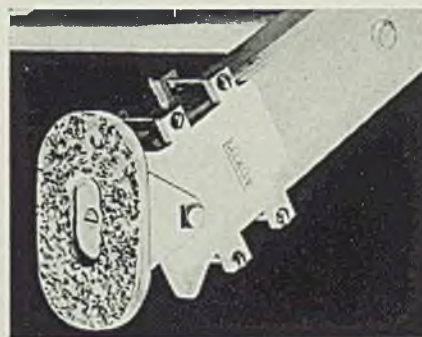
### Nonskid Ladder Shoes—

American Allsafe Co. Inc., 210 Franklin street, Buffalo, is marketing ladder shoes employing large carborundum grits to provide a non-



*Harnischfeger electric hoist*

skid grip on all surfaces such as steel, wood, concrete and other types of floors. An angle stop prevents unsafe ladder angles. Necessity for drilling ladder rails is eliminated by the saddle design which acts as a ferrule for rail ends and saves wear



*Allsafe nonskid ladder shoe*

on the swivel bolt. The large area of the contact plates also provides a safe footing on soft ground.



### Universal Cutter Grinder—

Oliver Instrument Co. Inc., Adrian, Mich., is bringing out a universal

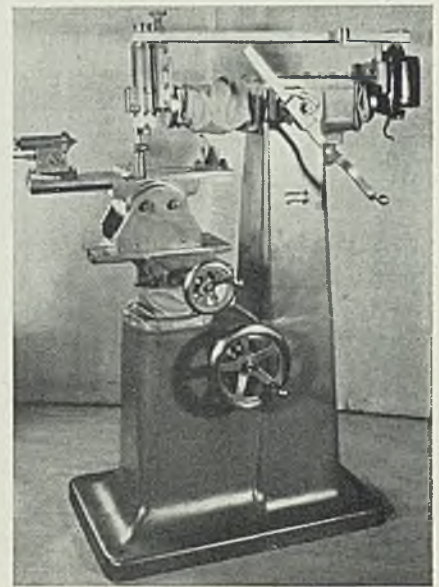
tool and cutter grinder, shown herewith. Feature of the machine is a universal fixture having adjustments in all directions and arranged to hold simple tool holding fixtures. A ram reciprocates the grinding wheel. Working parts such as the ram, spindle and motor all are located above the grinding wheel and away from the flow of emery.

When a cutter is being sharpened the work is directly in front of the operator, with the tooth undergoing grinding always in full view. Clearance is obtained by tilting the grinding wheel to the desired angle.



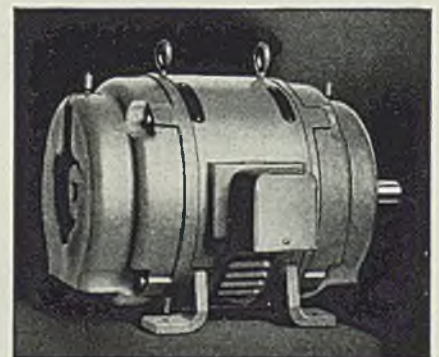
### Splash-Proof Motors—

Imperial Electric Co., Akron, O., announces a new complete line of



*Oliver universal tool and cutter grinder handles easily*

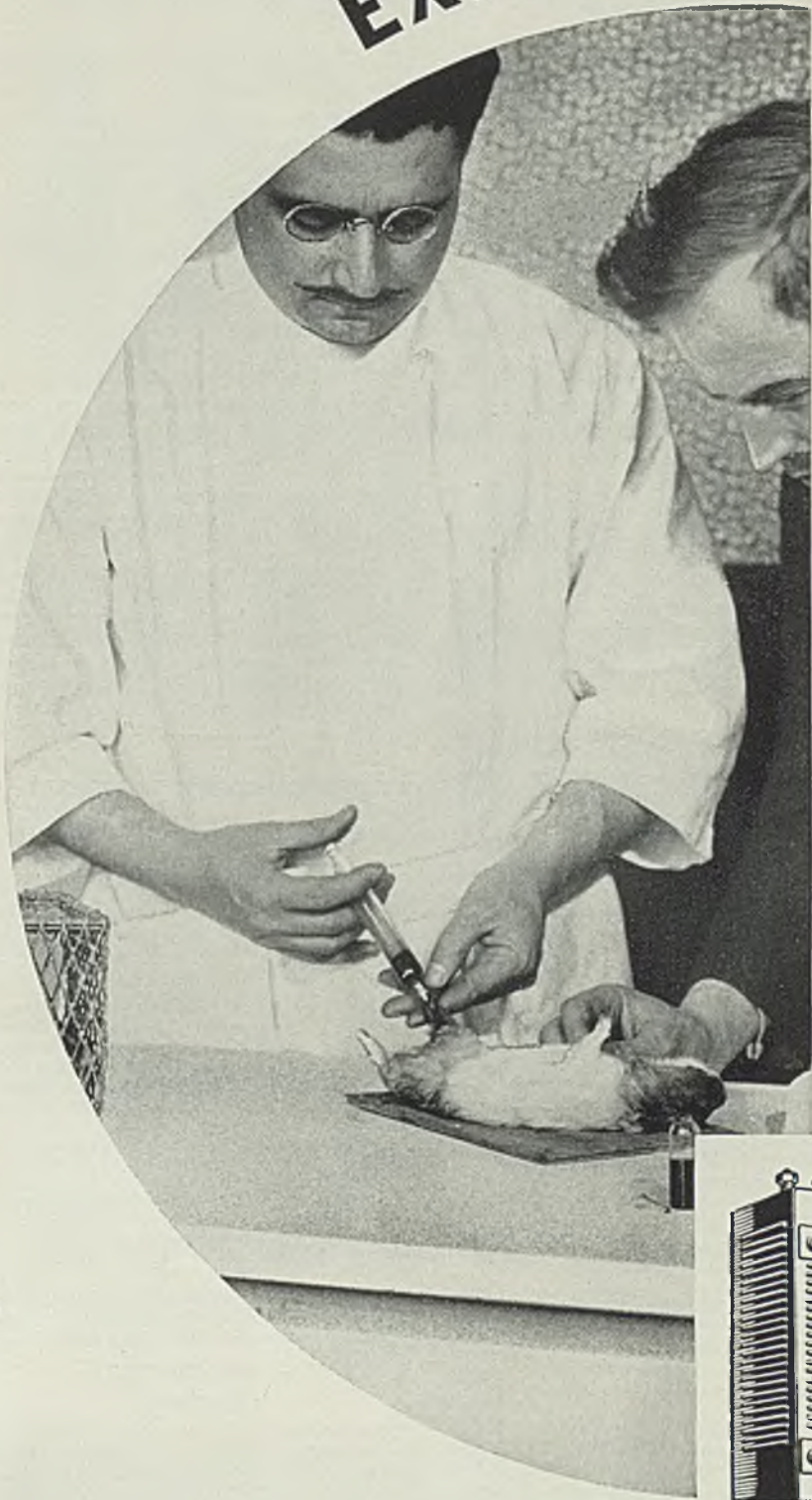
splash-proof squirrel cage motors in all rating from ½ to 200 horsepower for constant and multispeed, continuous or intermittent duty in all voltages and cycles, for any torque and starting current. As shown herewith, the construction provides protection to the inner parts from splash or spray, yet permits proper ventilation.



*Imperial splash-proof motor*



# EXIT THE GUINEA PIG



● No gas fumes are wanted! No "temperamental" batteries are wanted! Steel mills—and other industrial plants—need a rugged power unit in materials-handling trucks. That much is settled and the "guinea pig" experiments on less adequate means are largely at end. More than 70% of the heavy-duty batteries in use by steel companies are Edison Steel-Alkaline, which have (in U.S.A.) the exclusive superiorities of the Nickel-Iron-Alkaline principle and the obvious advantages of light-weight and great strength inherent in steel construction.

The important feature of the Edison Steel Battery is that it supplies real Protected Power—protection against unexpected failure which might cause thousands of dollars' loss in production

tie-ups. For such safeguards a higher price is usually paid. But because steel batteries live 2 to 5 times longer and cost much less to maintain, their annual cost is less than that of other sources of power. Steel men back the steel battery!



## EDISON STORAGE BATTERY

DIVISION OF THOMAS A. EDISON, INC., WEST ORANGE, NEW JERSEY

# New Trade Publications

**Air Compressor**—Pennsylvania Pump & Compressor Co., Easton, Pa. Bulletin No. 172 on its Oilfreair Class 3 compressor.

**Unit Heaters**—Young Radiator Co., Racine, Wis. Catalog No. 336, covering a new line of unit heaters, with data tables of capacities.

**Welding**—Lincoln Electric Co., Cleveland. Plate 54 of a series of studies in structural arc welding, devoted to welded girders.

**Turbine Generator**—General Electric Co., Schenectady, N. Y. Bulletin GEA-2295, covering turbine-generator sets of 10 to 400 kilowatts.

**Welding**—General Equipment Co., 311 South Wichita street, Wichita, Kans. A catalog of its welders and accessories for allround service.

**Contour Projectors**—E. Leitz Inc., 60 East Tenth street, New York. A booklet, No. 7229, on its profile or contour projector, illustrated.

**Truck Weights**—Four Wheel Drive Auto Co., Clintonville, Wis. A booklet containing regulations of all states as to size and weights of trucks and trailers using highways.

**Alkali Cleaning Compounds**—Detroit Rex Products Co., 13005 Hillview avenue, Detroit. A folder on its alkali cleaning compounds and specialized cleaning service.

**Bronze Tablets**—Newman Bros. Inc., Cincinnati, O. A catalog on its hand-crafted cast bronze tablets, markers, plaques, signs and other articles; illustrated.

**Valves**—Edward Valve & Mfg. Co. Inc., East Chicago, Ind. Catalog No. 11-B on its line of non-return valves, giving details of design, choice of correct size and other data.

**Storage Batteries**—Electric Storage Battery Co., Philadelphia. A bulletin on efficient, economical handling of material by electric industrial truck and tractors.

**Electric Screw Driver**—Independent Pneumatic Tool Co., 600 West Jackson boulevard, Chicago. A bulletin on its one-hand electric screw driver with illustrations and description.

**Resurfacing**—Flexrock Co., 800 North Delaware avenue, Philadelphia. A folder on its Ruggewear resurfacer for repair of concrete floors, illustrated and with instructions for use.

**Welded Jigs**—Lincoln Electric Co., Cleveland. A bulletin describing attainment of lower tooling costs with shielded arc welded steel jigs and fixtures.

**Pipe Threader**—Landis Machine Co. Inc., Waynesboro, Pa. Bulletin No. C-82 on its Little Landis pipe threading and cutting-off machine, with illustrations and detail description.

**Speed Reducers**—Janette Mfg. Co., 556 West Monroe street, Chicago. Bulletin 22-3 on its line of motorized speed

reducers, with illustrations of types and construction details.

**Files**—Heller Bros. Co., Newark, N. J. Catalog No. 36A, marking centennial of company and presenting its line of files of standard and special types.

**Water Heaters**—American District Steam Co., North Tonawanda, N. Y. Bulletin No. 35-76 on copper U-tube water heaters of instantaneous or gravity recirculating types, illustrated.

**Spectrograph**—Adam Hilger Ltd., 98 Kings road, London, N.W.1. A catalog in its seventh edition, of spectrographic outfits for metallurgical and general chemical analyses.

**Trucks**—Lewis-Shepard Co., Watertown station, Boston. A leaflet on industrial wagon trucks for handling hot or cold steel and iron products in the plant, illustrated.

**Lift Trucks**—Barrett-Cravens Co., 3255 West Thirtieth street, Chicago. Bulletin No. 112 on its lift trucks, with illustrations showing improved details.

**Galvanizing**—Enterprise Galvanizing Co., 2527 East Cumberland street, Philadelphia. A folder describing this company's equipment for galvanizing and the service supplied in connection with the process.

**Boiler**—Babcock & Wilcox Co., 85 Liberty street, New York. Booklet featuring the company's integral-furnace boiler, giving details of design and construction, performance data and illustrations.

**Lubrication**—Texas Co., 135 East Forty-second street, New York. The February number of its publication on lubrication, devoted to wire rope and influence of proper lubrication on its life.

**Condensate Return**—Ingersoll-Rand Co., Phillipsburg, N. J. Bulletin No. 1972-A, illustrating and describing the Cameron motorpump condensate return unit with automatic starting and stopping devices.

**Motors**—Reliance Electric & Engineering Co., Ivanhoe road, Cleveland. Bulletin No. 117 on its type AW wound-rotor motors for two and three-phase alternating current, illustrated.

**Tool Steel**—Atlantic Steel Co., 1775 Broadway, New York. A leaflet on its non-tempering tool steel, which hardens in water and thus simplifies tool-making; presents data on sizes and procedure.

**Hoist**—Harnischfeger Corp., Milwaukee. Bulletin No. H-1 covering construction, installation and operation of its Zip-Lift electric hoist, 250 and 500-pound capacity, for rapid handling of light loads.

**Pyrometers**—Thermo Control Devices Inc., 1112 Milwaukee avenue, Chicago. Three bulletins, covering its Flame-otrol, control pyrometer and

small indicating pyrometer, illustrated and fully described.

**Conduits**—Appleton Electric Co., 1701 Wellington avenue, Chicago. Catalog No. 10 on threaded and no-thread unlets; Bulletin No. 1021, listing outlet boxes and covers, switch boxes and conduit fittings.

**Rust Proofing**—American Chemical Paint Co., Ambler, Pa. A bulletin covering the Chromodine process of rust-proofing steel products, with color illustrations of the results of accelerated and service tests.

**Bearing Units**—Link-Belt Co., 307 North Michigan avenue, Chicago. Catalog No. 1520 on its antifriction bearing units in streamlined pillow block hanger with takeup, flanged, duplex and special mountings; five series are covered.

**Speed Regulators**—Reeves Pulley Co., Columbus, Ind. A booklet No. T-361, on automatic speed regulation of industrial production machines and conveyors by one of the four types made by this company, hydraulic, mechanical, electric and differential.

## Program for Management Conference Is Announced

(Concluded from Page 48)

trial engineer, Remington Arms Co. Inc.; Ralph F. Cohn, factory manager and secretary, Reynolds Wire Co.

### AFTERNOON

"Restoring Effective Production Control." Speakers: James P. Margeson Jr., assistant general manager, manufacturing division, Marshall Field & Co.; H. B. Maynard, president, Methods Engineering Council Inc.

"Rekindling Incentives." Speakers: I. H. Freeman, supervisor of industrial relations, General Electric Co.; A. H. Hogensen, industrial consultant, and consulting editor, *Factory Management and Maintenance*.

### EVENING

Annual dinner. "The Human Factor in Industry." by C. D. Barr, vice president, American Cast Iron Pipe Co.

Friday, April 17

### MORNING

"Revitalizing the Supervisory Force." Speakers: Maj. Albert Sobey, director, General Motors institute; Winthrop P. Stevens, factory assistant superintendent, F. C. Huyck & Sons. "Intensifying Quality Control." Speakers: J. Carlton Ward Jr., assistant general manager, Pratt & Whitney Aircraft Co.; E. A. Hassett, personnel supervisor, Du Pont Cellophane Co. Inc.

### AFTERNOON

"Keeping a Tight Rein on Costs." Speakers: Frank Klein, director of budgets, Worthington Pump & Machinery Corp.; R. A. McCarty, manager, generator division, Westinghouse Electric & Mfg. Co.

"Today's Problems Reviewed." A panel discussion.

# Increase Your Sales—Now!



Manufacturers of income producing machinery and equipment have a great sales-getting weapon at their finger tips. That instrument is instalment selling—the Federal Housing Administration plan for financing the modernization program of plant and factory.

If your equipment is income producing, if it is capable of paying for itself from the savings it will effect, why wait longer to materially increase your sales through the tried and proven method of instalment selling.

Industry needs modern machinery and equipment. It needs *your* equipment. But Industry fears to deplete working capital and reserves in order to buy it. Offer Industry a sound instalment payment plan and a quick upward swing in the sales curve will be your reward.

Commercial Credit Company has safely financed billions of dollars worth of appliances and equipment. Let us show you how you can increase your sales during 1936 with a constructive plan of instalment selling. The coupon on the reverse side of this page is for your convenience. There is no obligation.



## COMMERCIAL CREDIT COMPANY

COMMERCIAL BANKERS



Headquarters BALTIMORE

CONSOLIDATED CAPITAL

AND SURPLUS \$45,000,000

# FINANCING

*Income Producing  
Machinery & Equipment*



**ENORMOUS SAVINGS** are being effected daily by the replacement of obsolete equipment with that which is modern. Very often the difference between profitable operation and loss lies wholly in the efficiency of the equipment employed—

\* \* \* \*

Many plants throughout the country today are operating with obsolete machinery and equipment. Others are trying to operate

with worn-out equipment—expending varying sums for temporary repairs. These conditions are not unknown to the respective managements. They realize that obsolete machinery is actually losing them real money every minute of its operation. They know that repairing worn-out equipment is costly in the long run.

\* \* \* \*

These concerns would gladly modernize, but for the fact that they would have to use working capital and working credit facilities in order to do so. So they are stymied—

\* \* \* \*

If the manufacturers of modern equipment and machinery would offer these concerns a constructive deferred payment purchase plan they could materially increase their sales. Commercial Credit Company now has available for industrial modernization a sound and constructive plan of deferred payment financing. Whether you wish to buy or sell modern equipment, it will pay you to find out in detail how this plan operates. There is no obligation. Use the coupon below which is for your convenience.

## COMMERCIAL CREDIT COMPANY COMMERCIAL BANKERS BALTIMORE

COMMERCIAL CREDIT COMPANY - Baltimore

*Without cost* or obligation to me, please advise me how your time-payment financing plan can help me increase sales.

Company name \_\_\_\_\_

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**F.H.A.  
PLANS**

Available through  
**COMMERCIAL  
EQUIPMENT  
CORPORATION,**  
AFFILIATE,  
where federal  
requirements can  
be fulfilled.



# Broadening Steel Demand Lifts Rate to 53 $\frac{1}{2}$

## Production, Consumption,

## Prices Strong; Motorcars

## Near August, 1929 Mark

**A** UNIFORMLY strong situation in production, consumption and prices—probably the most favorable balance attained in six years—prevails in iron and steel, with indications of this continuing well along toward June.

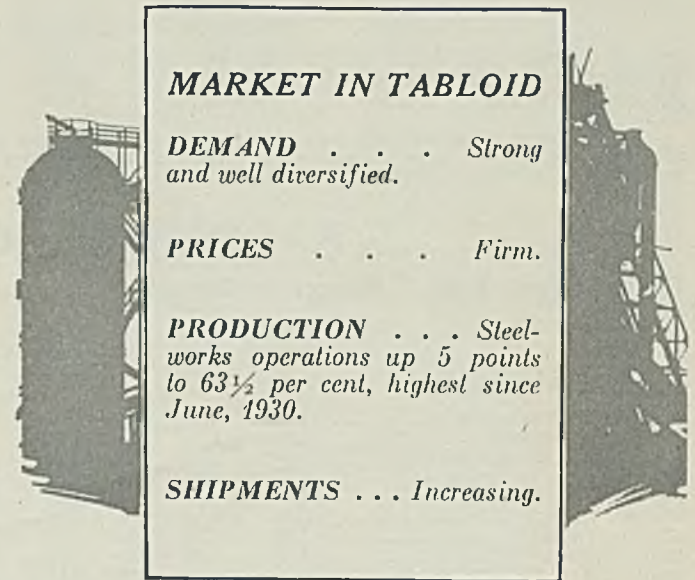
Responding to broadening requirements, steelworks operations last week advanced 5 points to 63 $\frac{1}{2}$  per cent, highest since June, 1930. At Pittsburgh where the rate rose 6 $\frac{1}{2}$  points to 52 per cent steelmakers see prospects for 60 per cent there this quarter.

Chicago was up 3 $\frac{1}{2}$  to 67 $\frac{1}{2}$ ; eastern Pennsylvania 2 to 40 $\frac{1}{2}$ ; Wheeling 3 to 76. Detroit gained 6 points, operating at 100 per cent; Buffalo 15 to 62; New England 5 to 72. A 1-point decline to 81 per cent at Cleveland is expected to be overcome this week. Cincinnati held at 55, Birmingham 69, Youngstown 74.

While price increases in sheets, strip and wire, which went in effect last Wednesday, stimulated orders for shipment this month, demand for many products on which prices were unchanged is equally impressive. In pig iron, first quarter contracts were completed by April 1, yet despite an advance of \$1 a ton producers forecast heavier shipments this month than in March.

Automotive tonnage has shown the sharpest gain, with manufacturers' stocks low, and production of cars and trucks last week up 10,000 to 108,500 units. Except for four weeks in the spring of 1935 when output exceeded this by a narrow margin, it was the highest since August, 1929. This week probably will sweep aside all records since that period.

Railroads added 36,700 tons of rails to mill backlogs last week, and most of the 512,700 tons they have placed in the past four months remains to be rolled, which would take up any slack in automotive tonnage this quarter. Eastern roads are inquiring for 33,000 tons of car steel, and steelmakers expected 75,000 to 100,000 tons more shortly. Norfolk & Western distributed orders for 11,000 tons. New Haven



**MARKET IN TABLOID**

**DEMAND** . . . . . *Strong and well diversified.*

**PRICES** . . . . . *Firm.*

**PRODUCTION** . . . . . *Steelworks operations up 5 points to 63 $\frac{1}{2}$  per cent, highest since June, 1930.*

**SHIPMENTS** . . . . . *Increasing.*

has purchased 50 passenger coaches and is reported to have placed 10 locomotives.

Structural awards have lagged, reducing this year's lead to 38 per cent over the comparable period in 1935. The week's awards totaled 14,900 tons. Metropolitan New York district reports some improvement in pending work, requiring 50,000 tons.

Tractor and implement production in the first quarter was 35 to 40 per cent over last year, and no slackening is anticipated for several months. Diversity of steel orders from miscellaneous manufacturing consumers is one of the outstanding features of the market.

A loss of about 60,000 tons in pig iron production was incurred by reason of the floods; nevertheless, daily average output in March, 66,004 gross tons, was 4.1 per cent above February. The total for the month, 2,046,121 tons, was a gain of 11.3 per cent. Daily and total figures were the highest since last December. First quarter output, 5,914,357 tons, was 21.6 per cent more than the first three months, 1935. There was a net gain of six stacks to 126 operating at the close of March, this being the highest since September, 1930, when 126 also were in blast.

Scrap prices are a little easier at Chicago, but the market elsewhere is firm. Carnegie-Illinois Steel Corp. has purchased 25,000 tons of No. 1 heavy melting steel for Munhall, Pa., at \$16 a ton. Lake Superior iron ore prices have been extended for the eighth consecutive season, and producers expect to ship about 38,000,000 tons, 35 per cent more than last year.

STEEL's price composites are unchanged; iron and steel \$33.13; finished steel \$52.20; steelworks scrap \$14.50.













# Bars

Bar Prices, Page 70

**Pittsburgh**—Heavy and well sustained specifications for merchant steel bars from farm implement manufacturers, automobile makers and railroad shops are still a market highlight. More diversity is noted in specifications, especially from many small miscellaneous trades. In some cases, bar mills have booked more tonnage the past two weeks than in any other two-week period since June, 1934. Furthermore, they feel that bookings are representative of consumers' actual requirements and do not indicate speculative stocking. The market is firmly quoted 1.85c, base, Pittsburgh.

**Cleveland** — A uniformly strong situation prevails in bars, as to prices, production and bookings. Shipments to automobile manufacturers and forge shops are heavier and demand from agricultural equipment and road machinery builders still is active. Carbon steel bars are 1.90c, base, Cleveland.

**Chicago**—Steel bar sales and specifications hold to an active rate. Automotive requirements figure prominently in orders and shipments. Increased operations among forgers reflect the higher rate of motor car assembly. Farm implement and tractor manufacturers also are taking bars in a heavy and unchanged volume.

**New York**—Specifications for commercial bars are coming out freely from bolt and nut manufacturers and in moderate volume from railroads. Jobbers also are releasing fair quantities. Prices are steady, with new differentials being generally applied.

**Philadelphia** — Commercial bar tonnage shows little change, holding at a fair rate. Prices are steady at 1.85c, Pittsburgh, or 2.15c, Philadelphia, with new quantity differentials generally applied.

# Plates

Plate Prices, Page 70

**Pittsburgh**—Bids are asked April 29 by Kansas City engineers for 7350 tons of plate lining for diversion tunnel No. 1 at the Fort Peck dam, Wiota, Mont. This tonnage, largely plates and H-beams, represents the first of four similar tunnels, so that in all something like 30,000 to 35,000 tons of plates and structurals will be required. River lock rehabilitation work in the Pittsburgh district is proceeding rapidly and last week the en-

gineers awarded an emergency contract to Dravo Contracting Co. for the Emsworth, Pa., lock leaves, which require 240 tons, delivery being specified in 45 days. Bids are to be asked soon by the Louisville engineers for three 114 x 26 x 7.9-foot dump scows. Plates are firm on the basis of 1.80c, base, Pittsburgh.

**Cleveland**—Pollak Steel Co., Cincinnati, has taken the contract for rebuilding the blast furnace of the Hamilton Coke & Iron Co., Cincinnati, requiring 160 tons of plates, and Republic Steel Corp., has obtained bids on about 250 tons for rebuilding one of its stacks at the Corrigan, McKinney plant here. Little vessel work is pending and railroad business here is light. Orders from boiler shops and machinery builders show moderate improvement.

**Chicago**—Miscellaneous plate demand is centered principally on lighter gages. Fabricators and railroad car shops are taking moderate tonnages of heavier plates and such business has tended upward slowly the past few weeks.

**New York**—The ultimate status of the United States liner, requiring 15,000 tons of hull steel, is still in doubt. The latest deadline for the formal placing of this ship has expired and there appears a possibility that it may be constructed in a navy yard. The Newport News Shipbuilding & Dry Dock Co., Newport News, Va., submitted on two successive openings, the low bid, but United States line officials each time regarded the bid as being more than they desired to spend. Meanwhile the navy department became interested and for the last several months has been preparing estimates with a view to submitting a bid.

Pure Oil Co., Chicago, is planning purchase of a substantial tonnage of plates and other steel for a \$1,000,000-dollar refinery development in Texas.

**Philadelphia**—Demand for steel plates is well sustained with prospects for the next few weeks promising as much building and tank work is in sight.

**San Francisco**—Activity in the plate market is much more pronounced and some large lots are up for figures. Bookings for first quarter almost aggregated the tonnage placed during the entire year of 1933. To date 42,779 tons have been placed compared with 52,105 tons for all of 1933.

**Seattle**—Small tank and boiler jobs are giving fabricating plants a normal volume of spring work. Wood ship construction is active, calling for numerous plate installations.

## Contracts Placed

240 tons, two lock leaves, each 54 feet long and 37 feet high; emergency

contract for Emsworth, Pa., lock, to Dravo Contracting Co., Neville Island, Pittsburgh, with delivery specified within 45 days. 235 tons, 48-inch water pipe for Tacoma, Wash., to Steel Pipe & Tank Co., Portland, Ore.

## Contracts Pending

500 tons, roller gates, Ft. Peck dam, Wiota, Mont.  
300 tons, hopper dredge for government, San Francisco; bids opened.  
250 tons, approximately, rebuilding blast furnace at Cleveland for Republic Steel Corp.; bids in.  
160 tons, rebuilding blast furnace, Hamilton Coke & Iron Co., Hamilton, O., work awarded to Pollak Steel Co., Cincinnati, through Arthur G. McKee & Co., Cleveland.  
100 tons, 40 pontoons, United States engineers, Sacramento, Calif.; bids opened.  
100 tons, 14-inch welded pipe, water and power department, Los Angeles; bids opened.  
Unstated tonnage, three steel dump scows, 114 x 26 x 7.9 feet; bids to be asked by Louisville, Ky., engineers soon.

# Sheets

Sheet Prices, Page 70

**Pittsburgh**—Sheet mill operations are now averaging 60 per cent and backlogs are of the largest in over a year. Heavy, hot rolled sheets now are 1.85c, base, Pittsburgh; 24 gage hot rolled, 2.40c; cold rolled, 10 gage, 2.50c; cold rolled, 20 gage, 2.95c; 10 gage enamelling, 2.35c; 20 gage, enamelling, 2.95c; and galvanized, 3.10c. On electrical sheets, the market is 2.90c for field grade; 2.25c for armature; 3.75c on electrical; 4.80c for dynamo; 5.50c for dynamo special; \$6 on transformer C; \$7 for transformer B; and \$7.50 for transformer A.

**Cleveland**—Sheet prices announced for second quarter have been tested to the extent that some attractive tonnages have been refused since March 21 at former quotations. Only a moderate amount of business has been booked at the second quarter levels. More definition is expected to develop in the last half of April when automotive and other large consumers return to the market. Sheet mills are working at capacity. Material is being shipped as fast as produced, while general consumption is at the highest rate so far this year.

**New York**—While sheet sellers have experienced a let-down, following recent substantial buying at lower prices which were available in some cases up until the end of March, there appears to be considerable pressure for tonnage. Some orders have been booked at the new schedules. Flood replacements, which will extend to a wide variety of products requiring steel, will be heavier than generally

estimated a fortnight or so ago, it appears.

Award of the shelving contract for Archives building, Washington, on which Snead & Co., Jersey City, N. J., is low, is expected early this week. This requires 6000 tons of steel.

Chicago—Sheet mills still have fairly heavy backlogs and good schedules are in sight for this month. Expanding requirements of the automotive industry help to support the diversified business coming from other users. Jobbers are taking larger lots while farm implement manufacturers remain steady buyers. A more

thorough test of current quotations is expected within the next few weeks.

Philadelphia—While mills are active on tonnage placed at recent concessions, new sales are light. However, flood replacements have not been taken fully into account in recent buying, and it is possible that within the next month or so there will be substantial releases for rehabilitation work, and also for the manufacture of household equipment. Weirton Steel Co., Weirton, W. Va., and the Youngstown Sheet & Tube Co., Youngstown, O., participated in

award of two carlots of steel sheets for the Northeast federal penitentiary, Lewisburg, Pa.

Buffalo—Hand mills here are operating at 75 per cent, well booked for April. An increase in open-hearth operations indicates a strong rate for sheet mills.

Youngstown, O.—Sheet mills in the Mahoning and Shenango valleys are running at about 75 per cent. A widening interest in sheets both black and galvanized is appearing from a larger number of miscellaneous consumers. The tendency in production continues to be upward.

Cincinnati—Sheet requirements, including those of the automobile industry which are increasing, assure near-capacity operations throughout the quarter. Rolling was resumed at one river mill which suspended during the peak flood stage as a precaution.

St. Louis—Producers and distributors report a steady volume of specifications and new orders. Miscellaneous requirements are outstanding, but large buyers, including stove, farm implement and household appliance manufacturers, still are accounting for liberal tonnages.

Birmingham, Ala.—Sheet production is steady. Much of the output is going to agricultural sections. More interest is noted in steel shingles.

Seattle—A steady demand is noted for the lighter gages, for tank and repair jobs. Prices here are steady. The largest tonnage pending is 417 tons of blue annealed for a Tacoma, Wash., pipe line job, American Concrete & Steel Pipe Co., Tacoma, general contractor.

## SPECIAL two-compartment tank DRAWN SEAMLESS

This tank is formed of two seamless shells with integral heads. The open end of one tank is welded to the integral head of the other. Used as a combination water and gasoline tank.

The deep-drawing method of manufacture assures a container that is smooth, and has absolute uniformity of thickness and temper.

Generally, a seamless shape is formed. Where joined, the special Hackney welding process assures uniform strength.

Terne coated or galvanized finishes by the Hot Dip process are obtainable. Hackney with over 30 years' experience can provide shells, tanks, shapes and bottles in many different metals in addition to steel.

If you use metal shapes or shells, send details of your needs to Hackney for study. No obligation.



### PRESSED STEEL TANK COMPANY

208 S. La Salle St. Bldg., Room 1211, Chicago  
6661 Greenfield Ave., Milwaukee, Wis.

1387 Vanderbilt Concourse Bldg., New York  
688 Roosevelt Bldg., Los Angeles, Calif.

# Hackney

MILWAUKEE

## DEEP DRAWN SHELLS AND SHAPES

## Pipe

Pipe Prices, Page 71

Pittsburgh—Jobbers of tubular products, who in turn have had exceptionally brisk business the past two weeks covering conduit and standard pipe, are making demands upon pipe mills for heavier tonnages needed to replenish stocks. The announcement that the Peoples Natural Gas Co., Pittsburgh, will build a small 8-inch gas pipe line across the Conemaugh river in Black Lick township, Pennsylvania, is typical of a number of other installations.

New York—New lettings of cast pipe are restricted to a few hundred tons. A number of pending projects, however, are expected to crystallize in business shortly. The biggest job to come up in the metropolitan area in a long time is one for the Uniondale water district at Hempstead, N. Y., which will require 2600 tons. Village trus-

tees of Olcott, N. Y., are expected to purchase six miles of pipe for a new main connecting that village with its source of supply in Lake Ontario. Prices are unchanged and firm.

**Chicago**—Orders and releases for cast pipe involved in WPA projects gradually are improving, but private purchases by municipalities continue quiet. Volume of pending and prospective work points to fair activity during the next several months. Orders in the immediate Chicago district are light, though several hundred tons remain pending for the sanitary district.

**Youngstown, O.**—Some line pipe orders are being placed with local mills right along, with considerable improvement in purchases of oil country goods. Merchant pipe for building purposes also is gaining, adding appreciably to mill operating rates.

**Birmingham, Ala.**—Orders for pipe continue active, and with the advent of more favorable weather, prospects for the second quarter look bright. Shipments continue steady.

**San Francisco**—The only pipe award of size went to United States Pipe & Foundry Co., Burlington, N. J., for 600 tons for Ogden, Utah. Bids have been taken on 498 tons of 6 and 8-inch for Pasadena, Calif., and on 128 tons of 6-inch for the Panama Canal, under schedule 3133.

**Seattle**—Demand for cast pipe is slow, and no projects of importance have developed. Municipalities are handicapped by lack of funds, and several towns still are awaiting approval from Washington. Asotin, Wash., is planning a replacement job involving 7500 feet.

### Cast Pipe Placed

2600 tons, Hempstead, N. Y., to R. D. Wood & Co., Florence, N. J.  
600 tons, Ogden, Utah, to United States Pipe & Foundry Co., Burlington, N. J.  
250 tons, procurement division, treasury department, New York, to United States Pipe & Foundry Co., Burlington, N. J.

### Cast Pipe Pending

1100 tons, procurement division, treasury department, New York.  
498 tons, 6 and 8-inch, Pasadena, Calif.; bids opened.  
400 tons; Ann Arbor, Mich.  
128 tons, 6-inch, schedule 3133, Panama Canal, C. Z.; bids opened.

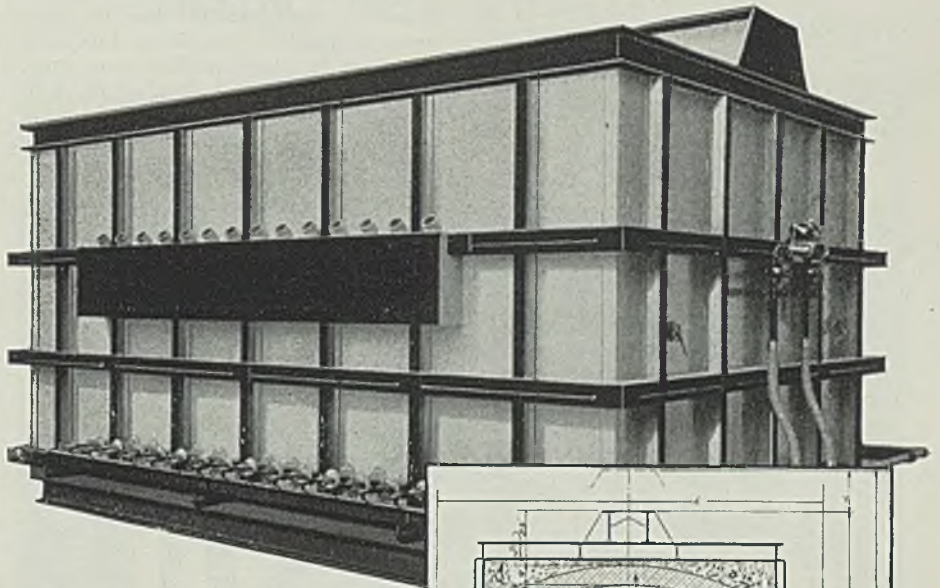
### Cold Finished

Cold Finished Prices, Page 71

**Pittsburgh**—Shipments of cold-finished steel bars are approaching a high point for 1936. Jobbers and farm implement manufacturers are specifying well. The Pittsburgh base on cold-drawn carbon bars is 2.10c.

# FROM TOP TO BOTTOM...END TO END

— a uniform distribution of heat

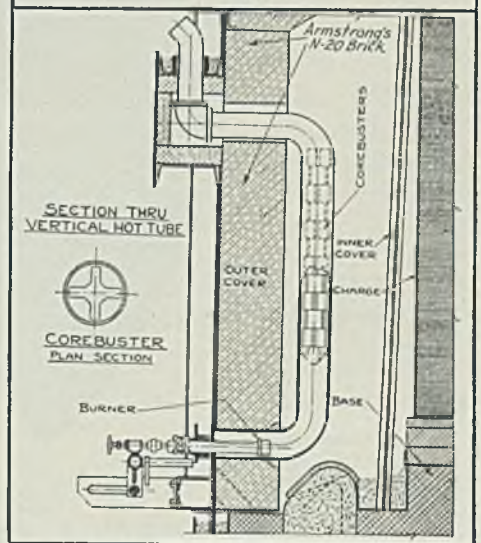
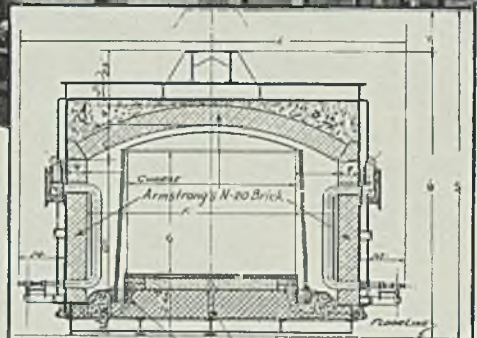


*Armstrong's N-20 Brick makes an important contribution to the efficiency of this Lee Wilson Annealing Cover*

**H**ERE'S a new annealing cover that has attracted the attention of production men throughout the heat treating field. It's made by Lee Wilson Engineering Co. of Cleveland, Ohio, for annealing sheets, coils, or tin plate.

Vertical tube design and Armstrong's N-20 Insulating Brick are the reasons for its efficiency, according to Mr. Wilson. They make possible larger hourly production, lower fuel costs, and "a more accurate and efficient distribution of heat to the charge."

Today, more and more furnace builders are using Armstrong's High Temperature Insulation in their equipment. In addition to Armstrong's N-20 Insulating Brick, the Armstrong Line includes insulating brick and insulating fire brick for a complete range of temperatures and uses. We'd like to send you descriptive literature and samples of these efficient brick. Just write Armstrong Cork Products Co., Building Materials Division, 985 Concord St., Lancaster, Pa.



LEE WILSON ANNEALING COVER of vertical tube design which makes possible even heating throughout the charge. Note the use of Armstrong's N-20 Insulating Brick (shown in diagrams) to assure this uniform temperature and low fuel cost. The fuel consumption per ton of sheets "ranges from 750 cu. ft. of natural gas per ton for low temperature annealing to 1250 cu. ft. for high temperature annealing."

## Armstrong's HIGH TEMPERATURE INSULATION

# Transportation

Track Material Prices, Page 71

Considerable tonnage of steel is about to be placed with mills for car building and repair programs, eastern shops now having about 33,000 tons nearly ready for placing. It is estimated 75,000 to 100,000 tons may be needed soon. Norfolk & Western is distributing about 11,000 tons of plates, shapes and bars for its car building program. Most of this is

said to go to Pittsburgh mills and a portion to eastern makers.

About 10,000 tons of rails have been placed in the past week, 2500 tons by the Denver & Rio Grande Western, and smaller lots by other western roads. The Rock Island is expected to place 35,000 tons soon.

The Erie is making final distribution of 19,000 tons of rails on which it has had an inquiry pending.

Rail tonnages now on mill books are expected to take up at least part of the slack that may develop about midyear. A large part of rails

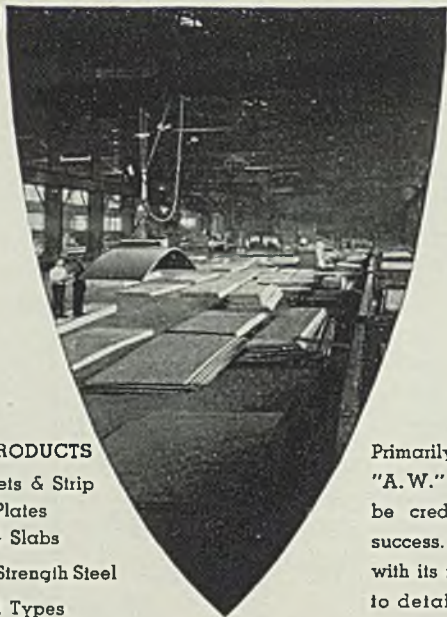
booked in recent months will be rolled during second and even third quarter. With pending rails total tonnage is sufficient to make up in large part of the usual summer drop in general buying.

New York & Pennsylvania, extending 57 miles from Canisteo to Ceres, N. Y., has been authorized to abandon its line, which will be scrapped.

Seattle will be in the market soon for 38 passenger buses to replace worn equipment.

New York, New Haven & Hartford has awarded 50 passenger coaches to the Worcester, Mass., plant of the Pullman-Standard Car Mfg. Co. and is reported to have placed ten steam passenger locomotives with American Locomotive Co., New York.

**"A.W." DEPENDABLE  
PROMPT SERVICE**



**"A.W." QUALITY PRODUCTS**

Blue Annealed Sheets & Strip  
Sheared Steel Plates  
Billets, Blooms & Slabs

"A.W." "70-90" Super Strength Steel

"A.W." Diamond Types  
Rolled Steel Floor Plate

Primarily it is the integrity of "A.W." Products which is to be credited with Alan Wood success. But "A.W." Service, with its more personal attention to detail, has contributed to that success in no small degree.

"A.W." Service includes immediate deliveries from ample standard stocks maintained by distributors and warehouses in principal cities, as well as prompt execution of special mill orders.

And the competent services of our Metallurgical and Engineering Departments are freely offered in applying "A.W." products to the more efficient and economical solution of your problems.

**ALAN WOOD STEEL COMPANY**  
CONSHOHOCKEN, PA.

BRANCHES:

Philadelphia, New York, Boston, Los Angeles, San Francisco, Seattle, Houston



**110 YEARS' IRON- AND STEEL-MAKING EXPERIENCE**

## Car Orders Placed

New York, New Haven & Hartford, 50 passenger coaches to Pullman-Standard Car Mfg. Co., Worcester, Mass.  
United Electric Co., Providence, R. I., four trolley coaches to Pullman-Standard Car Mfg. Co., Worcester, Mass.

## Locomotives Placed

New York, New Haven & Hartford, 10 steam locomotives reported awarded to American Locomotive Co., New York.

## Rail Orders Placed

Chicago & Eastern Illinois, 5300 tons, to Carnegie-Illinois Steel Corp., Pittsburgh.  
Chicago, Indianapolis & Louisville, 1000 tons, to Carnegie-Illinois Steel Corp., Pittsburgh.  
Denver & Rio Grande Western, 10,000 tons, to Colorado Fuel & Iron Co., Denver.  
Green Bay & Western, 1400 tons, to Carnegie-Illinois Steel Corp., Pittsburgh.

## Car Orders Pending

Boston Elevated, 15 trolley cars; bids asked.

## Rail Orders Pending

Seaboard Air Line, 15,000 tons; bids asked.

## Buses Booked

American Car & Foundry Motors Co., New York: five coaches for Staten Island Coach Co., New York; five for Boston Elevated Railway, Boston; two for Conestoga Co., Lancaster, Pa.

## Bolts, Nuts, Rivets

Bolt, Nut, Rivet Prices, Page 71

Buying of bolts and nuts at Pittsburgh is fairly encouraging and the rivet market has featured some attractive diversified orders. The price most generally quoted on small carriage and machine bolts is 70-10-5 off list, with larger sizes, 70-10 off. Structural rivets remain 2.90c, Pitts-

—The Market Week—

burgh or Cleveland, 3.00c, Chicago, and small rivets, 70-5 off list.

Contracts for second quarter supplies have been signed in the Chicago area at steady prices. March showed a gain in specifications over February.

## Strip Steel

Strip Prices, Page 71

**Pittsburgh**—Through Tuesday of last week some of the heaviest strip orders in four to five years were booked. Buying was partially due to the price effective April 1, centering around quantity differentials. Production facilities of both hot and cold-rolled strip producers are now at 60 per cent of capacity, which is an advance of approximately 10 points from a week ago.

**Cleveland**—Strip mills have large backlogs as a result of orders and specifications taken before April 1. Some hot-rolled strip mills are booked for four to six weeks. Under these circumstances efforts of certain buyers since March 31 to place orders at former quotations have proved unsuccessful. Cold-rolled now is firm at 2.60c, base, Cleveland; and hot-rolled 1.85c. Pittsburgh, or 2.04½c, delivered, Cleveland.

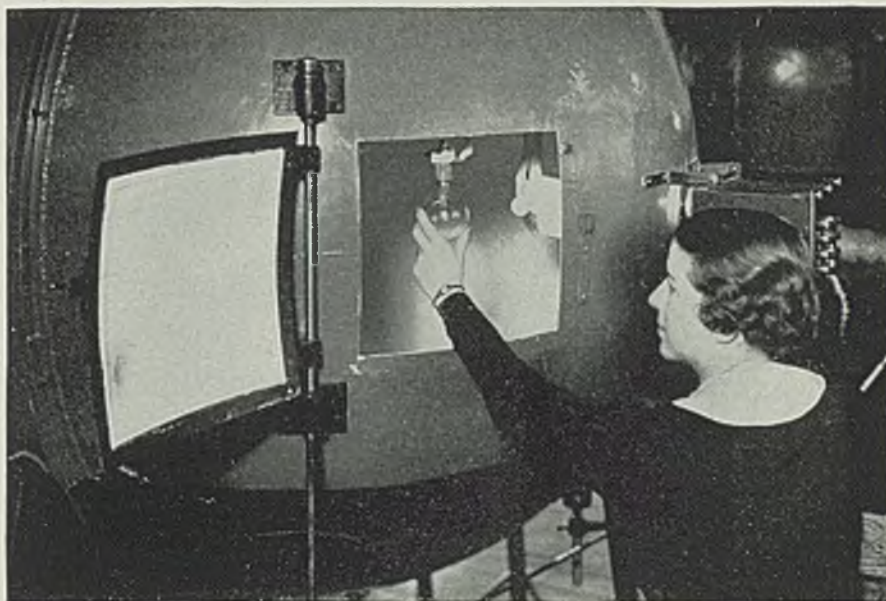
**Chicago**—Strip production continues active and while new business is quieter than a short time ago when consumers were anticipating higher prices this quarter, material is moving promptly into consumption. Increased automotive operations aid the outlook for the next four to six weeks, while needs of miscellaneous consumers are expected to be well maintained. Prices show a steadier tone though the market has yet to be thoroughly tested.

**New York**—Buying of narrow strip is light, following recent heavy contracting at concessions. Consumption for the quarter is expected to be heavy for automotive and household devices. The latter is already strengthened by flood replacements.

**Philadelphia**—Strip tonnage is spotty, sellers looking for little early improvement in view of the relatively good orders which were placed during the latter part of last quarter at concessions up to \$5 a ton.

**Youngstown, O.**—While most of the wider strip tonnages, as in past months, has been going to automotive interests, yet narrower widths continue to claim much attention. One maker here is operating at around capacity on cold-rolled narrow strip. A larger number of miscellaneous users of the narrow material are getting on mill books.

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General Electric manufactures 9000 varieties of lamps with one thing in common . . . all of them are of the high quality resulting from more than 40 years of research and development.

G. E. MAZDA lamps must pass 480 checks and inspections in manufacture before General Electric says they are economical and

efficient for your use. Many of these facilities used in safeguarding lamp quality are available for your inspection. The next time you are in Cleveland, you are cordially invited to see how we check and inspect these lamps . . . General Electric Company, Department 166 — Nela Park, Cleveland, Ohio.

## GENERAL ELECTRIC MAZDA LAMPS



*They stay  
brighter longer*

# Wire

Wire Prices, Page 71

Cleveland—Considerable tonnage was placed with wire mills before April 1 when new prices went in effect, and shipments will extend to about the middle of the month. Some mills are working close to capacity, demand for manufacturers' wire being especially active, reflecting the improvement in automobile requirements. Plain wire is now 2.40c, base, Cleveland. However, when the base

price was advanced \$2 a ton the 10-cent extra on  $\frac{3}{8}$  to  $\frac{1}{2}$ -inch stock, and the 20-cent extra on  $\frac{1}{2}$ -inch and over, were canceled. A large portion of the tonnage falls in these brackets in which the actual price is either unchanged, or reduced.

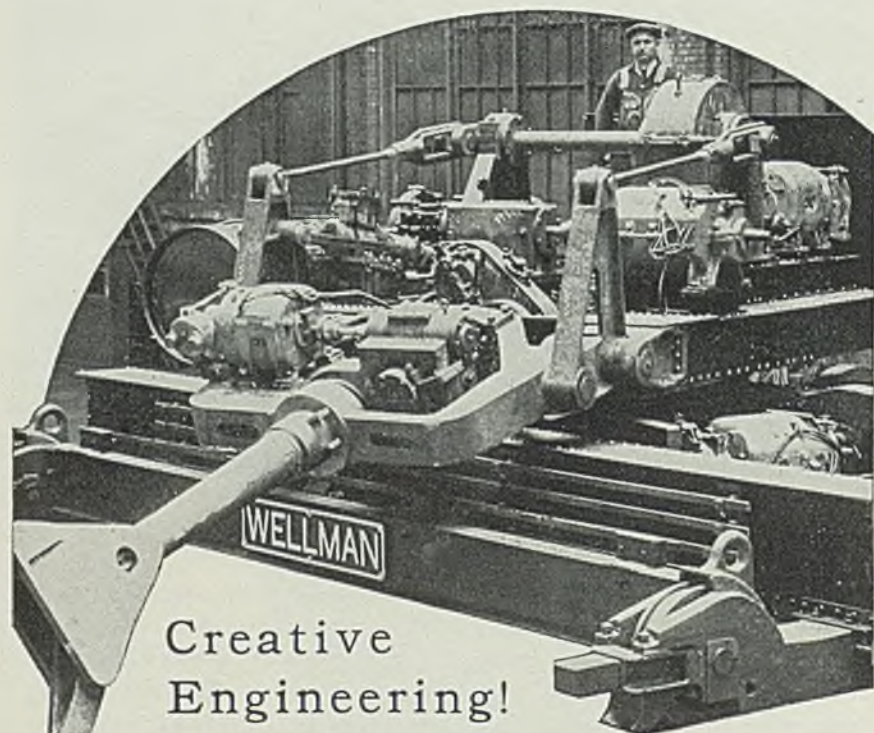
Pittsburgh—Little test has been given the 2.40c, Pittsburgh, market on plain wire, or 3.05c, base, on high carbon spring wire, as heavy specifications were placed at the former market. On nails, present sales are being made at \$2.10 per keg, and unchanged prices are also reported for other merchant items. Demand

for wire products appears to be steadily improving, especially from the jobbing trade.

Chicago—Wire shipments are increasing and a similar trend is noted in consumption. This applies both to manufacturer's wire and to merchant products. The latter are in better call among farm districts and prospects for a marked gain in consumption of barbed wire and fencing in rural areas are favorable.

New York—Manufacturers' wire is in good demand but merchant wire is relatively slower in view of recent buying at concessions. Nail demand is expected to be brisk later.

Youngstown, O.—Demand for wire and nails from jobbers is keeping mills fairly busy and shipments are improving as jobbers renew depleted stocks.



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**THE WELLMAN ENGINEERING CO.**  
 ENGINEERS    CONSTRUCTORS    MANUFACTURERS  
**CLEVELAND, OHIO**  
 BIRMINGHAM    NEW YORK    MEXICO CITY



## Semifinished

Semifinished Prices, Page 71

Pittsburgh—Specifications for re-rolling billets and sheet bars were without material change last week. Temporarily, shipments of these items are larger than incoming specifications, but a more even balance may develop within the next week to ten days. Requirements for wire rods, tube rounds, and other semifinished steels are in steady volume, and increased tonnage is expected over the next 45 to 60 days. Pittsburgh producers quote re-rolling billets, blooms, slabs and sheet bars, \$28 per gross ton, f.o.b. Pittsburgh; forging billets, \$35, and No. 4 and 5 wire rods, \$38.

## Tin Plate

Tin Plate Prices, Page 70

Pittsburgh—Though most hot mills in the plants of Pittsburgh tin plate producers were able to resume operations early last week, schedules were restricted because of the fact that all available tinning pots were being used for reconditioning tin plate in stock that had been boxed and was ready for shipment. A full resumption of hot mill schedules probably will be delayed for another week, although a leading mill, untouched by the flood, was on a 79 per cent basis last week. The general procedure to recondition tin plate has been to recoat all sheets which had been in contact with flood waters.

## Quicksilver

New York—Quicksilver prices are unchanged in a quiet market. Small lots are \$78 to \$79, a virgin flask of 76 pounds.



# Shapes

Structural Shape Prices, Page 70

**New York**—While volume of awards continues small in the metropolitan territory, a large tonnage in the aggregate is pending. 50,000 tons are involved in 33 large projects, not including numerous small ones that also are scheduled for early decisions.

Plain shapes continue at 1.90c, base, Bethlehem, Pa., equivalent to 2.06½c delivered, New York.

Although production in February declined to 33.9 per cent of normal, bookings of fabricated structural steel held up well, according to the American Institute of Steel Construction. During the first two months of 1936 bookings averaged 49.4 per cent of normal, normal being considered as the annual average of shipped tonnages as compiled by the department of commerce, for the years 1928-1931, inclusive. This was better than for any similar period of 1935. Bookings of fabricated structural steel during the 12 months of 1935 averaged 38.1 per cent of normal.

**Pittsburgh**—New York inquiries are occupying the attention of fabricators who are estimating on 6400 tons for a New York subway, 1500 tons for an industrial high school in the Bronx, and an 1800-ton express highway, West Ninety-fourth street, New York, for which bids were submitted last week. Fort Pitt Bridge Works has closed on four Philadelphia high schools, requiring about 1600 tons. Pennsylvania state bridge inquiries are including 335 tons, April 9, and 1265 tons for three bridges, April 17. Bids were taken April 3 on 1200 tons for Lawrence and Montgomery county bridges. Plain structurals hold steady at 1.80c, base, Pittsburgh.

**Cleveland**—Industrial work requiring structural steel is more in evidence, especially for projects requiring moderate tonnages. The Austin Co., Cleveland, has been awarded a bottle storage plant for Owens-Illi-

nois Glass Co., Gas City, Ind., requiring 600 tons, while R. W. Kaltenbach Corp., Bedford, O., will build a car dumper at Huron, O., for Wheeling & Lake Erie, taking 650 tons of shapes and plates. Fabricated prices are firmer.

**Chicago**—Awards and inquiries hold at the restricted rate of the last few weeks. Placing of the general contract for the outer drive work, involving 15,000 tons of shapes, has been deferred and this work may be divided among five contractors. The largest of local awards is 1000 tons for the Cermak road viaduct. Bridges

predominate new inquiries, with 2400 tons pending in Illinois and Kansas. Specifications for plain structural material are improving gradually, but fabricators are unable to add to their backlogs.

**Philadelphia**—Tonnage has been confined to a few jobs, the largest involving 550 tons of bridge work at Crumlyne, Pa. Fabricators look for improved tonnage in the near future as several projects are under active contemplation, including 2115 tons of state bridges, up for bids April 9 and 17. Construction of a Delaware river tunnel, connecting Hog Island

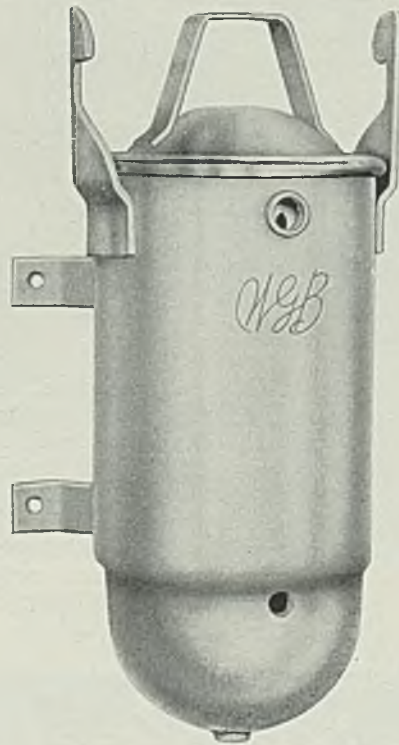
**SPECIAL SEAMLESS SHELLS SHAPES**

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**DEEP DRAWN TANKS, BOTTLES, ETC.**

*Is Our Specialty*

This Seamless Drawn Tank is  
A Crosby Accomplishment



*Stamping Specialists Since 1896*

An Experience You Should Not Overlook  
Send Us Your Next Specification

**THE CROSBY COMPANY**

**BUFFALO, N. Y.**

NEW YORK — CHICAGO — PHILADELPHIA — DETROIT — CLEVELAND

## Shape Awards Compared

	Tons
Week ended April 3 .....	14,900
Week ended March 28 .....	10,988
Week ended March 21 .....	12,787
This week, 1935 .....	7,140
Weekly average, 1935 .....	17,081
Weekly average, 1936 .....	20,659
Weekly average, March.....	15,069
Total to date, 1935 .....	209,239
Total to date, 1936 .....	289,237

and Billingsport, N. J., 10 miles south of Camden, may start within 90 days, according to V. T. Ritter, 1500 Walnut street, designer of the tunnel and president of Delaware River Corp. Shapes are 1.90c, Bethlehem, Pa., or 2.015c, Philadelphia.

St. Louis—Slightly lagging tendencies are noted in structurals. Joseph T. Ryerson & Son Co. has been awarded 1645 tons of structurals for the Inter-city viaduct at Kansas City. Two thousand tons for the Springfield, Ill., armory went to Bethlehem Steel Co.

Birmingham, Ala.—Fabricating

shops are maintaining an active rate of operation with new business steady. Recent awards include 700 tons for a coliseum at Fort Worth, Tex.

San Francisco—Over 24,000 tons are pending, most of which will be closed on during the next thirty days. Outstanding among these are 12,000 tons for 3000 refrigerator cars for Pacific Fruit Express Co. and 4000 tons for two freighters for Matson Navigation Co. Bookings so far this year double the tonnage placed during the same quarter a year ago.

Seattle—Structural shops report

considerable work in small tonnages. Bids were opened at Coulee, Wash., March 30 for 200 tons in a portal assembly for turbine draft tubes. Plans for the new plant of West Coast Plywood Co., Hoquiam, Wash., include a traveling crane.

## Shape Contracts Placed

2025 tons, New Jersey approach to Mid-town Hudson tunnel, New York, to American Bridge Co., Pittsburgh, of which 1800 tons sublet to Commercial Shearing & Stamping Co., Youngstown, O.

2000 tons, armory, Springfield, Ill., to Bethlehem Steel Co., Bethlehem, Pa.

1170 tons, North East high school, Philadelphia, to Fort Pitt Bridge Works, Pittsburgh.

1000 tons, Cermak road viaduct, Chicago, to American Bridge Co., Pittsburgh.

925 tons, coliseum, Ft. Worth, Tex., to Virginia Bridge & Iron Co., Roanoke, Va.

880 tons, coliseum building, Fort Worth, Tex., to Virginia Bridge Co., Roanoke, Va.

650 tons, shapes and plates, car dumper, Wheeling & Lake Erie railroad, Huron, O., to R. W. Kaltenbach Corp., Bedford, O.

600 tons, bottle storage warehouse, Owens-Illinois Glass Co., Gas City, Ind., to Austin Co., Cleveland.

560 tons, state highway bridge, Eddy-stone, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

550 tons, state bridge, Crumlyne, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

515 tons, New York state armory, Schenectady, N. Y., to Belmont Iron Works, Philadelphia.

495 tons, auditorium building, Fort Worth, Tex., to Mosher Steel & Machinery Co., Dallas, Tex.

380 tons, state highway bridge, Tioga county, Pennsylvania, to Fort Pitt Bridge Works, Pittsburgh, through American Steel Engineering Co., Philadelphia.

340 tons, grade crossing elimination, Newark, N. Y., for New York Central railroad, to Bethlehem Steel Co., Bethlehem, Pa.

250 tons, Red Hook-Gowanus canal health center, Brooklyn, N. Y., to Joseph T. Ryerson & Son Inc., Chicago.

250 tons, J. B. Stetson high school, Philadelphia, to Fort Pitt Bridge Works, Pittsburgh.

245 tons, beam girder viaduct, Kauai, Hawaii, to United States Steel Products Co., New York.

220 tons, three bridges, Staten Island, N. Y., to Bethlehem Steel Co., Bethlehem, Pa., through Bates & Rogers Construction Co., Fort Wadsworth, N. Y.

210 tons, gates, specification 666, bureau of reclamation, Denver, to unnamed interest.

200 tons, junior high school, Newburg, N. Y., to Bethlehem Steel Co., Bethlehem, Pa., through William L. Crow, New York.

160 tons, Goddard road bridge, Detroit to American Bridge Co., Pittsburgh.

158 tons, bridge in Lewis and Clark county, Montana, to American Bridge Co., Pittsburgh.

152 tons, viaduct, Havre, Montana, to unnamed interest.

150 tons, school, Hewlett, N. Y., to Dreier Iron Works, New York.

145 tons, bridge, Sequoia county,

an adherence to the SUPER in



CLOSE metallurgical control . . .  
Uniform rolling to accurate gauge and frequency of inspection bring out the supers in SUPERIOR strip steels.

On all press work calling for deep and difficult draws, you'll find greater workability in SUPERIOR steels. Their smooth, bright finish reflects a strict adherence to the requisites of good rolling practice.

# Superior Steel

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4305 Chrysler Bldg.  
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1017 Fisher Bldg.  
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Steel Sales Corp.  
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H. L. Brown.  
2001 Carew Tower  
Cincinnati, Ohio

GENERAL OFFICE  
3122 Grant Building  
Pittsburgh, Pa.

WORKS AT  
Carnegie, Penna.

Oklahoma, to Capitol Steel & Iron Co.  
 140 tons, project 357F, Frontier county, Nebraska, to Gate City Iron Works, Omaha, Nebr.  
 130 tons, dormitory and dining hall, Farmingdale, N. Y., to American Bridge Co., Pittsburgh.  
 100 tons, approximately, vocational school, Pottstown, Pa., to Bethlehem Steel Co., Bethlehem, Pa.  
 100 tons, miscellaneous small projects, to Pacific Car & Foundry Co., Seattle.  
 100 tons, including plates, wood motorship Warrior, Tacoma, Wash., to various local shops.  
 100 tons, Bakelite Corp. addition, Bound Brook, N. J., to Lehigh Structural Steel Co., Allentown, Pa.

### Shape Contracts Pending

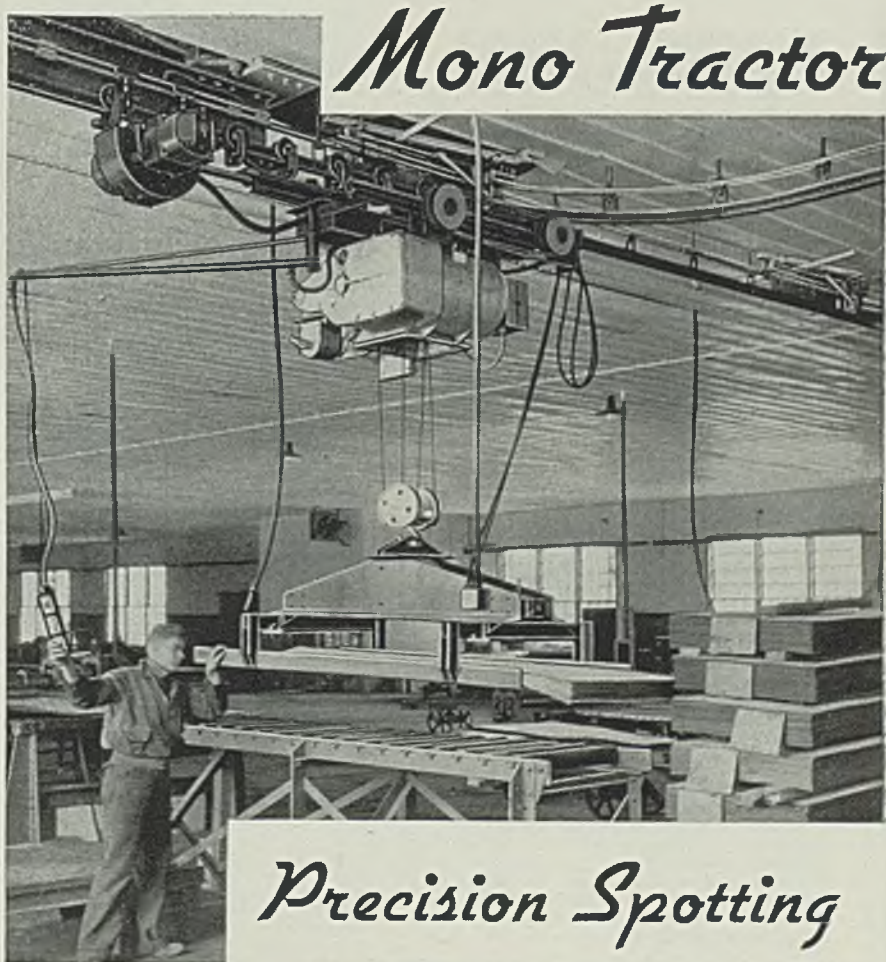
4000 tons, two 14,500-ton freighters, Matson Navigation Co., San Francisco; bids May 4.  
 2000 tons, nurses home, Welfare Island hospital, New York.  
 1800 tons, express highway, West Ninety-fourth to West Ninety-eighth streets, New York; bids taken March 31.  
 1700 tons, west side elevated highway extension, Ninety-fourth to Ninety-eighth streets, New York; P. T. Cox Contracting Co., New York, low.  
 1400 tons, Bronx industrial school for girls, New York; Comstock Construction Co., New York, low.  
 1000 tons, Mid-town Hudson tunnel ventilation building on New Jersey side; George Siegler & Co. Inc., Jersey City, N. J., low.  
 975 tons, bridge, East St. Louis, Ill.  
 900 tons, Pennsylvania railroad, sheep and calf house, Jersey City, N. J.  
 820 tons, state bridges, Illinois; bids April 10.  
 725 tons, state bridges, Kansas.  
 715 tons, sheet steel piling, invitation 42,461-A, department of Interior, Denver, for Potholes, Calif.  
 672 tons, two bridges near Yuma, Ariz., on All-American canal, Boulder canyon project, specification 665; bids April 16.  
 650 tons, Shark river bridge, Belmar, N. J.  
 650 tons, steel truss bridge, Westmoreland county, Pennsylvania; bids to state highway department, Harrisburg, Pa., April 17. Included, 68 tons of plain steel bars.  
 500 tons, tunnels for Golden Gate bridge road project, Sausalito, Calif.; bids April 15.  
 455 tons, Augusta boulevard grade separation, Chicago; Mississippi Valley Structural Steel Co., Decatur, Ill., low.  
 400 tons, Star Corrugated Box Co. building, Maspeth, N. Y.  
 400 tons, Gertz department store addition, Jamaica, N. Y.  
 360 tons, state highway bridge, St. Paul.  
 350 tons, sheet steel piling, extension to quay wall, Pearl Harbor, T. H., specification 8014; Hawaiian Dredging Co. Ltd., Honolulu, low.  
 315 tons, deck plate girder underpass bridge, Cambria county, Pennsylvania; bids to state highway department, Harrisburg, Pa., April 17. Included, 28 tons of plain steel bars.  
 300 tons, three-span pony truss bridge, Bedford county, Pennsylvania; bids to state highway department, April 17. Included, 36 tons of plain steel bars.  
 300 tons, Lyons Match Co. building, West Twenty-third street, New York.  
 300 tons, high school, Norwalk, O.  
 300 tons, theater and store building for Parkwood Trading Co., Washington; readvertisement of bids.  
 270 tons, pony truss bridge, Colum-

bia county, Pennsylvania; Joseph Banks Construction Co., Wilkes-Barre, Pa., awarded contract by state highway department at \$99,443.90. Included 54 tons of plain steel bars.  
 250 tons, diverter towers, Boulder City, Nev., for United States bureau of reclamation.  
 212 tons, under-crossing near Reno, Nev.; bids April 15.  
 193 tons, Indiana avenue grade separation, Chicago; R. C. Mahon Co., Detroit, low.  
 175 tons, superstructure, water purification plant, Milwaukee; bids April 15.  
 143 tons, 80 tons of structural and 63 tons of plain bars, plate girder reinforced concrete bridge, Lacka-

wanna county, Pennsylvania; Tyler & Cole, Meshoppen, Pa., general contractor.  
 140 tons, grade separation, Riverside, Ill.; Midland Structural Steel Co., Cicero, Ill., low.  
 120 tons, bridge repairs, Allegheny-Westmoreland counties, Pennsylvania; Farris Engineering Co., Pittsburgh, awarded contract by state highway department at \$28,840.75.  
 100 tons, office building alterations, Forty-first street and Broadway, New York.  
 Unstated, 632-foot state bridge, Flathead county, Montana; bids in.  
 Unstated, steel bridges near Pullman and Cheney, Wash., for Union Pacific system; bids not announced.

# American

# Mono Tractor



## Precision Spotting

Three tons of sheet steel handled by an American MonoTractor throughout the plant with finger-tip control.  
 MonoTractors bring to overhead handling new power — greater control — added safety — automatic operation — all at lower cost.

Write for new book on MonoTractor Drive for Cranes, Hoists and Carrier Units.

# AMERICAN MONORAIL CO.

13102 Athens Ave., Cleveland, O.

Unstated tonnage, replacement and repair of nine bridges, Illinois, Iowa, and Missouri, for Wabash railroad; expenditure will amount to \$138,000.

# Reinforcing

Reinforcing Bar Prices, Page 71

New York—Awards aggregated 1000 tons, comprised mostly of two large lots. While action on new projects is slow, a large amount of work is pending, to be in excess of 10,000 tons. Prices are firmer and the mar-

ket is 2.20c to 2.40c, base delivered, New York, to which a trucking charge of \$2 a ton usually is added for delivery at the building site. This level is equivalent to 1.85c to 2.05c, base, Pittsburgh.

Pittsburgh—Jobbers have been pressing the mills for delivery. Stocks in many cases have run down and the heavy call for spring building and rehabilitation work following eastern floods has caused heavy shipments. Tyler & Cole, Meshoppen, Pa., requires 63 tons of plain bars for Lackawanna county, and Central Pennsylvania Quarry Stripping & Construc-

tion Co., Hazelton, Pa., requires 15 tons for Cambria county work. New billet quality bars are unchanged at 2.05c, base, Pittsburgh.

Cleveland—New billet steel bars quoted by distributors are firm at 2.00c, Cleveland, for stock lengths, and 2.10c for cut lengths. Rail steel bars usually carried a differential of \$3 a ton under new billet steel, but considerably more is being allowed. Efforts still are being made to stabilize the market. Only small public works jobs have been awarded recently.

Chicago—Most concrete bar orders are small, particularly those for private building. Purchases of less than 100 tons are fairly numerous, but total business is restricted by the absence of heavy industrial work and by the delay in closing on various public projects. Bars pending for road and bridge building in Illinois and nearby state, as well as for local sewer work, bulk large. Distributors are encouraged by the steadier tone of prices.

Philadelphia—Outstanding award is approximately 500 tons for a 7-story office building for the Philco Radio & Television Corp. While rail steel was originally specified, billet material was finally purchased. Tonnage for E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., was placed through Turner Construction Co., with J. & L. Service Co., Long Island City, N. Y.

San Francisco—The market was active, 3033 tons being booked. The largest awards went to unnamed interests and involved 1011 tons for the Iron Mountain pumping plant for the metropolitan water district, Los Angeles, 900 tons for 48-inch reinforced concrete pipe for Tacoma, Wash., and 143 tons for a crossing at Douglas, Ariz.

Seattle—New work is slow in developing and few projects of importance are up for figures. Private construction continues far below normal, and government jobs are less numerous than 60 days ago. There is some demand for lots of less than 100 tons. The week's largest award

## Behind the Scenes with STEEL

### Men of Steel

THAT'S how we like to think of them—that great army of men which marches each week through the advertising pages of STEEL. Some are tall, some are short, some are in overalls, some are meticulously groomed to the last rose in the buttonhole, some are laughing, some are frowning, some are exclaiming, some are declaiming.

Some are photographs, some are wash drawings, some are fragmentary sketches, but in last week's issue alone we counted 49 men, 6 ghosts, 5 hands and a couple of stray legs, all doing their part in getting across a message to you.

We suppose most of these salesmen-in-print are just models who spend their time sitting in front of a camera or posing for an artist. Little



do they suspect that their anatomy will be perpetuated in these well-thumbed pages. And little do they care, like as not.

Every once in a while some scowling personage appears with finger leveled at the reader's eye and exclaiming, "Why don't you buy a carload of Blanks screwdrivers?" When we first run into this fellow we jump back a little, but then we recover our poise and level our forefinger right back at him, exclaiming, "Aw nuts, we know you: you're only an old photographer's model—ht. 5-11, wt. 180, eyes bl., hair br., will not pose in nude."

### "Studied Brevity"

WHEN sending acknowledgements of items published in the New Equipment department, our editor who handles this material encloses a printed announcement which reads as follows:

STEEL publishes no lengthy, profusely illustrated descriptions of new machine tools and plant equipment. Suitable items are selected with care and re-written to present salient features in a few words.

This policy of studied brevity, adhered to throughout the entire

publication, enables STEEL to conserve the reading time of busy industrial executives whose interest is of vital importance.

Readers of STEEL are primarily executives, engineers and production men in the metal producing and metal working industries who are interested in new and more efficient products and equipment. Therefore, we know these items are read with close attention.

Reaction to this policy has been most favorable. For instance, the other day an equipment manufacturer wrote us as follows:

*Thanks a lot for your friendly letter together with tear sheet of the item published. I enjoyed reading the little slip attached concerning the "studied brevity" of the items you publish—I think this is a wonderful trick; I should say a matter of much wisdom to conserve the time of your readers, thereby making for greater reader interest.*

Sincerely, E. R. B.

### Wrigley Fish

GOTHAM tongues are a-twitter over the new "spectacular" sign erected for the Wrigley gum people on the east side of Times Square, atop a two-story building. Extending the length of a full block, the display centers around a number of multi-colored tropical fish which appear to glide around in waves of sea green light, with bubbles rising to the top of the sign.

The gigantic contraption contains 1084 feet of neon tubing, 70 miles of insulated wire, 29,508 lamp receptacles, 8 tons of galvanized sheet steel and about 100 tons of structural steelwork. We are told that if the lamp receptacles were stacked end to end they would make six piles, each the height of the Eiffel tower. Wouldn't that be a hell of a looking sight!

In case you are interested, the fish are enlarged copies of the *Angelichthys ciliaris*, the *Betta splendens* or veiltail fighting fish, the *Symphysodon discus*, the *Aphyocharax rubripinnis*, and last but not least the well-known *Rasbora heteromorpha*. Cute little fellows, all of them.

### Bock Is Back

WE ARE reliably informed by a number of our operatives that the first Bock beer of the season is available and that it is much tangler than last year's crop. Prosit!

—SHRDLU

## Concrete Awards Compared

	Tons
Week ended April 3 .....	6,443
Week ended March 28 .....	1,738
Week ended March 21 .....	1,630
This week, 1935 .....	2,059
Weekly average, 1935 .....	6,862
Weekly average, 1936 .....	7,968
Weekly average, March .....	7,980
Total to date, 1935.....	67,538
Total to date, 1936 .....	111,550

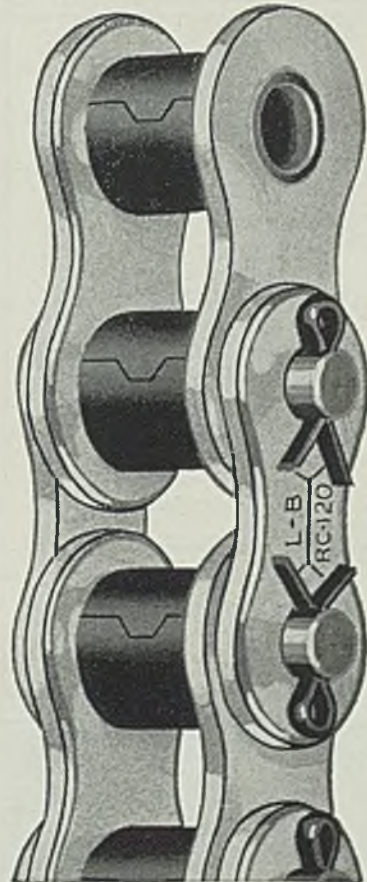
was 400 tons for a state office building at Olympia, Wash., to Truscon Steel Co., Youngstown, O.

### Reinforcing Steel Awards

- 1011 tons, Iron Mountain pumping plant, metropolitan water district, Los Angeles, to unnamed interest.
- 1000 tons, Intercity viaduct, Kansas City, Mo., to Sheffield Steel Corp., Kansas City.
- 900 tons, 48-inch concrete pipe, Tacoma, Wash., to American Concrete & Steel Pipe Co., Tacoma.
- 550 tons, Montgomery Ward & Co. building, Albany, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.
- 500 tons, lock No. 17 on Mississippi river, New Boston, Ill., to Sheffield Steel Corp., Kansas City, Mo.
- 500 tons, hot rolled rods, Tacoma, Wash., pipe line projects, to Columbia, Bethlehem and Gulf States steel companies; American Concrete & Steel Pipe Co., Tacoma, general contractor.
- 500 tons, Twenty-third street viaduct, Kansas City, Mo., to Sheffield Steel Corp., Kansas City.
- 500 tons, 7-story office building for Philco Radio & Television Corp., Philadelphia, reported placed with an eastern Pennsylvania seller.
- 400 tons, state office building, Olympia, Wash., to Truscon Steel Co., Youngstown, O.; Sheble Construction Co., Seattle, general contractor.
- 300 tons, armory, Springfield, Ill., to Bethlehem Steel Co., Bethlehem, Pa.
- 200 tons, armory, Schenectady, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.
- 150 tons, office building foundation, E. I. du Pont de Nemours & Co. Inc., Wilmington, Del., through Turner Construction Co., New York, to the J. & L. Service Co., Long Island City, N. Y.
- 150 tons, school, El Mino street, Pasadena, Calif., to unnamed interest.
- 143 tons, under-crossing, Douglas, Cochise county, Arizona, to unnamed interest.
- 125 tons, invitation 903, treasury department, San Francisco, to unnamed interest.
- 114 tons, crossings in three counties in Wyoming, to unnamed interests.
- 100 tons, Kent-Ravenna, O., highway, to unnamed fabricator.
- 100 tons, Alexander Hamilton high school, Los Angeles, to unnamed interest.
- 100 tons, Holy Spirit school, Pico street, Los Angeles, to unnamed interest.

- work in Jackson and Lancaster townships, Butler county, and approximately 65 tons for grade crossing project in Kingston borough, Luzerne county.
- 225 tons, New Jersey state highway grade crossing elimination, Berkeley Heights, N. J.; H. L. Harrison & Son, Newark, N. J., low.
- 200 tons, procurement division, Treasury department, New York; W. Ames & Co., Jersey City, N. J. low.
- 200 tons, property storage building, Century-Fox Film Corp., Los Angeles; bids opened.
- 200 tons, superstructure, water purification plant, Milwaukee; bids April 15.
- 175 tons, tunnels for Golden Gate

- bridge road project, Sausalito, Calif.; bids April 15.
- 165 tons, under-crossing near Reno, Nev.; bids April 18.
- 155 tons, crossings in three Montana counties; bids opened.
- 150 tons, women's penitentiary, Jefferson City, Mo.; Kellerman Contracting Co., St. Louis, low on general contract.
- 143 tons, New Jersey state highway grade crossing elimination, Lincoln Park, N. J.; Franklin Contracting Co., Newark, N. J., low.
- 140 tons, business college, St. Paul & Wilshire boulevard, Los Angeles; bids soon.
- 139 tons, state bridge work in Bedford, Cambria and Westmoreland



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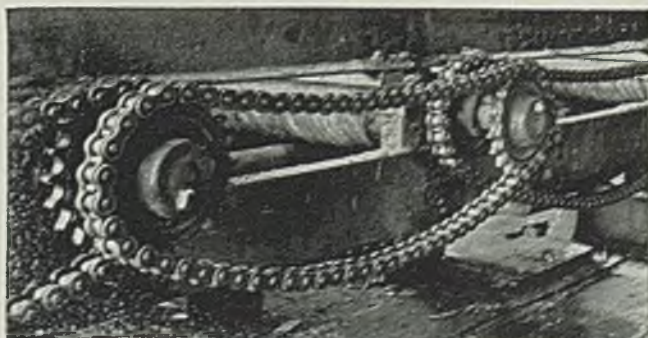
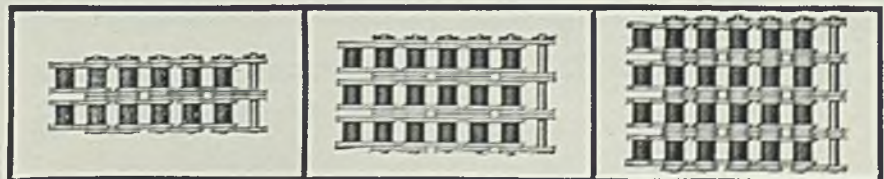
Silverlink is made in  $\frac{3}{8}$ " to  $2\frac{1}{2}$ " pitch, in single and multiple strand types, with a complete range of sprocket wheels and attachments. Complete drives—chains and sprocket wheels—from  $\frac{1}{4}$  to 225 H. P., in speed ratios of 1 to 1, up to 8 to 1, are stocked by distributors, nationally.

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### Reinforcing Steel Pending

- 750 tons, board walk and comfort station, Long Beach, N. Y.; Faircroft Engineering Corp., Brooklyn, N. Y., low.
- 627 tons, two bridges near Yuma, Ariz., for All-American canal, Boulder canyon project; bids April 16.
- 525 tons, hot rolled rods, Tacoma, Wash., pipe line project; American Concrete & Steel Pipe Co., Tacoma, general contractor.
- 500 tons, warehouse and garage, United Parcel Service, Los Angeles; general contract awarded.
- 500 tons, grade crossing elimination, Erie railroad, Port Jervis, N. Y.; bids to be taken.
- 315 tons, extension to quay wall, Pearl Harbor, T. H., specification 8014; Hawaiian Dredging Co. Ltd., Honolulu, low on general contract.
- 226 tons, state bridges, Pennsylvania, bids April 9; includes 161 tons for



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REQUEST**

# Pig Iron

Pig Iron Prices, Page 72

Cleveland—First quarter contract shipments were completed by April 1, and shipments for the period were substantially heavier than in the first quarter last year. Furnace backlogs today are larger than at the outset of March. Notwithstanding that prices for second quarter are up \$1 a ton, producers look for shipments this month to be fully as good as

those in March, owing mainly to the increase in demand from automobile foundries. Other consumer requirements are strong.

Pittsburgh—Last week a number of riverside foundries had resumed operations. Duquesne Steel Foundry Co. plant, Corapolis, Pa., will operate under normal conditions beginning April 6, Wheeling Mold & Foundry division resumed April 3, and the Garrison works of Mackintosh-Hemphill Co., Standard Sanitary Mfg. Co.'s foundry, and others are back on normal schedules.

Chicago—A further increase in shipments is in prospect for April, following an upturn of 20 to 25 per cent during March. Consumers still are disinclined to cover requirements far ahead, but new business continues fairly active. Foundry operations are holding well with good activity among producers of automotive castings helping to swell total melt. Market is firm on new business.

New York—Sales are being sustained at the modest rate of a week before. With prices stable, little future buying is noted, with the result that most orders are confined to 100-ton lots and less.

Philadelphia—Business continues on a hand-to-mouth basis, and in general, volume appears to be tending slightly upward. Some foundries, recently forced to suspend operations due to high water, are again in production and consequently are specifying more freely; further, most foundries report better bookings, which should be reflected in increasing purchases over the next several weeks.

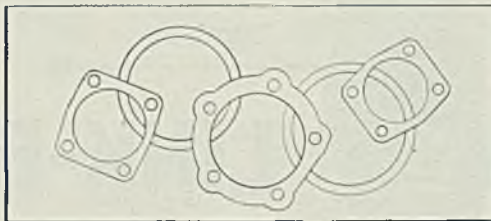
Buffalo—Melt is increasing, with March deliveries 10 to 15 per cent in excess of those of February, except where flood conditions prevented. Eight furnaces are in production.

Cincinnati—Melters with contracts at \$1 below current quotations took out all tonnage prior to March 31, and the carryover effect is seen in reduced shipments, but this condition will be over in three or four weeks. Spot buying is in fair total tonnage, and some second-quarter contracting is being done. Foundries generally were unaffected by a high river stage, and one steelworks furnace, banked in anticipation of high water, is again in production.

St. Louis—Final week of March was marked by a sharp pickup in specifications, reflecting a desire to take out all iron bought at \$1 below the current quotation. The March movement was larger than in February, and also in excess of March, 1935. Despite the fact consumer stocks are of moderate size, melters are not covering their full quarter requirements.

Birmingham, Ala.—While no large

- counties, Pennsylvania; bids opened April 17.
- 101 tons, New Jersey state highway grade crossing elimination, Whar-ton, N. J.; F. F. Baker, Upper Montclair, N. J., low.
- 100 tons, Laurelton parkway paving, Long Island state park commission, Laurelton, N. Y.; Wilson & English Construction Co., New York, low.
- 100 tons, Public Roads tunnel job, Multnomah county, Oregon; bids at Portland, Oreg., office, April 15.
- 100 tons, highway work, Multnomah county, Oregon; bids April 9.
- 100 tons, Farm Cottage, state hos-pital, Stockton, Calif.; bids April 7.
- 100 tons, under-crossing near Reno, Nev.; bids April 15.



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purchasing for second quarter delivery has developed, production is being maintained, with 12 blast furnaces continuing in operation. Several producers of merchant iron report more iron shipped during first quarter than manufactured.

**Toronto, Ont.**—General business in Canadian iron and steel markets is showing favorable expansion, and this improvement is reflected in increased demand for raw materials and sales of merchant iron. Sales last week totaled approximately 1200 tons. Inquiries are more numerous. Prices are firm.

delivery at Bethlehem and Steelton on tonnage from outside the company's immediate area. This makes for a spread of \$13.50 to \$14, delivered.

Edward G. Budd Mfg. Co. has disposed of its monthly accumulation of 3000 tons of new compressed sheets to the Pencoyd, Pa., consumer. The price paid is reported to have been slightly in excess of \$13, f.o.b. Budd plant.

**Buffalo**—An open offer of \$13.50 for No. 1 heavy melting steel continues to attract the attention of deal-

ers, some of whom have withdrawn from the market after taking all the tonnage they cared to contract for at this level. Fully 25,000 tons of scrap has been booked by this consumer at this price. Recent sales have resulted in 50-cent advance in the prices of short steel rails and steel car wheels.

**Detroit**—Weakness persisted in blast furnace scrap last week, forcing the market 50 cents a ton lower, but No. 1 steel and other open-hearth grades are firm and inherently strong. Heavier lists are now coming out from automobile makers, but

## Scrap

Scrap Prices, Page 73

**Pittsburgh**—Pressure for scrap shipments is growing, and mill buying has been reported at above \$16 to \$16.25 for No. 1 steel. A leading industrial concern here sold a representative list of scrap here last week and obtained the following prices, all f.o.b. consuming point: No. 1 steel, \$16.05; hydraulic compressed sheets, \$15.90; cast iron borings, \$11; machine shop turnings, \$11, and the heavy low phos scrap, \$18.30.

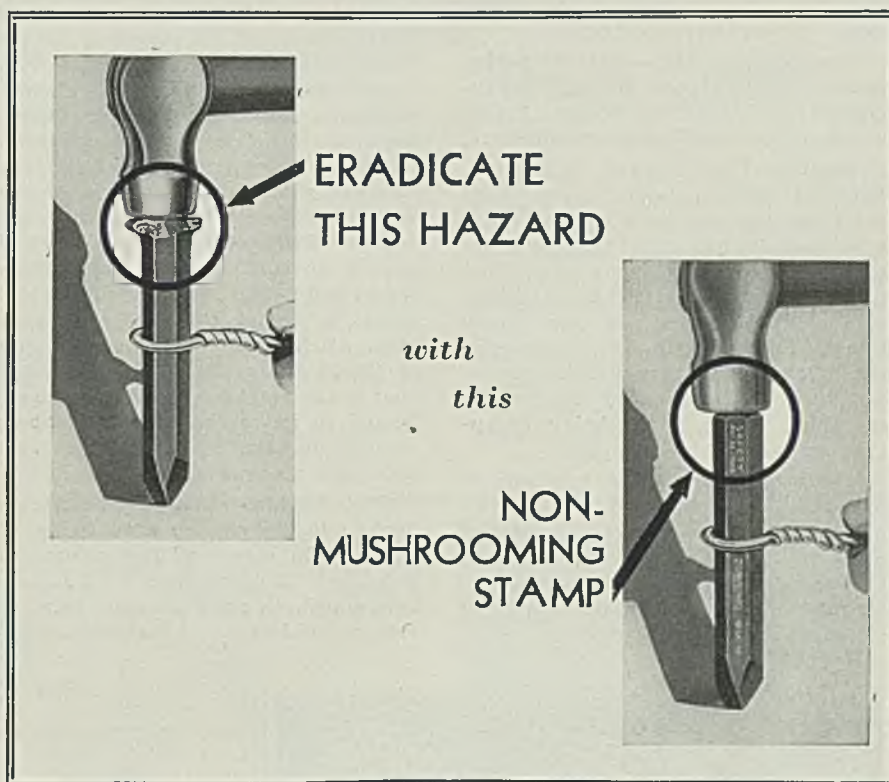
Carnegie-Illinois Steel Corp. has closed for 25,000 tons of heavy melting steel for its plant at Munhall, Pa., at \$16.

**Cleveland**—Shipments on contracts are steady but buying is light and activity is not expected before mid-April. Small lots are being bought by Valley melters. Prices are firm and unchanged.

**Chicago**—Scrap prices are easier here. Offerings have increased materially the past two weeks and despite heavy shipments to mills, the excess of supplies tends to weaken prices. While last sales of heavy melting steel to mills were made at \$14.75 and \$15, with most at the higher figure, dealers are able to pick up this grade freely at \$14.50, and the trade looks for lower consumer quotations shortly. Prices of several grades have been revised downward.

**New York**—Iron and steel scrap is coming to market in considerably larger volume. The recent sharp advances in prices have been to a considerable extent arrested as a result.

**Philadelphia**—Scrap prices generally are higher, with recent sales including 4000 to 5000 tons of No. 1 steel for the leading Claymont, Del., consumer, placed at \$14, delivered. This is an increase of 50 cents over this buyer's last purchase a few weeks ago. The leading eastern Pennsylvania consumer has also advanced his price 50 cents a ton to \$13.50 for



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advancing steel operations are more than absorbing the increased offerings.

**Cincinnati**—Conditions in the valley and refusal of district mills to enter tonnage commitments have resulted in a weaker iron and steel scrap market, dealers lowering prices generally 25 cents a ton. Some yard stocks, thrown on the market to escape flood waters, were readily absorbed.

**St. Louis**—Aside from the purchase by an east side mill of an undetermined tonnage of railroad steel specialties, buying has been virtually at a standstill. No price changes were recorded but in most cases quotations are entirely nominal.

**Birmingham, Ala.**—With an active market dealers look forward to increasingly satisfactory trade. Prices are firm and supplies seem adequate.

**Seattle**—The market is active, Oriental interest being matched by the volume of domestic buying. Dealers report that Europe is taking practically all of the exports from Gulf and North Atlantic ports and Japan is forced to depend on the Pacific Coast. Stocks at tidewater here continue low; prices are firm at about \$10.50 for No. 1 foundry and \$11.50 for rails. Exports are being hampered by lack of vessel space.

**Toronto, Ont.**—While business is expanding in iron and steel scrap dealers report no change in prices. Steel grades are responsible for most of the current movement and shipments to consumers in Ontario have shown substantial increase.

# Warehouse

Warehouse Prices, Page 74

**Pittsburgh**—Jobbers appear well pleased with mill quantity differentials for practically all finished steel items, now in effect. Demand continues heavy, due to rebuilding work. Jobbers' stocks are low. Prices are unchanged.

**Cleveland**—Business shows considerable expansion as mill prices have strengthened and backlogs increased, necessitating more buying from warehouse for quick delivery. Shipments were still being made last week on orders which normally would have been filled by suppliers in the Pittsburgh district.

**Chicago**—March sales showed moderate improvement over February, and the corresponding 1935 month. Closing days of March brought gains which jobbers expect will carry over into April.

**New York**—The long-awaited spring movement in demand has arrived, and current bookings and shipments are well over the February rate. April is expected to exceed that of March materially. The only weak spot in the market continues to be reflected in galvanized sheets, jobbers complaining that in sales of this item there are no profits.

**Philadelphia**—Daily tonnage booked in March appeared to be 10 per cent in excess of the volume of February. Jobbers look for business this month to show further gain, in view of the likelihood that upstate de-

mand for flood rehabilitation will set in within the next two or three weeks. To date there has been relatively little of this demand.

**Baltimore**—Warehouse business is responding to improved seasonal conditions, with indications that April tonnage will be in excess of March. Base prices are unchanged, although some revisions have been made in size extras on bars and cold-rolled steel to conform with the latest published mill lists. No changes in quantity differentials on hot-rolled and cold-rolled steel have been made.

**Detroit**—Despite absence of tool and die programs, installations of new plant conveyors, and rehabilitation of motor car plants at present, warehouse business is at a high plane. March shipments exceeded those of February. Prices are steady.

**Cincinnati**—Demand is active, and although deliveries were maintained while some jobbers faced problems presented by high water, some of this demand may have backed up. Early April business is considerably heavier than last year.

**St. Louis**—Jobbers report steady improvement in sales. Building and repair materials, including shapes, channels, beams, plates, bars, and nails are active. Bituminous mines in the adjacent fields are accounting for sizable lots of a variety of items.

**Seattle**—Business is better, buying having increased for federal and state projects. Puget Sound, Wash., navy yard is taking numerous items.

# Iron Ore

Iron Ore Prices, Page 73

**Cleveland**—Lake Superior iron ore producers have reaffirmed prices, this being the eighth consecutive year the prices have been in effect: Old range nonbessemer and Mesabi bessemer \$4.65; old range bessemer \$4.80, and Mesabi nonbessemer \$4.50, delivered, lower lake ports. A high phosphorus ore also is quoted at \$4.40. Consumers have estimated their requirements, and it is generally considered shipments this year will amount to 38,000,000 tons, compared with 28,500,000 tons last year.

Like last year, producers established prices independent of the Ford Motor Co.'s inquiry, which again is the largest in the open market. As reported last week, they submitted the same prices as last year on the Ford's current inquiry for 490,000 tons. There is every reason to believe that Ford pays the full price for standard grades of ore, although Ford buys some ore that is not up to standard. The company still has an interest in the Blueberry mine, Mar-

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quette range, which last year shipped 354,000 tons. A substantial portion of this year's requirements will be supplied by this mine. The company had not closed on its inquiry up to late last week.

**Baltimore** — Several substantial tonnages of iron ore arrived here recently. From March 13 to March 23, 6570 tons were received from Norvik, Sweden; 21,525 tons from Cruz Grande, Chile; 4000 tons from Whyalla, Australia; 300 tons, from Beira, Rhodesia; 2101 tons, from Lourence Marques, Transvaal; and 11,500 tons from Darquri, Cuba. In addition, 3500 tons of chrome ore came from Fethiye, Turkey; 8570 tons of manganese ore from Takoradi, Gold Coast; and 1000 tons of manganese ore from Colombo, Ceylon.

## Metallurgical Coke

Coke Prices, Page 71

In spite of the fact that several of the riverside foundries in the Pittsburgh district are slow to resume after the flood, the foundry coke market is finding other important outlets at various inland points, and the price for beehive grade is steady at around \$4.25, f.o.b. Connellsville, Pa., ovens. Premium foundry coke is \$5.35 to \$5.50 on the same basis and standard furnace coke \$3.50 to \$3.65.

March coke shipments at Chicago were smaller than in February but exceeded those of January. Steady consumption continues at unchanged prices. St. Louis producers have sufficient tonnage on books to assure heavy April shipments. At Cincinnati prices have been reaffirmed for April and consumption continues at a high rate.

## Ferroalloys

Ferroalloy Prices, Page 72

**New York**—Specifications for ferromanganese are at the highest point this year. Domestic spiegeleisen shipments also reflect the improved rate of steel production. Ferromanganese is steady at \$75, duty paid, Atlantic seaboard; and domestic spiegeleisen, 19 to 21 per cent, \$26, Palmerton, Pa., on quantities up to 50 tons, and \$24 on lots of 50 tons and over.

## Coke By-Products

Coke By-Product Prices, Page 71

**New York**—Shipments of by-product coke derivatives, sharply cut by the recent floods, now are back prac-

tically to normal. Demand for all of these products continues active. In a number of these products the shortage in supply continues acute, notably naphthalene, phenol, and industrial xylol. Prices are firm.

## Nonferrous Metals

Nonferrous Metal Prices, Page 72

**New York**—Moderately improved volume of demand for copper and lead featured major nonferrous metal markets last week. Prices generally were unchanged to firmer.

**Copper**—Business again was done on the basis of 9.25c, Connecticut, for electrolytic but some sellers continued to ask 9.50c. It is expected that all metal at the lower level will be absorbed in time and that the market will move to a firm 9.50c. Outlook has improved on favorable prospects for new demand for fabricated copper and brass products over the spring period.

**Lead**—Sales increased but sellers held prices firm at 4.45c, East St. Louis. Consumers have not bought actively for May needs so substantial business is pending.

**Zinc**—Prime western held firm at

4.90c, East St. Louis, in the face of light sales as the statistical position of the industry improved. Unfilled orders on sellers' books were reduced further as shipments maintained an active rate.

**Tin**—Straits spot tin prices were firmer and closed around 47.70c. No relief from the tight situation in nearby supplies is foreseen for the current month.

**Antimony**—The market weakened on easier price reports from China. Chinese spot was offered well under the 13.50-cent level while American spot dropped to 12.75, New York.

## Steel in Europe

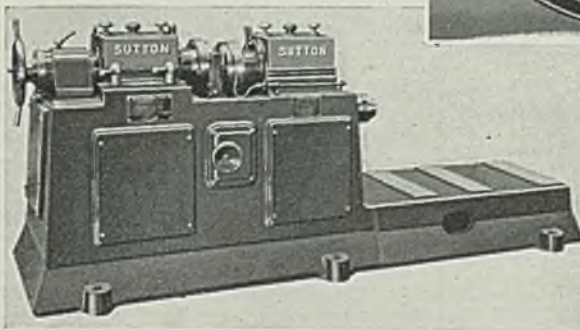
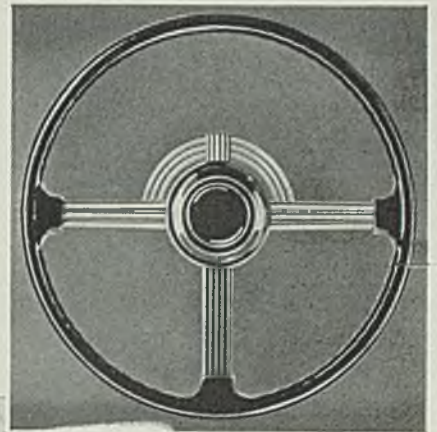
Foreign Steel Prices, Page 74

**London** — (By Radio) — British steelworks continue fully occupied, mainly on domestic business, and the majority are unable to accept orders for delivery before the third quarter. Foundry pig iron is at a premium. Plate and sheet mills are a little less active than recently. Domestic demand for galvanized sheets is good but exports are quiet. Tin plate prospects are improving. Bids are

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The Continent reports the international political situation is hampering business but underlying conditions are favorable. France and Belgium have booked good orders for delivery to Great Britain.

## Financial

(Concluded from Page 18)

Que., 1935, net earnings of \$2,385,482; 1934 net of \$2,020,640.

□ Dominion Steel & Coal Corp., Montreal, Que., 1935 profit of \$1,

295,633; 1934, net of \$1,008,178.

□ Standard Steel Spring Co., Coraopolis, Pa., reports net income of \$135,711, or \$1.54 a share in 1935. This compares with \$110,791, or \$1.26 a share in 1934.

□ Acme Steel Co., Chicago, reports net profit in 1935 of \$1,760,964, compared with \$1,020,532 in 1934.

□ United States Radiator Corp., Detroit, and subsidiaries, reports net loss of \$394,895 in the year ended Jan. 31, 1936, against net loss in the preceding year of \$464,481.

□ L. A. Young Spring & Wire Corp., Detroit, and subsidiaries, showed a net profit of \$1,816,108 in 1935, against profit of \$811,483 in 1934.

□ Timken-Detroit Axle Co., Detroit, and subsidiaries, in 1935 showed a net profit of \$1,173,202, against \$426,125 in 1934.

□ Kelsey-Hayes Wheel Corp., Detroit, net income of \$1,728,345, after all charges, in 1935, against net of \$326,393 in 1934.

□ A. O. Smith Corp., Milwaukee, reports net of \$457,664 for 12 months ended Jan. 31, after taxes, depreciation and other deductions.

□ Bethlehem Foundry & Machine Co., Bethlehem, Pa., encountered profit of \$4195 in 1935, contrasted with net loss of \$24,666 in 1934.

□ Union Carbide & Carbon Corp., New York, reports earnings of \$27,254,249 in 1935, largest since 1930, compared with \$20,277,442 in 1934.

program. According to Gerard Swope, president, the company will build no houses but will again sponsor a co-operative movement of material and equipment manufacturers, architects, builders and other related groups as it did in 1935, when more than 300 homes were built. C. M. Snyder is in charge of the General Electric Home bureau at 570 Lexington avenue, New York.

## Labor

**A** MALGAMATED Association of Iron, Steel and Tin Workers, which is now arranging its annual convention in Pittsburgh on April 28, was rife with rumors last week referring to a number of internal dissensions.

Michael F. Tighe, 78-year old president of the Amalgamated, will undoubtedly receive competition from not only rank and filers, such as Clarence Irwin, Youngstown, O.; John Stachel, New York; John Steuben, Youngstown, O., and George Powers, McKeesport, Pa., but there also is some mention that Louis Leonard, international vice president of the union, may be boosted as a candidate to replace Mr. Tighe.

Early last week Mr. Leonard refuted an alleged statement that "Communists are making the most serious threat we have yet faced to gain power in our union," which newspapers credited to him.

### INDIANA STARTS LEVY FOR UNEMPLOYMENT INSURANCE

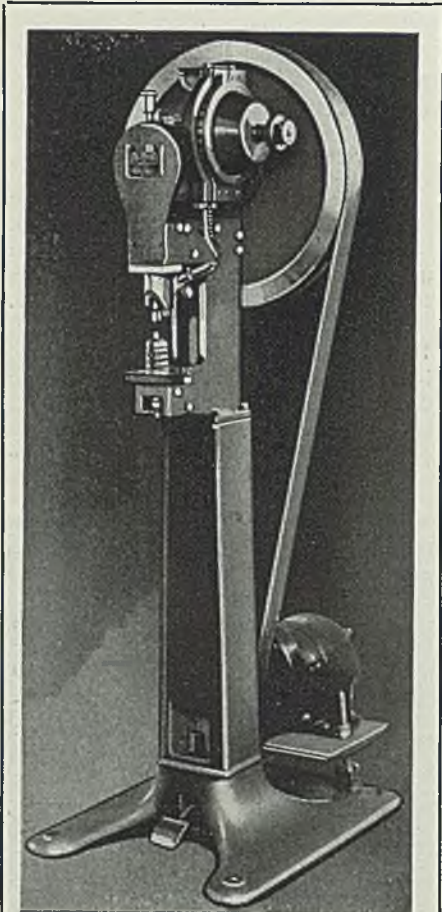
Indiana's new unemployment compensation measure, under which collection of payroll taxes begins April 1, requires employers to turn over to the state treasury in monthly payments 1.2 per cent of their total payrolls for the remainder of this year.

In 1937 the tax will be 1.8 per cent, in 1938 to 1941 it will be 2.7 per cent, and thereafter range up to 3.7 per cent. Meanwhile, employers must also continue to pay the federal government one-tenth of 1 per cent in 1936, two-tenths of 1 per cent in 1937, and three-tenths of 1 per cent thereafter.

The Indiana law applies to employers of eight or more. Benefits to persons losing their jobs begin April 1, 1938. Persons out of work on account of a strike will not be eligible for benefits, but those locked out will be.

### INDUSTRY CAN ABSORB ONLY 3,000,000 MORE

If manufacturing activity returns to 1929 levels, employment for 2,800,000 to 3,300,000 additional workers may be expected, according to the National Industrial Conference board, New York. The 1929 high was 8,800,000 workers in factories and 1,500,000 workers in



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**W**E LOOK forward to a fairly active demand for our products during the balance of the first half and believe that if confidence in the future welfare of this country can be restored, business prospects should continue to improve. Advancing prices of raw materials and increased taxation will be reflected in higher costs.—L. E. Block, chairman, and P. D. Block, president, Inland Steel Co., Chicago.

□ "It is generally believed that the industry will sustain further improvement throughout the year 1936. While most of the improvement in 1935 came from increasing demand for consumers' goods, there are indications that funds for capital investment are seeking outlets which is indicative of a slow revival of business in the heavier industries."—Frank Purnell, president, Youngstown Steel Sheet & Tube Co., Youngstown, O.

### G-E Still Backs Houses

General Electric Co., Schenectady, N. Y., will continue in 1936 its large-scale demonstration home building

offices, or a total of 10,300,000 persons.

Including persons employed intermittently, the census of occupations in 1930 reported 11,400,000 persons looking to the manufacturing industry for livelihood. This is the upper limit. Taking into account the increase in population, the present maximum employment would be 11,800,000. Present employment is now estimated at about 9,000,000.

#### CASE ORDERS 3% BONUS

J. I. Case Co., Racine, Wis., will pay its employes a bonus of 3 per cent of their wages received between June 3 and Dec. 31, 1935.

#### FAFNIR PAYS BONUS

Fafnir Bearing Co., New Britain, Conn., paid its 1200 employes a bonus of 5½ per cent or more of their wages April 1.

## Making of Alloy Steel, Is New Bethlehem Sound Film

Bethlehem Steel Co., Bethlehem, Pa., has completed a new 16-milli-

## Says Manufacturing Leads In Absorbing Unemployed

**M**ANUFACTURING has absorbed more unemployed workers during the past two years than any other branch of industrial activity, according to an analysis by the National Industrial Conference board, New York. Of the total reduction in unemployment between January, 1934, and January, 1936, 80.3 per cent is attributable to improved conditions in manufacturing industries.

Unemployment in non-manufacturing industries in the first month of 1934 constituted 66.6 per cent of the total estimated unemployment. Two years later it had increased to 71.2 per cent of the total. The situation outside of manufacturing, construction, and mining, appears to have become worse rather than better.

Unemployment in manufacturing, according to the board's estimates, declined from 3,597,000 in January, 1934, to 2,824,000 in January, 1936, or approximately 22 per cent. The construction industry absorbed about 255,000 workers, representing a decline of 20 per cent in the number of unemployed in that field. Mining re-employed 26,000, or slightly over 5 per cent of its proportion of unemployed workers.

In the combined fields of trade, and transportation and communication, unemployment increased from 2,743,000 to 2,802,000 during the two year period. These two groups accounted for 25.4 per cent of the total volume of unemployment in January, 1934, and 28.5 per cent in January, 1936.

meter talking motion picture entitled "The Making of Alloy Steel," which is a technical picture intended primarily for technical audiences, carries practically no advertising, and takes 45 minutes to show. All of the processes in the making of alloy steel, from the charging of the open-hearth furnace to the loading of finished bars on freight cars, are depicted. Emphasis is placed upon the extreme care and checking required. An explanatory lecture on the sound track follows the various processes of manufacture.

## Equipment

Pittsburgh—Sutton Engineering Co. here has shipped a machine for straightening 8-inch heavy wall casing to Youngstown Sheet & Tube Co.'s seamless tube department. This machine was found capable also of straightening ½-inch round bars, giving it a range of from ½-inch to 8-inch. Sutton also has supplied two disk pipe polishing machines to Firth-Sterling Steel Co., McKeesport, Pa., for polishing stainless steel spokes on new automobile steering wheels; the units operate at 100 feet per minute. Other straightening machines are built for Cohoes Rolling Mill Co.,

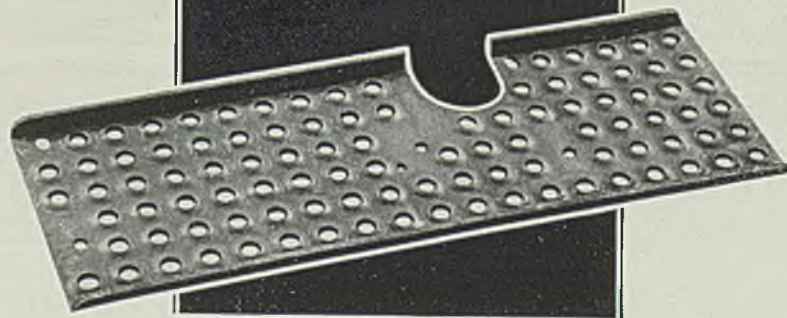
Tennessee Coal, Iron & Railroad Co., LaSalle Steel Co., Steel & Tubes Inc., Bundy Tubing Co., Allegheny Steel Co. and others.

Cleveland—At "B" blast furnace of the Campbell works, Youngstown Sheet & Tube Co., Youngstown, O., is replacing an old Otis Elevator Co. double-drum single-skip hoist, in service for 27 years, with a new Otis hoist equipped with roller bearings, which has maximum ore load capacity of 21,000 pounds, operates at 480 feet per minute, with a 63-degree incline. The travel is 193 feet. The hoist is equipped with a 350-horsepower motor and two 72-inch drums. Two stock-line recorders also are being installed for this furnace.

Chicago—March sales of machine tools were practically on a par with those of February and while inquiries lately have been slightly less active, the outlook for April generally is favorable.

New York—Companies with plants and equipment invaded by the recent floods are buying actively. Some of these companies are confronted with the problem of paying for needed equipment, since none of them carried flood insurance and not all of them have the surplus funds with which to make payments. It is expected that much of this buying will be financed under the FHA plan.

## RAILROAD SAFETY via STAMPINGS



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# Construction and Enterprise

## Ohio

**BEREA, O.**—City, John J. Baesel, mayor, is taking bids due 1 p. m., April 13, for completion of sewage plant. E. L. Wing is service director, city hall, and Rollin F. MacDonald, Chester-Twelfth building, Cleveland, is engineer. (Noted STEEL March 30.)

**BERGHOLZ, O.**—Louise Coal Co. plans construction of coal tippie and loading and handling plant, to cost \$40,000.

**CANTON, O.**—Brookside Country club, Brookside road, plans installation of water purifier and filter plant in connection with proposed outdoor swimming pool. Albrecht & Wilhelm, 25 Erie street, North, Massillon, O., architects.

**CINCINNATI**—Union Gas & Electric Co., Fourth and Main streets, plans addition to West End generating plant, to cost over \$2,000,000, including installation of new 35,000-kilowatt turbogenerator and accessories, three high-pressure boiler units and auxiliary equipment. Engineers are Sargent & Lundy, 140 South Dearborn street, Chicago.

**CLEVELAND**—Eff Laboratories Co., Chemical manufacturer, Republic building, Paul R. Frohning president, is remodeling and modernizing the former plant of the Climax Machine Co., which it recently purchased in Chagrin Falls, O.

**CLEVELAND**—Dobeckmun Co., 3301 Monroe street, plans installing electric power equipment in new \$75,000 one and two-story, 116 x 162 foot addition to cellophane manufacturing plant. George S. Rider Co., Marshall building, Cleveland, is engineer and architect.

**CLEVELAND**—Great Lakes Exposition, Terminal Tower, has given contract for construction of water and sewage system to Sweeney & Wise, general contractors, 10200 Woodland avenue, with John Paul Jones in charge of work.

**CLEVELAND**—General Electric Co.

will erect a 9000-kilowatt electrical substation in connection with the Great Lakes Exposition here. Exposition headquarters are in the Terminal tower.

**COLUMBUS, O.**—Isaly Dairy Co., North High street, plans installation of electric power equipment in new two-story dairy products plant, 88 x 125 feet, at North High and Olentangy streets, to cost about \$150,000. McCarty & Bulford, 584 East Broad street, architects.

**COLUMBUS, O.**—Kroger Grocery & Baking Co., 35 East Seventh street, Cincinnati, plans enlarging plant, re-setting boilers, installing fuel equipment, pumps, etc., at total cost of \$90,000. A. M. Kinney, Carew Tower, Cincinnati, engineer.

**COSHOCOTON, O.**—Victor Johnson, service director, is taking bids due April 15 on waterworks chlorinator, to cost about \$1000.

**DAYTON, O.**—Contracting officer, United States Army Air corps, materiel division, Wright field, will receive bids until April 10 on three bumping power hammers; until April 17 on one motor-driven milling machine and one motor-driven bench lathe; until April 8 for transformers, primary cutouts, circular 36-713.

**ELYRIA, O.**—Republic Steel Corp., Republic building, Cleveland, is installing a new welding mill for high carbon tubes at its plant here.

**MT. VICTORY, O.**—Village is considering \$8000 purifying plant addition to proposed waterworks plant. Engineer is Carl Simon, Van Wert, O.

**LANCASTER, O.**—W. E. Rowles, city service director, is taking bids due noon April 13 for a 1000-gallon-per-minute turbine pump. City engineer is Walter Graf, City hall.

**NELSONVILLE, O.**—William Barrows, service director, is taking bids due noon April 16, for additional \$12,000 generating unit at electric light plant. (Noted STEEL March 23.)

**PORTSMOUTH, O.**—Structural

Steel Co., Calvin Clark president, 930 Gallia street, has just purchased the plant of the H. H. Hossman Structural Steel Co. and is considering installation of new machinery to manufacture steel bodies for hydraulic dump trucks, as well as automobile and truck springs. (Noted STEEL March 30.)

**SIDNEY, O.**—Council passed ordinance authorizing installation of one deep-well centrifugal pump at waterworks. A. Guery is service director.

**WAPAKONETA, O.**—City plans sewage treatment plant costing \$80,000. P. L. Barnebey, 215 East Lane avenue, Columbus, O., engineer.

## Pennsylvania

**BRADFORD, PA.**—Sloan & Zook Co., 101 Main street, plans a \$750,000 pressure plant project to recover crude oil in Venango county, and is in the market for air compressors, pumping units, gasoline engines, and electrical equipment. P. Tinkler is general superintendent.

**EXETER, PA.**—Stevens Colliery, Slocum street, Thomas Carey manager, is looking for transmission and conveying equipment and machinery for new coal tippie.

**HARRISBURG, PA.**—Secretary of property and supplies, room 163, Capitol building, will receive bids until 2 p. m. April 15 for installation of two deep well pumps and auxiliary controls and complete installation of secondary electrical control and protective equipment at Norristown State hospital, Norristown, Pa.

**HARRISBURG, PA.**—Central Iron & Steel Co., South Front street, is making large additions to its plant, including a new power plant with high-pressure boilers, steam turbines and generators, two additions to the shearing, assembling and shipping buildings, an additional roll shop which will contain four lathes for turning plate mill rolls, and additional punches and hydraulic presses in the flanging plant.

**KANE, PA.**—Kane Power Co. plans repairs and reconstruction at electric power plant, work to cost \$55,000.

**MANOR, PA.**—J. N. Chester, engineer, Clark building, Pittsburgh, has completed plans for city sewage disposal plant to cost \$25,000.

**NEW HOLLAND, PA.**—City is planning \$50,000 waterworks. William H. Dechant & Sons, 632 Washington street, Reading, Pa., engineers.

**PHILADELPHIA**—Frankford arsenal will receive bids until April 21 for one air compressor, one unit compressor, four engine lathes, one boring mill and one fuel oil tank.

**PHILADELPHIA**—Frankford arsenal will receive bids until April 10 for a forming punch and die, inventory 36-408; until April 14 for automatic turret multiple spindle machines, inventory 36-405; and until April 24 for annealed shell body forgings, inventory 36-400.

**UNIONTOWN, PA.**—Goldberg Iron & Steel Co., Pennsylvania avenue, contemplates construction of one-story sheet metal machine shop to cost \$30,000.

## New York

**BOLIVAR, N. Y.**—Runyan & Reynolds Oil Co. is in the market for electric power plant machinery and equipment, including gasoline engine, wrenches, drills, and other small tools.

**BROOKLYN, N. Y.**—Old Dutch Brewery Inc., 783 East Forty-second street, New York, plans brewery ex-

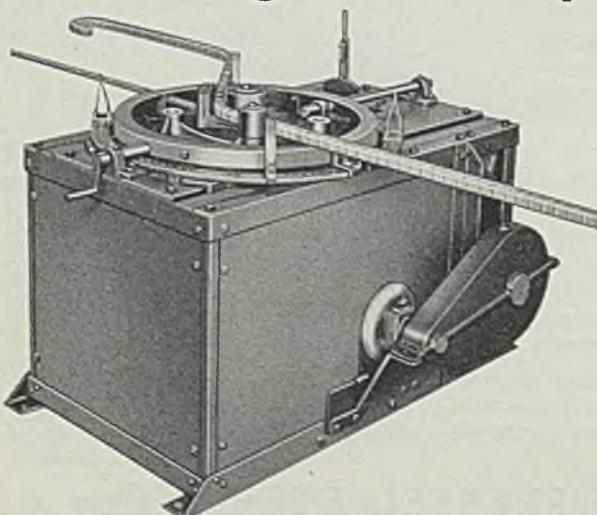
## Kardong Four-way Bender

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In the bending of large bars they do not have to be turned over to make the reverse second bends and in the 180 degree hook bars, after making the first hook the bending member is in position to make second hook by just switching resistance roller to opposite side.

The resistance roller plates are adjustable. The same construction is carried thru on this machine as in all of our benders and is guaranteed to give absolute satisfaction. Ask for catalogue of our complete line of reinforcing steel bar benders.



## Kardong Brothers, Inc.

Minneapolis, Minn.

tensions costing approximately \$37,000.

**BUFFALO**—M. Park, 210 Merrimac street, would like to buy a metalworking lathe.

**ELMHURST, N. Y.**—Sobol Brothers, 110th street and Fifth avenue, New York, plan purchase of several 1000-gallon steel tanks. C. M. Spindler is architect, care of owner.

**FREEPORT, N. Y.**—City has approved construction of \$200,000 waterworks plant.

**GOUVERNEUR, N. Y.**—M. A. Moore, 44 Barney street, is in the market for a 9 to 14-inch precision screw cutting lathe.

**JAMESTOWN, N. Y.**—Nelson Brothers Inc., 40 Market street, plan purchasing machinery and equipment for a planing mill.

**LAKEVILLE, N. Y.**—Leroy Salt Co., Main street, is planning a \$150,000 salt factory. J. Graham, Onondaga hotel, Syracuse, N. Y., engineer.

**MEDINA, N. Y.**—City is planning water filtration plant to cost over \$75,000. C. W. Grinnel is mayor.

**NEW YORK**—Socony-Vacuum Oil Co., 26 Broadway, plans purchase of several 1000-gallon steel storage tanks. C. H. Schultz is engineer, care of owner.

**NIAGARA FALLS, N. Y.**—Niagara Alkali Co., 4205 Buffalo avenue, will soon let contract for construction of two boilers and a pump house. Engineers are Jenks & Ballou, 2600 New Industrial Trust building, Providence, R. I.

**ORANGEBURG, N. Y.**—Department of mental hygiene, State Office building, Albany, N. Y., will receive bids April 15 for construction of sewage disposal system estimated to cost \$151,796.

**ROCHESTER, N. Y.**—Cataract Brewing Co. plans rebuilding grain bin and other parts of brewery at cost of \$37,000.

**ROME, N. Y.**—G. R. Staley, superintendent, board of education, will purchase equipment for vocational training school, including 14 wood-working and metalworking machines, one milling machine, vises, drills, etc.

**SYRACUSE, N. Y.**—J. R. Clancy Inc., 1000 West Belden avenue, is in the market for a milling machine and a spot welder.

**Michigan**

**DETROIT**—Chrysler Corp., 341 Massachusetts avenue, has deferred until mid-August a large program for expansion and new equipment.

**MUSKEGON, MICH.**—City will soon take bids on sewage treatment plant to cost \$45,000. Townsend & Quinlan, 205 West Wacker drive, Chicago engineers.

**WHITEHALL, MICH.**—City plans receiving bids soon on sewage treatment plant to cost \$30,000. Townsend & Quinlan, 205 West Wacker drive, Chicago, engineers.

**Illinois**

**BRADLEY, ILL.**—J. H. Watson Co., plans metal stamping plant to cost \$50,000.

**CHICAGO**—A. B. L. Electrical Mfg. Co., 2849 North Halsted street, recently incorporated, needs switches, transformers, various meters, and steel and alloys for bases for electro-therapy instruments. (Noted STEEL March 23.)

**CHICAGO**—National Bearing Metals Co., 4930 Manchester avenue, St.

Louis, has purchased the former plant of the American Brake Shoe & Foundry Co. at 332 South Michigan avenue, here. The plant will be reopened to manufacture bronze and brass castings for locomotives, car journal bearings, and other railroad specialties.

**JACKSONVILLE, ILL.**—City council has been authorized to arrange bond issue of \$230,000 for proposed municipal electric power plant, estimated to cost \$420,000, remainder to be provided through federal aid.

**Indiana**

**INDIANAPOLIS**—American Can Co., 230 Park avenue, New York, plans construction of \$150,000 plant

on Southeast street at the Belt railroad. M. Pries is in charge.

**SHELBYVILLE, IND.**—Coca Cola Bottling Co., care of A. E. Rehme, Shelbyville, is planning plant construction on North Harrison street, costing \$37,000, with equipment.

**Connecticut**

**BRIDGEPORT, CONN.**—Bridgeport Thermostat Co., recently organized, will engage in manufacture of temperature controls for automobiles, electrical refrigerators, residential furnaces, etc., in new plant recently acquired at 774 East Main street. W. F.

*(Please turn to Page 95)*

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Fafnir Bearing Co.,  
New Britain, Conn.  
Hyatt Roller Bearing Co.,  
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Norma Hoffmann Bearings Corp.,  
Stamford, Conn.  
S K F Industries, Inc.,  
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Philadelphia, Pa.  
Timken Roller Bearing Co., The,  
Canton, O.
- BEARINGS (Roller Tapered)**  
Bantam Ball Bearing Co.,  
South Bend, Ind.  
Timken Roller Bearing Co.,  
Canton, O.
- BEARINGS (Rolling Mill)**  
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South Bend, Ind.  
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Shoop Bronze Co., The,  
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Bantam Ball Bearing Co.,  
South Bend, Ind.
- BEARINGS (Thrust)**  
Bantam Ball Bearing Co., The,  
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MACHINES**  
Kardong Bros., 346 Buchanan St.,  
Minneapolis, Minn.  
Morgan Engineering Co., The,  
Alliance, O.  
Thomas Spacing Machine Co.,  
Pittsburgh, Pa.

(Concluded from Page 93)

MacDonald is chief engineer.

**BRISTOL, CONN.** — E. Ingraham Co., North Main street, plans installation of electric power equipment in new three-story addition to clock manufacturing plant, equipment to cost \$50,000.

**EAST HAVEN, CONN.** — R. W. Foote, Chamber of Commerce building, New Haven, Conn., is in the market for lathes, drills, presses, bench tools, etc., for high school manual training department.

**HARTFORD, CONN.** — Pratt & Whitney aircraft division of United Aircraft Mfg. Corp., 400 South Main street, will manufacture 200 new aircraft engines costing \$1,877,030 for the United States war department. The engines are to be 14-cylinder, air-cooled, two-row radial.

**WATERBURY, CONN.** — White Welding Co., C. Gallo president, North Elm street, is taking bids for two-story, 40 x 120 foot, plant addition to cost \$40,000. Architect is A. B. Fucito, 411 Washington street.

### Massachusetts

**BOSTON**—Rush Fish Co., 40 Fish Pier, is in the market for an alternating current electric welding machine, or machine with engine attached.

**ROCKLAND, MASS.** — Town has appropriated \$75,000 for proposed waterworks system. H. Torrey is chairman of board of selectmen, Town hall. (Noted STEEL March 23.)

**WEYMOUTH, MASS.** — Town has appropriated \$16,000 for completion of filtration system and service connections of waterworks plant. M. F. Spier is chairman of the board of selectmen, P. Whiting town engineer.

**WHITMAN, MASS.**—Town will receive bids soon for elevated steel water tank, for which \$17,500 has been appropriated. E. C. Monroe is chairman of board of selectmen, Town hall.

### New Jersey

**FLEMINGTON, N. J.**—Mayor and council plan sewage disposal system to cost \$50,000. L. P. Booz, 263 Madison avenue, Perth Amboy, N. J., engineer.

### Missouri

**ST. LOUIS**—Delbet Investment Co., 4331 North Florissant avenue, will install three 1000-gallon underground steel tanks.

**ST. LOUIS**—Industrial Oil Corp., 4501 Grant boulevard, will soon install two 1000-gallon steel underground tanks.

### Arkansas

**PARAGOULD, ARK.**—W. C. Middleton, mayor, has postponed date for receiving bids for power plant and distribution system until April 25. Engineer is W. A. Fuller Co., 2816 Shenandoah avenue, St. Louis. (Noted STEEL March 23.)

### Oklahoma

**BARNSDALI, OKLA.**—M. W. Kellogg Co., 225 Broadway, New York, is preparing plans for installation of 6000-barrel combination topping, cracking and reforming unit for Barnsdall Refining Co. here.

**TAHLEQUAH, OKLA.**—City plans sewage disposal plant to cost \$26,612. W. L. Benham, 431 Main street, Oklahoma City, Okla., is engineer.

### Texas

**HOUSTON, TEX.**—Champion Paper & Fibre Co., Hamilton, O., plans installation of electric power equipment in new multi-unit mill, including power house. Entire project is expected to cost near \$3,000,000. W. R. Chute, engineer at the Canton, N. C. branch mill of the company, will be in charge of construction.

**McALLEN, TEX.**—Riona Products Co., Lee Akin president, plans construction in June of \$150,000 canning plant and factory to manufacture own cans. (Noted STEEL March 9.)

### Wisconsin

**CAMPBELLSPORT, WIS.** — Stella Cheese Co. is considering construction of diesel engine generating station for electric service at plant, and estimates of cost are now being made. Ralph W. Richardson, New York building, St. Paul, is engineer.

**CEDAR GROVE, WIS.**—J. M. Bruce Co. foundry plant was badly damaged by fire recently and rebuilding is starting.

**KENOSHA, WIS.**—Arneson Foundry Inc. has been organized by T. J. and A. E. Arneson, and L. A. Lilley.

**MILWAUKEE**—Milwaukee Metal Spinning Co., 229 East Lincoln avenue, has been incorporated by Theodore K. and Theodore J. Salow.

**MILWAUKEE**—Globe-Union Mfg. Co., 900 East Keefe avenue, has started work on a new branch factory at Atlanta, Ga., to cost \$100,000, for the manufacture of storage batteries. C. D. Wanvig is president.

### Minnesota

**MOORHEAD, MINN.**—R. G. Price, city clerk, plans purchase soon of new pumping engine for fire department, to cost \$10,000.

### South Dakota

**RAPID CITY, S. DAK.**—City plans water system improvements, including repairs to pump house, costing \$100,000.

### Colorado

**CANON CITY, COLO.**—Consolidated Feldspar Corp., Baltimore, plans construction of \$100,000 feldspar crushing and treating plant at First and Water streets, here.

**DELTA, COLO.**—City plans either steam or diesel-powered municipal power and light plant to cost \$197,000. Engineers are Wood & Weber, Wilda building, Denver.

### Wyoming

**ROCK SPRINGS, WYO.** — Union Pacific Coal Co. plans new steam-electric generating plant at local mining properties, to cost about \$400,000. Engineer in charge is James L. Libby.

### Montana

**BILLINGS, MONT.**—City will hold election April 6 to pass on \$50,000 bond issue to finance construction of 100 x 128 foot steel hangar and 30 x 128 foot municipal machine shop at airport. R. T. Hurdle is city engineer, and O. W. Bickey is city clerk. City hall.

### Idaho

**CALDWELL, IDAHO**—Idaho Meat

Producers Co. plans a \$125,000 packing house. Menges-Mange Inc., 1515 North Grand avenue, St. Louis, engineers in charge.

**COEUR D'ALENE, IDAHO**—Sunshine Mining Co. will install heavy-duty motors and controls, electric hoists, conveyors and other equipment in new addition to reduction and refining plant at its silver-mining properties near here. Cost over \$350,000.

### Utah

**PAYSON, UTAH**—Town will hold election soon to pass on \$300,000 bonds to finance construction of sewage disposal system.

### Pacific Coast

**DECOTO, CALIF.**—Decoto Sanitary district holds election April 7 on bonds to finance construction of sewage disposal system, first unit to cost \$50,000, total \$114,000.

**MARYSVILLE, CALIF.**—George C. Smith project inspector PWA district No. 2, Sacramento, Calif., is receiving bids for improvement of Marysville airport, including steel frame and corrugated iron hangar. (Noted STEEL March 23.)

**SACRAMENTO, CALIF.**—Buffalo Brewing Co., Twenty-first and R streets, plans additions to plant costing over \$50,000.

**SAN DIEGO, CALIF.**—Consolidated Aircraft Corp. plans \$300,000 addition to its factory here, to be completed by Oct. 1, and to include an experimental factory, tool fixture storage shop, laboratory, addition to paint shop and an addition to main factory.

**SAN JOSE, CALIF.**—T. A. Hopkins, engineer, 5639 Keith avenue, Oakland, Calif., has submitted four alternative plans to the city for its proposed municipal water system. Average cost is around \$5,000,000.

**WOODLAKE, CALIF.**—Woodlake Utility district will vote April 14 on \$32,000 waterworks bonds, proceeds to be used to replace privately-owned system.

**ASHLAND, OREG.** — Lost Lake Lumber Co., A. W. Moon in charge, plans planing and lumber mill to cost \$37,000.

**ABERDEEN, WASH.**—West Coast Plywood Co. has been incorporated with offices at 316 Becker building, and work is commencing on new \$300,000 plant, including boiler equipment and power plant. A. R. Wuest, A. R. Welch, and E. K. Bishop are incorporators. (Noted STEEL March 30.)

**SPOKANE** — Frank G. Sutherland, water commissioner. City hall, has plans for \$330,000 water pumping plant at Hartson unit of city's system, to be aided by PWA allocation.

**TACOMA, WASH.** — Pennsylvania Salt Mfg. Co. will begin work soon on proposed oil plant. L. A. Nicholson Co., Perkins building, engineer in charge.

### Canada

**BRAMPTON, ONT.**—Town plans extending sewage disposal plant at cost of \$30,000. D. T. Black, Town hall, engineer.

**IGNACE, ONT.**—Council. J. Toit clerk, plans equipping lighting plant with diesel engine to cost \$25,000.

**SWIFT CURRENT, SASK.**—Town is planning filtration plant costing \$48,000. P. Smith, Town hall, engineer.

