

STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

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STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

As the Editor Views the News

IN THIS issue STEEL presents a brief outline of the history (p. 27) of a typical company in the metalworking industry. Founded in the nineties of the last century, the company first was engaged in building buggies and carriages. When the automobile destroyed the buggy business the concern turned to the manufacture of "California tops" for open motor cars. With the arrival of sedan and coupe bodies, the top business was threatened and the company took up the manufacture of electrical refrigerator cabinets. Later it added a line of trailers. This shifting from one product to another is characteristic of American industry.

. . .

The point of the story is that the company was able to abandon decadent lines of business and to enter more promising ones because in the case of each change it had built up a surplus sufficient to bridge the gap between the old and new products. Under the 1936 federal tax law, a penalty is imposed against building up financial backlogs. In fact, the general intent of the act is to wipe out the safeguards which made for the stability and security of industrial enterprise in the past. Fortunately, the law is so bad it cannot stand long without modification.

Small Firms Need Surplus

Trying to fathom the attitude of government toward business requires an agile mind. Three years ago government and business were co-operating under NIRA codes to evade certain provisions of the antitrust laws. Recently the federal trade commission issued an order (p. 36) closing its case against a trade association because "the practices charged in the complaint were carried on under the authority conferred by a code . . . under the NIRA act" and because there was no evidence "that the practices charged in

About-Face in Three Years

the complaint have been indulged in by the respondents since the decision of the . . . Supreme Court in the Schechter case. . . ." Unquestionably it is sporting of the commission not to prosecute an association for co-operating with the government. Nevertheless it is somewhat disconcerting to keep pace with a system that executes a complete about-face in three years.

. . .

Unfortunately, progress in any line of human endeavor often requires a painful retracing of steps. The government had to do it when NIRA

Back Where We Started

did not work out well. Government and industry, working together to evolve a better relationship, likewise have had to go back over old ground. In the problem of promoting fair trade practice (p. 37) we have traveled 360 degrees of the circle during the past 15 years and today we are exactly where we were at the end of the World war. Someone once said that history shows that man never learns anything from history. Time will tell whether we have learned anything from our recent trials of codes under both voluntary and compulsory administrations.

. . .

After the wails that have issued from professional labor and new deal camps to the effect that employment is lagging far behind production, it is refreshing to read

Jobs, Payrolls At New High

that the number of wage earning employes in the steel industry in June, 1936, (p. 22) was the highest in history, topping the 1929 figures by almost 8 per cent. Payrolls for June also were the highest on record. Incidentally in the five and one-half years ending June 30, 1936, the steel industry paid out \$2,600,000,000 in wages to employes (p. 22) while in the same period it was enduring an accumulated net loss before dividends of \$98,000,000. Steel's surplus was a life saver to employes. How can new dealers square their tax policy with their alleged concern for the laboring man?

E. L. Phelan

Steel Pays Employes \$2,600,000,000 While Taking \$98,000,000 Loss

THE struggle of the steel industry to keep its organization intact and to provide employment, in the face of the overwhelming odds of the depression from which it is now emerging was emphasized in a recent remark by Eugene G. Grace, president, Bethlehem Steel Co. He said that during the five and a half years ending with last June his corporation had lost \$20,000,000 and had paid out to its employes in wages and salaries \$375,000,000.

How truly he spoke not only for his own corporation but for the steel industry as a whole is revealed in figures compiled by STEEL for the same comparable period which, as indicated in an accompanying table, show that the industry suffered a net loss of \$98,096,620—and paid out in wages and salaries \$2,612,931,117.

Four Years in the "Red"

Beginning with 1931, when the industry took its first dip into the "red"—to all but founder in it the following year, with an estimated loss of \$137,019,528—it went through four years of losses, to come out with a net profit before dividends of \$62,961,961 in 1935, and to almost equal that showing in the first six months of this year.

In these years the steel payroll fell sharply from \$593,047,300 in 1931 to \$297,361,700 in the following year, and then showed a gain in each succeeding year, to \$557,793,724 in 1935, and \$344,331,476 in the first half of this year, or at a rate equivalent to \$688,662,952 for 1936.

This year also witnessed the peak in point of number of workers employed, for on the payroll at the end of the first half of this year were 472,485, as compared with 425,941 for 1935, approximately 335,600 for 1932, the lowest year, and 442,700 for 1931.

With steel companies endeavoring to take care of their working forces and yet confronted with the necessity of conserving resources where otherwise possible, steel stockholders fared badly. However, last year the 551,832 stockholders shared in a distribution of \$38,926,401, which was an increase from the \$23,130,-

436 participated in by 492,376 stockholders in 1934, and the \$20,380,224 by 514,244 stockholders in the year before that. This year holds promise of a substantial gain.

During these years the small, non-integrated companies fared far better as a class than the larger, integrated concerns. For instance in 1932, when the companies with in-got capacity had a loss of \$148,439,831, the earnings of those identified with the industry, but not producing steel, were sufficient to reduce the net loss to \$137,019,528.

Conversely, in 1935, when the industry began to show a profit, the net gain for the steel producers of \$45,996,209 was increased by these smaller companies to \$62,961,965; likewise, for the first half of this year indicated profits of \$50,100,000 for the producers were increased to an estimated total of approximately \$60,000,000.

The record of the United States Steel Corp. for the five and a half years ending last June reveals that while the corporation had a net loss before dividends of \$108,921,031.26, it paid out to its employes \$1,178,849,537, and to its stockholders \$109,940,871.75—approximately \$1,000,000 more than it lost. Its net loss of \$109,940,871.75, it may be noted, exceeded the estimated net

loss for the industry as a whole, \$98,096,620.

The major portion of its dividend disbursement for the period, as shown in an accompanying table, came in 1931, when it paid out in preferred and common \$62,203,626.50. The last common dividend was paid in March the following year, in which it suffered by far its heaviest loss—\$71,175,704.60.

Steel Employment Highest in History

STEEL employment this year is highest in the history of the industry, according to the American Iron and Steel institute. In June employment was 498,000 wage earners and salaried employes, a gain of over 6000 in a month, and 82,000 over a year ago.

Wage earning employes number 451,000 in June, almost 8 per cent above the total for 1929.

Payrolls in June also established a new high, with a total of \$63,000,000, a gain of 40 per cent over a year ago. Total payrolls for the first six months, according to the

Steel Industry's Payrolls, Earnings and Dividends

	Number of Employes	Total Pay- roll	Net Loss before Dividends	Stock- holders	Dividends
1931	442,700	\$ 593,047,300	\$ 12,547,869	511,710	.....
1932	335,600	297,361,700	137,019,528	528,700	.....
1933	367,200	362,554,400	59,694,232	514,244	\$20,380,224
1934	409,349	457,842,517	11,796,952	492,376	23,130,436
1935	425,941	557,793,724	62,961,961*	551,832	38,936,401
1936 (½)	472,485	344,331,476	60,000,000*†	.....	.....
		\$2,612,931,117	\$98,096,620		

*Net profit. †Estimated.

United States Steel Corp.

	Number of Employes	Total Pay- roll	Net Profit before Dividends	Stock- holders	Dividends
1931	203,674	\$ 266,871,413	\$ 13,038,140 87	230,272	\$ 62,203,626.50
1932	158,032	133,912,809	71,175,740.60*	237,915	20,716,163.25
1933	172,577	163,149,503	36,501,122.89*	235,360	7,205,622.00
1934	189,881	210,503,533	21,667,779.95*	239,167	7,205,662.00
1935	194,820	251,576,808	1,146,708 31	231,901	7,205,622.00
1936 (½)	208,096	152,835,471	16,238,727.00	228,662†	5,404,216.00
		\$1,178,849,537	\$108,931,031.26*		\$109,940,871.75

*Loss. †As of record March 7, 1936. No common dividend paid since March 30, 1932.

institute, amounted to \$340,000,000 against \$269,000,000 in the corresponding period last year.

Hourly rates of wage earners in June rose to 66.9 cents. During June wage earners averaged \$27.30 a week, compared with \$20.40 in June last year. These weekly earnings in June were 12½ per cent above the average for 25 major manufactures.

Employes' Thrift Savings As Large as in 1927

The depression did not have any marked effect upon the participation of employes in thrift plans in business concerns, according to the National Industrial Conference board.

A slightly higher proportion of employes are contributing regularly under thrift plans than in 1927, when a previous survey was made. The participating employes are also saving as much per week. In 1927, 29.6 per cent of participating employes set aside from \$1 to \$1.99 each week and 30.3 per cent saved from \$2 to \$2.99. In 1936 these proportions were 29.7 per cent and 30.5 per cent respectively.

First-Half Finished Steel Output Up 36 Per Cent

PRODUCTION and shipments of finished steel in the United States in the first half of 1936, was 36.1 per cent higher than in the corresponding period of 1935.

Total production, less shipments to members of the industry for conversion into further finished products, totaled 14,369,150 gross tons in the first six months of 1936, this being an increase of 3,810,767 tons over the 10,558,383 tons for the comparable period of 1935.

For the second quarter of 1936 production amounted to 8,091,044 gross tons, this being a gain of 2,811,997 tons, or 53.3 per cent, over the 5,279,047 tons made in the second quarter of 1935.

Companies included in the report compiled by the American Iron and Steel Institute totaled 180 for both

the second quarter and first half of 1936, against 205 in the corresponding periods of 1935. Finishing capacity engaged was 71.5 per cent in the second quarter of this year and 63.5 per cent for the six months; for both periods in 1935 the figure was 45.1 per cent. Estimated total steel finishing capacity for 1936, based on a yield from ingots of 67.3 per cent, is given as 45,265,700 gross tons; and for 1935, based on a yield from ingots of 69.4 per cent, as 46,832,700 gross tons.

As has been the case during the last several years, light steel products continued to occupy higher percentages of finishing capacity than the heavier products. This trend was accentuated in the capacity figures for both 1936 second quarter and first half. At the same time, notable improvement was made in the heavy lines, as compared with 1935.

Following are capacity percentages for some the more important products:

Product	1936		1935	
	2nd quar.	1st half	2nd quar.	1st half
Heavy struc. shapes.....	43.7	38.0	24.2	21.5
Steel piling	46.8	37.7	48.2	42.5
Plates, sheard and univ.	35.9	31.7	19.9	19.5
Rails, standard (over 60 pounds)	36.4	31.3	19.6	17.0
Bars	48.5	42.7	29.5	30.4
Black plate	78.9	75.6	65.1	64.2
Tin plate	88.2	75.9	74.7	67.1
Sheets	77.3	71.9	63.1	67.6
Strip, hot rolled.....	64.9	58.6	49.8	56.4
Strip, cold rolled	58.8	56.6	46.0	51.5

The complete tabulation of production and shipments will appear in next week's issue of STEEL.

Sunlight and Steel



SYMBOLICAL of returning prosperity in the steel industry is the photograph taken in the Indiana Harbor, Ind., plant of Inland Steel Co., prosaically labeled "removing an ingot from a soaking pit"

Pig Iron Parallels Finished Steel Gain

PRODUCTION of pig iron and ferroalloys in the United States reached a total of 13,752,132 gross tons in the first six months of 1936 and registered a gain of 37.9 per cent over the corresponding period of 1935, according to the American Iron and Steel Institute. Output in the first half of 1935 amounted to 9,967,689 tons, thus the improvement of 1936 was 3,784,443 tons. Output in the last half of 1935 was \$11,405,010 tons.

For pig iron alone, 1936 first half output was 13,367,785 tons, an increase of 3,657,886 tons, or 37.6 per cent, over the 9,709,899 tons made

in the first six months of 1935. With a total of 384,347 tons for the current year, production of ferroalloys gained 126,557 tons, or 49.1 per cent, over the 257,790 tons produced in the first half of 1935.

Of the 13,752,132 tons of iron and ferroalloys made this year, 2,597,008 tons was made for sale and 11,155,124 tons was for the maker's own use. Corresponding figures for 1935 were 1,608,387 tons for sale and 8,359,302 tons for the maker's use.

Basic iron produced in 1936 totaled 9,067,601 tons, a gain of 2,597,379 tons, or 40.0 per cent, over the 6,470,222 tons in the first six months of last year. Bessemer and low phosphorus, with 2,448,248 tons, was an increase of 369,423 tons, or 17.7 per cent over the 2,078,825 tons in the first half of 1935.

Foundry iron showed the largest percentage increase with 58.8 per cent. This year output totaled 966,369 tons against 608,186 tons last year, the difference being 358,183 tons. Malleable with 829,025 tons, showed the second largest percentage gain with 53.7 per cent. Compared with the 539,069 tons in the first half of last year, this was a gain of 289,956 tons.

Of the country's total of 253 blast furnaces, 146 were active on June 30. On Dec. 31, 1935, operating units numbered 124.

In these tabulations all pig iron and ferroalloys are included, whether made in blast furnaces or in electric furnaces. Ferroalloys include ferromanganese, spiegeleisen, ferrosilicon (containing 7 per cent and over of silicon), ferrophosphorus, ferrovanadium, ferrochrome, and others.

Current Production

THE national steelworks operating rate was down 1 point to 70½ per cent last week, largely because of employe vacations in the Pittsburgh district. Last year at this time the rate was 51 per cent. Further details by districts follow:

Pittsburgh—Off 3 points to 68 per cent capacity due to employe vacations in both the National Tube Co., McKeesport, Pa., works and the Monessen, Pa., open hearth division of Pittsburgh Steel Co. Through last week United States Steel Corp. units averaged ingot operations in this district at 67 per cent of capacity, and the Independents at 70 per cent. Thirty-seven out of 60 blast furnaces are operating here on the basis of the following individual rates: Carnegie-Illinois, 16 of 32; Jones & Laughlin, 10 of 11; Bethlehem, 5 of 7 at Johnstown, Pa.; Pittsburgh Crucible Steel, 1 of 2; and Pittsburgh Steel, 2 of 2. A recent survey as to the availability of the 23 remaining idle blast fur-

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Aug. 15	Change	Same week 1935	1934
Pittsburgh	68	- 3	42	15
Chicago	71	- ½	57	28
Eastern Pa.	50	- ½	32½	20½
Youngstown	79	+ 2	57	22
Wheeling	95	+ 3	84	26
Cleveland	82	None	59	13
Buffalo	81	None	34	23½
Birmingham	67	+ 5½	35½	25
New England	70	+ 2	56	29
Detroit	93	- 7	94	77
Cincinnati	72	None	†	†
Colorado	63	+ 7	†	†
Average	70½	- 1	51	21½

†Not reported.

naces shows that only four or five could be readily blown in without lengthy repairs.

Birmingham, Ala.—Continued active operation of sheet and plate mills together with steady schedules at structural steel fabricating shops increased the rate 5½ points to 67 per cent. This rate may be continued for several weeks.

Chicago—With the open hearths of Carnegie-Illinois Steel Co. holding steadily at 59 to 60 per cent of ingot capacity, the rate for the district is 71 per cent. Two furnaces out for repair are to resume by at least the beginning of next week, which will carry the rate about half a point higher.

New England—Up 2 points to 70 per cent last week with increase to 85 per cent slated for this week.

Central eastern seaboard—Operations are off slightly, hovering around 50 per cent, with three less open hearths active than in the preceding

U. S. STEEL CORP. SHIPMENTS

(Inter-company shipments not included)

	(Tons)			
	1936	1935	1934	1923
Jan.	721,414	534,055	331,777	285,138
Feb.	676,315	583,137	385,500	275,929
March	733,552	668,056	588,209	256,792
April	979,907	591,728	643,009	335,321
May	984,097	598,915	745,063	455,302
June	886,065	578,108	985,337	603,937
July	950,851	547,794	369,938	701,322
7 mo.	5,982,201	4,101,793	4,049,283	2,913,742
Aug.	624,497	378,023	668,155	
Sept.	614,933	370,306	575,161	
Oct.	686,741	343,962	572,897	
Nov.	681,820	366,119	430,358	
Dec.	661,515	418,630	600,434	
Yearly adj.	†23,750	†19,907	*44,283	
Total	7,347,549	5,905,966	5,805,235	

*Addition. †Deduction.

week. There are no indications of any immediate substantial drop, however.

Detroit—Off 7 points to 93 per cent of capacity last week. One available basic open hearth in the district was dropped from the active list temporarily. One local mill is operating seven of eight open hearths and the other all nine.

Wheeling—Up 3 points to 95 per cent of capacity based on production schedules in 35 out of 37 open hearth furnaces in four district plants here through the week.

Cleveland—Remained at 82 per cent last week. Otis Steel Co. took off one furnace for repairs, now operating 7. Corrigan McKinney division of Republic Steel Corp., replaced one which had been under repair to bring the total up to 13. No change took place at National Tube Co., at Lorain, where 12 furnaces continued on active schedule.

Youngstown—Up 2 points to 79 per cent last week. This week the rate will drop when Sharon Steel Co. suspends operations for employe vacations.

Colorado—Increased 7 points last week to 63 per cent, due to the addition of one open hearth, making a total of ten active.

Cincinnati—Remained at 72 per cent last week. August variations in the rate from this figure will depend chiefly on automotive specifications for sheets.

Buffalo—Operations in this district have been restored to the late July level of 81 per cent of capacity. Thirty open hearths are now in production here.

STEEL CORP. SHIPMENTS GAIN

Shipments of finished steel in July by the United States Steel Corp. were 950,851 tons, compared with 886,065 tons in June, a gain of 7.3 per cent. For seven months cumulative shipments were 5,982,201 tons, which is 45 per cent larger than the 4,101,793 tons shipped in the corresponding period of 1935. In July, 1935, shipments were 547,794 tons.

Tennessee Co. To Rebuild 73 Fairfield Coke Ovens

Seventy-three coke ovens at the Fairfield, Ala., works of Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., are to be rebuilt immediately, according to announcement by J. L. Perry, president. This will add 1100 tons daily to coke production of the Tennessee company, bringing it to 4200 tons. The improvement will cost about \$2,000,000. The number of ovens in operation will be increased from 217 to 290.

Price Act Obscure, but Steel Sellers Play Safe

MARKETING practices of the iron and steel industry are not likely to be revised radically by the new Robinson-Patman price law, according to general opinion, yet the desire for absolute safety against hidden dangers in the obscure act has started some corporations searching for any methods which might be interpreted as questionable.

Knowledge that the law was being scrutinized by legal staffs of steel companies started reports last week that contracts between a leading can-maker and a principal supplier of tin plate had been canceled by mutual agreement. Reliable sources denied that any such action had been taken.

Although legal authorities are uncertain on certain applications of the law, best opinion at the moment appears to be that tin plate contracts between leading producers and consumers will be permitted to stand with little or no change.

Southern Pig Iron Prices Change

One other development, the adjustment of pig iron prices in the Cincinnati district, was considered in some quarters as a step toward conformity with regulations of the law. With the Birmingham base applying, wherever the \$15.38 base price plus freight figures less than the northern base price plus freight, pig iron producers believed themselves in better position to operate under the law.

Terms of the law have been puzzling legal experts and they are divided on how far-reaching it will be. The situation has been complicated by the federal trade commission's delay in making any interpretation which would prove helpful.

Basing point systems are not outlawed by the measure. It is aimed at price discriminations which would give unusually large buyers a competitive advantage over smaller independent firms. The National Association of Manufacturers has pointed out that quantity differentials on steel products are permitted "only to the extent they reflect differences in manufacture, sale or delivery resulting from the differing methods or quantities in which such commodities are sold."

Any discrimination virtually becomes an offense. The seller is required to treat all customers on proportionally equal terms and it is unlawful for any person engaged in commerce knowingly to induce or receive a discrimination in price.

Under the pig iron price changes

centering around the Ohio river boundary, some shipping points take the Birmingham base price, northern iron retains the differential of 38 cents higher than southern, and other points continue on Hamilton, O., base. Points along the river will benefit by receiving prices on the Birmingham base instead of the Hamilton base.

No. 2 southern iron is quotable in Cincinnati now at \$19.44 delivered, down 76 cents. No. 2 northern will be \$19.82. Evansville, Ind., will receive No. 2 southern iron at \$19.44, a decrease of \$2.50 from previous prices adjusted to northern base. No. 2 southern will remain at \$19.12 delivered in Louisville, Ky. Territory to the north of Cincinnati, including Hamilton, Dayton and Springfield will be unaffected and continue to be priced at Hamilton base. Southern iron will be delivered to these points at 38 cents less.

Reports were frequent last week that contracts involving a number of steel products as well as tin plate had been canceled, but details were lacking and until further information is revealed there was a disposition in some trade quarters to question the

extent of such cancellations. Certain large sellers of diversified lines insisted that to date they had not been called upon to revise any of their contracts.

A warning that "it is much easier to underestimate the seriousness of the questions of policy now confronting the business executive than to overestimate it" in view of the new law came last week from Nelson B. Gaskill, Washington attorney and former member of the federal trade commission.

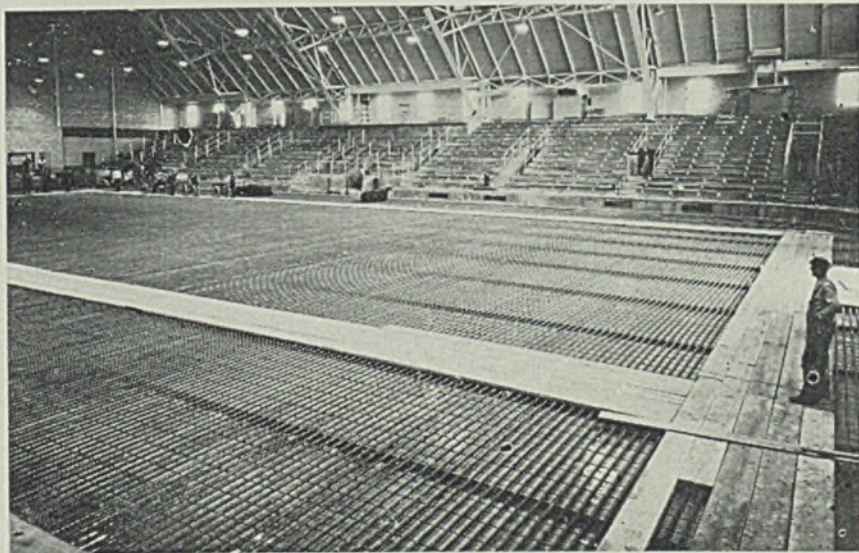
Prices Must Be Made Uniform

"About the first thing management should do," said Mr. Gaskill, "is to examine its catalog and price list and weed out all numbers and brands in which what is essentially the same commodity is masquerading under different names or numbers at different prices. For this is an unlawful price discrimination as between purchases of what is essentially the same commodity even in disguise.

"There may be a grave question whether a local competition presented by an inferior grade at a lower price can be met by a local price reduction in a higher grade commodity. And if this should prove to be the case, standardization of grades and qualities would become absolutely necessary to conform to this law, and to avoid the possibility of constant conflict with it.

"It is very evidently the purpose and policy of the law to do away with all uniform price differentials whether of the service type or the

Steel Carries Cold to the North



HIBBING, MINN., the iron ore mining town where steel companies pay most of the taxes, recently completed a \$5,000,000 recreation hall, including a \$65,000 artificial ice skating rink. This arena includes approximately 10 miles of iron and steel piping, all joints being welded. Beneath this piping is a complete layer of sheet metal, receptacle for the water and ice. The arena's seating capacity is 3600. Hibbing, a town of less than 50,000, also has a \$5,000,000 high school.

Photo courtesy Republic Steel Corp.

quantity type, and to require as between two purchasers an equality of price save only when in the special instance, their own methods or quantities of purchase create a cost difference between them. It comes down to this: The nearer the manufacturer gets to one price 'by the case or by the carload' to selected types of purchasers, the safer he is."

Mr. Gaskill said "a supervisory control of price movements is implied which is wholly new. It is not the power to fix prices but it is the power to hold price levels unless an economic justification for change and its direction up or down can be demonstrated by those who propose the change. It becomes obvious that compulsory open price selling is a necessary adjunct to a law of this character and purpose. "The law distinctly limits meeting a competitor's price, services or facilities by equaling it or them—meeting, not exceeding competition."

Law Not Retroactive

The Washington attorney has completed a book discussing numerous phases of the new law.

Considering the "Patman act bogey" from the standpoint of buyers, National Association of Purchasing Agents Inc., New York, last week issued a bulletin in which its members were advised, among other things, that the law is not retroactive.

"The Constitution prohibits the invalidation of contracts that were legal when made, unless public policy requires their invalidation," said the bulletin, which warned, however, that "price discrimination that tends to create a monopoly or where the effect is substantially to lessen competition has been illegal for 25 years under the Clayton act."

Col. William J. Donovan, a former assistant attorney general was quoted in the bulletin as saying "a word of caution should be sounded for the trade association which hopes to reach a common solution for all the marketing questions affecting a particular industry. Competitors may not agree, however informally, to follow a common course of action which may unreasonably restrain trade."

Inventory policies may need revision, said the association, and "hand-to-mouth purchases may become expensive if each sale must be priced to cover the cost of manufacture, sale and delivery. The net result may be lower prices on large quantities."

"Purchases from distributors may assume even greater importance, for distributors will be entitled to price differentials that are based on and measured by the service they render. The distributor whose stock is composed largely of order blanks and calling cards will be entitled to no better price than a direct buyer."

Financial

CONSOLIDATED STEEL CORP. LTD., Los Angeles, has declared a 60-cent dividend on preferred stock, payable Aug. 15 to stockholders of record Aug. 5. After this payment there will remain an accumulation on the preferred stock of \$7.27.

♦ ♦ ♦

Hunter Steel Co., Pittsburgh, formerly the Independent Bridge Co., Neville Island, Pittsburgh, has filed a registration statement with the securities and exchange commission, Washington, covering 40,000 shares of \$20 par value 6 per cent cumulative preferred stock, 300,000 shares of no par value common stock, and warrants to purchase 100,000 shares of common stock. It is expected that 40,000 shares of preferred stock will be offered to the public.

♦ ♦ ♦

Trustee's report of Scullin Steel Co., St. Louis, for July, filed in federal court, discloses operating profit of \$47,654 after deducting depreciation charges of \$17,783, but before bond charges and any estimate of income taxes. Net sales in July amounted to \$279,941, against \$219,893 in June.

Merger

M IAMI IRON & STEEL CO. and Dickerson Steel Co., both of Dayton, O., have merged to form the Miami-Dickerson Steel Co., with a capitalization of \$500,000. The company will occupy the plant of the Miami Iron & Steel Co.

John A. Thiele, organizer of the Miami company in 1921, is chairman of the board and treasurer; Charles Dickerson, in charge of the Dickerson company since 1920, will be president and general manager, and G. C. Thiele is vice president and secretary.

The Dickerson company has specialized on aircraft and tool steels, white products of the Miami company include bars, shapes, plates and hot and cold-rolled sheets.

Edge Moor Iron Bought by Dillon and Associates

Thomas J. Dillon and associates have purchased Edge Moor Iron Co., Edge Moor, Del., manufacturers of water tube boilers and air preheaters.

Dillon has resigned as vice president of Struthers Wells Co., New York, and will be president of Edge Moor, with offices at 30 Rockefeller plaza, New York. He will continue as president of United Steel Corp. of Toronto, and of Standard Steel Construction Co., Welland, Ont.

L. A. Dibble President of Malleable Founders Society

The Malleable Founders' society's board of directors, meeting in Canton, O., recently, unanimously elected the following officers:

President, L. A. Dibble, president, Eastern Malleable Iron Co., Naugatuck, Conn.; vice president, Arthur F. Jackson, vice president, Mich.; Malleable Iron Co., Detroit, Mich.; secretary-treasurer, Robert E. Belt, Cleveland.

The society operates through three sections, eastern, central and western. Each section elects a chairman who will be chosen at the next sectional meeting of the respective groups.

New Tin Plate Company Offers Stock to Employees

Hudson Tin Plate Co., Marietta, O., long idle, has been reorganized by a group of Steubenville, O., men as the Marietta Sheet & Tin Plate Co. Operations are expected to begin in September, with about 250 employes. Incorporators are Frank D. Sinclair, banker; C. L. Williams, attorney, and A. H. Haas. According to Mr. Sinclair, one-third of a 6000-share stock issue to be floated will be purchased by employes, with the remainder to be offered for public sale.

Cummings Presses Inquiry Of Alleged Steel Collusion

Attorney General Cummings at a press conference stated his department is going ahead with the alleged steel collusive bidding investigation.

He said that there had been some delay in obtaining evidence as purchasing officers of the government who were ordered by the White House to co-operate with the department of justice are having some difficulty in checking back on this so-called collusive bidding. There is no indication now as to when the justice department will have any kind of an official announcement.

Follansbee To Improve Plant

A \$4,700,000 modernization program at the Toronto, O., plant of the Follansbee Bros. Co., is contemplated, according to plans made known in recapitalization plans filed in federal court at Pittsburgh. The company, whose main plant is in Follansbee, W. Va., has been operating under section 77-B of the bankruptcy Act.

The plan proposes to raise \$5,500,000 new capital and to exchange new securities for old bonds and stocks.

"We Couldn't Do It Under Surplus Tax Law"

CHANGING conditions, new products and new processes have marked the industrial development of this country. Frequently, the popular article of today is the forgotten product of tomorrow.

Many successful manufacturers have found it necessary to take drastic steps to adapt themselves to these altered circumstances. Typical of such companies is the Rex Mfg. Co. Inc., Connersville, Ind.

Also, typically descriptive of the situation which now confronts many manufacturers is this statement from the company—which fabricates about 10,000 tons of steel annually:

"We were fortunate in our selection of product as in each instance we were successful and able to build up a surplus which enabled us to go ahead and make the changes we desired, but it is likely that this would not now be possible under the new tax law compelling distribution of surplus and preventing the building up of an accumulation of funds, as we have been able to do in the past."

The Rex company first saw the light of day back in the horse-and-buggy era—1897, to be exact—and appropriately, entered the buggy business. A national distribution was enjoyed and the company rated as one of the foremost buggy producers of the country for about 15 years. And then came the gasoline buggy.

Began Building Auto Tops

It soon became evident that the horse would have to take second rank to the automobile as a means of public conveyance, and that the buggy business was headed for the discard. Not content to follow Dobbin into retirement, Rex officials cast about for a way to take advantage of the opportunities offered by the growing popularity of motor vehicles.

In those days automobiles were of the open-air variety, consisting of either a touring car or roadster and offering only a fabric top and celluloid side curtains as protection to occupants. The company decided that such an enclosure was not only inconvenient and unsatisfactory, but an actual hazard in driving. The result was the decision to manufacture the so-called California top. This top was rigid, was equipped with glass on the sides and in the rear and was adaptable to both touring cars and roadsters.

This move proved to be a successful one. Automobile manufacturers

became substantial customers for the new top, and the company also enjoyed a good market among automobile dealers and distributors for the replacement of existing fabric and celluloid tops.

This business went along profitably until automobile companies started to build sedans and coupes. This was the end of the California top, and once more the company found itself in a market which had practically ceased to exist. As at the conclusion of the buggy business, however, the company was in a position to finance plant changes necessary for it to enter the manufacture of a new product.

Turn to Refrigerator Cabinets

The next move was the development of electrical refrigerator cabinets. Again, the shift proved successful and for the past eight years the company devoted its entire efforts to the manufacture of these

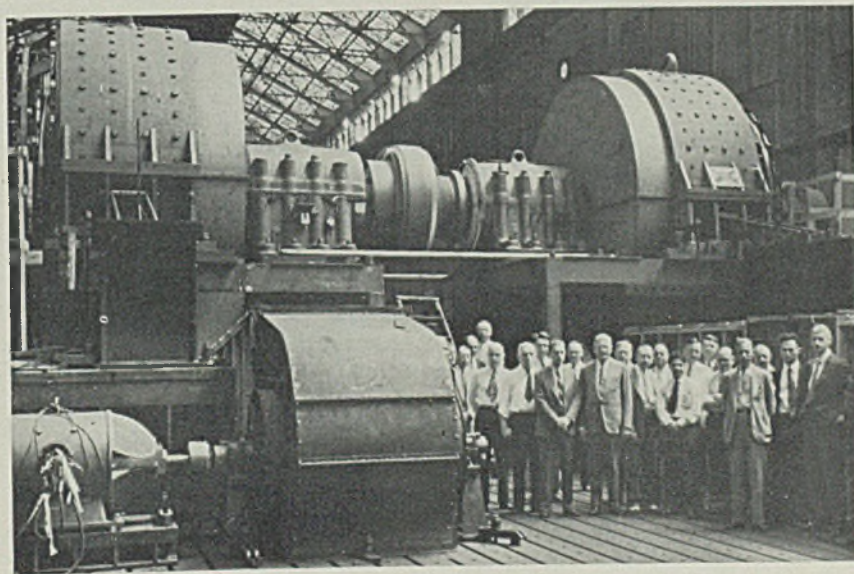
units and built up a substantial business.

Though satisfied that it will be a long time, if ever, before the electrical refrigerator becomes passe, the company recently decided to enter a new field—the manufacture of commercial delivery and farm trailers. This is not a change in product, however, but the addition of one, since the refrigerator cabinet business has been increasing each year and is to be continued in conjunction with the manufacturing of trailers.

When the company was building the California top, it was necessary to acquire another plant, located about a mile from the main plant, since the top was bulky and required considerable manufacturing space. The branch plant contains about 80,000 square feet of floor space and until recently had been used for storage of refrigerator cabinets. It has been turned over to the trailer division, and new warehouses will be built for cabinet storage.

It is interesting to note that C. C. Hull, president of the Rex Mfg. Co., has headed the company throughout the nearly 40 years of its existence. Further, many of the executives and factory employes who started with the organization's inception still are active in it.

Steel Engineers Inspect 7000-Horsepower Electric Motors



TWO 7000-horsepower electric motors for steel mill service are coupled together on test in the East Pittsburgh works of Westinghouse Electric & Mfg. Co. Inspection of these tests was witnessed by operating men of Carnegie-Illinois Steel Corp. from plants in Clairton, Duquesne and Homestead, Pa. The motor pictured will furnish the main drive for Carnegie-Illinois' new 100-inch plate mill, Homestead. The other motor will be installed in a Midwest steel plant. Each of the motors weighs 200 tons. In the foreground is a wind-tunnel which supplies cooling air to the motors while they are on test. Members of the party were: G. A. Bauman, J. W. Allen, George Black, S. A. De Pietro, Clairton mill, C. O. Franklin, Homestead mill; J. J. Booth, George W. Maumgarten, R. C. Curry, Duquesne mill, all members of Carnegie-Illinois engineering staff. Westinghouse engineers in group: T. E. Simpers, R. H. Wright, R. A. McCarty, R. W. Leech

Men of Industry

CR. ELLICOTT has been appointed general manager of the Cambria plant, Johnstown, Pa., of the Bethlehem Steel Co., succeeding the late L. R. Custer. Starting as a chemist in the laboratory of the Bethlehem, Pa., plant in 1908, Mr. Ellicott was later transferred to No. 1 open hearth, and in 1913 was appointed superintendent. In 1915 he was made superintendent of Nos. 1 and 3 open hearths and from 1917 to 1922 he was superintendent of the hot metal division. In 1922 he was appointed superintendent of furnaces and alloy



C. R. Ellicott

mills of the Lehigh division, and in October, 1928, was transferred to the Cambria plant as assistant general manager.

R. E. Hough has been appointed assistant general manager of the Cambria plant. He formerly was superintendent of the Gautier Mills, coming to the Cambria plant in 1929, after 22 years service at the Lackawanna Plant.

John R. Wark, assistant branch manager of E. J. Woodison Co., foundry suppliers, Buffalo, has been appointed branch manager at Buffalo to succeed his father, the late William J. Wark.

Dr. J. C. Warner, associate professor of theoretical chemistry and for the past ten years a member of the faculty of the chemistry department at the Carnegie Institute of Technology, has been appointed associate professor of metallurgy, effective in the fall.

William F. B. Henderson has been appointed assistant general manager of the plumbing ware division of Briggs Mfg. Co. He will continue as

director of service for the body department of Briggs in addition to directing all manufacturing operations of Briggs "Beautyware" products.

Harry L. Campbell, assistant professor of metallurgical engineering at the University of Michigan, who has done considerable research on foundry core practice, molding sands, and cupola operations, has been appointed metallurgical engineer, American Hoist & Derrick Co., St. Paul.

Robert N. Campbell has been appointed assistant manager of orders of the Jones & Laughlin Steel Corp., Pittsburgh. Mr. Campbell's entire business experience has been with Jones & Laughlin, having started with them in 1893 at the Pittsburgh works. In 1913, he was transferred to the general office order department and advanced through various capacities to his present position.

F. G. Jackson has been appointed representative in the Chicago territory for the Eclipse Counterbore Co., Detroit, manufacturer of high-speed steel and tungsten carbide counterbores, drills and cutters. Mr. Jackson for the past ten years had been connected with the Kearney & Trecker Corp as district sales manager in the Philadelphia, Detroit and Chicago territories. Prior to this he was associated with the Vonnegut Machinery Co., Indianapolis. His offices are located at 1717 Chicago Daily News building.

J. E. Borland, after a year spent in activities associated with the electrification of South African gold mines, has returned to the industrial sales department of the Westinghouse Electric & Mfg. Co., East Pittsburgh.



J. E. Borland

Pa., where he will be identified with the application of electrical equipment to power shovels, and mining and quarrying operations. During his stay in South Africa, Mr. Borland was associated with the Westinghouse Electric International Co. Mr. Borland has been associated with Westinghouse for more than 17 years.

R. E. Otto, assistant manager of motor sales, has been named manager of motor sales of the Emerson Electric Co., St. Louis, manufacturer of motors, fans and appliances. Other appointments and changes in sales personnel include: John Wright, who has been made manager of fan sales; O. D. Metz, who has been made assistant manager of motor sales; Val J. Maurer, made manager of the New



R. E. Hough

York office, and E. E. Harwood who has been transferred from the staff of commercial engineering division at St. Louis to the motor sales staff in the New York office.

Frank C. Reed, vice president of the Westinghouse Electric Elevator Co., East Pittsburgh, Pa., has been elected president of the company. He joined Westinghouse Electric & Mfg. Co., as an apprentice in 1902, and after completing a two year course was assigned to the industrial sales department. In 1921 he was made manager of the Huntington, W. Va., office, and continued to represent the company in that territory until 1927 when he was transferred to Chicago as general sales manager of the Westinghouse Electric Elevator Co. In 1931 he was elected vice president.

George E. Rose, heretofore general superintendent of the Wisconsin Steel Works, South Chicago, Ill., has been transferred to the general office at Chicago as assistant to the vice president in charge of mines and steel operations.

L. B. Robertson, formerly assistant general superintendent of the Wis-

consin Steel Works, has been appointed general superintendent, succeeding Mr. Rose. W. E. Brewster, recently superintendent of blast furnaces at the Steel Works, has been appointed assistant general superintendent, succeeding Mr. Robertson.

R. W. Davis, electrical engineer, Allis-Chalmers Mfg. Co., Milwaukee, has been appointed assistant manager of the electrical department. He was graduated in 1906 from the University of South Dakota in science and mathematics and then specialized in electrical engineering at Massachusetts Institute of Technology.

He entered the employment of Allis-Chalmers as a graduate student apprentice, both at the Bullock and the West Allis works, and in 1910 was moved to the electrical engineering department. From 1915 until the present time he has been actively engaged as sales engineer for the electrical department, with particular reference to rolling mill applications. He is a member of the Association of Iron and Steel Engineers.

S. J. Steele, vice president in charge of sales, and J. F. Hartlieb, vice president Continental Can Co. Inc., New York, were elected executive vice presidents at a meeting of the board of directors held in New York, Aug. 12.

The following additional vice presidents were elected: F. J. O'Brien, formerly general manager of production, was elected vice president in charge of manufacture; F. Gladden Searle, formerly general sales manager, was elected vice president in charge of sales; Arthur V. Crary, of the general line sales department, was elected vice president; J. S. Snelham, formerly comptroller, was elected vice president and comptroller; M. S. Huffman, a director of the company, with headquarters on the Pacific coast, was elected vice president.

Robert W. McClurkin has resigned as manager of the Tonawanda Iron Corp., North Tonawanda, N. Y., to become president of Matthiesen & Hegeler Zinc Co., LaSalle, Ill. He has been succeeded by Charles R. Holzworth, formerly a vice president of the old Rogers-Brown Iron Co.

Mr. McClurkin started his career as a chemist with Andrews & Hitchcock Iron Co., later going with the Mayville Iron Co., then to Republic Iron & Steel Corp. as superintendent of blast furnaces. He then became associated with the United States Steel Corp. at Gary, Ind., as superintendent of blast furnaces, and 13 years ago joined the Tonawanda organization as manager. He is a member of the American Iron & Steel Institute.

Mr. Holzworth, also a member of



George E. Rose



L. B. Robertson



R. W. Davis

the institute, started his career with the St. Louis Coke & Iron Co., where he later became manager. He then joined Pickands, Mather & Co. as superintendent of blast furnaces, and later served as vice president and manager of the Rogers-Brown Co., before this company was absorbed by the Hanna Furnace Corp. He recently completed in Australia and New Zealand a survey of the iron and steel industry for H. A. Brassert & Co. Ltd., London, England.

Died:

WARREN M. FORDING, 37, secretary to Tom M. Girdler, president and chairman, Republic Steel Corp., in Cleveland, Aug. 13. Previous to coming to Cleveland with Mr. Girdler in 1929, Mr. Fording was secretary to R. J. Wysor, then general manager of Jones & Laughlin Steel Corp. He also had been connected with Diamond Coal & Coke Co. and Colonial Supply Co., both at Pittsburgh. He was born in Pittsburgh, and served overseas during the World war with the United States army.

Alfred Alsaker, 51, chief engineer, Delta-Star Electric Co., Chicago, at Long Beach, Long Island, Aug. 3, following injuries received when struck by a motorcycle.

John Campbell, 63, founder and president, Campbell Foundry Co., Harrison, N. J., at his home in South Orange, N. J., Aug. 10.

George T. Wigmore, secretary and treasurer, Risdon Mfg. Co., formed metal and wire goods, Naugatuck, Conn., in that city, Aug. 10.

Elmer J. Smith, safety and health director for the Hawthorne works, Cicero, Ill., of the Western Electric Co., in Chicago, July 30. He had been associated with the company since 1920.

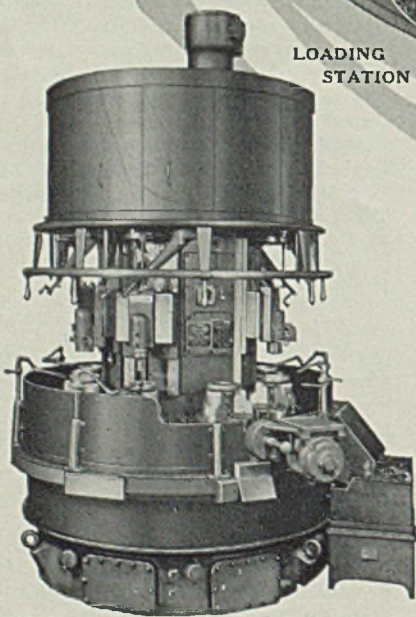
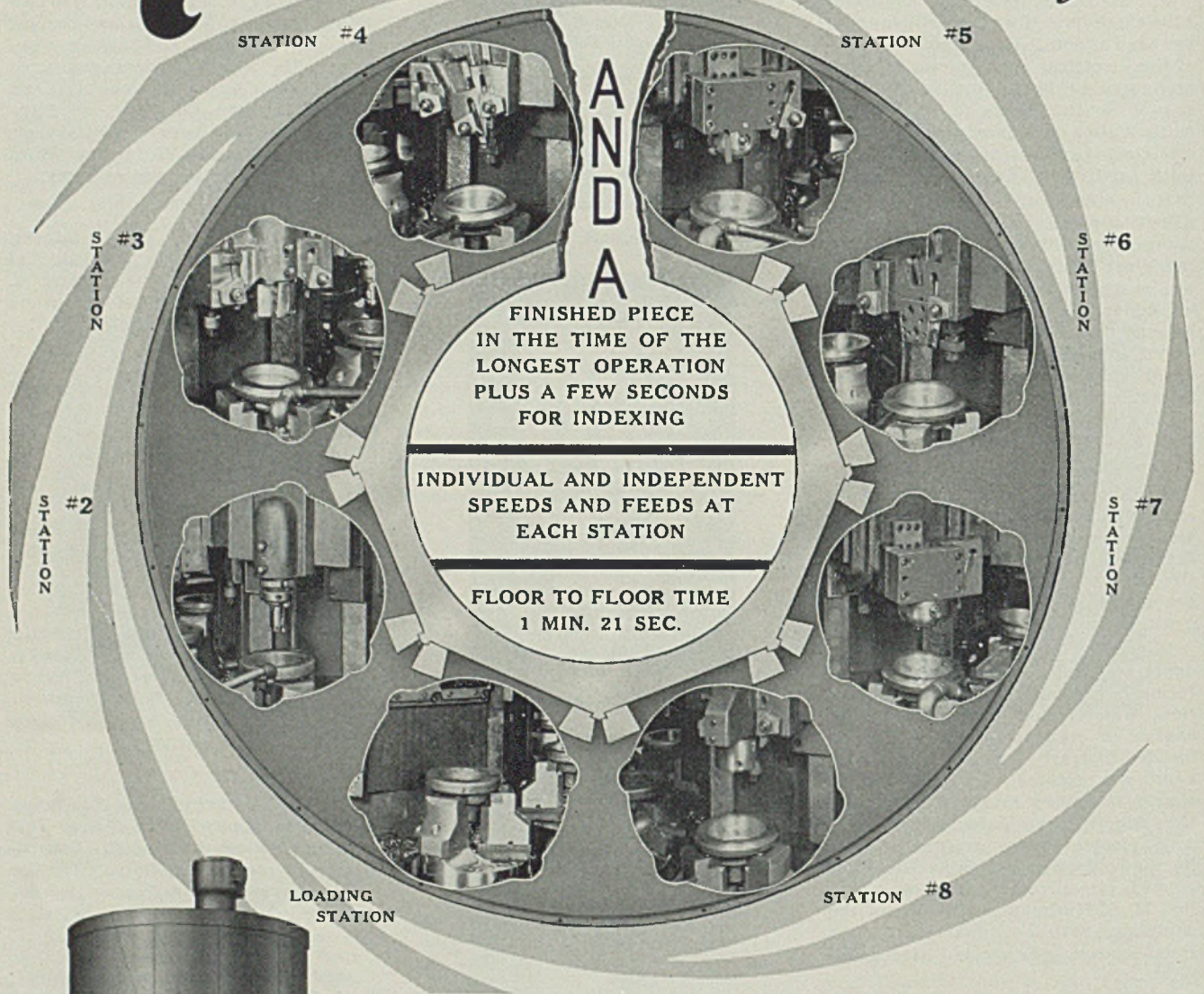
Harper O. Price, 66, for many years associated with the Cherry Valley Iron Co. at Pittsburgh, but retired and resident of Detroit for the past several years, at Detroit, Aug. 9.

Howard A. Warfel, 47, president, York Tool Co., Yorktown, Ind., and vice president of the Muncie Oldsmobile Co., Muncie, Ind., in Muncie recently. Mr. Warfel and Ralph Yingling organized the York company in 1920.

Richard Varley, 68, electrical engineer and former president of Varley Duplex Magnet Co., Jersey City, N. J., in Englewood, N. J., Aug. 8. He was inventor of various electrical magnets and coils, especially for automobile ignition.

Fabian Sellstrom, 85, former vice president and treasurer, Dahlstrom Metallic Door Co., Jamestown, N. Y., in that city, Aug. 2. He retired years ago after long service in the metal furniture and allied industries in Jamestown.

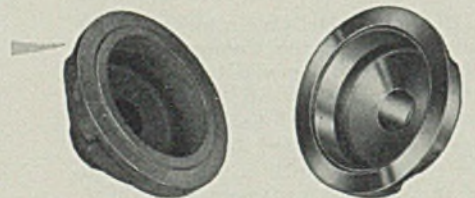
7 Machining Operations Simultaneously



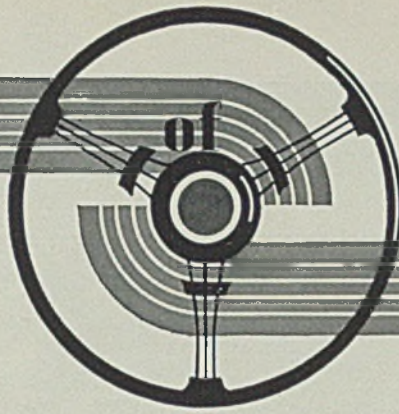
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ON DIFFERENTIAL GEAR CASE

The Mult - Au - Matic Method provides manufacturing Efficiency and Economy through effective Savings.

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BRIDGEPORT, CONN.



DETROIT

LAST week's vista of closed automobile plants was the nearest thing to a depression panorama that Detroit has seen all year. But closed doors to the assembly lines were not for lack of retail sales, so much as they were to let the production machinery cool off.

That the industry has been hitting the ball hard this year and that plant facilities have been taxed all spring and summer is a hackneyed but nevertheless true summary. In that respect the present vacation here is to all outward appearances a welcome one.

But enforced idleness is far from an automotive criterion of the day. At the same time the industry shut its doors, it intensified its last march to clear the decks for 1937 model production.

Many a maintenance crew was at work here last week moving machinery, making repairs, rearranging inventory and freshening up the paint brush. It was no unusual sight to see batteries of heavy machine tools shifted about, new conveyor systems going into place and new heating ovens set up, and the ring of carpenters' hammers has replaced forging hammers.

Six Weeks for Changeover

Some of the motor people, General Motors being an example, have the practice of letting this type of work on bid to outside contractors, rather than swing their own production employes into the work of housecleaning. Under the guidance of production foremen, the entire job goes through quicker.

And speed is what the automobile makers are after this year in shortening their time for changeover. Six weeks seems to be the longest time any plant feels obliged to take, others will try to do it in less.

If getting set for the 1937 kickoff was as simple as blowing the starting whistle once the housecleaners had gone, actually the time lost would be much less. But unfortunately, annual pandemonium moves in on Detroit at this time of the year when it comes to correlating deliveries on new dies, new machinery, new stampings, parts and tools.

Few, who have not been associated

with the industry realize the gargantuan task it is to swing over a model and get the wheels turning on schedule. Building up advance parts banks helps to by-pass some of the headache, but there is always the last-minute delay from some supplier, let alone decision reversals right from the "tops" themselves within the plant.

By last Saturday Ford had completed its 1936 plant vacation, both at Dearborn and at all branch assembly plants. The shutdown was delayed in the first case from Aug. 3 and whereas two weeks were to have been taken off, but little more than a week was all that ultimately was spared.

Ford Builds Parts Banks

Plants closely akin to Ford like Murray Body have also resumed this morning. Murray went down at noon Aug. 6, stayed closed all last week, but utilized the time to balance inventories. In fact, speaking of Dearborn, the pressed steel division of Ford's there ran through uninterrupted both last week and the week before.

Thus Ford utilized the last ten days to good advantage on making up advance parts banks. According to the present plan, those in charge of steering the Ford program for next year have the date of Sept. 15 firmly fixed in their minds. By that time, even calculating for the usual number of inescapable delays, preparations should be virtually completed preparatory to assemblies of the new models.

Meanwhile, of course, Ford has resumed assembly activity on 1936 jobs, for which the field still reports an active call. In fact, over the interim—that is, the next month—the problem of caring for current new car demand will mean many a 1936 V-8 still will be rolling from the line.

Such detailed preparations as new dies for the next model have of course been settled by now, for time precludes any last-minute changes here. However, it is interesting to note how many minor items affecting such matters as trim are still undecided. Just as an example, though the overall appearance of the radiator shell of the 1937 V-8 has been agreed on, there are still a number of choices

left open on the type of perforation to be used.

All smoke screens to the contrary, the story of Ford's small V-8 motor and series will not down. Even if the car does not come to pass, and there is really no basis for assertion even now that it will nor that it won't, Ford stands to lose considerable from parts made up and stored for it.

On certain sheet metal stampings, Dearborn has a stock that runs enough for over 15,000 small assemblies. Quite apparently, production of the small motor block has not ceased, although it is desultory. Even allowing for defects, blocks scrapped and remelted, Dearborn has been making small V-8 motor castings for a long enough time this spring and summer to have an appreciable quantity stored.

But, what ultimate decision is reached on whether or not to produce the small car indeed lies not in the laps of the Gods, but to Henry Ford himself. It must be recorded in passing that preparations have been brought to a point where most of the groundwork has been completed. If the final approval is given, the wait then passing until introduction time will obviously be minimized.

Will Taxes Spur Research?

A company with the resources of Ford Motor can, of course, afford to play with an idea as this to the extent where extensive retooling can proceed, numerous parts' design worked out and preliminary work completed.

In fact, Detroit tells the story in another way, but which proves the same point—that the federal tax bill on surpluses only goes to spur such activity on. And in this connection, the proposal of Ford to resume making tires at Highland Park is also a likely capital expenditure outlet.

This present lull in the season has reacted on Chevrolet in an entirely different manner than either Ford or Plymouth.

Of all of the three, Chevrolet has operated through the 1936 season on a considerably larger parts bank and float. At all times this season, materials waiting to go onto the Chevrolet assembly lines have been made up more than a good month in advance.

Such a backlog was part and parcel

MIRRORS of MOTORDOM

of the policy General Motors headquarters laid down last fall when they loosened the purse strings to the tune of many millions to liberalize on the inventory item. Part of the policy came in for general newspaper publicity as a move to give labor more work. As things turned out, labor didn't need it.

At all events, carrying that stock proved a wise move. Not only was the threat of tieup from possible labor difficulty circumvented, but, unlike early 1935, Chevrolet this year could deliver cars to the dealers as they wanted them.

The reaction today finds most all of the Chevrolet parts plants with orders to remain closed for an extended time, likely at least the balance of August. Meanwhile, one of the Flint assembly lines operates, as do branches, in making finished cars where parts before existed.

Last week, total Chevrolet assemblies were about 28,000 jobs, yet the tributary parts plants making transmissions, axles, gears, motor blocks and frames were all closed. The Toledo, O., Muncie, Ind., and Saginaw, Mich., divisions—all transmission centers—were shut, so were the four large gear and axle plants in Detroit. The Saginaw foundry, from whence come all the motor blocks, closed Aug. 5 and will not reopen until Sept. 8.

Only Chevrolet in Production

In fact, Sept. 8 likely will be the date when most of the Chevrolet parts divisions now in the hands of cleanup squads, will again breathe a little life. This, the day after Labor Day, signals the changing season.

Last week Chevrolet assemblies and General Motor's production were synonymous figures and probably will be so for at least two weeks yet. From all plans, Flint will be producing cars over the balance of August. Meanwhile, Pontiac has joined Buick, Olds, Cadillac and LaSalle in the idle class. All five of these General Motor's standard bearers have wound up their 1936 runs and are down.

Olds has added up the cost of its new engineering building, plus what it will spend for modernization of equipment, as well as expansion to make 85 cars per hour rather than the present 55-per-hour rating, and reports it will spend \$6,350,000 during the coming months. Olds made 200,000 of its 1936 models before it closed, a new yearly high.

Chrysler has already terminated production on both the Chrysler lines and the DeSoto, Dodge and Plymouth, both assembling, like the date of Aug. 28 for the last 1936 jobs.

That time, ostensibly Sept. 1, for

Automobile Production

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

	1934	1935	1936
Jan.	155,666	289,728	364,004
Feb.	230,256	332,231	287,606
Mar.	338,434	425,913	420,971
Apr.	352,975	452,936	502,775
May	330,455	361,107	460,565
June	306,477	356,340	454,487
July	264,933	332,109	*432,329
7 mo.	1,979,196	2,550,364	2,922,737
Aug.	234,811	237,400	.....
Sept.	170,007	87,540	.....
Oct.	131,991	272,043	.....
Nov.	83,482	395,059	.....
Dec.	153,624	404,528	.....
Year	2,753,111	3,946,934	.....

Estimated by *Cram's Reports*

Week ended:	
July 25	96,863
Aug. 1	95,970
Aug. 8	81,804
Aug. 15	56,679

*Estimated.

it falls on a Friday, should also mark some degree of production on the 1937 Airflows and DeSotos. These latter two divisions have been closed for the last two weeks.

Hudson, with a slate left to make around 5000 more jobs, likely will continue at around 2100 to 2200 jobs a week for each of the two weeks left in August. According to plans, they will try to confine their assembly line idleness then to the first two weeks of September.

When completed, the 1936 model run for Hudson therefore should top 90,000 assemblies, shaping up well with the projected assembly of 104,000 models, a figure they set up last October to shoot at this year.

Graham Sells Old Dies

A sharp falling off in assemblies has occurred at Graham and less than 200 models were turned out last week. Graham is selling a large list of old body dies, used on 8-cylinder jobs of other years. The company has already sold a quantity of tools and dies left from an old six to Nissan Motor Works of Japan.

Packard nears the deadline on the small six, which should be the model to break the ice on all motordom's 1937 jobs. As previously expected, the innovation will be under the hood in a 6-cylinder motor, but body contour will closely approximate a trimmed-down "120".

Packard has raised the hood lid line by $\frac{3}{4}$ of an inch on the 1937 "120" so as to make the fenders of both the six and small eight inter-

changeable. Incidentally, Packard retail outlets have been trying to stem a rumor, quite without foundation, that the large eights and twelves will be discarded.

Pricing of Packard's small six is a matter of lively speculation at present, and a point not likely to be settled until the last moment. At first it was conceded the new series could come out to start at \$740 to \$750, base, f.o.b. factory, but some opinion is credited that a higher figure may go on the price tag ultimately.

At present, the lowest-priced 120 lists at \$990, so the permissible margin upward on the six would not be great. Furthermore, Packard means to keep in the competitive range on sixes and is mindful that in 1935 fully 95 per cent of all cars sold went for less than \$750 wholesale.

Goodyear has been casting an eye around for plant sites other than Akron. Among locations considered are more space of the Hupp plant at Detroit and possibly the vacant plant at Windsor, Vt., owned by National Acme . . . Kelsey-Hayes Wheel Co., desirous of making more of its own gray iron castings next year, is supplementing its present foundry equipment with two new cupolas . . . Ternstedt Mfg. Co., like many other General Motors units, was closed last week. . . . Willys Overland's new car is lined up for an all-steel top in 1937 . . . Evans Products Co. is making a vacuum-operated gear shift adaptable to all types of automobiles; elimination of gear clashing is a feature. . . . Chevrolet has made much of its 12,000,000th car produced and has set the model up for display in the General Motors building lobby here . . . Chrysler has begun payment of the \$2,000,000 cash bonus to employees voted July 29. Each one on the payrolls in the fourth quarter of 1935 receives \$25 plus \$1 for each year of service up to 10 years. . . . Cadillac recently shipped a custom-built V-8 landau model to an Eastern buyer who paid \$17,000 for the job.

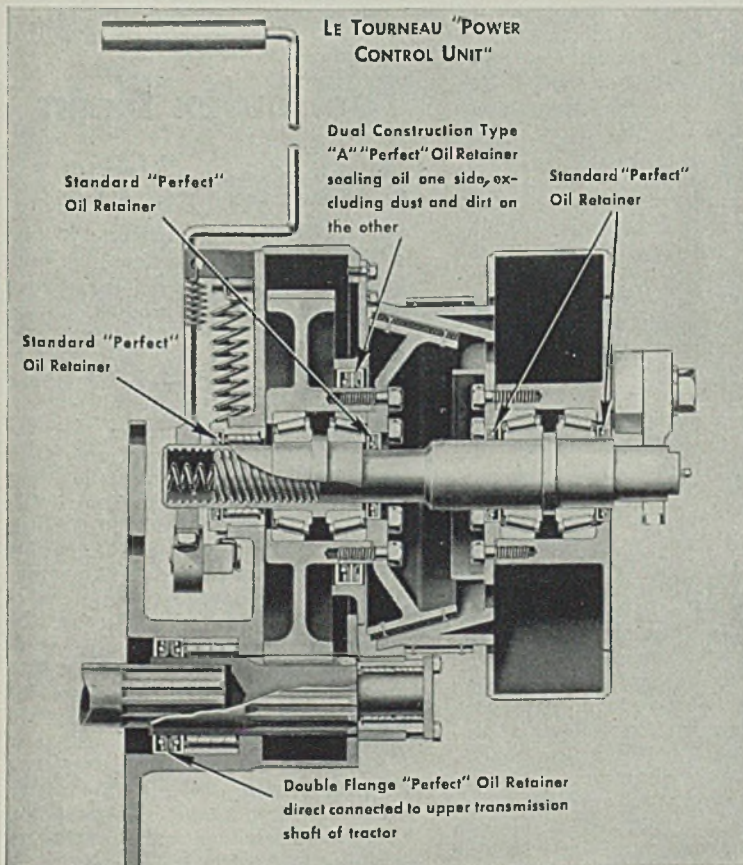
Mesta Reports \$10,500,000 In Unfilled Equipment Orders

Mesta Machine Co., West Homestead, Pa., last week reported the value of its unfilled orders as of Aug. 1 at more than \$10,500,000, and present plant operations at full three shifts daily, seven days a week. Company officials state there is no letup in demand in sight due to plans in this country and abroad for additional steel plant equipment.

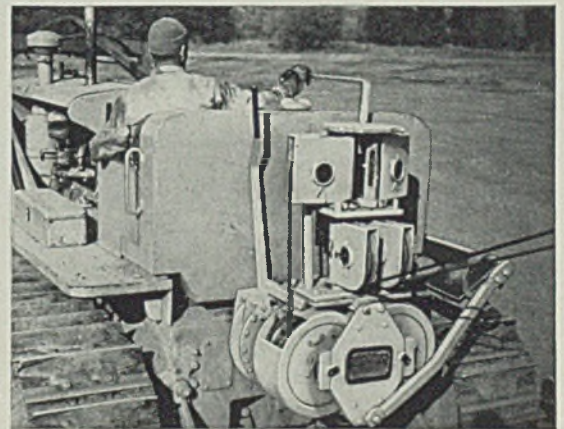
Bearings Safe in Clouds of Grit



LE TOURNEAU CONTROL UNIT PROTECTED BY



Power Control Unit which must respond instantly



Section of Power Control Unit, showing bearings protected by six "Perfect" Oil Retainers

● Record yardages moved by Le Tourneau Carryall Scrapers are made possible largely by the accurate, fast operating cable control of the power units. Power and split second speed are continually in demand from this control unit.

High speed dirt moving stirs up clouds of dust and grit, the mortal enemy of precision bearings. So Le Tourneau Power Control Unit Bearings are protected by Chicago

Rawhide "Perfect" Oil Retainers which have proven absolutely dependable.

"Perfect" Oil Seals keep the lubricant in . . . the grit out. No matter how the dirt flies, it cannot harm these bearings.

"Perfect" Oil Retainers are available in Single, Dual A, Dual B and Dual C Types. Let Chicago Rawhide Engineers select the correct type for your application.

Save trouble and expense with this positive bearing protection.

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England's Prosperity "Not Result of Armament"; Germany on Upgrade, Too

WITH industrial activity at a high peak in England and Germany, wage earners of both nations are considerably happier than a few years ago, said J. F. Lincoln, president, Lincoln Electric Co., Cleveland, last week following his return from more than a month in Europe.

"Delivery on machinery in Germany is a matter of months instead of days," he said. "The Germans are a changed people since Hitler re-established the nation's self-respect. There is no opposition to Hitler evident in Germany. Industry is solidly behind him. Everybody appears happy."

In England Mr. Lincoln drove 2000 miles by automobile, visiting many large industrial centers.

"England is more prosperous than ever and the prosperity is not the result of armaments," he said. "Wages are going higher. I found the English people more apprehensive of communism than of warfare between European nations."

English Welding Practices

Mr. Lincoln addressed more than a dozen meetings of welding societies in England and reported himself greatly impressed by the fact that in certain instances English welders are ahead of the times as compared to America.

"In railroad work and shipbuilding the advances are particularly noticeable," he continued. "A Newcastle firm is working on 128 locomotives, largely welded, for the London, Midland & Scottish railroad.

"Considerable welding is being done in marine diesel engine work, principally on frames and beds. They are saving more than 50 per cent in weight and eliminating breakage.

"Of course, we in the United States are still ahead of them in higher speed with consequent lower cost of welding."

French industrialists are worried over communism. "The feeling is general in that nation that it is bound to come some time," he said.

American rights for the manufacture and sale of a small, automatic plant for the production of oxygen have been obtained by Lincoln Electric, it was announced by Mr. Lincoln.

Adolph Messer, Frankfort, Germany, maker of oxygen apparatus, is the inventor. He obtained patents after spending several years perfecting the plant.

Exclusive of storage tanks, the

plant will require a space only 10 by 10 feet, according to Mr. Lincoln. An air compressor and still to make liquid air and boil the oxygen out of it are the principal parts, he said.

Ultimate cost of the producing outfit probably will be under \$5000.

For firms using as little as 500 cubic feet of oxygen a day the plant will be particularly suitable. However as much as 400 cubic feet an hour can be produced.

One of the plants is to be shipped here soon from Germany and set up for demonstrations. Probably by the middle of next year Lincoln Electric will be manufacturing them. Some new equipment will be required. Additional land has been secured adjacent to the Lincoln Electric plant in Cleveland.

Many of the present costs entering into the manufacture and delivery of oxygen from central plants serving large areas will be eliminated by the Messer plant, according to Mr. Lincoln. Attendants are not required and containers for delivery are unnecessary. One of the small, automatic plants could serve three or four neighboring factories.

Production of oxygen is started by pressing a button and the machine automatically cuts off when the storage tank is full.

Meetings

THREE divisions of the American Society of Mechanical Engineers will join in sponsoring a welding practice symposium to be held with the American Welding Society at Hotel Cleveland, Cleveland, Oct. 22-23, during the eighteenth annual National Metal congress and exposition. The divisions of the A.S.M.E. helping to arrange the program are Machine Shop Practice, Iron and Steel, and Applied Mechanics.

C. W. Obert, consulting engineer, Union Carbide & Carbon Research Laboratories Inc., New York, is chairman of the committee organizing the symposium to consist of four sessions. Papers will cover stress analysis, weldability of alloy steels, tests on welded alloy steels, welding of heavy machinery and steel plate construction, use of steel plates, modern resistance welding developments, weldability of nonferrous metals, inspection of welds, and principles involved in selecting casting versus welding.

Object of the symposium is to give mechanical engineers in compact form a series of papers which will

bring them up to date on welding practice and its effect in design and production of products.

ACETYLENE GROUP ANNOUNCES ST. LOUIS CONVENTION PLANS

Preliminary details have been announced by the International Acetylene association for its thirty-seventh annual convention to be held at the Jefferson hotel, St. Louis, Nov. 18-20. This will be the first time the meeting has been held in that city.

Technical sessions will be conducted each afternoon and on two evenings with the use of the oxyacetylene process welding and cutting of metal is to be featured. Wednesday evening, Nov. 18, is to be devoted to a forum on welding and cutting and the session on the following evening will comprise a series of popular roundtable discussions on the same subjects.

Tool Index Nears Average of 1929

ACTIVITY in the machine tool industry reached a new high peak in July, climaxing seven consecutive months of mounting production — a period in which most machine tool prices went up 10 per cent and in which an acute shortage of skilled workers developed.

Because foreign orders for machine tools in July were more than double the June volume, the index of the National Machine Tool Builders association reached 150.1, crossing the 1928 average of 131, coming within 5 points of the 1929 average of 155. In June the index stood at 128.8.

Orders for foreign delivery increased from 22.3 in June to 45.7 in July. Domestic orders held about even, 104.4 in July compared to 106.5 in June.

Last year in July the index stood at 119.8, with domestic orders accounting for 82.5 of the total and foreign orders making up the remaining 37.3. The index is based on volume of shipments for 1926.

For the three months including July the average was 132.6, compared to 94.7 in the corresponding period of 1935.

In the dollar value of new orders received, according to reports from 162 firms, foreign business accounted for 30 per cent of the total, compared to 17 per cent in June, when 159 firms reported. The dollar values, however, are not directly comparable from month to month due to the varying number of reports.

Approximately half of the companies reporting in July have consistently equaled or bettered their average 1926 experience for four consecutive months.



WINDOWS OF WASHINGTON

WASHINGTON
MAJOR GEORGE L. BERRY, so-called co-ordinator for industrial co-operation, who is always trying to play both ends against the middle, last week had the temerity to warn the iron and steel industry against increasing production without corresponding wage benefits. He did this through the medium of an announcement by his council for industrial progress. The council claimed to have made an analysis of production, wages and employment in the industry from 1914 to 1933. As a matter of fact, this statement was merely a compilation of figures collected and made public several years ago by the census bureau, with the tables put up in a different way.

A return to predepression conditions in the iron and steel industry, when productive capacity increased $3\frac{1}{2}$ times faster than the consuming power of its workers as shown by average wages, "would seem to be a serious menace to national economic well being," said the council.

Major Berry claims this analysis shows that in the post-war period from 1919 to 1929 the yearly dollar productivity per wage earner rose from \$2873 to \$3718 while his average yearly wage increased over that period from \$1450 to \$1568.

Attacks Economy Policy

Crediting this "unbalanced condition" to the "influence of labor saving devices, massed production, and great increases in operating efficiency," the council said that "the nature of the national economy being as it is, highly competitive, compels industry to strive constantly for greater production at the same or lower unit costs. This is the accepted formula under which all industry operates."

The council said that while this formula may appear basically to be economically sound and desirable "is there not present a fundamental

weakness which must be corrected before it can truly be said to be either sound or desirable?"

Analysis of the iron and steel and other important industry groups, according to the statement, definitely show that from 1919 to 1929 "the major portion of the increased production was achieved either by maintaining employment at about the same previous level, or by establishing a new level of employment requiring fewer workers, while the wage levels remained practically unchanged.

Proposes Two Questions

"If this condition does constitute a serious menace to our economic well being, then two questions of great potential possibilities may well receive the serious consideration of every American citizen:

"Is it possible, with industry's productive ability constantly increasing that even though we come out of a depression through the working of natural economic forces, production can swing ahead at full speed so fast and can so far outstrip purchasing power that we will not reach a period of normalcy before being plunged again into the depths?"

"Are not the very efficiencies of our ever increasing productive ability of such nature that it is questionable whether we can come out of future depressions by placing our dependence solely on the operation of natural economic forces?"

"The second question becomes increasingly pertinent when we consider the large number of unemployed who are available for work at such small wages that it would be virtually impossible to generate sufficient purchasing power to start industrial activity more than feebly on the upturn."

The figures of the council show that the yearly average number of wage earners in the iron and steel industry was lower at the end of the 20-year period than at the beginning, stand-

ing at 617,776 in 1914, rising to 857,764 in 1919 and 880,882 in 1929, then dropping to 554,108 in 1933. The average yearly wage stood at \$683 in 1914 and \$903 in 1933.

The figures show also that the value added to raw materials in the iron and steel industry by manufacturing was \$821,000,000 in 1914, and tripled to \$2,465,000,000 in 1919 due to World war demand. After rising to \$3,275,000,000 in 1929, the figure went down to \$1,062,000,000 in 1933.

The least statistical change appearing in the analysis is in the percentage of value added by manufacturing which is paid out to workers as wages, said the statement. This percentage was 51.3 in 1914. It fell to 50.5 in 1919, during the period that the value was tripled, fell to 42.2 in 1929, and finally rose to 47.1 per cent in 1933.

The yearly dollar productivity per wage earner began the 20-year period at \$1330 and after nearly tripling the figure by 1929, fell during the depression to stand at \$1917 in 1933.

The statement says that "the position occupied by this industry group in the economic structure is of major importance. Not only are its products basic essentials to the development of modern industry, but their manufacture and sale places the group among the foremost employers of labor while the dollar value of production is such as to make the industry, as a whole an outstanding contributor to the national income."

LEWIS DETERMINED TO CONTINUE HIS DRIVE

John L. Lewis said last week that the suspending of the CIO unions by the executive council of the A. F. of L. would have no effect at all on the organizing activities of CIO.

"We will not disband the CIO," said Mr. Lewis. "The committee has made its position clear. Its plans to aid the workers in steel and other industries will continue unabated. The

shame of the act of dismemberment will lie on the heads of the council, and they can answer to their own membership."

David Dubinsky, president of the International Ladies Garment Workers Union, was the only member of the executive council to vote against suspending the CIO members.

"I voted against the suspension of the unions affiliated with the CIO," he said last week, "as an expression of my personal conviction and in conformity with the sentiment of the organization which I represent, that this punitive action on the part of the executive council is a blow to unity in the ranks of organized labor, and is bound to inflict untold harm on wage earners everywhere.

"The adoption by the executive council of a so-called enabling rule to put a color of legality on this illegal procedure of suspension is a deplorable subterfuge which will convince no fair minded person of the justice or legality of these tragic proceedings."

The CIO last week by a unanimous vote of its membership reaffirmed its position. There will be no change of policy, Mr. Lewis stated, and the CIO "will continue a policy of vigorous administration of its plans heretofore publicly announced."

It was said following the meeting that the CIO heard reports from its field executives on progress in the steel industry and other fields and "made necessary authorizations and appropriations for the continuance of this work."

ROADS WEIGH ACTION ON FREIGHT SURCHARGE

Iron and steel executives are very much interested in the railroads' activity in connection with the freight surcharges now in effect.

It will be recalled that these surcharges are in effect until Dec. 31. The interstate commerce commission refused any grant to change the tariffs as a whole and now the next move is up to the roads.

A meeting of the roads was held here last week but no conclusions were reached and no date has yet been set for a further meeting. The consensus seems to be that the roads will ask to have surcharges placed on individual commodities, meaning, for instance, that the iron and steel rates would be taken up separately from other commodities. In well informed circles it is stated that the roads will ask for continuance of the present surcharge rates.

INTIMIDATION INQUIRY REOPENS NEXT MONTH

Announcement was made here last week by Senator LaFollette of Wisconsin, chairman of the senate subcommittee of the committee on education and labor which is charged with the investigation of free speech, intimidation of workers and the like.

that his committee probably would meet in Washington some time during the latter part of September.

There is no way of telling whether the report is true or not—but the gossip here is that the committee actually has investigators in the field in connection with the attempt to organize steel workers by the CIO. This might be true, because at its hearings before the adjournment of congress the committee gave as much publicity as possible to statements made on the stand by steel workers that some of the steel companies had armaments in their plants to intimidate the men and to prepare for eventualities.

The third member of the subcommittee, because of the death of Senator Murphy of Iowa, has not been appointed yet, but will be before the hearings begin. Senator Thomas of Utah and Senator LaFollette are the only members of the committee at this time.

PROPOSED NEW BUREAU WOULD AID BUSINESS MEN

Gossip in the corridors at the department of commerce center around one item said to be included in the proposed appropriations for next year, by which \$1,685,000 would be set aside for the establishment of a division of industrial economics.

This division would be comparable to the bureau of agricultural economics of the department of agriculture, only the latter bureau has an appropriation of more than \$3,000,000 a year for the farmers, while the commerce division would be only for the business and industrial interests of the country.

Just who proposed this new bureau is a matter of some secrecy yet. Secretary Roper, who is still abroad, has not even heard of the suggestion but it is probable he would favor it because it is said to have the backing of his business council.

It is quite possible, if a division of this kind should be formed, that it would be given some of the work now in the hands of the domestic commerce division. There is plenty of precedent for the establishment of such a division, which would be able to give to the business men of the nation certain information on distribution and kindred matters that they are not able to get from any branch of the government at this time.

AUSTRALIA ADDS TO OUR FOREIGN TRADE TROUBLE

The United States seems to be having more difficulty with its foreign trade in iron and steel products, machinery and automobiles—along with other commodities—than it has had for a long time. It has experienced difficulties for one reason or another lately in Germany, Russia and Spain, and now Australia clamps down with what amounts to a practical embargo on machinery and

iron and steel products, with other commodities from this country.

Under the new system in vogue, licenses have to be secured for obtaining imports from this country—and the Australian government is just not granting any licenses for imports from the United States. The very unfavorable trade balance is the reason.

Right in this connection the figures show that for the fiscal year 1930 this nation exported \$55,000,000 worth of commodities to Australia while that country during the same year exported only \$6,000,000 worth to the United States. The figures are comparable right along until 1933-1934, when we exported \$24,000,000 of commodities to that country and they exported \$6,000,000 worth.

In retaliation for this move on the part of the Australian government, President Roosevelt decreed that effective Aug. 1 our government would withdraw from Australia the lower tariff duties which had resulted from trade agreements previously made with other countries and which Australia was enjoying under a favored nation clause.

While the President's withdrawal of the favored nation status does not greatly affect the commodities purchased by the United States from Australia, there has at least been placed on the record a definite protest against the discriminatory licensing of imports.

CLOSES CASE AGAINST POLISHING WHEEL GROUP

An order closing the case of the federal trade commission against the Buff and Polishing Wheel Manufacturers' association, New York, and 32 companies which are members of the association, has been issued by the commission. In closing the case the commission reserved right to reopen it "should the facts warrant."

The commission's complaint charged the association and the respondent companies with entering into a combination and agreement to suppress competition in the sale of their products and to enhance the prices to purchasers.

The commission's order stated that the case was closed because it appeared to the commission that "the practices charged in the complaint were carried on under the authority conferred by a code formulated and approved under the NRA act" and that there was no evidence "that the practices charged in the complaint have been indulged in by the respondents since the decision of the United States Supreme Court in the Schechter case, it being the policy of the commission not to proceed against respondents for practices authorized and engaged in prior to May 27, 1935 (the date of the Schechter decision), pursuant to codes formulated and approved under the NRA."

Editorial

After 15 Years, We're Back To Where We Started

A FEW weeks ago the committee of unfair trade practices of Secretary of Commerce Roper's business advisory council sent invitations to trade associations and individual industrial companies to sign voluntary agreements to abstain from unfair trade practices. To make the agreements binding, the committee suggested that each association or company accompany its pledge with a payment of \$1.

Probably few executives in industry will get excited over this naive invitation. Most of them have learned much about government-business relationships in recent years. They are wary of entangling alliances wherein the responsibilities are likely to be one-sided.

Nevertheless the proffer of Mr. Roper's committee is significant because it completes the cycle of a curious series of events in the development of government relations with industry. In brief, the Roper invitation takes us right back to where we were in the early postwar era.

This will be clear to anyone who recalls the history of these relations from about 1920 or 1921 to date. It will be remembered that Herbert Hoover, soon after his return from European relief work following the war, popularized a movement for self-government in industry. He urged trade associations to become more active in curbing unfair practices in their industries, declaring that unless industry cleaned its own house, the federal government would be obliged to do it. Later, as secretary of commerce, he went to great lengths to encourage trade associations to adopt fair trade practice codes.

Self-Government, Tried in Postwar Period, Was Called Failure for Lack of Policing

Numerous industrial organizations responded to this encouragement. Machinery was set up in the federal trade commission to facilitate the adoption of voluntary pacts on fair trade practice. Secretary Hoover even tried to obtain from the attorney general a clarification of the anti-trust laws to the end that trade associations might know more accurately just how far they could go in collecting certain statistical information for the purpose of promoting fair practice.

As is well known by those who were active in this effort, the plan fell far short of success. The common conclusion expressed in many quar-

ters was that self-government by industry on a voluntary basis was impractical. Numerous hard-working, conscientious trade association officials and hundreds of sincere industrial executives declared with emphasis that voluntary codes were ineffectual. "We will not get anywhere," they agreed, "until we adopt unfair trade practice agreements that are backed up with the effective police power of the federal government."

But a minority, in which this publication has been a consistent member, believed that self-government—while slow and discouraging—is preferable to forceful regulation imposed by the federal government. The argument went on through the late twenties and into the depression. Then came the new deal and with it the germ of the idea of NIRA. Under this alphabetical auspice, codes of fair trade practice were adopted under the full police power of the federal government. The wishes of the advocates of mandatory compliance had been fulfilled. Here at last was a chance to test a theory widely held in government and industrial circles.

NIRA, Affording Test of Mandatory System, Failed. Solution Lies in Education

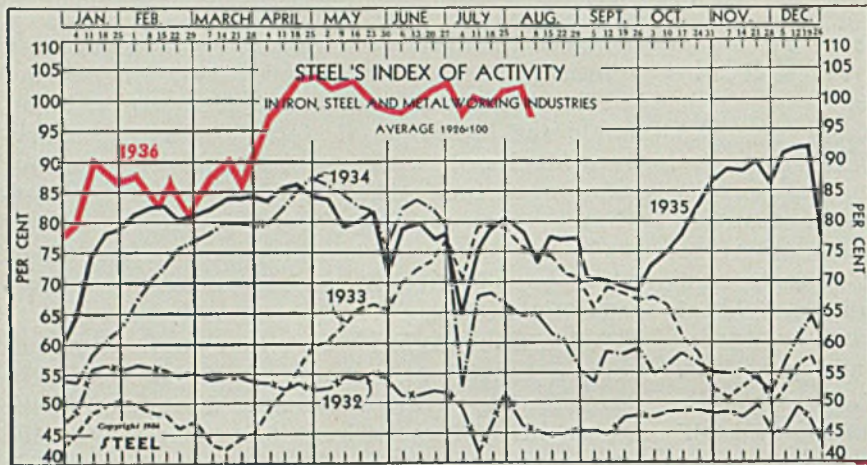
The outcome is too well known to be outlined here. It is sufficient to say that the shortcomings of the system were clearly apparent months before NIRA was outlawed by the Supreme Court. While it is probably true that lack of intelligent administration was an important factor in the failure of NIRA, it was demonstrated conclusively that federal police power alone is not the solution of the unfair trade practice problem.

And now, compulsory tactics having failed, a government agency again is soliciting voluntary action almost in the precise language employed by a former secretary of commerce more than a decade ago. We have traversed 360 degrees of the circle and we are right back where we started!

If this expedition around the points of the compass has proved anything, it is that human nature cannot be changed quickly by voluntary or mandatory rules. It is our belief that the solution lies in evolution through the slow processes of education and example.

Sympathetic government assistance will help. Constructive legislation will assist. But the fundamental impetus for progress will be the self-generated urge for improvement which comes from enlightened leadership within industry itself.

THE BUSINESS TREND



STEEL'S index of activity in the iron, steel and metal-working industries declined 3.6 points to 98.9 in the week ending August 8:

Week ending	1936	1935	1934	1933
May 23	100.4	82.8	81.9	66.1
May 30	98.6	71.9	75.7	65.3
June 6	98.8	79.3	82.3	69.9
June 13	99.4	80.0	83.6	72.1
June 20	101.0	77.3	81.8	73.9
June 27	101.9	78.4	79.4	77.0
July 4	97.5	64.1	52.3	71.4
July 11	100.9	76.5	67.8	79.1
July 18	99.9	79.8	68.1	79.4
July 25	102.1	80.8	66.4	78.8
Aug. 1	102.5†	78.4	64.8	75.9
Aug. 8	98.9*	73.4	64.6	74.7

†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.

Drop in Auto Output Hints Easier Pace for Industry

AFTER many postponements, the expected summer lapse in industrial activity seems to have arrived. The first appreciable break in the four-month period of sustained business at high levels occurred in the first full calendar week of August when automobile production dropped rather sharply from 95,970 to 81,804 units. Simultaneously the rise in the rate of steelworks operations was halted, revenue freight car loadings dropped negligibly and electric power output remained almost stationary.

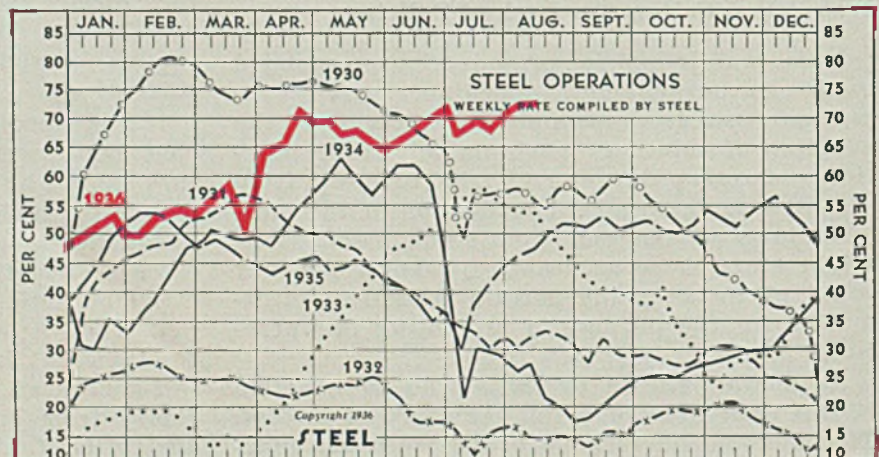
The net result of the movement of these indicators was a recession in STEEL'S index from 102.5 in the week ending Aug. 1 to 98.9 in the

week ending Aug. 8. The loss of 3.6 points was the most pronounced decline during the current spring and summer, with the single exception a drop of 4.4 points in the week ending July 4, which of course was due entirely to the holiday interruption.

Current automobile production, which was the chief factor in the drop in the index, now is at the lowest level since the week ending March 7, 1936. The five months of sustained output at 90,000 or more units weekly represents an unusual record of continuous activity which has not been matched in recent years.

Indicative of the penetration of gratifying activity into the heavy industries is the report on orders for commercial steel castings. New orders in June were at the highest level since March, 1930, while bookings of cast steel railway specialties in June rose to 109.8 per cent of capacity—a percentage exceeded only once previously (in April, 1929).

	1936	1935	1934
Aug. 8	71.5	48	27.5
Aug. 1	71.5	47	26.5
July 25	70.5	45	29.5
July 18	68.5	43	30
July 11	69.5	38	30
July 4	66	31	22
June 27	71.5	37	46
June 20	70.5	35.5	59
June 13	68	39	62
June 6	67	41	62
May 30	66	42.5	60
May 23	66.5	44	57
May 16	68.5	45.5	59
May 9	68.5	44.5	62
May 2	69.5	44	60



Finished Steel Shipments Up Sharply in July

	Gross Tons		
	1936	1935	1934
Jan.	721,414	534,055	331,777
Feb.	676,315	583,137	385,500
March	783,552	668,056	588,209
April	979,907	591,728	643,009
May	984,097	598,915	745,063
June	886,065	578,108	985,337
July	950,851	547,794	331,777
Aug. ....	.....	624,497	378,023
Sept. ....	.....	614,933	370,806
Oct. ....	.....	686,741	343,962
Nov. ....	.....	681,820	366,119
Dec. ....	.....	661,515	418,630

July Freight Car Awards Second Highest This Year

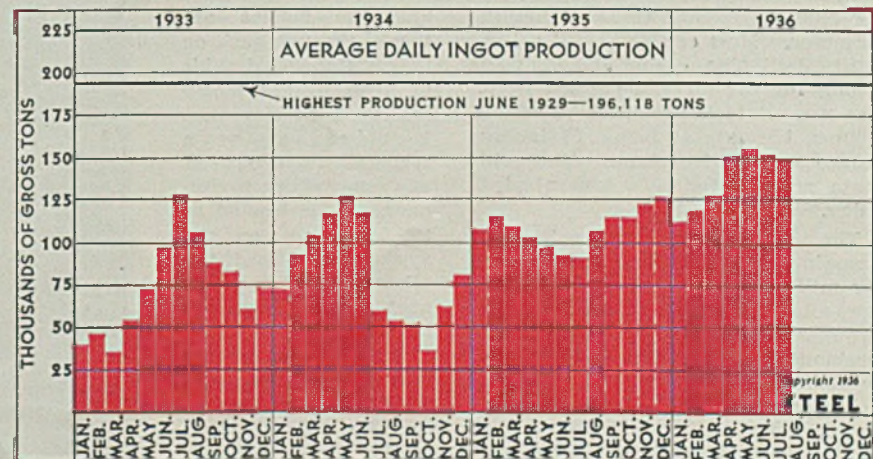
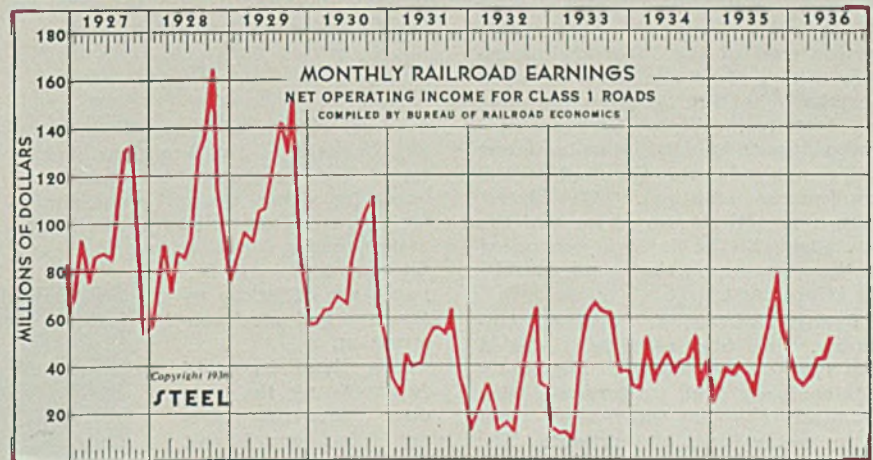
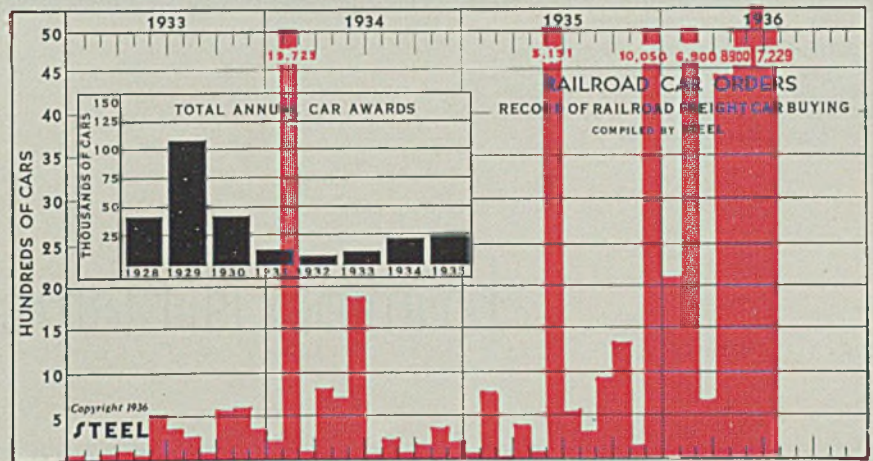
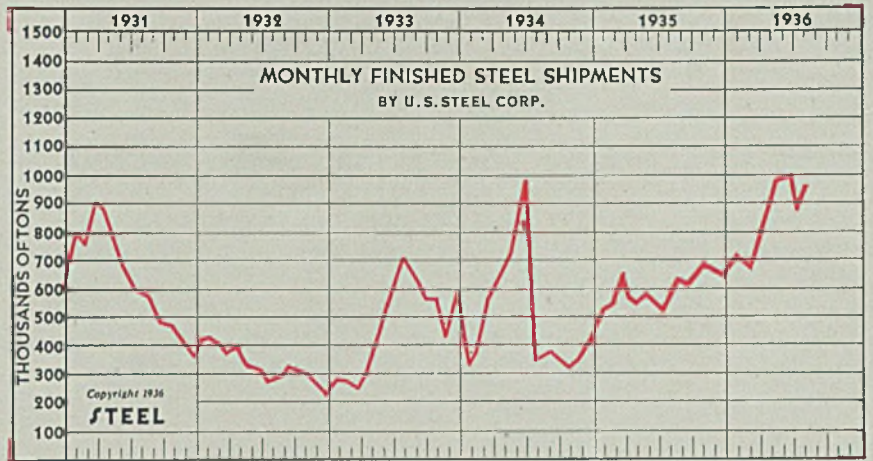
	1936	1935	1934	1933
	Jan.	2,050	24	152	3
Feb.	6,900	806	19,725	0
March	632	0	30	5
April	4,427	350	800	50
May	8,900	2	717	8
June	5,220	5,151	1,835	500
July	7,229	500	19	306
Aug. ....	.....	200	105	202
Sept. ....	.....	875	7	23
Oct. ....	.....	1,250	75	514
Nov. ....	.....	100	254	533
Dec. ....	.....	10,050	110	316

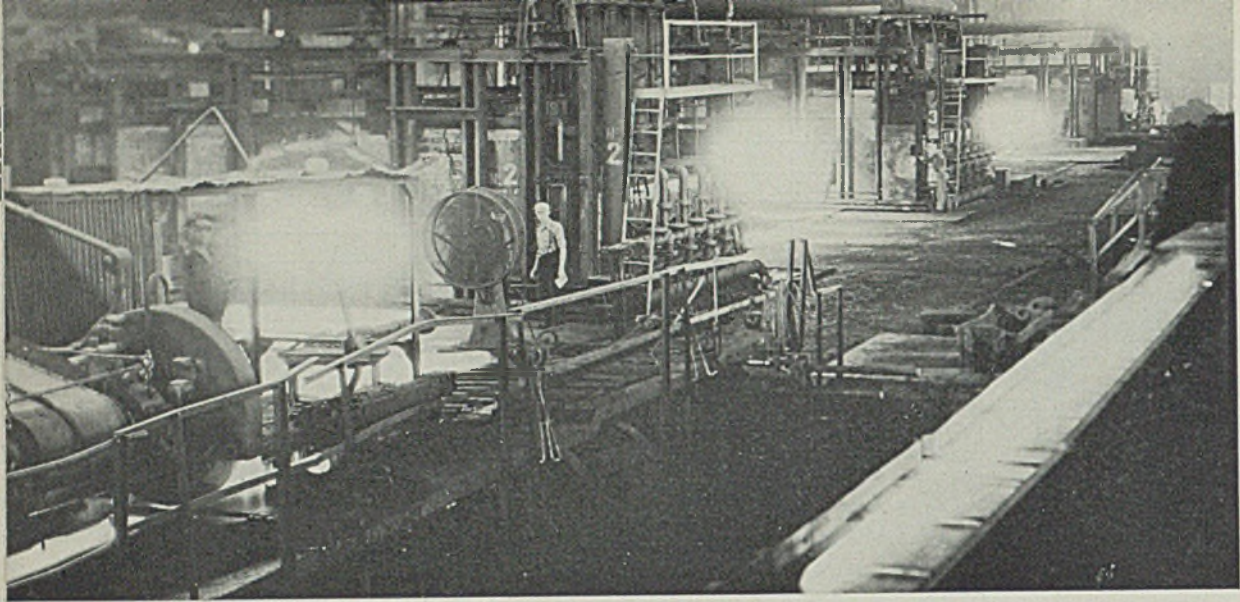
Class I Railroads Earn 2.22 Per Cent in First 6 Months

	1936	1935	1934
	Jan.	\$35,764,748	\$21,348,557	$31,058,275
Feb.	33,594,718	25,719,919	29,420,772
March	35,205,513	37,850,965	52,217,083
April	41,547,644	45,625,786	32,433,939
May	41,842,147	39,505,069	39,699,194
June	50,312,580	34,102,703	42,037,757
July ....	.....	26,851,397	35,441,265
Aug. ....	.....	42,074,108	40,564,071
Sept. ....	.....	57,359,339	41,713,425
Oct. ....	.....	75,425,092	49,336,307
Nov. ....	.....	54,234,305	32,540,502
Dec. ....	.....	46,040,165	38,738,295

Daily Ingot Output Off Slightly in July

	Gross Tons		
	1936	1935	1934
Jan.	112,813	106,302	73,968
Feb.	118,577	115,595	92,164
March	128,576	110,204	103,646
April	151,625	101,562	117,443
May	155,625	97,543	125,907
June	153,263	90,347	117,672
July	150,874	87,224	59,578
Aug. ....	.....	107,997	51,161
Sept. ....	.....	113,000	50,759
Oct. ....	.....	116,398	54,885
Nov. ....	.....	121,170	61,947
Dec. ....	.....	122,936	78,670





GENERAL view of hot mill furnaces, gas fired with luminous flames which envelop the entire hearth. Burners are adjustable to meet atmosphere demands

Luminous Flame Burners Are

BY J. B. NEALEY

INCREASING interest is being shown in luminous gas flames for steel mill furnaces. Particularly is this true of the Pittsburgh territory where they are used on open hearths, reheating furnaces and forging furnaces. While there are several methods by which the luminous flames are produced, the final results are nearly identical. The latest burner is globular in shape and the luminosity of the flame is controlled in three stages so that good flexibility is obtained.

Spang Chalfant & Co. Inc., Ambridge, Pa., has recently installed this type of gas burner. Originally this company fired its furnaces with producer gas but now uses 1050 B.t.u. natural gas throughout. The company manufactures seamless tubing running from 2 to 14 inches in diameter. Most of this is still tubes, rotary drill pipe, casing and oil well tubing for the oil and gas industry. The raw material consists of rolled blooms, the largest being 13 inches square and 10 feet long. The mill has a capacity for 1000 tons of pipe a day.

The plant operates a 32-inch blooming mill, a 28-inch finishing or bar mill and a 24-inch finishing or bar mill for rolling into rounds. These are served with three gas-fired luminous flame furnaces of the pusher type. The bars are then reheated and pierced in two piercing mills. The first of these has three reheating furnaces and the second has two re-

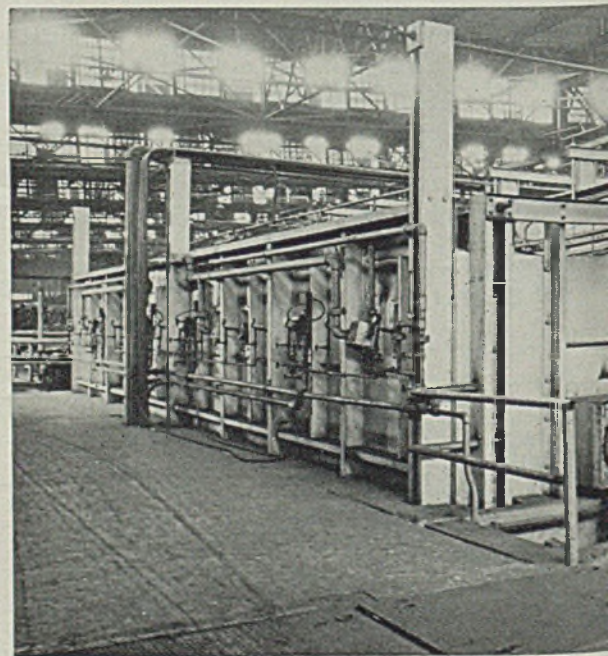
heaters. These also are fired with gas burners of the luminous flame type. There are other reheating furnaces for sizing, upsetting and similar operation, as well as normalizing and annealing furnaces, all gas fired. All furnaces are of brick, refractory and steel construction.

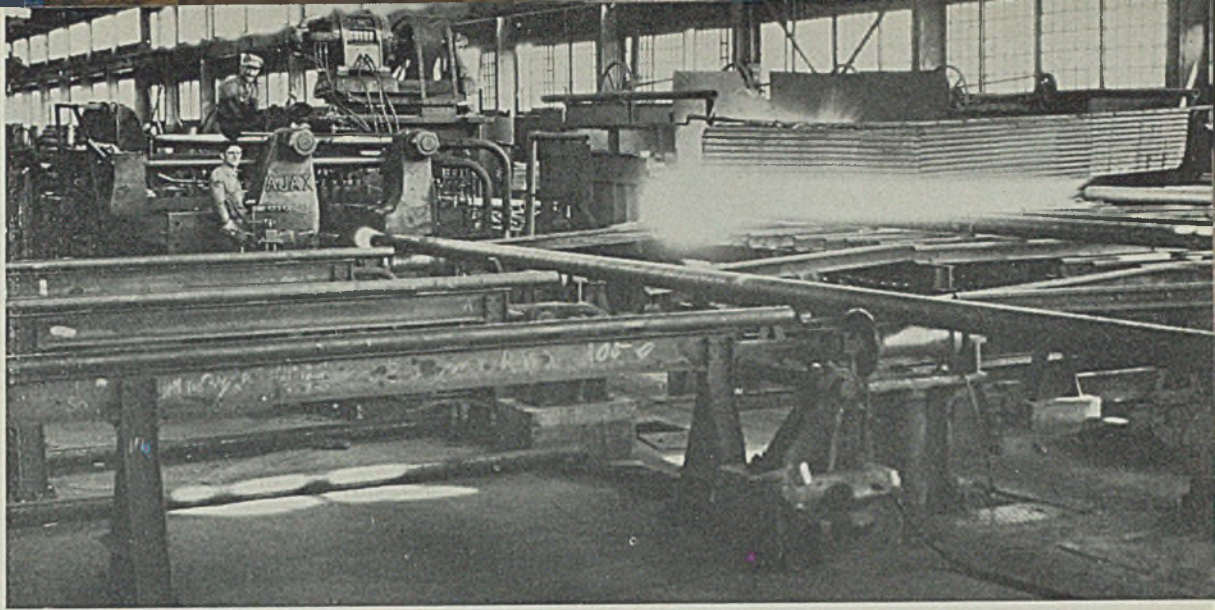
The three bar mill furnaces, of the side door discharge type, are 60 feet long, 12 feet wide and 4 feet high and the blooms are moved through each on four water-cooled skids or pipes by a mechanical pusher. Hot steel is pulled out by a crane with a boom. At one end of each furnace, and so located as to fire down on the work and toward the other end of the furnace, are five large gas burners.

The five piercing mill furnaces are somewhat similar except that the hearths slope so that the rounds roll

through by gravity. Also they are 7 feet shorter and are equipped with six gas burners each. Side door discharge is effected by a mechanical pusher and the hot rounds are thrust directly into the piercing mill conveyor. A pyrometer automatically records the temperature of each round or billet as it comes out.

In the luminous flame burner mentioned the air enters through a





UPSETTER with tables and chain conveyors for handling pipe from gas-fired heating furnace at the right. One luminous flame burner serves the furnace

Used on Tube Mill Furnaces

large opening at the top while the gas enters in the back. There are three adjustments which enable the air and gas to be mixed at three different points or any one of the three points as found necessary to give the proper luminosity to the flame. There is also a gas adjustment which enables the gas to be taken directly through the burner without the admission of any air until it reaches

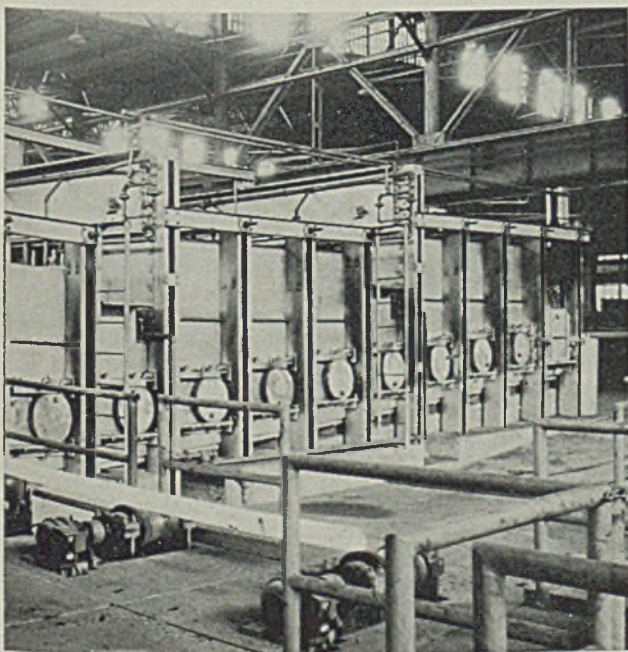
the burner tunnel. This last arrangement was found necessary to satisfy certain furnace conditions. With more than one burner on the furnace, the different burners may be given various adjustments so that any furnace condition may be satisfied.

For example, on the piercing mill furnace, along one side there is a series of doors throughout the length

of the furnace. These doors are open practically all the time because the work is rolled through the furnace by bars thrust through these side doors. With these doors open, there is a large amount of air drawn into the furnace, and the burner nearest this side of the furnace must necessarily have a different flame characteristic to overcome this excess air than the one in the center which does not have to meet this condition.

The air-gas ratio to each of these burners is automatically controlled through a ratio governor. In the air line to the burner is placed an orifice and the pressure against this orifice is transmitted to the top of the diaphragm in the ratio governor. This pressure exerts a force tending to open the gas valve. This allows the gas to flow against an orifice in the gas line to the burner until such time as this orifice has the same pressure as the air has on the air orifice. Then the pressure backs up beneath the diaphragm, counterbalancing the effect of the air pressure, causing the gas valve to close. The capacity of the burner, is, therefore, regulated by an air valve only which is a blast gate between the fan and the air orifice.

Three burners fire into refractory tunnels 18 inches in diameter and the distance from burner to the nearest bloom or bar is about 5 feet. The burner flame is 60 feet in length or long enough to reach the entire



NORMALIZING furnace with 30 gas burners and 12 "smoke" burners for atmosphere control. Hot tube is being discharged in the foreground

length of the furnace. When all burners are lighted the entire hearth area and work are completely enveloped in flame, which produces a neutral atmosphere. The maximum burner capacity of the bar mill furnaces with a charge of 25 tons of blooms is 40,000 cubic feet of gas per hour each, although a lesser amount will do the work. These furnaces feed direct into the rolling mills and the motors are equipped with ammeters which show the fluctuations in mill power necessary. If this exceeds a certain amount the bloom is not hot enough and is returned to the furnace.

Pipe Fed by Gravity

The long sections of pierced pipe, some nearly 40 feet in length, are reheated for the sizing or reducing mills. These furnaces are 40 feet long and 8 feet wide and the hearth slopes from rear to front. The pipe is moved into the furnace at the rear by a pusher at one end and then rolls forward. Heat is supplied by five gas burners located along the rear or high side and firing against the arch.

Slot-type forge furnaces, three in number, are used for end heating of drill pipe for upsetting. These furnaces are 3½ feet wide, 4 feet high and 10 feet long and each is fired with a single gas burner in one end. There is a 10-foot table consisting of a number of rails in front of each of these furnaces with two closed

loop chain conveyors for moving the pipe or tubes along. These tubes are 2¼ inches outside diameter with 0.217-inch walls and 13 inches of one end is heated. One furnace will heat 1600 tubes in 8 hours.

This burner consists in part of a casting with a series of nozzles for definitely controlling the type and rate of mixing of the air with the gas. A stream of gas and air of uniform velocity is delivered to port block in such a mixture that initial combustion starts at the outside, and cracking of the carbon from the solid gas cone takes place. Only a small part of the gas burns quickly and the delayed mixing results in long flame combustion. However, sufficient gas is burned in the initial combustion to create a fairly hot port block when cracking of the hydrocarbons is accomplished. Pressure rarely exceeds 2 inches of water.

Dark, Smoky Flame Produced

A characteristic of the luminous flame burner is that it produces a heavy cloudy furnace atmosphere which comes out of the door of the furnace as dark red and quite smoky. In contrast a sharp clear flame is injurious for one of two reasons—too high a temperature, or too much air. The luminous flame aims to correct both these faults, for it provides equal heat transfer at much lower temperatures.

Chrome-molybdenum steel tubes

are normalized in one of two furnaces and both are gas fired. The larger of these is 50 x 58 feet with a sloping hearth and a stepdown or saw-tooth roof. There are three rows of gas burners, one in the discharge end wall and one each in the two roof notches. In each row there are 14 gas burners or 42 in all and 12 of these are "smoke" burners for producing the correct atmosphere. The gas burners are of the high pressure velocity type using gas at 20 pounds pressure.

Predetermined heats are maintained by 10 automatic temperature controls, four for one row of gas burners and three for each of the other two rows. These operate motor valves in the gas supply lines to the manifolds of the different groups of burners.

The pipes or tubes are handled in and out of the furnace by mechanical pushers and sidedoor charging and discharge. They move through the furnace by gravity rolling down the the sloping hearth. Normalizing here is at 1600 degrees Fahr. and this furnace has a capacity for 100,000 pounds of pipe per hour.

Open-Hearth Furnace Data Cover American Practice

The Open-Hearth Furnace, Vol. I, by William C. Buell Jr.; cloth, 276 pages, 6 x 9 inches; published by Penton Publishing Co., Cleveland; supplied by STEEL, Cleveland, for \$4, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

Authentic engineering data relative to the design, construction and operation of open-hearth furnaces, machinery and accessories used in connection with them are described in this volume.

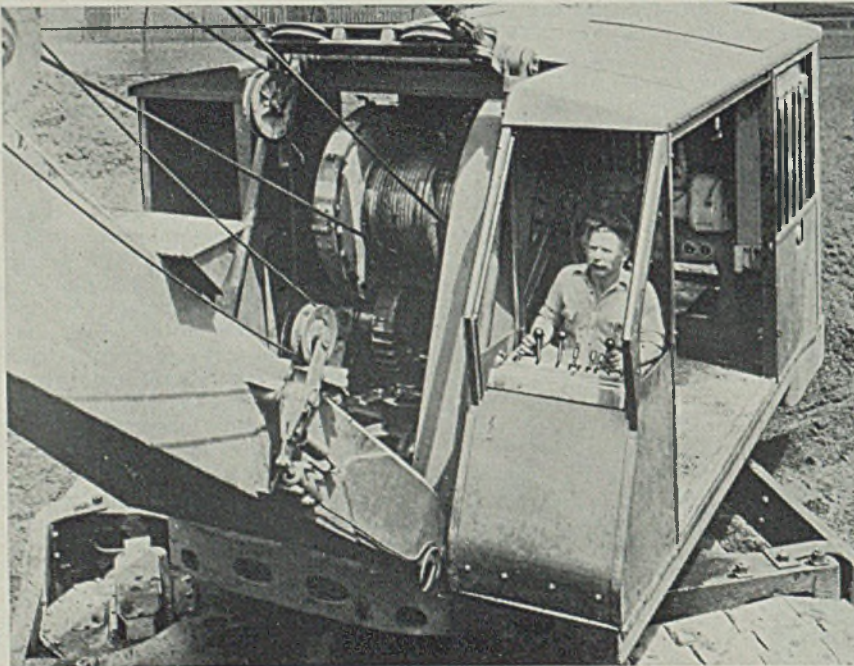
It covers in general the history of the furnace and statistics of steel production, economic features of the problem and discussion of available refractories. Specific treatment is given transmission of heat through refractory bodies, design of supporting steel work and development of certain furnace components, particularly the hearth or bottoms, backwalls, frontwalls and roofs.

A simple graphic method of solving heat flow problems is described. This system of solution is original.

Opinions of the operating man are given high value and usual objections from that source have been reduced by placing the fundamentals in such form as to carry understanding to the lay as well as to the technical reader of the volume.

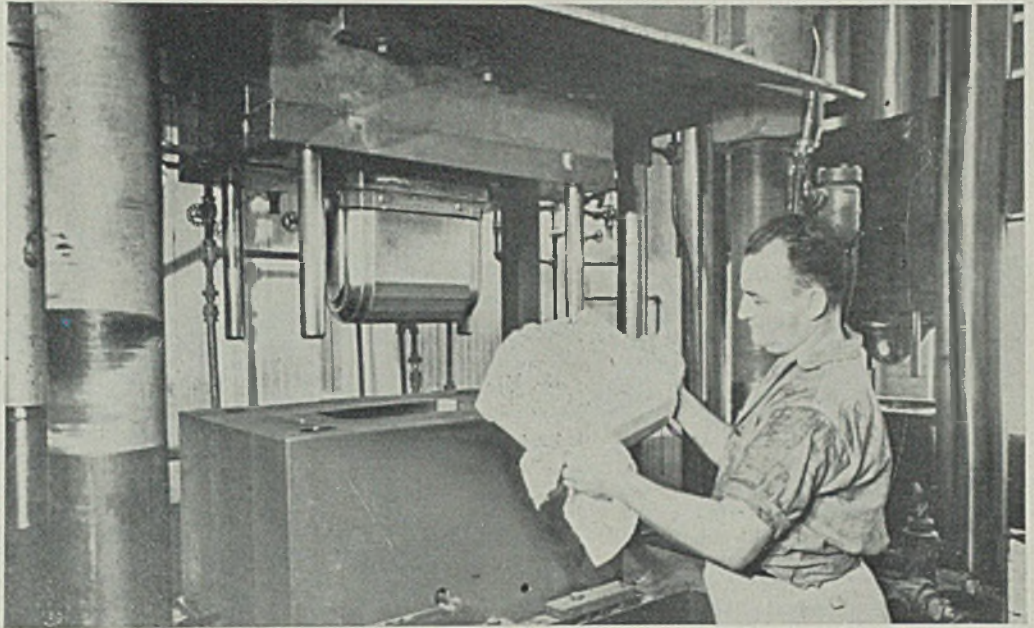
The work affords a cross section of the best American practice and presents data on the most satisfactory experience with each important component in open-hearth design.

Finger-Tip Controls Move Monsters



EASING the operator's job on giant power shovels, the Link-Belt Co., Chicago, has developed a finger-tip power control to replace the manual throw levers with which such machines are now equipped. Harnessing a small fraction of the power of the machine, the new controls speed up operations on the shovels and result in more efficient operation, according to the company. Operators remain seated to operate both hand and foot controls

HOUSING of white molded plastic as it is removed from the 680-ton press in which it is formed. Steel mold assembly weighs 4 tons



Molded Plastic Housing Combined with Metals in Redesigned Meat Chopper

TO INCREASE the sale of its electric meat choppers, Enterprise Mfg. Co., Philadelphia, has made a number of important changes in design and materials of construction.

Principal changes are the substitution of a white molded plastic hood for the former red painted gray iron casting and the use of zinc base die castings instead of gray iron castings for the base and front cover plate. The meat pusher also is of molded plastic. Cylinder, instead of the former plain gray iron casting, is cast of gray iron containing 20 per cent nickel and subsequently chromium plated; this change has been made to provide complete corrosion resistance.

Consideration was given to the possibility of making the meat pan of stainless steel sheet but difficulties in obtaining the required form prevented. The meat pan is of sheet steel, copper plated, then chromium plated and given a scratch brush finish. Mo-

tor is mounted in a steel frame placed on top of the gray iron gearcase. Drive is through helical gears machined from steel containing 3½ per cent nickel and 1 per cent chromium. Feed screws are of gray iron. Knives and cutter and plates are of different grades of steel, formed in coin presses.

As explained by T. Henry Asbury, secretary and treasurer of the Enterprise company, this change in design was made in order to develop a meat chopper which would match the eye appeal of many of the modern units now being utilized in retail stores. The designer, Harold Van Doren, Toledo, O., chose Plaskon, produced by the Plaskon Co., Toledo, as the material for the case, basing his selection principally on the clean, white appearance of the material and the ease with which it may be kept clean. He also took into account the fact that molded plastic cases, after once the mold has been made, may be

produced at reasonable cost, particularly because the molded plastic case needs no further finish.

Decision in favor of a molded plastic case also was based on a desire to harmonize the new meat chopper with the new Plaskon scale designed by Mr. Van Doren for Toledo Scale Co. last year, and described in STEEL of Aug. 5 and Nov. 18, 1935.

Such harmony in design and appearance was regarded as particularly desirable from a sales standpoint in view of the fact that the new meat choppers are to be marketed throughout the United States by Toledo Scale.

Weight Substantially Reduced

Another factor in the decision to redesign the chopper was the record that has been made with the new Plaskon scale. Sales of these scales, according to H. D. Bennett, president of Toledo Scale, have increased approximately 33 per cent in the past year. How much this increase resulted from the general uplift in business and how much from the appeal of the new design, Mr. Bennett could not say. He stated, however, that the increase for other lines made by the company and not so redesigned averaged only about 8 per cent.

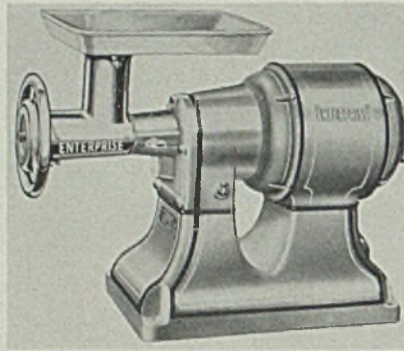
Use of the molded plastic hood and die cast base and front cover plate has permitted a reduction in the weight of the chopper from 115 to 95 pounds. A particular advantage resulting from this reduction in weight is that the machine may be demonstrated more conveniently.

Housings for the new choppers are produced at the Meriden, Conn., plant of General Electric Co., using a 680-ton press. The mold is 28 x 36 x 29 inches and weighs about 8000

pounds. The active parts of the mold, which make up the cavity and the plunger, are of steel of approximately S.A.E. 3312 analysis, containing 3½ per cent nickel and 1 per cent chromium; it is of the same type as used for transmission and rear axle gears in heavy duty trucks and buses, is extremely tough and strong and readily can be case hardened.

Each part of the mold is machined from a solid block. After rough machining, the steel is heated to about 1300 degrees Fahr. and allowed to cool slowly to remove any internal strains which might tend to warp the finished piece. Machining of the parts, including the steam passages for heating the mold, then is completed. Before the mold can be used it must be case hardened to withstand the erosive action of the molding compound as it flows under the pressure. The mold parts are packed in carburizing boxes and placed in a furnace and brought to about 1650 degrees Fahr. and held there for about eight hours. The boxes then are removed and allowed to cool slowly to about 700 degrees Fahr., then being taken out and case hardened by quenching in oil. The steel then is tempered for several hours at 375 degrees Fahr.

Mold parts then are ground to correct any slight warpage occurring during heat treatment, and the surfaces of the cavity and the plunger are polished. The parts making up the cavity then are assembled and two steel frames with walls 6¼



Old style chopper, largely of gray iron castings, weighing 115 pounds. In the new design weight was reduced to 95 pounds

inches thick and 11 inches high are shrunk around them, holding the parts together so tightly that the high molding pressure cannot deflect them and let the compound flow into the joints.

The meat pusher is of black and white Catalin plastic, produced by the American Catalin Corp., New York.

Tramrail Crane Parts Now Made of Molded Plastic

Insulation of overhead current conductor bars from monorail hoist

tracks is now being accomplished by the Cleveland Tramrail division, Cleveland Crane & Engineering Co., Cleveland, through the use of molded phenolic plastic, according to *Durez Plastics News*, issued by General Plastics Inc., North Tonawanda, N. Y. Reduction in breakage under heavy operating conditions has been the result, it is claimed. Current collectors on the tramrails are also made of plastic molded around a metal tube.

Extend Field of Phosphor-Copper Brazing Alloy

Improvements and refinements in manufacturing phosphor-copper brazing alloy have been announced by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Increasing its field of application, the new processes include annealing and pickling to insure freedom from any carbonaceous deposit on the surface which might interfere with the production of leakproof joints.

Developed to replace more expensive silver solders, the alloy has a relatively low melting point, high tensile strength and good penetration. Other desirable properties include uniformity of alloy, self-fluxing properties for most applications, high ductility, high fatigue resistance, high corrosion resistance, high electrical conductivity, high fluidity at brazing temperature. Also, brazed joints may be electroplated or tinned.

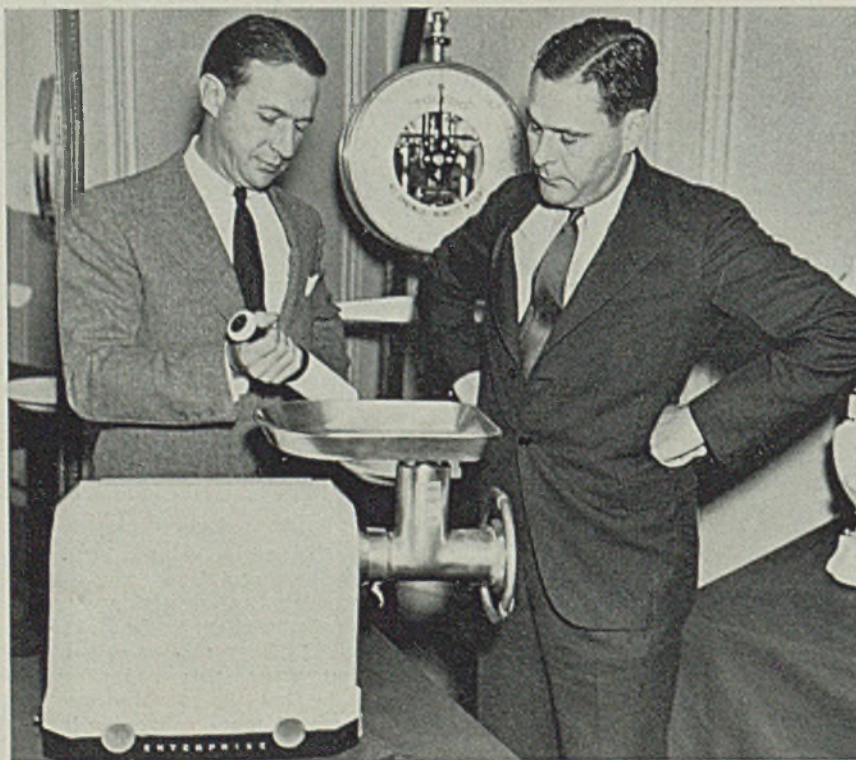
The material is available in many sizes and shapes, including rod, ribbon, washers, strip and others.

Preparing Surfaces for Sprayed Metal Coatings

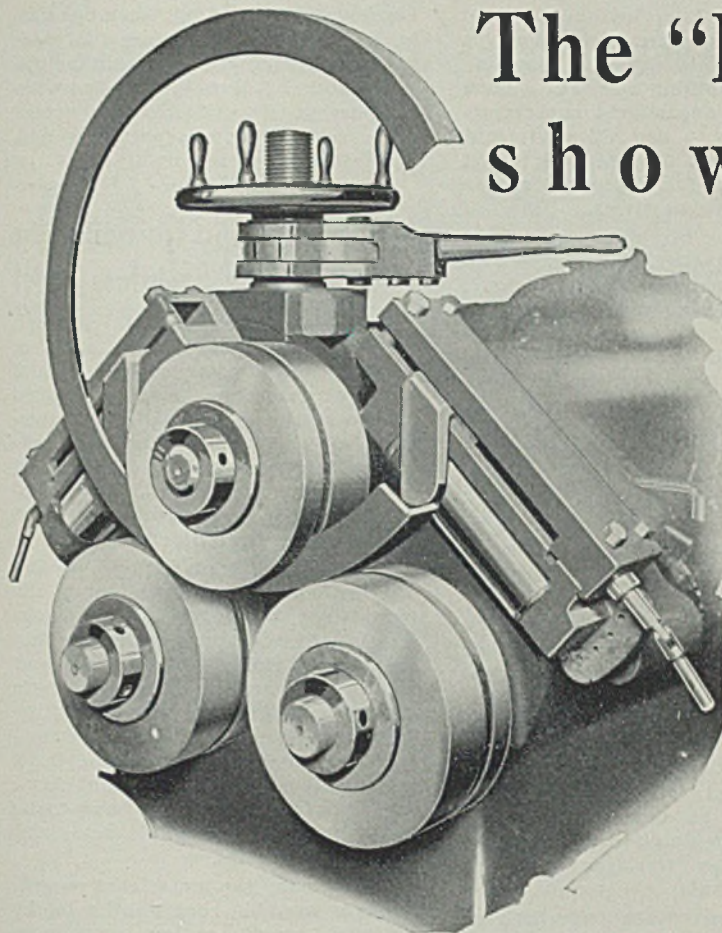
Preparation of surfaces has much to do with the efficiency of the bond of metals sprayed on with the oxy-acetylene metallizing gun. Two methods of preparation are recommended, namely, sand or steel grit blasting and rough threading. Blasting is the only practical method of preparing flat surfaces, such as tanks or structural steel, and for this a sharp, angular grit or sand must be used. The sharp grit or sand will tear the surface and make a jagged surface to hold the metal, while a round sand will peen and offer no key.

Blasting can be used to prepare shafts but there is the danger of the mechanic putting his hand on the blasted surface and getting dirt, oil or other foreign substances on it which would weaken the bond. The practical procedure is to turn a rough thread. An actual illustration will serve to indicate proper procedure.

One manufacturer is putting a stainless steel insert 6 inches long in 1½-inch diameter pump rods.



Harold Van Doren (left), industrial designer, and T. Henry Asbury, secretary and treasurer of Enterprise Mfg. Co., inspect the new meat chopper at its recent unveiling in New York



The "Business-End" shows how the

"Buffalo" Bending Roll Saves Time and Money

Only Buffalo Bending Rolls have the patented "Leg-In" attachment, which does away with the necessity of the reverse bend ordinarily required when bending angles "leg-in". This one feature, alone, saves hundreds of dollars for users. Another feature is the overhanging roll design, permitting removal of finished circles without dropping one housing. Lower rolls are placed on close centers, thus there is a minimum straight end on finished circles.

These and other features make Buffalo Bending Rolls good investments in shops from coast to coast. Stock shipment on all sizes.

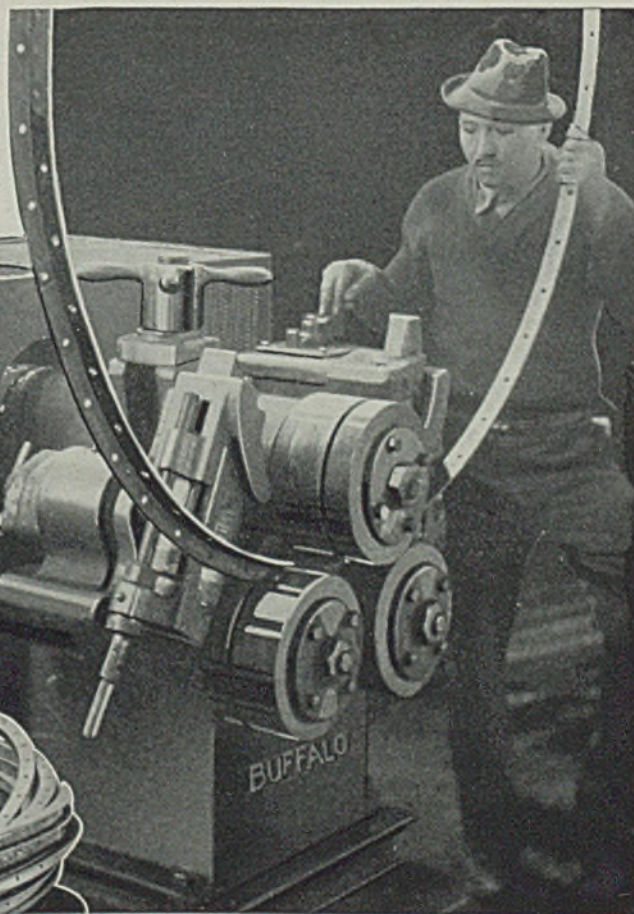
Low F.H.A. Financing. Your purchase may be financed on F.H.A. Terms through the Equipment Acceptance Corporation. Low rate, long term, monthly payments. Your working capital left untouched.

BUFFALO FORGE COMPANY

Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co., Ltd.,
Kitchener, Ont.

Write for Bulletin
351 which gives
complete operating
data.



The rods are placed in a lathe and one cut, 1/32-inch on the side, is taken on the full 6 inches. Then a pointed tool is used to dovetail each side at the end of the cut. The dovetail must go into the surface about 0.010-inch, the reason being that this extra 0.010-inch of metal on each end will prevent the metal from cracking.

A V-tool is then used to put on a rough thread, running the lathe in backgear, 16 to 18 threads to the inch. This threading tears the surface and produces many barbs which may be taken off by running a flat-nosed tool just across the top of the threads. This produces an ideal anchor for the sprayed coating and when this procedure is followed there need be no concern over a proper bond.

Encourages Buying Of New Equipment

EFFORTS to obtain appropriations for new production equipment frequently meet with stiff resistance from the management and the plant is forced to get along with its existing facilities. How this resistance was overcome in one plant constitutes an interesting story, as related in a recent issue of the *Power Press Safety News Letter* published by the National Safety Council.

Most of the equipment in this particular plant was observed to be

strictly up-to-date, yet the head of the company was known to be supercritical when it came to spending money for anything new. For a good many years, department supervisors were obliged to use old equipment while the front office failed to act upon requests for appropriations to buy much-needed items.

Then one of the supervisors changed his tactics. Instead of saying that he needed a new machine, tool or fixture, he started a running record of experience on the equipment he had to work with. He showed the time required to turn out each given piece of work in terms of maximum capabilities of his equipment. He noted causes for delay, and costs of breakdown and paralleled this record with facts obtained from equipment manufacturers on similar equipment, data on performance, strengths, speeds and relative costs.

This supervisor was careful to omit all indefinite claims. He neither made comparisons of his own, nor requested anything. Knowing that tool or fixture, he started a running history of performance in his department with the equipment he had available and a comparison with what could be done with proper equipment, he simply saw that these reports reached the front office at regular intervals.

At first the reports made little or no impression but later the management questioned the supervisor con-

cerning various points. Then one day he was informed that a certain new machine was on its way and before long another followed. Gratified with his success, he explained his procedure to his fellow supervisors and now all of them are using it.

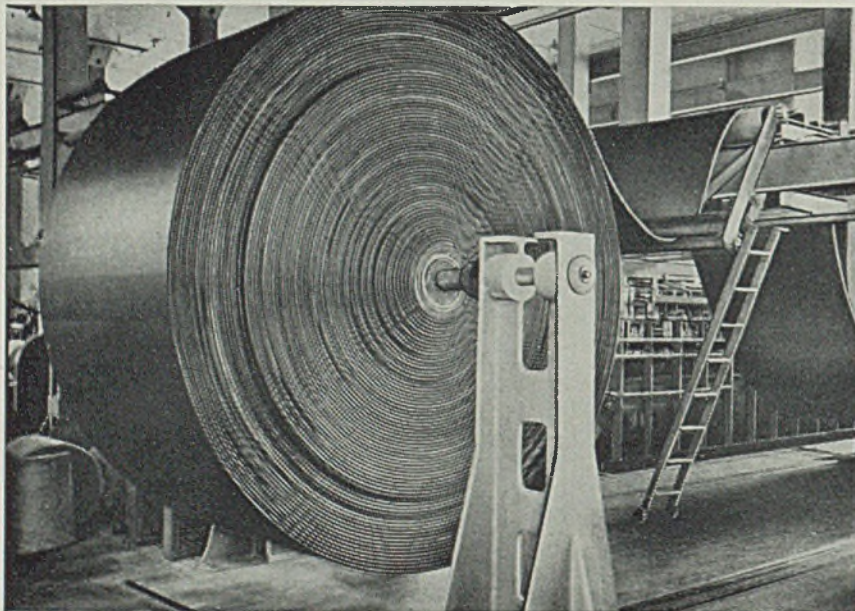
Manganese and Chromium in New German Stainless Steel

New type of German stainless steel, known as "Roneusil", and containing 12 per cent manganese and 8 to 9 per cent chromium, has been placed on the market by a well-known German iron and steel producer, according to information from the department of commerce, Washington, supplied by the consulate general at Frankfort-on-Main, Germany.

The product is claimed to possess all the essential properties of the present chrome-nickel stainless steels, and is said to be lower in price. Reports state the steel has a warmer shade of color than the 18-8 steels because of a stronger reflection of the long-wave portion of the spectrum. It is particularly recommended by the producer for tableware and chemical apparatus and is claimed to be resistant to most organic acids and solutions of salts.

In Germany the material is regarded as a valuable contribution to the national metal saving movement, since it will replace tin and copper in various uses without diminishing the meager supply of nickel.

Quarter-Mile Belt To Carry Copper Ore



BEIEVED to be the largest roll of conveyor belt ever produced, this coil stood 10 feet 10 inches high and weighed over 15 tons, before crating. The belt is of 10-ply fabric, 60 inches wide and 1355 feet long. It was made in the Passaic, N. J., plant of the United States Rubber Co., and was shipped for installation in a large copper mining unit in Arizona as a part of equipment for handling 20,000 tons of ore daily

Foundry Practice Manual Includes New Developments

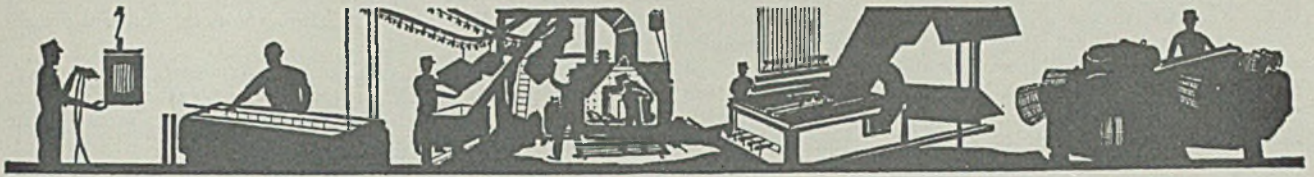
Foundry Work, by R. E. Wendt; cloth, 240 pages, 4 3/4 x 7 1/2 inches; published by McGraw-Hill Book Co., New York; supplied by STEEL, Cleveland, for \$2, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

Appearing in its third edition this work retains its purpose to furnish a suitable text for schools and colleges and also for the shop apprentice.

The present edition has been enlarged to include recent developments in castings manufacture, mass-production foundries, standard pattern colors, alloy gray iron and alloy steel castings and correct casting design.

The first of four parts deals with various groups of casting metals, fundamentals of molding and dry-sand coremaking; the second, melting furnaces, melting iron in the cupola, pig iron, coke and fluxes, making up mixtures and testing gray iron; the third, exercises in bench and floor molding, problems of foundry managers, engineers and metallurgists; the fourth, melting of nonferrous metals and mixtures for nonferrous metal castings.

Surface Treatment and Finishing



Notes On Fluxes for Hot Galvanizing

BY A. T. BALDWIN

Chemical Engineer, Hanson-Van Winkle-Munning Co.,
Matawan N. J.

Part I

HISTORICAL conception of the purposes of a flux in hot galvanizing is largely as a cleansing agent. Most descriptions of hot galvanizing processes state that a flux is to be used, and beyond recommending that sal ammoniac (ammonium chloride) be the flux and that it be placed on the molten zinc at the entrance point for the work, let it go at that. The common method to follow in hot galvanizing an object is to pickle it first in a suitable acid, rinse in water and place in cold dilute hydrochloric acid. Then the object is ready to be passed through the fusion of sal ammoniac flux into the molten zinc and on to its completion. This method, subject to minor detailed variations, is the accepted process to assure satisfactory galvanizing. It might be called almost the standard method, so broad is its use and approval.

This hydrochloric acid-sal ammoniac method has been used to develop the most familiar methods of handling various types of products and consequently has been the basis for establishing galvanizing cost and quality. New ideas concerning methods and materials are, by the nature of things, considered first in comparison with the existing knowledge built up from the long use of the hydrochloric acid-sal ammoniac method which has been attacked for improvement is the sal ammoniac flux itself. Many writers have urged the use of

zinc chloride or some form of zinc ammonium chloride. It has become a fairly broad practice to use these materials in place of sal ammoniac. The most advanced revision of the process uses these materials to replace either or both the hydrochloric acid and sal ammoniac. Unfortunately for the production of high quality hot galvanizing the same idea of a flux being largely a cleansing agent has limited the beneficial results which are inherent in this substitution when made properly.

Process Appeals to Operators

The hydrochloric acid-sal ammoniac method attracts because it is simple and direct. In the preparatory stages the work passes from acid to acid to flux in such a way that a failure to clean the work properly in one operation permits correction of this in one of the later operations. Since hydrochloric acid is generally used just prior to passing the work through the sal ammoniac fusion, hydrochloric acid either as a liquid or a gas does the final cleaning. To most operators this process appeals because it always seems to give satisfactory results without requiring close supervision. Study shows, however, that the results are merely seemingly satisfactory. In fact many of the weaknesses considered inherent in hot galvanizing coatings are more truly inherent in the method used and are largely subject to control, if not complete elimination, by a careful study of a few points.

It does not appear inaccurate to

consider the hydrochloric acid part of this treatment as part of the fluxing operation rather than part of the actual pickling stage. From this viewpoint the hydrochloric acid might be called a flux bath or wash and thus establish a better basis for considering the use of zinc chloride or zinc ammonium chloride. Zinc chloride has generally been used as a flux bath replacing the hydrochloric acid and to a smaller extent the same has been done with zinc ammonium chloride. Considering the hydrochloric acid step a flux bath rather than an essential part of the pickling leads to a different conception of the importance of the preparatory stages to actual dipping in the zinc and finally to an understanding of the advantages obtainable from the elimination of the hydrochloric acid step from the galvanizing process. The economic advantages are obvious.

Proper Alloying Necessary

Since the object of pickling is to cleanse the work thoroughly of oxides and other inert materials which prevent proper alloying of the zinc with the iron, it is proper and economical to do this completely at one time as a single step. This is accomplished by the careful selection of the acid used, its strength, temperature and time. General practice, as developed by experience, is fairly standardized for various types of work and sulphuric acid is used most generally. Recent developments in pickling include the use of electrical methods which give a bright, clean, active surface. We are now concerned more with what happens after this pickling is completed than with the details of the pickling operation itself. The accumulation of ferrous sulphate in the pickle bath, however, must be noted and considered in the further steps.

Rinsing in water is customary after pickling and this step in preparation is of the utmost importance. All too frequently the water in the rinse tank is stationary or is renewed at infrequent or irregular intervals. Some galvanizers have provided for a constant flow of water through the rinse tank but this flow is so slight and improperly placed as to be of relative-

ly small value. The consequence is that the pickled work is not rinsed entirely free of the sulphuric acid and ferrous sulphate dragged over from the pickle tank. In most cases the pickled work is rinsed in what is, in fact, a more dilute pickle and it passes on to the next step carrying appreciable amounts of free acid and ferrous sulphate with it. A sufficient flow of cold water should be used to assure complete removal of all acid and ferrous sulphate and thus deliver the work cold and clean but wet to the next step, which is fluxing.

Fluxing Methods

The hydrochloric acid-sal ammoniac method of fluxing, being more or less standard, will be considered first. The hydrochloric acid bath varies in strength from 0.5 to 5 per cent and is used cold. Its life is determined largely by its iron content, generally being discarded when it contains from 2 to 3 per cent. Ordinarily, fresh hydrochloric acid is added to the existing bath until these iron content figures are reached. Fresh acid is added when the bath does not seem to deliver bright clean work. Whenever the operation will permit it with safety to the workmen, the work, cold and wet with the hydrochloric acid flux wash, is passed immediately to the sal ammoniac flux fusion on the zinc or directly into the molten zinc in some cases. This procedure is always accompanied with explosions when the cold, wet work comes in contact with the hot

zinc and has led to heating and drying the work after it leaves the hydrochloric acid flux bath.

By the hydrochloric acid-sal ammoniac method the work is covered with a water film containing hydrochloric acid and ferrous chloride. Drying removes the moisture and some of the hydrochloric acid as a gas and leaves iron chloride as the film. In either method of handling, the actual hydrochloric acid present in the film on the work surface continues its attack on the iron to form more iron chloride. *Observations have shown the ferrous chloride actually on a given area of work increases at least ten times over that present as dragout from the hydrochloric acid tank on only a few minutes exposure before going into the zinc kettle.*

Sal Ammoniac Criticized

Sal ammoniac used as a flux on the molten zinc is an effective cleansing agent and except for the annoyance and expense associated with its great volatility would be considered ideal for the purpose. Annoying fumes and short flux life are objectionable. Nothing has been offered which ends these criticisms and has the same rapid and effective cleansing quality as sal ammoniac. A different conception of the proper method and objective of these preparatory steps, however, soon rules sal ammoniac out of consideration as a flux. The objective of tighter, more ductile zinc coats apparently can be reached most surely and economically by the com-

plete replacement of the hydrochloric acid-sal ammoniac step and this end is realized by the use of the proper zinc ammonium chloride, both as a flux wash to replace hydrochloric acid and as a solid material for fusion on the zinc, replacing the sal ammoniac.

It has been demonstrated repeatedly on all types of galvanizing operations that the tightest, most ductile zinc coats are obtained when the alloying of the zinc to the iron takes place under circumstances where no oxides, sulphates or chlorides of iron must be disposed of in or on the zinc kettle. Obviously galvanizing under such conditions means a lowered dross production and yields savings which more than offset any apparent expenses involved in securing the conditions referred to above.

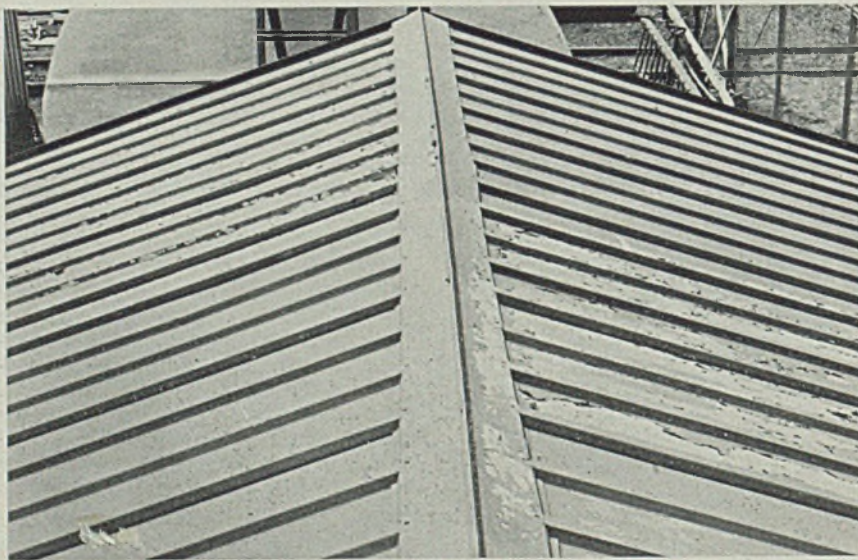
Sal ammoniac thrown on molten zinc volatilizes and momentarily exists as ammonia gas and hydrochloric acid gas, the latter attacking the zinc to form zinc chloride. There are other more complex compounds such as zinc ammonium chlorides and ammoniated zinc chlorides formed which, with the zinc chloride, provide the permanent fusion. This fused mixture plus the frequent additions of fresh sal ammoniac constitutes the familiar kettle flux. It is largely a mixture of fused chlorides and with molten metallic zinc as one pole and the entering work of iron a second pole provides an electrolytic cell in which the flux fusion is the electrolyte.

Iron Forms Dross

It is well known that iron dissolved in cold aqueous electrolytes such as zinc chloride will be precipitated as iron metal if a piece of metallic zinc is introduced into the electrolyte. Except for the presence of heat and the absence of much water the above conditions are parallel and the result seems obvious. That is, any iron carried into the sal ammoniac flux fusion on the work as iron chloride from the hydrochloric acid, is decomposed and the metallic iron is released to alloy with the molten zinc and form dross. If some oxide of iron is present on the entering work then it is customary to hold the work in the flux fusion until the oxide is cleaned off. In this case the hydrochloric acid gas from the volatilizing sal ammoniac converts this oxide to chloride and the above electrolytic action then takes place. Chemical analyses of spent sal ammoniac fluxes over a period of years show but relatively small amounts (of the order of 0.01 per cent) of iron in them so that the iron chloride does not remain in the flux unaltered, and stopping the supply of iron chloride coming to the flux always leads to material dross reductions.

If the use of hydrochloric acid

Chemical Surface Treatment Demonstrated



EFFECTIVENESS of chemical surface treatment prior to painting was demonstrated on the galvanized roof of this building at the Chester-Bridgeport Ferry, Chester, Pa., by the American Chemical Paint Co., Ambler, Pa. Alternate sections of the roof were phosphate treated with this company's "Lithorizing" process and left untreated after which the entire surface was coated with a standard roof paint. After 10 months exposure the paint had peeled from the untreated sections as shown while the treated sections were still in good condition

leads to these conditions, why not replace it with some suitable substitute and continue the use of sal ammoniac? That is what was done when zinc chloride solutions were first attempted and some dross reductions were secured. Sal ammoniac dissolved in water is unsuccessful because, if anything, it speeds up the rusting of the iron and operates to deliver dirtier work to the zinc kettle. Zinc ammonium chloride dissolved in water is most effective and, since ammonium chloride is one of its constituents, why not use it to replace the more volatile, less pleasant sal ammoniac on the zinc kettle also? This has become the most modern practice with gratifying results.

The successful use of zinc ammonium chloride both as a flux wash and as a kettle flux requires a rather complete change in point of view of the duties of a flux. No longer is it most important that it be a cleansing agent. Now the duties of a flux become more those of a deterrent to oxidation and as a solvent for any zinc oxide appearing in or on the molten zinc. Now the preparatory steps in hot galvanizing become: First, thorough pickling to secure an adequately clean iron or steel object; second, thorough rinsing in cold running water to prevent any soluble iron salt or free acid from accompanying the rinsed work; and third, immersion in a flux wash which will coat the work with a film capable of retarding oxidation of the work until it is immersed in the zinc kettle. Naturally such a film should not have any direct chemical action on the iron or steel itself. This process is now being pursued on a large scale without increase in fluxing costs, with large savings in dross production and with simple handling, to the end that a higher quality of finished zinc coating is obtained.

Influence of Dissolved Iron

The effect of relatively slight amounts of iron in solution in a flux wash on dross production is not well appreciated by some. Assuming the iron is in solution as ferrous chloride and the dilution is such that there is only 1 per cent of ferrous chloride present in the hydrochloric acid tank, the approximately 27 pounds of such a hydrochloric acid will introduce 1 pound of iron in the zinc kettle to form dross from its original ferrous chloride content alone. Add to this the additional ferrous chloride formed on the work as it is held in air before entering the zinc kettle and it no longer is astonishing or unusual to encounter dross reductions of the order of 40 to 50 per cent when care is taken to stop this condition. Reductions are seldom less than 25 per cent and this lower figure may be a reflection of better acid control in

the old method or negligence in the rinsing after pickling in the new method.

Zinc ammonium chloride has a limited capacity to combine with iron and hold it in solution. Iron enters a zinc ammonium chloride solution by improper rinsing or by some solution of iron in an oxide form. It has no sensible direct attack on iron or steel itself. If iron is getting into the zinc ammonium chloride flux wash it soon takes on a yellow clay-like appearance which serves as a visual check of carelessness at earlier stages in the process. It is somewhat like locking the stable doors after the horse is stolen to add free acid, either mineral or organic, to such a contaminated flux wash. Such acid additions will dissolve the iron sludge and allow galvanizing to continue but at a cost which could be avoided if the source of the iron were located and eliminated. Sometimes this source is the rinse water itself, gathering the iron from rusty pipes.

Kettle Flux Material As Wash

Sal ammoniac used as a fused flux on the zinc kettle is so familiar to all operators that their methods of handling work into the kettle have been adapted to its nature. Generally substances like bran, oatmeal, sawdust, tallow or glycerin are added to the fusion in small amounts to stabilize the froth, reduce fuming and economize in its use. A suitable technique has been evolved for all types of objects galvanized which varies only slightly, probably largely to gratify the whim of an operator. Such a system is weak, however, in that it is not easy to anticipate flux exhaustion and this condition is learned from the appearance of faulty work or is avoided by extravagant use of the sal ammoniac at frequent intervals. Too much is left to the whim of the operator to assure work of uniform quality at reasonable costs. An automatic supply of new flux producing material as a film on the entering work goes a long way toward solving this problem. Such a flux film may provide all the material or less than half, depending on the rate of supply resulting from the conditions under which the work is placed in the zinc kettle.

An important difference between the customary use of sal ammoniac on the kettle and the supply of zinc ammonium chloride is that sal ammoniac added periodically is used not only to supply new cleansing material but also, as it volatilizes, to stir up the heavy, exhausted flux and distribute it through the mass of the fusion and thus reduce the adhesion of the flux to the work passing through. Since, with a zinc am-

monium chloride flux wash each entering piece of work carries substantially all the flux required for its galvanizing, the flux box technique becomes one of more frequent skimming to remove exhausted flux and avoid spotting. This is not troublesome or costly in use of flux.

Zinc Chloride as Flux Wash

Not infrequently galvanizers have considered it economical to prepare a zinc chloride flux wash by dissolving zinc in hydrochloric acid. This would be satisfactory if they produced a zinc chloride solution with no free acid left in it. Having extra undissolved zinc present in the tank does not meet this situation fully, with the result that there is free acid available to create iron chloride on the work. A zinc chloride produced as a chemical product which, in solution, will show on analysis as being possibly 0.2 to 0.5 per cent basic (calculated as zinc oxide) is preferable. Such a zinc chloride makes suitable flux washes but has less value as a kettle flux. Such a flux wash requires the use of sal ammoniac or zinc ammonium chloride on the zinc kettle and tends to complicate the process without having any economic or technical advantage.

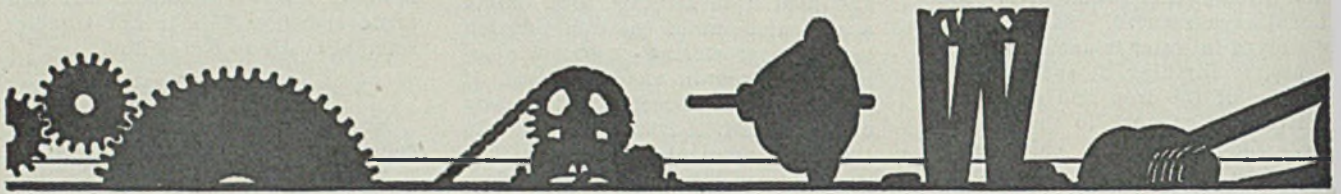
Some galvanizers have considered it an economical advantage to use their dross pigs to make their zinc chloride. This, of course, is unsatisfactory because the iron of the dross again appears in the system to make more dross. One manufacturer, following this method, was producing dross at about 3 times the industry average for his product. He soon corrected this by stopping the use of the dross to make his zinc chloride.

(To be concluded)

Magnetic Separator Removes Iron from Liquid Enamels

A magnetic separator for cleaning liquid ceramic materials, such as ground and cover coat enamels, clay body slips, glazes and similar materials is now being marketed by Ferro Enamel Corp., Cleveland. Known as the Stearns high-duty magnetic separator and built by Magnetic Mfg. Co., Milwaukee, the equipment features the use of a cartridge-type auxiliary magnet which attracts and holds the magnetic material. The operating principle includes automatic no-voltage release when the current is disconnected, the magnet holding the cartridge in one position while it is energized and tilting it at an angle when disconnected. Thus accidental interruptions of the current will not release the accumulated magnetic material to drop off into the cleaned enamel.

Power Drives



Correcting Operating Difficulties Resulting from Crossed Belt Drives

IT IS good practice to avoid crossed belt drives whenever possible.

Where necessary the following observations on crossed belt applications, which were the result of some tests on such drives, may aid in obtaining more satisfactory operation:

One of the most common operating troubles is for crossed belts to run off the pulley. Unless the belt is overloaded or operates on short centers, this can usually be overcome by removing the belt and crossing it the other way. Also, when the belt operates under high tension there is less tendency to run off the pulley than when run slack.

Short center crossed belt drives are more stable if the smaller pulley is used as the driver. They will then operate more satisfactorily at a shorter center distance. Each such drive has a minimum center distance for stable operation. There is no definite rule for determining minimum center distance. Also, using the tight side of the belt above the smaller pulley, whether it is the driver or driven pulley, gives more satisfactory operation than installing with the tight side below.

Little Power Variance

Crossed belts transmit as much power as corresponding open belt drives of similar size and pulley dimensions, except when on too short centers. On short centers the loading must be decreased. Belt speed has no effect on crossed belt drives, except the effect of centrifugal force at high speeds. Also, double belts appear to operate more satisfactorily than single belts on crossed drives, probably because one edge does not stretch as much as with the single belt.

It is believed that the reason changing the crossing of the belt overcomes the tendency to run off the pulleys is that one edge stretches more than the other. Changing the

cross throws the stretching load on the opposite and stiffer edge. The heavier double belt has less edge stretch and so holds its position better on the pulleys.

Belts over 6 inches in width sometimes give more trouble than narrower belts. This may be due to requiring greater center distance than practical for operation. Crown is necessary on the pulleys.

With these operating characteristics of crossed belt drives understood it is less apt to be necessary to use forks or flanges to hold the belt on the pulleys and lay out a satisfactory crossed belt drive.

Dirty Motor Windings

CLEANING motor windings of dry dust is best done by a compressed air, or a portable blower which can also be used as a vacuum cleaner. However, sometimes the windings become oily during operation so that the dust and dirt stick. Particles of dirt sticking in the windings should be removed before revarnishing.

Oil and dirt remaining after blowing out may be removed by a cloth or stiff brush dipped in gasoline. Some engineers prefer carbon tetrachloride for cleaning as it is nonflammable and evaporates and dries out much more quickly. Too much gasoline will soak into the coils and require more time to dry.

Some plant engineers use gasoline applied under pressure by a spray gun in connection with a brush to clean windings. Such application, however, leaves more gasoline in the windings and requires a longer drying period. The air pressure, however, helps to wash the dirt out of the winding and the gasoline does not soak into the insulation as when the entire unit is immersed and soaked. An ample supply of gasoline

must be used to wash out the windings, or a sticky mud will remain which will pack into the crevices and after being covered with insulating varnish will never be removable.

Sometimes on old type motors with plain babbitted bearings which have been rebabbitted no provision is made for draining the oil back into the bearing oil well. As a result the oil drains out on the shaft and is thrown into the windings by centrifugal force. This may be prevented by cutting a circular groove on the inside at each end of the bearing with small holes drilled at the bottom to lead the oil back into the well. This will not only keep the windings free from oil but also add to the life of the insulation.

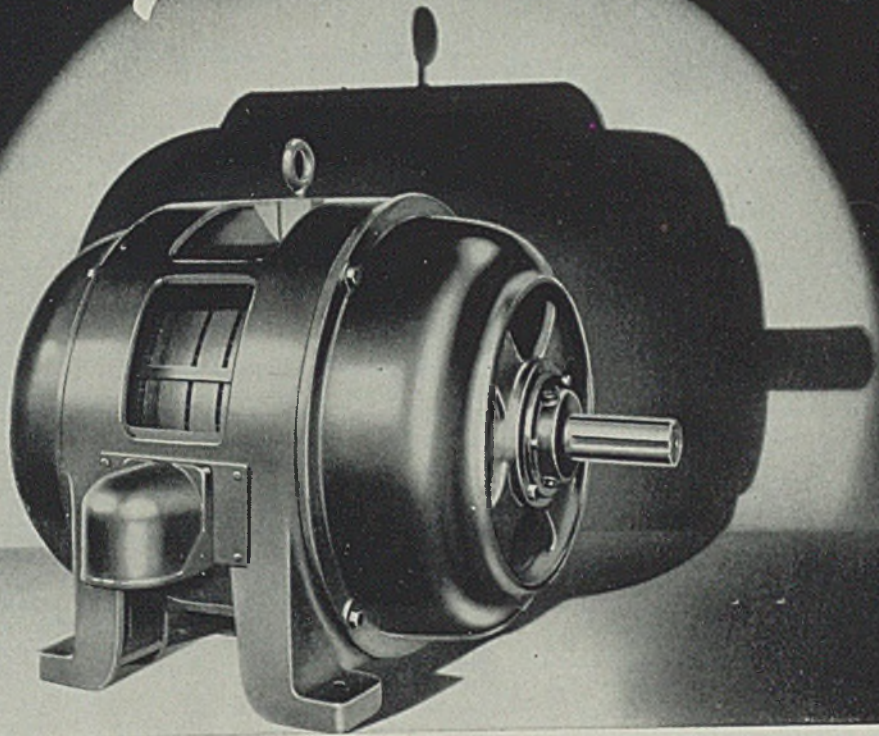
Bearing lubrication is a practical problem determined by the operating conditions and type of bearing. However, a combination of technical knowledge of the lubricants and practical experience will eliminate many costly experiments. Such combination advice is always obtainable from the more responsible manufacturers of lubricants.

A simple floor mounting for small motors which keeps the motor above the floor level for ease in cleaning may be made from pipe. Take two 6-inch pipe flanges screwed to short sections of 6-inch pipe of the desired length. Bolt one flange to the floor and attach a section of steel plate or inverted channel to the upper flange for holding the motor.

In maintenance work where it is necessary to lay extension cords for portable electric tools across trucking aisles, a length of curved steel plate protects the cables and does not interfere with trucking.

Good belt dressings and good lubricants cost money but poor quality products may be considerably more expensive.

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YEARS OF
PRECISION
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Motors



Welding, etc. . . .



Man Behind the Shield

AS THIS is written, the weather is hot. There were probably a hundred thousand men working today behind goggles and shield with gas flame and electric arc at welding—one of the hottest jobs ever carried out by human beings. It would be easy to become maudlin about the hardships of the welders in summer; that is, it would be easy if one did not know the facts.

Welding with a temperature of 3000-6000 degrees Fahr. on a summer day means you sweat. You sweat or die. The men who do this work are usually not excessively muscular, nor are they often overweight. Physical dissipation of any kind means that a man cannot stand up on the job. These men know they have to take care of themselves or collapse with the heat. This requires intelligence and self restraint.

After the shift is over, welders come out wringing wet. They are tired, of course, and usually pretty dirty. But take a look at your welder friend after he has had a bath and dressed himself up a bit. He looks healthy and he feels healthy. He has done a day's work at a job that requires honesty and brains. Your good welder knows no piker is going to get his job. He knows he is an important and necessary part of our industrial setup. Nine out of ten are ambitious and are planning new inventions or how to earn more money. There is no need to pity them.

Precious Metals

THE points of grappling tongs for raising hot ingots from the soaking pits are subject to heat, abrasion and high stress—all at the same time. When surfaced with an alloy of cobalt, chromium and tungsten, these points last about six times as long as when they are of ordinary steel. The savings are large in spite of the fact the alloy surface material is almost a precious metal.

In many maintenance welding

by Robert E. Kinkead

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.

shops there is a virtual prohibition against the use of high priced alloys for surfacing. The penalty for such shortsightedness is high maintenance cost. In the case cited above, it was costing three times as much not to use a metal that costs about \$4 per pound

Sparks and Flashes

THE OLD WELDING OPERATOR whose eyeballs were so tough he would al-

low a stranger to rub his finger over them is gone. We have seen a few of these fellows who claimed their eyesight was as good as ever. The fact was they were lucky to be able to read the headlines of a newspaper. Any operator will be thrown out of a modern welding shop for welding without proper goggles or shield. Eye defects are rare.

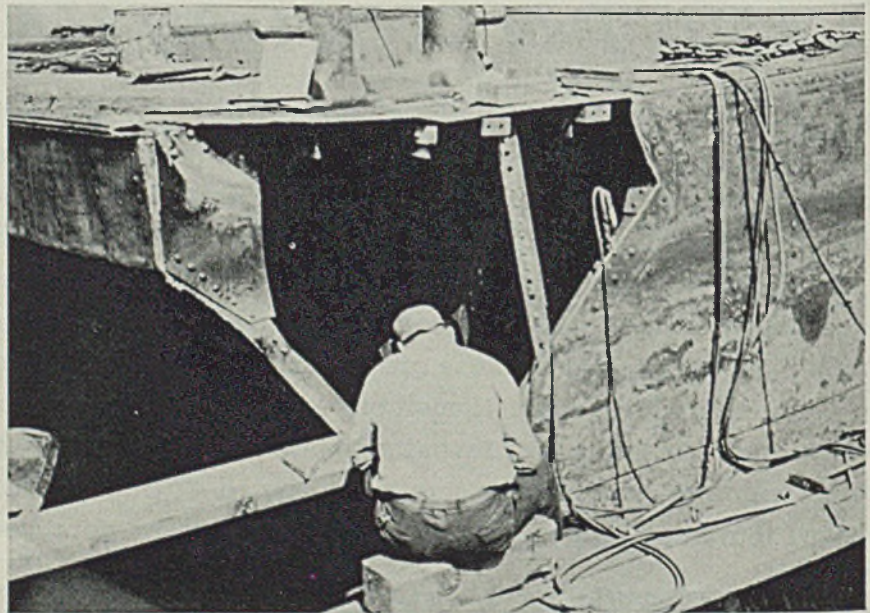
♦ ♦ ♦

HINDU OPERATORS using arc welding never sit down but merely squat to weld. With bed sheets wadded around their middles and with sleeveless undershirts, they go to it with bare feet, legs and arms. But they are good and loyal workers and highly commended by American and British welding men.

♦ ♦ ♦

MANY YEARS AGO it was discovered that a microscopic amount of lime on bare welding rods greatly improved its quality. At this time all welding with the arc process was done with the electrode on the negative side of the welding circuit. Later, a bare rod was brought out and is still in use on the positive side of a direct-current welding circuit. So sensitive was this positive welding rod to the presence of lime that unusual precautions had to be taken to keep lime away from it. A teaspoonful of lime blown into a store room would ruin every pound of positive welding rod in the place.

Sewing Up Seams in River Barge

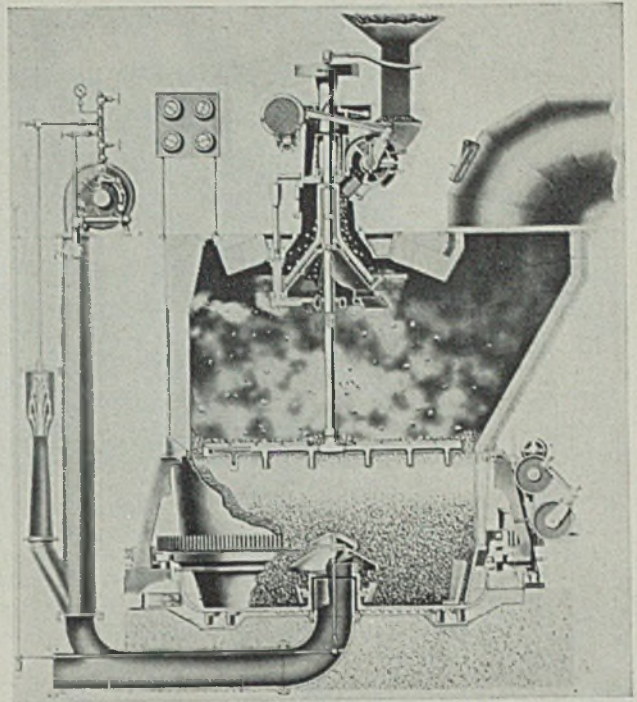


CRACKED-UP river barges present no problem to the Pittsburgh Welding Co., Pittsburgh. According to the company, 181 damaged barges have been welded successfully in the past three years without a split seam. The accompanying illustration shows a welding repair job on the damaged corner of a river freight hauler. Gasoline driven 300-ampere welders built by the General Electric Co., Schenectady, N. Y., are used on the job

Modern Gas Producers

Reflect Advances in

Design and Operation



Cross section of automatic gas producer, showing the automatic feeder and the water-cooled lower section

RAW gas as produced from bituminous coal and used in such industries as steel, glass, lime and clay, amounts to an immense volume. If one stops to think that it requires 800 or 900 pounds of coal per ton of open-hearth steel, about $\frac{3}{4}$ -pound of coal per pound of glass and slightly less than $\frac{1}{2}$ -pound of coal per pound of lime produced, it is possible to infer the amount of producer gas generated in these industries alone. In the steel industry, soaking pits and reheating furnaces add to the amount of producer gas required.

Fuel costs of many industrial operations represent a considerable part of the total costs, and any reduction in the cost of fuel is a direct saving in the cost of the finished product.

Coal Conversion Is Efficient

The function of a gas producer is to convert solid fuel into a gaseous fuel which is easy to handle and control for the various operations where it is used. The conversion of bituminous coal into hot raw producer gas can be effected with a heat efficiency of 90 per cent or even better. The producer plant can be at a centralized point and the gas piped, within reasonable distances, to where it is to be used with little loss in heat.

Making of producer gas is a simple operation in itself. Coal in the bottom or hot zone of the producer is actually burned to carbon dioxide. The carbon dioxide in passing up through the fuel bed is converted into carbon monoxide and is taken from the

producer through a suitable outlet in the top, while the ashes resulting from the combustion of the coal are taken from the bottom of the producer.

The original producer usually comprised a circular steel shell lined with brick, with grates or air box in the bottom for introducing the blast, a charging hopper on top for feeding the coal, gas outlet and suitable holes for poking the producer. This, of course, applies to the hand-fired producer, where all operations are performed by manual labor. It is rather surprising to know that there are today a large number of hand-fired gas producers in operation, and fairly good results can be obtained. They require hard work and constant attention, and the hand-fired gas producer house is not the most pleasant place in which to work.

Many years ago the Chapman automatic feed floating agitator was developed to eliminate the hand feeding of coal and the laborious hand poking. This machine practically

eliminated all hand labor connected with the making of producer gas, except removing the ash and breaking down the fire. These agitators can be installed on any circular hand-fired producer. More than 1500 of them have been sold and there is still a fair demand for them.

Modern Plants Automatic

Without doubt, the industrial plant still using hand-fired gas producers or even old style mechanical producers, can find no better place to make improvements that will show quicker results or greater saving.

In the modern gas producer plant, practically all operations are performed automatically. Coal is usually elevated to overhead storage bins from which it is fed to the gas producer at a desired uniform rate. The fuel bed is automatically stoked and the ash bed is agitated and ashes removed mechanically. Even the volume of gas and temperature and pressure of the gas are controlled automatically.

When it is realized that the modern gas producer will gasify 50 or more tons of coal per 24 hours, maintain a gas pressure of within a fraction of an inch of water pressure, hold the temperature of the outgoing gas to within a range of plus or minus 10 degrees Fahr., maintain the volume of gas desired over a wide range and do this continuously month after month, some appreciation can be gained of the progress made in gas producer practice in the last few years.

IMPROVEMENTS in gas producers from the original hand-fired design to the modern automatic, water-cooled type have been many. Quick summary of this progress is presented in the accompanying article prepared by engineers of the Cooper-Bessemer Corp., Mount Vernon, O.



One hundred and eight years have wrought many changes in this old brick structure near Madison, O., once the headquarters of the Arcola blast furnace superintendent

Recalling Century-Old Blast Furnace in Northern Ohio

BY FRED B. JACOBS

PAUSING at the junction of U. S. Route 20 and Dock road, between Painesville and Geneva, O., the traveler will see a substantial brick building bearing the inscription: 1828, The Arcola. This structure is all that remains of what was at one time a great industry, the old Arcola blast furnace from which the inscription on the building was derived. Probably no enterprise in the vicinity contributed more to the development of industry in northern Ohio than this early furnace, now long forgotten except by narrative handed down from generation to generation.

Iron Obtained From Bog Ore

A short distance south of this old building, which at one time was the superintendent's house, were large deposits of bog iron ore. The first company to make iron here was the Erie Furnace Co., the exact date of the founding of which is not known. Later the Arcola furnace made pig iron from this ore.

The Arcola furnace also carried on a substantial business in the making of iron castings for plowshares, Buckeye stoves, cooking utensils and other such commodities as would find a ready sale among the fast-growing population. These products found their way as far west as Detroit and some into Canada. In 1831 a second furnace was built to supply the con-

stantly growing demand. These furnaces were of the type used at that time, the blast being created by bellows worked by waterwheels in a nearby stream.

Product Shipped by Water

Old records show that over 200 molders were employed, while 150 men washed the ore, and 200 cut wood and burned the charcoal with which the furnaces were fired. Also there were over 200 houses in the vicinity to lodge the workmen, to say nothing of several large boarding houses. At one time it is said that all told the company had some 2000 men in its employ, but this figure probably is somewhat exaggerated. The company operated a large store which did an annual business of \$150,000. Due bills given by the company were used as currency, for at that time the nearest bank was at Warren, O., some 50 miles distant.

At the foot of Dock road were several docks where vessels loaded and unloaded cargoes. Limestone was brought in by boat and much of the finished product was shipped that way, as the roads in those days were not improved.

With the opening of the iron ore deposits in the upper Great Lakes region, the Arcola furnace was doomed. The new ore was easier to handle and yielded a much greater

percentage of iron per ton than was possible to derive from bog ore.

Thus one of the earliest industries of northern Ohio died a natural death. Today it is forgotten, although old settlers will point out the slag piles, the superintendent's house, and the cement road leading to the water front which formerly was a dirt road traversed by ox teams.

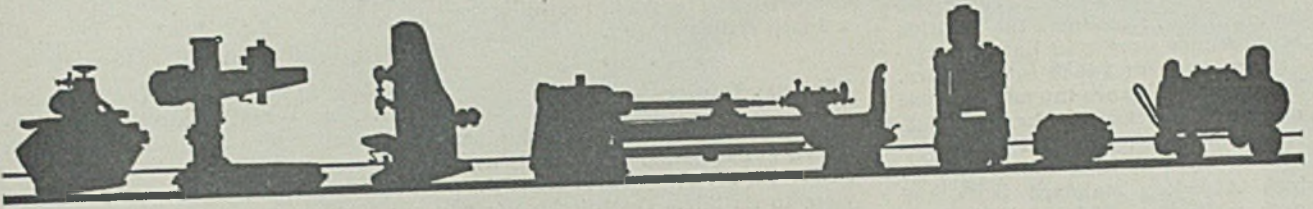
All-Steel Service Door Has Improved Appearance

To improve durability and to provide appearance more suitable for modern architecture the Kinnear Mfg. Co., Columbus, O., recently announced a new all-steel sectional upward-acting service door. The door sections are rolled from heavy-gage steel sheets and then heavily galvanized. A heavy roll on the edge of each section provides a continuous smooth operating interlocking hinge and also serves as a substantial reinforcement against deflection or possible warpage.

Operating on ball-bearing rollers traveling in steel vertical and horizontal tracks the door raises up easily, over and back, being counterbalanced by two matched tension springs parallel to the horizontal tracks. Vertical tracks are mounted on a continuous angle assembly to which an adjustable sloping metal weatherstrip is attached. This strip engages the end of the door, which is also graduated, forming a "keystone" sealing arrangement.

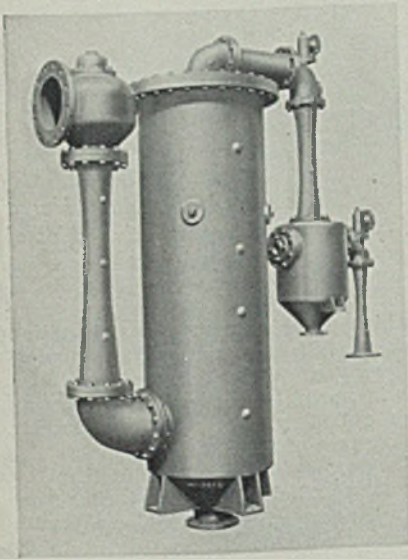
Hardware is of rugged design bolted and riveted to the door. Parts on the outside are cadmium plated. Locking is accomplished with a tumbler lock operating on lock-bars that engage a slot in the track angle on both sides of the door.

New Equipment



Steam-Jet Ejector—

Worthington Pump & Machinery Corp., Harrison, N. J., is offering steam-jet ejectors in single or multiple units for producing vacuums from



Worthington steam-jet ejector for producing vacuums, which is available in single or multiple units

a few inches of mercury to within less than one millimeter of perfect vacuum. The ejector, based on fundamental thermodynamic principles, is the result of tests over a period of 18 years. The ejectors can be furnished in standard or corrosion-resistant materials for use in chemical process industries.

Pedestal Drive—

South Bend Lathe Works, South Bend, Ind., announces a new pedestal-type drive which is available for its 1936 model 9-inch workshop lathe. The drive mechanism is a separate unit mounted on a metal pedestal back of the lathe, with the horizontal countershaft and motor supported at the top of the pedestal in line with the headstock cone pulley. An adjustable tension brace between the countershaft and the headstock regulates the tension of both the flat belt between the cone pulleys and the V-belt from motor to drive pulley. A belt tension

release lever attached to the tension brace permits easy shifting of the cone pulley belt from one step of the pulley to another. When the lever is pulled toward the operator, the motor drive is tilted forward on its pivoting frame sufficiently to shift the spindle belt easily. Among the advantages claimed for this arrangement of drive are less vibration because of separate motor, absence of overhead belts, silent belt drive, belt tension adjustment to provide varying pulling power and tension release for shifting speeds.

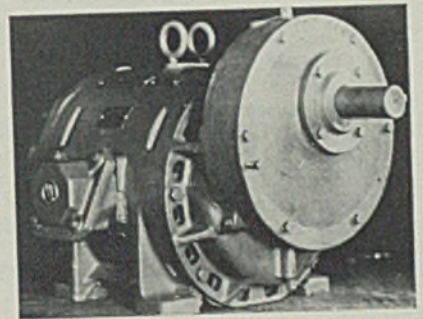
Welding Rods—

Universal Power Corp., 4300 Euclid avenue, Cleveland, announces a new welding electrode known as Universal Easyweld, designed for use in transformer-type arc welders. The new rod permits the arc to be started and maintained easily, and may be used on repairs on steel or iron. It is especially suited for light-gage steel work. Weld metal is produced of 55,000 to 65,000 pounds strength with a ductility of 15 to 20 per cent elongation in 2 inches.

Explosion-Proof Motor—

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., recently an-

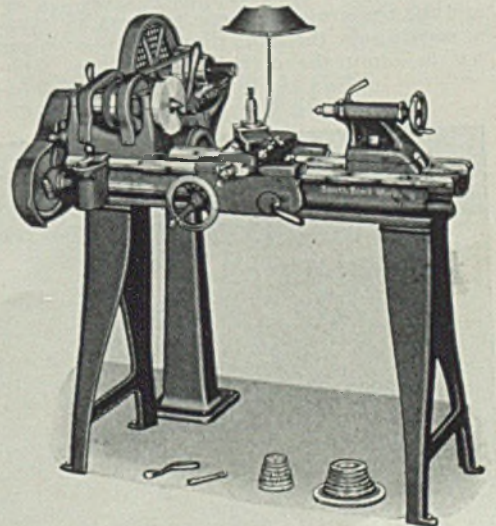
nounced a new line of single reduction explosion-proof gear motors ranging in size from 1½ to 75 horsepower. For application in hazardous locations where speed reduction is required, these gearmotors have many uses because of their compact design and efficiency. Built to carry the maximum torque the motor will develop, the gears are of the single helical type, heat treated to provide



Single reduction explosion-proof motor for operation in hazardous locations newly announced by Westinghouse

maximum load carrying capacity and high resistance to wear and shock. Antifriction bearings assure high efficiency and maintain correct gear center distances. Motors are approved by the national board of fire underwriters for operation in atmos-

South Bend workshop lathe equipped with the new pedestal-type drive announced by that company



pheres containing gasoline vapor or other explosive mixtures of equal or less hazard.

Heavy Socket Wrenches—

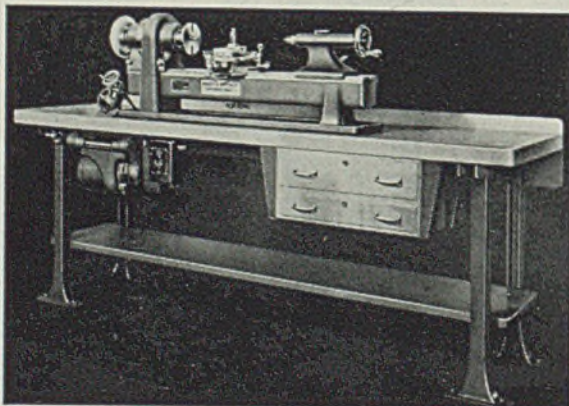
Bonney Forge & Tool Works, Allentown, Pa., announces the addition of three new sizes to its line of heavy-duty sockets for 1-inch square drive. The new sockets are intended for use on buses, trucks and heavy industrial machinery. No. X72 has a 2 1/4-inch hexagon opening and is for 1 1/2-inch American standard bolts and nuts, while Nos. X94 and X100 have hexagon openings of 2 15/16-inch and 3 1/8-inch respectively and are for United States standard bolts and nuts of 1 7/8 and 2 inches. The sockets are drop forged of chrome-vanadium steel and are chromium plated and polished.

Tank Thermometer—

Ferro Enamel Corp., 4150 East Fifty-sixth street, Cleveland, announces a new tank thermometer for indicating temperature of pickling baths, cleaning or neutralizing tanks. Movement is of the vapor tension type, and the range is from 100 to 220 degrees Fahr. Thermometers are furnished with double braided bronze capillary tubing and bronze liquid temperature bulb. Special glass test tubes are provided to protect the bronze bulb when it is to be immersed in an acid bath.

Bench Lathe—

Pratt & Whitney division, Niles-Bement-Pond Co., Hartford, Conn., announces a new 10 x 20-inch bench lathe with a New Departure Transitorq drive. The machine is intended for toolroom work of precision nature and is heavy enough to retain its accuracy under severe use, according to the company. It has a bed length of 44 inches with a 10-inch swing over the bed, a 6 1/2-inch swing over the cross slide and a maximum center distance of 20 inches. The bed and the pan are cast in one piece with a cored hole through the headstock leg to admit the driving belts. The

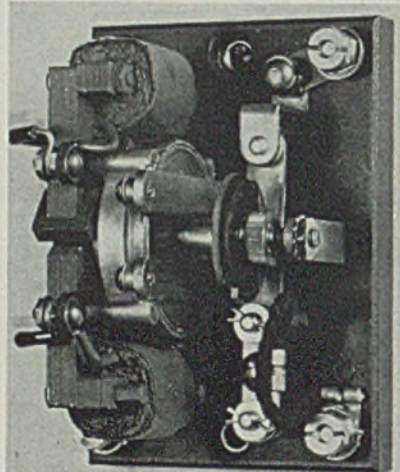


Pratt & Whitney bench lathe equipped with Transitorq drive

Transitorq drive produces spindle speeds from 200 to 2000 revolutions per minute. Power is transmitted to the headstock spindle through four V-belts. The headstock carries a spindle 1 15/16 inches in diameter, hardened, tempered and ground, providing for a 1-inch collet capacity.

Timing Device—

Struthers-Dunn, 139 North Juniper street, Philadelphia, has recently added several motor operated timing devices to its line. One of these is of the immediately recycling type. The synchronous motor of the timing device drives cams through a chain of gears. At the same time the starting impulse is received, the motor starts and a solenoid is energized to operate a clutch which connects the cams to the motor. At the end of the cycle, the motor is de-energized by means of a contact on one of the cams, and the clutch holds the cams in position. Another of the new tim-



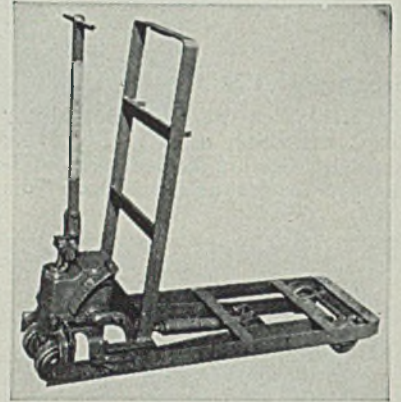
Motor operated timing device recently developed by Struthers-Dunn

ing devices is of the continuously rotating type. By means of gears, the cams of the timer are made to revolve at any desired speed. The contacts can be arranged to be closed for any time up to half the time re-

quired for one revolution if the timing is adjustable, or up to the full revolution if the timing is nonadjustable. Almost any number of adjustable or nonadjustable contacts can be furnished.

Hinged Frame Lift Truck—

Yale & Towne Mfg. Co., Philadelphia, has recently introduced a double-duty hinged frame hand lift truck



Yale & Towne double duty hinged frame lift truck for handling skids of varying height

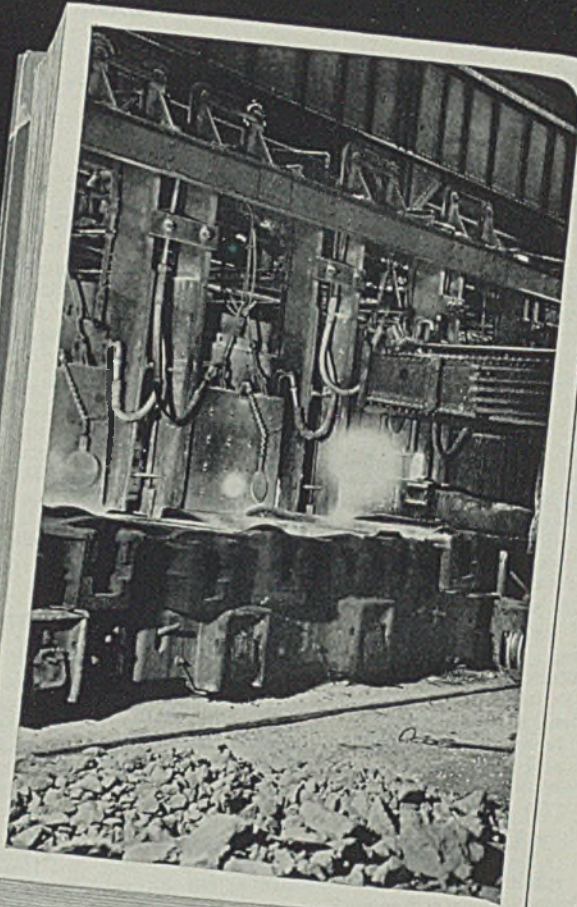
which provides a means of handling skid platforms of varying under-clearance. When the hinged platform is in upright position, the truck may be rolled under platforms having clearance of from 6 to 7 1/2 inches. A few strokes on the handle lifts the truck to a height of three inches from the floor. When platforms with clearance ranging from 8 to 10 inches are to be moved, the hinged frame is dropped into place on the regular frame and elevated. This feature enables the shipper to place his product on platforms suitable for the customer to handle.

Brush Replacements—

Ohio Carbon Co., 12508 Berea road, Cleveland, announces a carbon brush replacement kit designed to meet the special needs of the series wound motors used in portable electric tools such as valve refacers, drills, saws, hammers and grinders. Brushes in the kit are made so that without undue abrasiveness both copper commutator parts and mica insulating sections wear equally.

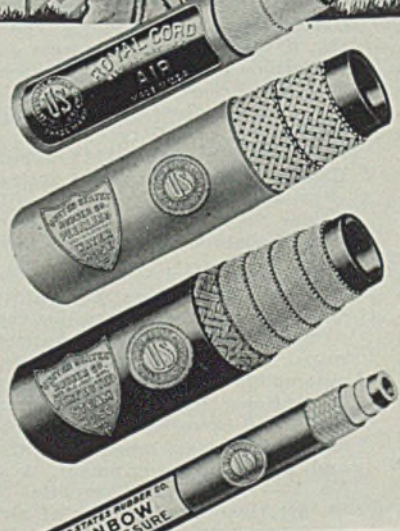
Shipping Room Stand—

Sherman-Manson Mfg. Co., 621-631 South Kolmar avenue, Chicago, announces a tubular steel typewriter stand for use in the shipping room. The stand is 40 inches high for use while standing. It is provided with folding shelves which provide room for papers and can be folded out of the way when not in use.



BOOK OF FACTS

Heat is a natural enemy of rubber. Hose used in steel industry operations is constantly subjected to high temperatures. Therefore, U. S. Rubber Hose is specially compounded to combat the destructive effect of heat over long periods. Also, U. S. Rubber Hose is extra tough—extra flexible—has greater strength built into cover and carcass. To get longer service, specify U. S. Rubber Hose now.



U. S. HOSE RECOMMENDED FOR STEEL INDUSTRY SERVICE

Super Royal Cord Air
 Royal Cord Air
 Peerless Water
 Perfected Steam

Matchless H. P. Steam
 Rainbow High Pressure
(For Welding)
 Single and Double Jacket
 Cotton Rubber-Lined Fire



United States Rubber Company

United States Rubber Products, Inc., 1790 Broadway, New York, N. Y.

New Trade Publications

Copies of any of the literature listed below may be obtained by writing directly to the companies involved, or by addressing STEEL, in care of Readers' Service Department, 1213 West Third Street, Cleveland.

Plastic Packing—Crane Packing Co., 1800 Cuyler avenue, Chicago. Folder describing a new resilient, dry-graphite lubricated plastic packing, known as Super-Seal.

Indicating Controller—C. J. Tagliabue Mfg. Co., Park and Nostrand avenues, Brooklyn, N. Y. Leaflet No. 1144, illustrating Tag indicating controllers.

Grinders—Dumore Co., Racine, Wis. A folder DM6, describing various types of Dumore lathe grinders and precision drill and hand grinders, giving various operating features and uses.

Speed Reducers—Boston Gear Works Inc., North Quincy, Mass. Folder form 3-36, giving a brief description and prices of all types of horizontal, inverted and vertical Boston ratiomotors.

Vibro-Dampers—Korfund Co. Inc., 48-15 Thirty-second place, L. I. City, N. Y. Bulletin, No. 53-C, which treats the subject of machinery isolation in describing the advanced types of steel spring suspensions for absorbing machine vibrations.

Controllers—Bristol Co., Griggs and Kelsey streets, Waterbury, Conn. A bulletin, No. 440, covering its new series of Ampliset free-vane controllers, available for time temperature, flow, liquid level, pressure, time-pressure and humidity.

General Supplies—Colonial Supply Co., 217 Water street, Pittsburgh, silver anniversary catalog illustrating general maintenance and service supplies for all classes of industrial contracting and mining operations; prices and sizes.

Gears—John Waldron Corp., New Brunswick, N. J. Bulletin No. 71, describing Waldron silent gears that may be joined with any other kind of gear material or with each other; includes several tables giving dimensions of various types of gears, also prices.

Wagon Mounting—Ingersoll-Rand Co., 11 Broadway, New York. Bulletin No. 2253, describing the large I-R wagon drills capable of 10-foot steel changes and 40-foot holes used on road and heavy-construction work and quarrying.

Double Control Regulator—Northern Equipment Co., Erie, Pa. Leaflet No. 401, describing the double control regulator on the Riley steam generators which stabilize boiler water level within limits that rarely exceed two or three inches, despite loads that fluctuate rapidly and widely.

Oven Safety Device—Bristol Co., Waterbury, Conn. Bulletin No. 457, describing in some detail the new Pyrotrol recently announced, including information regarding the applica-

tions, offered as a safety device for use on gas-fired industrial ovens such as safety against pilot light failure.

Constant Duty Reelites—Appleton Electric Co., 1701 Wellington avenue, Chicago. Bulletin No. 503, listing Reelites, both constant duty and portable types for electric cable and cord, as well as Aireels for air hose, and air fluid reels for air and paint-fluid hose.

Oil Burner—W. S. Rockwell Co., 50 Church street, New York. Folder No. 360, covering low and high pressure oil burners, with a table of sizes, capacities, etc., under each illustration. Also includes a rough summary of some of the many types of industrial heating equipment which the company is prepared to furnish.

Power Squaring Shears—Niagara Machine & Tool Works, 637 Northlanl avenue, Buffalo. Bulletin No. 71-F, illustrating Niagara squaring shears built for cutting ferrous and nonferrous sheet metal and other materials such as fiber, asbestos, wall boards, and the like.

Pot Furnace—Surface Combustion Corp., Toledo, O. A bulletin, No. SC-74, on standard rated pot furnaces, high or low pressure firing systems; automatic temperature controls are easily applied because of one valve control feature.

Speed Reducers—Abart Gear & Machine Co., 4834 West Sixteenth street, Cicero, Ill. Bulletin No. 1200, giving engineering data on straight line drive spur gear. Abart speed reducers, type CA, in ratios up to 20-1; tables of horsepower rating at input revolutions per minute.

Vertical Miller and Profiler—Pratt & Whitney Div., Niles-Bement-Pond Co., Hartford, Conn. Circular No. 424, covering the No. 12B high speed vertical miller and profiler; equipped with high speed antifriction bearing spindles, individually motor driven for using modern high speed cutters efficiently.

Ice Plant Blower—Roots Connersville Blower Corp., Connersville, Ind. Bulletin 21-B18, devoted to the application of blowers in raw water ice plant service. Various types of drive are described and illustrated, with discussion of structural features and operating characteristics.

Pilot Switch—Production Instrument Co., 1325 South Wabash avenue, Chicago. Bulletin describing its new type ES-9 pilot switch, adapted to a wide range of uses, requiring an accurate and light-acting contactor, for operation of electric counters, relays, as a limit switch or safety stop, and the like.

Sprocket Wheels—Link-Belt Co., 519 North Holmes avenue, Indianapolis. A

book, No. 1557, tabulating the many cut-tooth sprocket wheels, now available with Silverlink finished-steel roller chains. The book facilitates ordering of a wheel, piece of chain, or a complete drive; placing the chain and cut-tooth wheel business on a mail order basis.

Digestion and Distillation Equipment—Precision Scientific Co., 1736 North Springfield avenue, Chicago. Bulletin No. 151, covering its complete line of Kjeldahl equipment for digestions and distillations, of the type used for nitrogen and protein determination; illustrated, and shows actual prices for practically all items mentioned.

Arc Welding Supplies—Universal Power Corp., 1719 Clarkstone road, Cleveland. Bulletin DS No. 16, describing the universal head helmet, hand grip face shield, spotless cover lens, wide vision weld goggles, weld scratch brush, holders and various type gloves. A folder describing the universal easyweld electrodes for alternating current arc welders.

Pipe Couplings and Repair Devices—S. R. Dresser Mfg. Co., Bradford, Pa. Catalog No. 36, intended for all those who have to do with the construction, operation, or repair of pipe lines. Its purpose is not only to present essential information about Dresser products and their applications, but also to serve as a guide-book to good pipe-line practice—both in the construction of new lines and in the maintenance of existing lines, with special reference to pipe joints.

Ceiling Fan—Emerson Electric Mfg. Co., St. Louis. Catalog No. X 1120, giving detailed information regarding unit glassware and ceiling type lighting fixture, wiring diagrams for installations requiring wall switch control, also prices. Catalog No. X 1158, with diagrams and helpful installation suggestions for all types of air circulators. Folder, No. X1163, illustrating Emerson exhaust fans and their uses; cites advantages of attic ventilation. Folder No. X1164, describing complete line of seabreeze ventilating fans.

Stainless Steel—American Rolling Mill Co., Middletown, O. Folder No. 4000-P.O., tells of the twelve types of Armco stainless steels particularly suited to various applications; such as automobile trim; interior and exterior decorations; for welded products exposed to corrosive conditions; annealing furnace inner covers, parts and paper mill equipment. A folder No. 50-7-36, inviting potential clients to investigate the benefits of air conditioning. It describes metal duct work as the "highway of air travel through which flows conditioned air to provide summer or winter comfort."

Sharp Automotive Decline Is Counteracted

Diversified Demand

Buoys Steelworks

Activity; Rate 70½

DESPITE a sharp decline of 25,125 units in automobile production, demand from other sources enabled steelworks activity to hold almost even with the unusually high August level last week.

The national operating rate was down 1 point to 70½ per cent. Employes' vacations had more to do with the lowering of the rate, apparently, than any other factor.

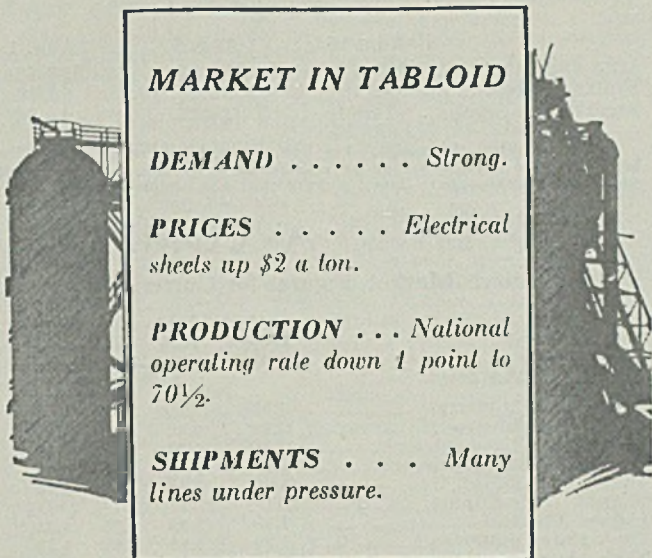
With the general strengthening of the markets, producers are said to be considering the possibility of advancing finished steel prices for fourth quarter because of mounting costs. There were three developments in the price situation last week. A leading producer announced a \$2 per ton increase on all eight grades of electrical sheets, effective immediately. Current prices on standard rails were extended until Nov. 1, and for shipment until the end of the year. Export prices on plates were advanced \$1 a ton to all countries except Canada, and an increase to the latter nation is expected shortly. The general price trend will be increasingly discernible within the next month.

STEEL'S scrap composite is up 58 cents to \$14.83, the result of broad advances in almost every district last week as the shortage continued. The situation in scrap has led to increasing pig iron activity.

Pipe awards were an outstanding feature of the market, two of them totaling 24,000 tons. One purchase of 12,000 tons of 12-inch steel pipe was made for a 96 mile gas line in West Virginia, for the Hope Natural Gas Co. The other, by the Peoples Natural Gas Co., Pittsburgh, was for 12¾-inch pipe. Still another outstanding award was 3572 tons of 6 and 8-inch cast pipe for Los Angeles.

The recession in automobile production resulted in the assembly of only 56,679 units last week, compared to 81,804 in the preceding week.

Although some large finished steel contracts were received, incoming specifications fell off slightly. However, fear of any marked recession was remote because of the large back-



MARKET IN TABLOID

DEMAND *Strong.*

PRICES *Electrical sheets up \$2 a ton.*

PRODUCTION . . . *National operating rate down 1 point to 70½.*

SHIPMENTS *Many lines under pressure.*

logs piled up by producers and the general favorable business situation outside the steel industry. Pressure for deliveries remains as strong as ever.

Sheet mills' backlogs have increased in some instances, resulting in further delay for shipments. Most producers now cannot promise deliveries for six weeks.

Heavy foreign sales of machine tools and fair domestic demand have kept the industry operating at the highest level since 1929. Foreign orders in July were more than double the June volume.

The outlook for the fall is promising for railroad work. Inquiries have been numerous and last week included a government inquiry for 10,000 tons of rails. Nickel Plate has awarded 5800 tons of rails.

Operations in the Pittsburgh district were down 3 points to 68 per cent because of vacations for mill employes. The Chicago rate was down ½ point to 71 per cent; eastern Pennsylvania ½ to 50; Detroit 7 to 93. In the New England district the rate advanced 2 points to 70 per cent; Birmingham 5½ to 67; Colorado 7 to 63; Wheeling 3 to 95 and Youngstown 2 to 79. Other districts were unchanged.

Tin plate operations are unabated at a full 100 per cent of capacity, with producers still far behind on deliveries. Canmakers are reducing their forecasts on the late summer and early fall crop prospects, but demand for general line cans is still heavy.

Shape awards were down about 6000 tons to 22,628 tons last week. Considerable new work is in sight, however.

STEEL'S composite of iron and steel prices is up 6 cents to \$33.88, because of the increase in scrap. The finished steel index is still at \$53.40.

COMPOSITE MARKET AVERAGES

	Aug. 15	Aug. 8	Aug. 1	One Month Ago July, 1936	Three Months Ago May, 1936	One Year Ago Aug., 1935	Five Years Ago Aug., 1931
Iron and Steel	\$33.88	\$33.82	\$33.72	\$33.49	\$32.92	\$32.68	\$30.73
Finished Steel	53.40	53.40	53.40	53.40	52.20	54.02	48.72
Steelworks Scrap....	14.83	14.25	13.66	12.89	13.40	12.05	8.79

Iron and Steel Composite:—Pig iron, scrap, billets, sheet bars, wire rods, tin plate, wire, sheets, plates, shapes, bars, black pipe, rails, alloy steel hot strip, and cast iron pipe at representative centers. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Heavy melting steel and compressed sheets.

A COMPARISON OF PRICES

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

	Aug. 15, 1936	July 1936	May 1936	Aug. 1935		Aug. 15, 1936	July 1936	May 1936	Aug. 1935
Finished Material					Pig Iron				
Steel bars, Pittsburgh	1.95c	1.95c	1.85c	1.80c	Bessemer, del. Pittsburgh	\$20.8132	20.81	20.81	19.81
Steel bars, Chicago	2.00	2.00	1.90	1.85	Basic, Valley.....	19.00	19.00	19.00	18.00
Steel bars, Philadelphia	2.26	2.26	2.16	2.11	Basic, eastern del. East. Pa.....	20.8132	20.81	20.81	19.81
Iron bars, Terre Haute, Ind.....	1.85	1.85	1.75	1.75	No. 2 fdy., del. Pittsburgh	20.3132	20.31	20.31	19.31
Shapes, Pittsburgh	1.90	1.90	1.80	1.80	No. 2 fdy., Chicago	19.50	19.50	19.50	18.50
Shapes, Philadelphia	2.11½	2.11½	2.01½	2.01½	Southern No. 2, Birmingham.....	15.50	15.50	15.50	14.50
Shapes, Chicago	1.95	1.95	1.85	1.85	Southern No. 2, del. Cincinnati.....	19.44	20.2007	20.2007	19.38
Tank plates, Pittsburgh	1.90	1.90	1.80	1.80	No. 2X eastern, del. Phila.....	21.6882	21.68	20.81	20.68
Tank plates, Philadelphia	2.09	2.09	1.99	1.99	Malleable, Valley	19.50	19.50	19.50	18.50
Tank plates, Chicago	1.95	1.95	1.85	1.85	Malleable, Chicago	19.50	19.50	19.50	18.50
Sheets, No. 10, hot rolled, Pitts.....	1.95	1.95	1.85	1.85	Lake Sup., charcoal, del. Chicago	25.2528	25.2528	25.2528	24.25
Sheets, No. 24, hot ann., Pitts.....	2.50	2.50	2.40	2.40	Ferromanganese, del. Pitts.....	80.13	80.13	80.13	90.13
Sheets, No. 24, galv., Pitts.....	3.20	3.20	3.10	3.10	Gray forge, del. Pittsburgh	19.6741	19.67	19.67	18.67
Sheets, No. 10, hot rolled, Gary....	2.05	2.05	1.95	1.95	Scrap				
Sheets, No. 24, hot anneal., Gary..	2.60	2.60	2.50	2.50	Heavy melting steel, Pittsburgh..	\$16.00	14.15	14.75	13.25
Sheets, No. 24, galvan., Gary.....	3.30	3.30	3.20	3.20	Heavy melt. steel, No. 2, east. Pa.	13.00	11.50	11.71	10.50
Plain wire, Pittsburgh	2.40	2.40	2.40	2.30	Heavy melting steel, Chicago	15.50	13.25	13.05	12.35
Tin plate, per base box, Pitts.....	5.25	5.25	5.25	5.25	Rail for rolling, Chicago	15.50	14.00	14.65	13.65
Wire nails, Pitts.	2.10	2.10	2.10	2.55	Railroad steel specialties, Chicago	16.75	14.75	14.65	13.55
Semifinished Material					Coke				
Sheet bars, open-hearth, Youngs.	\$30.00	30.00	28.00	28.00	Connellsville, furnace, ovens.....	\$3.30	3.45	3.50	3.25
Sheet bars, open-hearth, Pitts.....	30.00	30.00	28.00	28.00	Connellsville, foundry, ovens.....	4.25	4.25	4.25	4.00
Billets, open-hearth, Pittsburgh....	30.00	30.00	28.00	27.00	Chicago, by-product foundry, del.	9.75	9.75	9.75	9.25
Wire rods, Pittsburgh	38.00	38.00	40.00	38.00					

Steel, Iron, Raw Material, Fuel and Metals Prices

Except when otherwise designated, prices are base, f.o.b. cars. Asterisk denotes price change this week.

Sheet Steel		Tin Mill Black No. 28		Corrosion and Heat-Resistant Alloys				Structural Shapes	
Prices Subject to Quantity Extras and Deductions (Except Galvanized)		Pittsburgh	2.75c	Pittsburgh base, cents per lb.				Pittsburgh	1.90c
Hot Rolled No. 10, 24-48 in.		Gary	2.85c	Chrome-Nickel				Philadelphia, del.	2.11½c
Pittsburgh	1.95c	St. Louis, delivered	3.08c	No. 302 No. 304				New York, del.	2.16¼c
Gary	2.05c			Bars				Boston, delivered....	2.30½c
Chicago, delivered..	2.08c	Cold Rolled No. 10		Plates				Bethlehem	2.00c
Detroit, del.	2.15c	Pittsburgh	2.60c	Sheets				Chicago	1.95c
New York, del.	2.30c	Gary	2.70c	Hot strip				Cleveland, del	2.10c
Philadelphia, del....	2.26c	Detroit, delivered....	2.80c	Cold strip				Buffalo	2.00c
Birmingham	2.10c	Philadelphia, del....	2.91c	Straight Chromes				Gulf Ports	2.30c
St. Louis, del.	2.28c	New York, del.	2.95c	No. No. No. No.				Birmingham	2.05c
Pacific ports, f.o.b. cars, dock	2.50c	Pacific ports, f.o.b. cars, dock	3.20c	410 430 442 446				Pacific ports, f.o.b. cars, dock	2.45c
Hot Rolled Annealed No. 24		Cold Rolled No. 20		Bars				Bars	
Pittsburgh	2.50c	Pittsburgh	3.05c	17.00 18.50 21.00 26.00				(Base, 3 to 25 tons)	
Gary	2.60c	Gary	3.15c	Plates				Pittsburgh	1.95c
Chicago, delivered....	2.63c	Detroit, delivered....	3.25c	20.00 21.50 24.00 29.00				Chicago or Gary....	2.00c
Detroit, delivered....	2.70c	Philadelphia, del....	3.36c	Sheets				Duluth	2.10c
New York, del.	2.85c	New York, del.	3.40c	25.00 28.00 31.00 35.00				Birmingham	2.10c
Philadelphia, del	2.81c	Enameling Sheets		Hot strip 15.75 16.75 21.75 26.75				Cleveland	2.00c
Birmingham	2.65c	Pittsburgh, No. 10..	2.45c	Cold stp. 20.50 22.00 27.00 35.00				Buffalo	2.05c
St. Louis, del	2.82c	Pittsburgh, No. 20..	3.05c	Steel Plate				Detroit, delivered....	2.10c
Pacific ports, f.o.b. cars, dock	3.15c	Gary, No. 10	2.55c	Pittsburgh				Pacific ports, f.o.b. cars, dock	2.50c
Galvanized No. 24		Gary, No. 20	3.15c	New York, del.				Philadelphia, del....	2.26c
Pittsburgh	3.20c	Tin and Terne Plate		Philadelphia, del.				Boston, delivered....	2.37c
Gary	3.30c	Gary base, 10 cents higher.		Boston, delivered....				New York, del	2.30c
Chicago, delivered..	3.33c	Tin plate, coke base (box) Pittsburgh	\$5.25	Buffalo, delivered....				Pitts., forg. qual....	2.20c
Philadelphia, del.	3.51c	Do., waste-waste..	2.75c	Chicago or Gary				Rail Steel	
New York, del.	3.55c	Do., strips	2.50c	Cleveland, del.				To Manufacturing Trade	
Birmingham	3.35c	Long ternes, No. 24 unassorted, Pitts.	3.50c	Birmingham				Pittsburgh	1.80c
St. Louis, del.	2.83c	Do., Gary	3.60c	Coatesville, base				Chicago or Gary....	1.85c
Pacific ports, f.o.b. cars, dock	3.80c			Sparrows Pt., base				Moline, Ill.	1.85c
				Pacific ports, f.o.b. cars, dock				Cleveland	1.85c
				St. Louis, delivered..				Buffalo	1.90c

Table listing prices for Iron products including Terre Haute, Ind., Chicago, Philadelphia, Pittsburgh, refined, and Reinforcing materials like New billet, straight lengths, quoted by distributors.

Wire Products

Table listing prices for Wire Products including Base Pitts.-Cleve. 100 lb. keg, Stand. wire nails, Cement c'd nails, Galv. nails, 15 gage and finer, etc.

Cold-Finished Carbon Bars and Shafting

Table listing prices for Cold-Finished Carbon Bars and Shafting including Base, Pitts., one size, shape, grade, shipment at one time to one destination.

Alloy Steel Bars (Hot)

Table listing prices for Alloy Steel Bars (Hot) including Base, 3 to 25 tons, Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem, etc.

Piling

Table listing prices for Piling including Pittsburgh, Chicago, Buffalo.

Strip and Hoops

Table listing prices for Strip and Hoops including Base, hot rolled, 25-1 ton, Base, cold-rolled, 25-3 tons, Hot strip to 23 1/8-in., etc.

Rails, Track Material

Table listing prices for Rails, Track Material including Standard rails, mill Relay rails, Pitts., 20-100 lbs., Light rails, billet qual. Pitts., Chi., etc.

Bolts and Nuts

Table listing prices for Bolts and Nuts including Pittsburgh, Cleveland, Birmingham, Chicago, Discounts to legitimate trade as per Dec. 1, 1932, lists, Carriage and Machine, etc.

Rivets, Wrought Washers

Table listing prices for Rivets, Wrought Washers including Struc., c. l., Pitts.-burgh, Cleveland, Struc., c. l., Chicago, etc.

Cut Nails

Table listing prices for Cut Nails including Cut nails, Pitts.; (10% discount on size extras) \$2.75, Do, less carloads, 5 kegs or more, no discount on size extras \$3.05

Do., under 5 kegs; no disc. on size extras..... \$3.20

Pipe and Tubing

Base \$200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pitts., Lorain, O., to consumers in carloads. Gary, Ind., 2 points less. Chicago, del. 2 1/2 points less. Wrought pipe, Pittsburgh.

Table listing prices for Welded Iron, Steel Pipe including In., Blk. Galv., 1/4 and 3/8, 1/2, 3/4, 1-3, etc.

Boiler Tubes

Table listing prices for Boiler Tubes including C. L. Discounts, f.o.b. Pitts., Lap Weld, Charcoal, Iron, etc.

In lots of a carload or more, above discounts subject to preferential of two 5% and one 7 1/2% discount on steel and 10% on charcoal iron.

Lapwelded steel: 200 to 9999 pounds, ten points under base, one 5% and one 7 1/2%. Under 2000 pounds 15 points under base, one 5% and one 7 1/2%.

Seamless Boiler Tubes

Under date of May 15 in lots of 40,000 pounds or more for cold-drawn boiler tubes and in lots of 40,000 pounds or feet or more for hot-finished boiler tubes, revised prices are quoted for 55 cold-drawn boiler tube sizes ranging from 1/4 to 6-inch outside diameter in 30 wall thicknesses, decimal equivalent from 0.035 to 1.000, on a dollars and cents basis per 100 feet and per pound. Less-carloads revised as of July 1, 1935, card.

Hot-finished carbon steel boiler tube prices also under date of May 15 range from 1 through 7 inches outside diameter, inclusive, and embrace 47 size classifications in 22 decimal wall thicknesses ranging from 0.109 to 1.000, prices also being on a lb. and 100 ft. basis.

Seamless Tubing

Cold drawn; f.o.b. mill disc. 100 ft. or 150 lbs. 32% 15,000 ft. or 22,500 lbs. 70%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton 6-in. & over, Birm. \$39.00-40.00 4-in., Birmingham.... 42.00-43.00 4-in., Chicago 50.40-51.40 6 to 24-in. Chicago.. 47.40-48.40 6-in. & over, east. fdy. 43.00 Do., 4-in. 46.00 Class A pipe \$3 over Class B Std. fltgs., Birm. base.. \$100.00

Semifinished Steel

Table listing prices for Semifinished Steel including Billets and Blooms, 4 x 4-inch base; gross ton, Pitts., Chi., Cleve., Buffalo & Young, Philadelphia, Duluth, Forging Billets, 6 x 6 to 9 x 9-in., base, Pitts., Chi., Buff., Forging, Duluth, Sheet Bars, Pitts., Cleve., Young, Chi., Buff., Canton, Sparrows Pt., Slabs, Pitts., Chi., Cleve., Young, Wire Rods, Pitts., Cleve., No. 4 to 5, Do., No. 5 to 11-inch, Do., over 11 to 14-inch, Chicago up \$1; Worcester up \$2, Skelp, Pitts., Chi., Young, Buff., Coatesville, Sparrows Point, 1.80c

Coke

Table listing prices for Coke including Price Per Net Ton, Beehive Ovens, Connellsville, fur., \$3.30-3.75, Connellsville, fdry., 4.25-4.50, Connell, prem. fdry., 5.50, New River fdry., 6.00, Wise county fdry., 4.45-5.00, Wise county fur., 4.00-4.50, By-Product Foundry, Newark, N. J., del., 9.70-10.15, Chi., ov., outside del., 9.00, Chicago, del., 9.75, New England, del., 11.50, St. Louis, del., 10.00-10.50, Birmingham, ovens, 6.50, Indianapolis, del., 9.40, Cincinnati, del., 9.50, Cleveland, del., 9.75, Buffalo, ovens, 7.50-8.00, Detroit, ov., out. del., 9.00, Philadelphia, del., 9.38

Coke By-Products

Table listing prices for Coke By-Products including Per gallon, producers' plants, Tank lots, Spot, Pure and 90% benzol, 16.00c, Toluol, 30.90c, Solvent naphtha, 30.00c, Industrial xylol, 30.00c, Per lb. f.o.b. Frankford, Phenol (200 lb. drums), 15.50c, Do. (450 lbs.), 14.50c, Eastern Plants, per lb., Naphthalene flakes and balls, in bbls., to jobbers 7.25c, Per 100 lbs. Atlantic seaboard Sulphate of ammonia, \$1.25, †Western prices, 1/2-cent up.

Pig Iron

Delivered prices include switching charges only as noted. No. 2 foundry is 1.75-2.25 sil.; 25c diff. for each 0.25 sil. above 2.25; 50c diff. for each 0.25 below 1.75. Gross tons.

Basing Points:	No. 2 Fdry.	Malle-able	Basic	Besse-mer
Bethlehem, Pa.	\$20.50	\$21.00	\$20.00	\$21.50
Birdsboro, Pa.	20.50	21.00	20.00	21.50
Birmingham, Ala., southern del.	15.50	15.50	14.50	21.00
Buffalo	19.50	20.00	18.50	20.50
Chicago	19.50	19.50	19.00	20.00
Cleveland	19.50	19.50	19.00	20.00
Detroit	19.50	19.50	19.00	20.00
Duluth	20.00	20.00	.....	20.50
Erie, Pa.	19.50	20.00	19.00	20.50
Everett, Mass.	20.50	21.00	20.00	21.50
Hamilton, O.	19.50	19.50	19.00	.....
Jackson, O.	20.25	20.25	19.75	.....
Neville Island, Pa.	19.50	19.50	19.00	20.00
Provo, Utah	17.50	.....	17.00	.....
Sharpsville, Pa.	19.50	19.50	19.00	20.00
Sparrows Point, Md.	20.50	.....	20.00	.....
Swedeland, Pa.	20.50	21.00	20.00	21.50
Toledo, O.	19.50	19.50	19.00	20.00
Youngstown, O.	19.50	19.50	19.00	20.00

Delivered from Basing Points:

Akron, O., from Cleveland	20.76	20.76	26.26	21.26
Baltimore from Birmingham	21.08	.....	19.96	.....
Boston from Birmingham	20.62	.....	20.50	.....
Boston from Everett, Mass.	21.00	21.50	20.50	22.00
Boston from Buffalo	21.00	21.50	20.50	22.00
Brooklyn, N. Y., from Bethlehem	22.93	23.43	.....	.....
Brooklyn, N. Y., from Brnghm.	22.50	.....	.....	.....
Canton, O., from Cleveland	20.76	20.76	20.26	21.26
Chicago from Birmingham	19.72	.....	19.60	.....
Cincinnati from Hamilton, O.	19.82	20.58	20.08	.....
Cincinnati from Birmingham	19.44	.....	18.44	.....
Cleveland from Birmingham	19.62	.....	19.12	.....
Indianapolis from Hamilton, O.	21.17	21.77	21.27	.....
Mansfield, O., from Toledo, O.	21.26	21.26	20.76	21.76
Milwaukee from Chicago	20.57	20.57	20.27	21.07
Muskegon, Mich., from Chicago	.....	.....	.....	.....
Toledo or Detroit	22.60	22.60	22.10	23.10
Newark, N. J., from Birmingham	21.61	.....	.....	.....
Newark, N. J., from Bethlehem	21.99	22.49	.....	.....
Philadelphia from Birmingham	20.93	.....	20.81	.....
Philadelphia from Swedeland, Pa.	21.31	21.81	20.81	.....
Pittsburgh district from Neville	.....	.....	.....	.....
Island	.....	.....	.....	.....
Saginaw, Mich., from Detroit	21.75	21.75	21.25	21.25
St. Louis, northern	20.00	20.00	19.50	.....

Delivered from Basing Points:	No. 2 Fdry.	Malle-able	Basic	Besse-mer
St. Louis from Birmingham	\$19.68	.....	19.50	.....
St. Paul from Duluth	21.94	21.94	.....	22.44

†Over 0.70 phos.

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Standish, N. Y., \$24.00, Phila. base, standard and copper bearing, \$25.13.

Gray Forge

Valley furnace	19.00	Lake Superior fur.	\$22.00
Pitts. dist. fur.	19.00	Do., del. Chicago	25.25
		Lyles, Tenn.	22.50

Silvery†

Jackson county, O., base; 6-6.50 per cent \$22.75; 6.51-7—\$23.25; 7-7.50—\$23.75; 7.51-8—\$24.25; 8-8.50—\$24.75; 8.51-9—\$25.25; 9-9.50—\$25.75. Buffalo \$1.25 higher.

Bessemer Ferrosilicon†

Jackson county, O., base: Prices are the same as for silveries, plus \$1 a ton.

†The lower all-rail delivered price from Jackson, O., or Buffalo is quoted with freight allowed.

Manganese differentials in silvery iron and ferrosilicon, 2 to 3%, \$1 per ton add. Each unit over 3%, add \$1. per ton.

Refractories

Per 1000 f.o.b. Works

Fire Clay Brick	.....	timore bases (bags)..	\$45.00
Super Quality	.....	Domestic dead-burned grains, net ton f.o.b.	.....
Pa., Mo., Ky.	\$55.00	Chester, Pa., and Baltimore bases (bags)....	40.00
First Quality	.....	Domestic dead-burned gr. net ton f.o.b. Chel-	.....
Pa., Ill., Md., Mo., Ky.	\$45.00	welah, Wash. (bulk)..	22.00
Alabama, Georgia...	\$38.90-45.00	Basic Brick	.....
Second Quality	.....	Net ton, f.o.b. Baltimore, Ply-	.....
Pa., Ill., Ky., Md., Mo.	40.00	mouth Meeting, Chester, Pa.	.....
Georgia, Alabama...	35.00	Chrome brick	\$45.00
Ohio	.....	Chem. bonded chrome....	45.00
First quality	\$40.00	Magnesite brick	65.00
Intermediary	37.00	Chem. bonded magnesite	55.00
Second quality	28.00		
Malleable Bung Brick	.....	Fluorspar, 85-5	.....
All bases	50.00	Washed gravel, duty paid, tide, net ton....	\$21.50
Silica Brick	.....	Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail	\$18.00
Pennsylvania	\$45.00	Do., for barge	\$19.00
Joliet, E. Chicago...	54.00		
Birmingham, Ala.	48.00		
Ladle Brick (Dry Press)	.....	Ferroalloys	.....
Pa., O., W. Va., Mo.	\$24.00	Dollars, except Ferrochrome	.....
Do., wire cut	22.00	Ferromanganese,	.....
Magnesite	.....	78-82% tidewater, duty paid	75.00
Imported dead-burned grains, net ton f.o.b.	.....	Do., Baltl., base...	75.00
Chester, Pa., and Bal-	.....	Do., del. Pittsb'gh	80.15

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

Copper			Straits Tin		Lead	Lead	Alum-	Antlmony	Nickel		
Electro. del.	Lake. del.	Casting. refinery	Spot	Futures	New York	East St. L.	num 99%	Chinese Spot, N. Y.	Cath-odes		
Aug. 8	9.75	9.87½	9.40	42.37½	41.00	4.60	4.45	4.80	*19.00	12.50	35.00
Aug. 10	9.75	9.87½	9.40	42.62½	41.25	4.60	4.45	4.80	*19.00	12.50	35.00
Aug. 11	9.75	9.87½	9.40	43.30	41.90	4.60	4.45	4.80	*19.00	12.50	35.00
Aug. 12	9.75	9.87½	9.40	42.75	41.37½	4.60	4.45	4.80	*19.00	12.50	35.00
Aug. 13	9.75	9.87½	9.40	42.62½	41.12½	4.60	4.45	4.80	*19.00	12.50	35.00
Aug. 14	9.75	9.87½	9.40	42.25	49.87½	4.60	4.45	4.80	*19.00	12.50	35.00

*Nominal range 19.00 to 21.00c.

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 9.75c Conn. copper

Sheets	.....
Yellow brass (high)	15.37½
Copper, hot rolled...	17.25
Lead cut to jobbers...	8.25
Zinc, 100-lb. base...	9.50
Tubes	.....
High yellow brass...	17.62½
Seamless copper...	17.75
Rods	.....
High yellow brass...	13.37½
Copper, hot rolled...	14.00
Anodes	.....
Copper, untrimmed	14.75
Wire	.....
Yellow brass (high)	15.62½

OLD METALS

Deal. buying prices, cents lb.

No. 1 Composition Red Brass	.....
New York	6.12½-6.37½
Cleveland	6.40-6.75
Chicago	6.00-6.25
St. Louis	5.75-6.25
Heavy Copper and Wire	.....
New York, No. 1	7.75-8.00
Chicago, No. 1	7.50-7.75
Cleveland, No. 1	7.25-7.75
St. Louis, No. 1	7.50-7.75
Composition Brass Borings	.....
New York	5.87½-6.12½
Light Copper	.....
New York	6.50-6.62½
Chicago	6.00-6.25
Cleveland	6.00-6.25
St. Louis	6.00-6.50

Light Brass

Chicago	3.75-3.87½
Cleveland	3.40-3.65
St. Louis	3.40-3.90
Lead	.....
New York	3.62½-3.87½
Cleveland	3.50-3.75
Chicago	3.25-3.75
St. Louis	3.25-3.75
Zinc	.....
New York	2.37½-2.62½
St. Louis	2.25-2.50
*Cleveland	2.25-2.50
Aluminum	.....
Borings, Cleveland	9.00-9.50
Mixed, cast, Cleve.	12.00-12.25
Mixed, cast, St. L.	11.25-11.75
Clips, soft, Cleve.	14.00-14.50

SECONDARY METALS	.....
Brass ingot, 85-5-5-5	9.75
*Stand. No. 12 alum.	16.50-17.00

Ferroalloys

Dollars, except Ferrochrome	.....
Ferromanganese,	.....
78-82% tidewater, duty paid	75.00
Do., Baltl., base...	75.00
Do., del. Pittsb'gh	80.15
Spiegeleisen, 19-20% dom. Palmer-	.....
ton, Pa., spot	26.00
Do., New Orleans	26.00
Ferrosilicon, 50%	.....
freight all, cl.	69.50
Do., less carload.	77.00
Do., 75 per cent.	126-130.00
Spot, \$5 a ton higher.	.....
Silicomane, 2½ carb.	85.00
2% carbon, 90.00; 1%,	100.00
Ferrocobalt, 66-70	.....
chromium, 4-6 car-	.....
bon, cts. lb. del....	10.00
Ferrotungsten,	.....
stand., lb. con. del.	1.30-1.40
Ferrovandium, 35	.....
to 40% lb., cont....	2.70-2.90
Ferrotitanium, c. l.,	.....
prod. plant, frt.	.....
allow., net ton....	137.50
Spot, 1 ton, frt.	.....
allow., lb.	7.00
Do., under 1 ton....	7.50
Ferrophosphorus,	.....
per ton, c. l., 17-	.....
19% Rockdale,	.....
Tenn., basis, 18%,	.....
\$3 unitage	58.50
Ferrophosphorus,	.....
electrolytic, per	.....
ton c. l., 23-26%	.....
f.o.b. Anniston,	.....
Ala., 24% \$3	.....
unitage	75.00
Ferromolybdenum,	.....
stand. 55-65%, lb.	0.95
Molybdate, lb. cont.	0.80
†Carloads. Quan. diff. apply	.....

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated; † indicates brokers prices

HEAVY MELTING STEEL		COUPLERS, SPRINGS		Buffalo 8.50-9.00		Chicago, rolled steel 17.00-17.50	
Birmingham†	9.00-12.00	Buffalo	15.00-15.50	Cincinnati, dealers..	5.00-5.50	Cincinnati, iron.....	11.75-12.25
Bos. d'ck, No. 1, exp.	†11.75	Chicago, springs.....	17.00-17.50	Cleveland	9.00-9.25	Eastern Pa., iron.....	15.50
N. Eng. del. No. 1..	11.75	Eastern Pa.	17.50-18.00	Detroit	8.00-8.50	Eastern Pa., steel....	17.50
Buffalo, No. 1	13.50-14.00	Pittsburgh	18.50-19.00	Eastern Pa.	7.50-8.00	Pittsburgh, iron.....	16.00-16.50
Buffalo, No. 2	12.00-12.50	St. Louis	14.50-15.00	New York	†4.75-5.00	Pittsburgh, steel....	18.50-19.00
Chicago, No. 1	15.25-15.75			Pittsburgh	10.50-11.00	St. Louis, iron.....	13.50-14.00
Cleveland, No. 1	14.00-14.50	ANGLE BARS—STEEL		Toronto, dealers	4.00	St. Louis, steel.....	14.50-15.00
Cleveland, No. 2	13.00-13.50	Chicago	16.50-17.00			Toronto, net	8.50
Detroit, No. 1	12.50-13.00	St. Louis	15.00-15.50	CAST IRON BORINGS			
Eastern Pa., No. 1..	14.00	Buffalo	14.50-15.00	Birmingham, plain..	4.00-5.00		
Eastern Pa., No. 2..	13.00			Boston dist. chem..	†6.25-6.75		
Federal, Ill.	12.00-12.50	RAILROAD SPECIALTIES		Boston dist. for mills	†4.50-5.00		
Granite City, R. R.	13.00-13.50	Chicago	16.50-17.00	Buffalo	8.50-9.00		
Granite City, No. 2	10.75-12.25	LOW PHOSPHORUS		Chicago, dealers.....	7.50-8.00		
New York, No. 2	†9.00-9.25	Buffalo, billet and	15.00-15.50	Cincinnati, dealers..	5.00-6.50		
N. Y. d'ck, No. 1, exp.	†11.00-11.25	bloom crops		Cleveland	9.00-9.25		
Pitts., No. 1 (R. R.)	16.50-17.00	Cleveland, billet,		Detroit	8.00-8.50		
Pitts., No. 1 (dlr.)	15.75-16.25	bloom crops	18.75-19.25	E. Pa., chemical.....	10.00-13.00		
Pittsburgh, No. 2..	14.25-14.75	Eastern Pa., crops..	17.50-18.00	New York	†4.75-5.00		
St. Louis, R. R.	13.00-13.50	Pittsburgh, billet,		St. Louis	4.50-5.00		
St. Louis, No. 2	10.75-11.25	bloom crops	18.75-19.25	Toronto, dealers.....	5.00		
Toronto, dealers	7.50	Pittsburgh, sheet		PIPE AND FLUES			
Valleys, No. 1	14.75-15.25	bar crops	18.25-18.75	Cincinnati, dealers..	7.50-8.00		
COMPRESSED SHEETS				Chicago, net	8.00-8.50		
Buffalo, dealers	12.00-12.50	FROGS, SWITCHES		RAILROAD GRATE BARS			
Chicago, factory	13.50-14.00	Chicago	14.00-14.50	Buffalo	10.50-11.00		
Chicago, dealer	12.25-12.75	St. Louis, cut	14.00-14.50	Chicago, net	10.00-10.50		
Cleveland	13.50-14.00	SHOVELING STEEL		Cincinnati	7.50-8.00		
Detroit	12.50-13.00	Chicago	15.25-15.75	Eastern Pa.	11.50		
E. Pa., new mat.	13.50-14.00	Federal, Ill.	12.00-12.50	New York	†7.25-7.75		
E. Pa., old mat	11.00-11.50	Granite City, Ill.	10.75-11.25	St. Louis	10.00-10.50		
Pittsburgh	15.75-16.25	Toronto, dealers	6.50	FORGE FLASHINGS			
St. Louis	11.00-11.50	RAILROAD WROUGHT		Boston district	†8.00-8.25		
Valleys	14.50-14.75	Birmingham	7.50-8.00	Buffalo	12.00-12.50		
BUNDLED SHEETS		Boston district	†7.25-7.50	Cleveland	13.00-13.50		
Buffalo	10.50-11.00	Buffalo, No. 1	12.00-12.50	Detroit	10.50-11.00		
Cincinnati, del.	8.25-8.75	Buffalo, No. 2	13.50-14.00	Pittsburgh	14.00-14.50		
Cleveland	10.50-11.00	Chicago, No. 1, net.	13.75-14.25	FORGE SCRAP			
Pittsburgh	14.25-14.75	Chicago, No. 2	15.25-15.75	Boston district	†5.50-6.00		
St. Louis	8.25-8.75	Cincinnati, No. 2	11.75-12.25	Chicago, heavy	17.00-17.50		
Toronto, dealers	4.50	Eastern Pa.	14.50-15.00	Eastern Pa.	14.00		
SHEET CLIPPINGS, LOOSE		St. Louis, No. 1	11.75-12.25	ARCH BARS, TRANSOMS			
Chicago	8.50-9.00	St. Louis, No. 2	12.50-13.00	St. Louis	14.50-15.00		
Cincinnati	7.00-7.50	Toronto, No. 1, dlr.	7.00	AXLE TURNINGS			
Detroit	9.00-9.50	SPECIFICATION PIPE		Boston district	†7.00-7.25		
St. Louis	7.50-8.00	Eastern Pa.	12.50	Buffalo	11.00-11.50		
STEEL RAILS, SHORT		New York	†8.75-9.25	Chicago, elec. fur.	14.00-14.50		
Birmingham	11.50-12.00	BUSHELING		Eastern Pa.	12.50-13.00		
Buffalo	15.50-16.00	Buffalo, No. 1	12.00-12.50	St. Louis	9.50-10.00		
Chicago (3 ft.)	17.00-17.50	Chicago, No. 1	14.00-14.50	Toronto	4.50		
Chicago (2 ft.)	17.50-18.00	Cincl., No. 1, deal.	9.25-9.75	STEEL CAR AXLES			
Cincinnati, del.	15.00-15.50	Cincinnati, No. 2	5.00-5.25	Birmingham	11.50-12.50		
Detroit	15.50-16.00	Cleveland, No. 2	9.00-9.25	Boston district	†12.00-12.50		
Pitts., open-hearth,		Detroit, No. 1, new	11.50-12.00	Buffalo	15.50-16.00		
3 ft. and less	17.50-18.00	Valleys, new, No. 1.	14.50-14.75	Chicago, net	17.50-18.00		
St. Louis, 2 ft. & less	16.00-16.50	Toronto, dealers	6.00	Eastern Pa.	17.50-18.00		
STEEL RAILS, SCRAP		MACHINE TURNINGS		St. Louis	14.50-15.00		
Boston district	†8.75-9.00	Birmingham	4.00-5.00	Toronto	8.50		
Buffalo	13.50-14.00	Buffalo	7.00-7.50	SHAFTING			
Chicago	14.00-14.50	Chicago	6.50-7.00	Boston district	†13.75-14.25		
Pittsburgh	16.25-16.75	Cincinnati, dealers..	5.75-6.25	Eastern Pa.	20.00-21.50		
St. Louis	14.25-14.75	Cleveland	8.75-9.00	New York	†14.25-14.75		
Toronto, dealers	8.50	Detroit	7.50-8.00	St. Louis	14.00-14.50		
STOVE PLATE		Eastern Pa.	9.00-9.50	CAR WHEELS			
Birmingham	8.00-9.00	New York	†4.50-5.00	Birmingham	11.00-11.50		
Boston district	†6.25-6.75	Pittsburgh	10.50-11.00	Boston dist. iron	†9.25-9.50		
Buffalo	10.00-10.25	St. Louis	6.00-6.50	Buffalo, iron	13.50-14.00		
Chicago	9.00-9.50	Toronto, dealers	4.00	Buffalo, steel	15.50-16.00		
Cincinnati, dealers..	8.00-8.25	Valleys	10.25-10.75	Chicago, iron	15.50-16.00		
Detroit, net	9.00-9.50	BORINGS AND TURNINGS					
Eastern Pa.	11.50	Boston district	†3.25-4.25				
New York, fdry.....	†7.25-7.75	<i>For Blast Furnace Use</i>					
St. Louis	8.50-9.00						
Toronto, dealers, net	5.50						

Iron Ore

Lake Superior Ore	
Gross ton, 51½%	
Lower Lake Ports	
Old range bessemer	\$4.80
Mesabi nonbess.	4.50
High phosphorus	4.40
Mesabi bessemer	4.65
Old range nonbess.	4.65

Eastern Local Ore	
Cents, unit, del. E. Pa.	
Foundry and basic	8.00-9.00
56-63% con. (nom.)	8.00-9.00
Cop.-free low phos.	
58-60% (nom.)	10.00-10.50
Foreign Ore	
Cents per unit, f.a.s. Atlantic ports (nominal)	
Foreign manganiferous ore, 45.55%	

iron, 6-10% man.	10.50
No. Afr. low phos.	10.50
Swedish basic, 65%	9.50
Swedish low phos.	10.50
Spanish No. Africa basic, 50 to 60%	10.50
Tungsten, spot sh. ton unit, duty pd.	\$15.85-16.00
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f.	19.25

Manganese Ore

<i>(Nominal)</i>	
Prices not including duty cents per unit cargo lots	
Caucasian, 50-52%	26.00
So. African, 50-52%	26.00
Indian, 50-52%	26.00

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS	Cincinnati	3.25c	Buffalo	3.47c	Pittsburgh (h)	3.05c	St. Louis	3.65c
Baltimore*	Houston	3.25c	Chattanooga..	3.66c	San Francisco	3.45c	St. Paul	3.65c
Boston†	Los Angl., cl.	2.45c	Chicago	3.30c	Seattle	3.85c	COLD FIN. STEEL	
Buffalo	New Orleans	3.50c	Cincinnati	3.52c	St. Louis	3.40c	Baltimore (c)	3.88c
Chattanooga..	Pitts., plain (h)	3.05c	Cleveland, ¼-	3.41c	St. Paul	3.40c	Boston	4.05c
Chicago (j)....	Pitts., twisted		in. and over	3.41c	Tulsa	3.80c	Buffalo (h)....	4.05c
Cincinnati	squares (h)	3.175c	Detroit	3.52c	NO. 24 BLACK			
Cleveland	San Francisco	2.45c	Detroit, ¾-in.	3.85c	Baltimore*†....	3.70c	Chicago (h)....	3.70c
Detroit	Seattle	3.50c	Houston	3.10c	Boston (g)	4.05c	Chattanooga*	4.28c
Houston	St. Louis	3.35c	Los Angeles..	3.70c	Buffalo	3.35c	Cincinnati	3.87c
Los Angeles..	Tulsa	3.25c	Milwaukee	3.41c	Chattanooga*	3.41c	Cleveland (h)	3.65c
Milwaukee 3.21c-3.36c	Young.....	2.30c-2.60c	New Orleans..	3.65c	Chicago	3.95c	Detroit	3.74c
New Orleans..	SHAPES		New York†(d)	3.50c	Cincinnati	4.12c	Los Ang.(f) (d)	6.00c
New York†(d)	Baltimore*....	3.10c	Philadelphia*	3.10c	Cleveland	3.91c	Milwaukee	3.76c
Pitts. (h)....	Boston†	3.29c	Phila. floor....	4.95c	Detroit	4.04c	New Orleans..	4.45c
Philadelphia*	Buffalo	3.35c	Pittsburgh (h)	3.25c	Los Angeles..	4.45c	New York†(d)	3.96c
Portland	Chattanooga..	3.66c	Portland	3.60c	Milwaukee	4.06c	Philadelphia*	3.91c
San Francisco	Chicago	3.30c	San Francisco	3.35c	New Orleans	4.50c	Pittsburgh	3.50c
Seattle	Cincinnati	3.52c	Seattle	3.65c	New York†(d)	3.99c	Portland (f) (d)	6.30c
St. Louis	Cleveland	3.41c	St. Louis	3.55c	Philadelphia*†	3.75c	San Fran.(f) (d)	6.10c
St. Paul.....	Detroit	3.52c	St. Paul	3.55c	Pitts.** (h)	3.55c-4.85c	Seattle (f) (d)	6.25c
Tulsa	Houston	3.10c	Tulsa	3.60c	Portland	4.20c	St. Louis	3.90c
IRON BARS		Los Angeles..	NO. 10 BLUE		San Francisco	4.10c	St. Paul	4.17c
Portland	Milwaukee	3.70c	Baltimore*....	3.10c	Seattle	4.50c	Tulsa	4.80c
Chattanooga..	New Orleans..	3.65c	Boston (g)	3.40c	St. Louis	4.20c	COLD ROLLED STRIP	
Baltimore*....	New York†(d)	3.47c	Buffalo	3.72c	St. Paul	4.00c	Boston	3.245c
Chicago	Philadelphia*	3.10c	Chattanooga..	3.46c	Tulsa	4.85c	Buffalo	3.39c
Cincinnati	Pittsburgh (h)	3.25c	Chicago	3.15c	NO. 24 GALV. SHEETS			
New York†(d)	Portland (l)	3.60c	Cincinnati	3.32c	Baltimore*†....	3.90c	Chicago	3.27c
Philadelphia*	San Francisco	3.35c	Cleveland	3.21c	Buffalo	4.10c	Cincinnati (b)	3.22c
St. Louis	Seattle (l)....	3.80c	Det. 8-10 ga.	3.24c	Boston (g)....	4.00c	Cleveland (b)	3.00c
Tulsa	St. Louis	3.45c	Houston	3.45c	Chattanooga*	3.96c	Detroit	3.18c
REINFORCING BARS		St. Paul	Los Angeles..	3.85c	Chicago (h)....	4.65c	New York†(d)	3.36c
Buffalo	Tulsa	3.60c	Milwaukee	3.26c	Cincinnati	4.82c	St. Louis	3.41c
Chattanooga..	PLATES		New Orleans..	3.65c	Cleveland	4.61c	TOOL STEELS	
Chicago.....	Baltimore*....	3.10c	New York†(d)	3.41c	Detroit	4.82c	(Applying on or east of	
Cleveland (c)	Boston†	3.31c	Portland	3.85c	Houston	4.50c	Mississippi river; west	
			Philadelphia*	3.20c	Los Angeles..	4.50c	of Mississippi 1c up)	
					Milwaukee	4.76c	Base	
					New Orleans	4.95c	High Speed	59 ½c
					N. Y.†(d)	4.30-4.50c	High carbon, high	
					Philadelphia*†	4.50c	chrome	39c
					Pitts.** (h)	4.30c-5.55c	Oil hardening	23c
					Portland	4.60c	Special tool	21c
					San Francisco	4.60c	Extra tool	17 ½c
					Seattle	5.10c	Regular tool	14 ½c
					St. Louis.....	4.90c	Uniform extras apply.	
					St. Paul	4.60c	BOLTS AND NUTS	
					Tulsa	5.20c	(100 pounds or over)	
					DISCOUNT			
							Chicago (a)	85
							Cleveland	70
							Detroit	70
							Milwaukee	70
							Pittsburgh	65-5

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Aug. 13

Export Prices f. o. b. Ship at Port of Dispatch—(By Cable or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons	
	£	s d	Quoted in dollars at current value	**Quoted in gold pounds sterling
PIG IRON				
Foundry, 2.50-3.00 Silicon	\$15.69	3 2 6*	\$13.89	1 15 0
Basic bessemer.....	15.69	3 2 6*	11.51	1 9 0
Hematite, Phos. .03-.05..	18.70	3 14 6		
SEMIFINISHED STEEL				
Billets	\$29.49	5 17 6	\$18.65	2 7 0
Wire rods, No. 5 gage....	44.93	8 19 0	35.73	4 10 0
FINISHED STEEL				
Standard rails	\$41.41	8 5 0	\$43.67	5 10 0
Merchant bars	1.90c	8 10 0	1.12c to 1.17c	3 2 6 to 3 5 0
Structural shapes	1.84c	8 5 0	1.11c	3 1 6
Plates, ½ in. or 5 mm....	1.93c	8 12 6	1.53c	4 5 0
Sheets, black, 24 gage or 0.5 mm.....	2.18c	9 15 0	2.17c	6 1 0†
Sheets, gal., 24 gage, corr.	2.63c	11 15 0	2.56c	7 0 0
Bands and strips.....	1.96c	8 15 0	1.43c	4 0 0
Plain wire, base.....	2.18c	9 15 0	1.89c	5 5 0
Galvanized wire, base....	2.58c	11 10 0	2.10c	5 17 6
Wire nails, base.....	2.69c	12 0 0	1.71c	4 15 0
Tin plate, box 108 lbs....	\$ 4.71	0 18 9		

British ferromanganese \$75 delivered Atlantic seaboard, duty-paid. German ferromanganese \$9 0s 0d (\$43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£	s	d	French Francs	Belgian Francs	Reich Marks
Fdy. pig iron, Si. 2.5	\$18.83	3 15	0(a)	\$19.11	\$15.16	450
Basic bessemer pig iron	18.83	3 15	0(a)	12.52	190	365
Furnace coke	5.40	1 1 6		6.85	104	4.13
Billets	30.75	6 2 6		30.12	457	19.53
Standard rails	1.85c	8 5 0		2.01c	671	1.68c
Merchant bars	2.09c	9 7 0		1.89c	630	1.06c
Structural shapes	2.10c	9 7 6		1.86c	620	1.06c
Plates, ½ in. or 5 mm....	2.17c	9 13 9		2.37c	790	1.29c
Sheets, black.....						
Sheets, galv., corr., 24 ga.	2.69c	12 0 0	§	2.39c	800†	1.45c
or 0.5 mm.....	3.14c	14 0 0		3.13c	1,050	2.28c
Plain wire	2.18c	9 15 0		3.30c	1,100	1.90c
Bands and strips.....	2.26c	10 2 0		2.21c	735	1.29c

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. †1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel. a del. Middlesbrough. b hematite. †Close annealed. **Gold pound sterling carries a premium of 63.00 per cent over paper sterling.

Bars

Bar Prices, Page 70

Pittsburgh—Although two leading motor car makers have entered bar orders in substantial quantity, further buying from this industry will develop in greater quantity over the balance of August. Many miscellaneous types of merchant bar users are also in the market, with the result that backlogs held by mills here average four to five weeks at present rolling levels. Orders for alloy steel bars, as reported by producers here, have been at the best level this week than in any week of 1936, barring two weeks earlier in the spring.

Cleveland—New business for the first two weeks of August has held up well despite the marked recession in activity of farm equipment and automobile manufacturers. Backlogs on carbon bars vary from three to four weeks. Some mills were forced to reject a few good size orders because of the inability to make required deliveries.

Chicago—Bar mills find deliveries still difficult to meet, but are making every effort to take care of consumer requirements. It is apparent from the insistence of consumers on prompt delivery that steel is going immediately into consumption.

Boston—A sharp increase in buying by jobbers is the chief feature, resulting not only from the large volume of business but also from a disposition on the part of jobbers to enlarge their stocks somewhat. New business is bringing the advanced price of 1.95c base, Pittsburgh, equivalent to 2.37c delivered, Boston, which became effective July 1. Mills now have completed all shipments on the basis of the old price of 1.85c base, Pittsburgh, so that this price now is a matter of history. Bar consumption continues heavy, with requirements of cold finished bars and screw stock particularly good. Bar mills continue to have difficulty in making prompt deliveries which are wanted in many cases.

New York—Commercial steel bar specifications are unusually active for this season of the year with deliveries three and four weeks behind. Hot alloy bar shipments are even more extended. Commercial bar specifications are diversified although principally for account of bolt and nut manufacturers, railroads and jobbers. Cold drawn bars still are in good demand by machine tool builders.

Philadelphia—Bar deliveries show no improvement, with most sellers booked ahead at least three and four weeks on commercial steel bars, and on cold finished bars and five and six weeks and beyond on hot alloy bars, where heat treatment is done by the

producer. Demand continues diversified. Prices are firm.

Plates

Plate Prices, Page 70

Pittsburgh—Mills still report backlogs of three to four weeks at present rolling levels, with prospects exceedingly favorable for the development of more plate tonnages to marine outlets. Dewey-Portland Cement Co., Kansas City, Mo., has

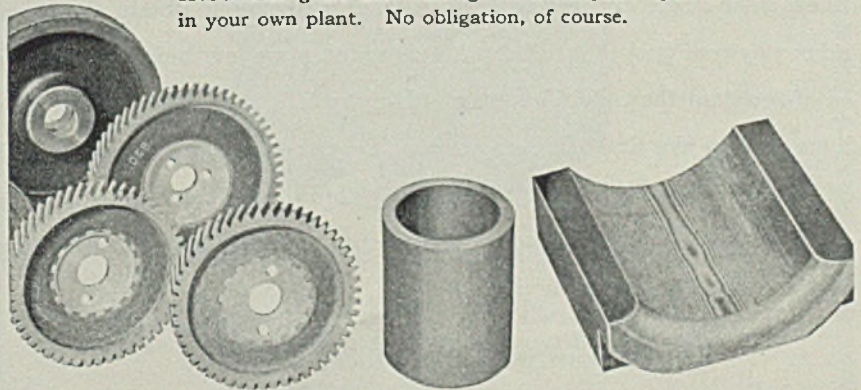
awarded 12 coal barges to St. Louis Ship Building Co. which require about 2600 tons of plates. Dravo Contracting Co., low bidder on two 20-inch pipe line suction dredges of the St. Paul engineers, has been affirmed by the war department, which has accepted its low bid of \$1,200,500. Both hulls will be wrought iron construction, according to specifications. Gulf Refining Co., through its New York marine headquarters, took bids Aug. 12 on two to four barges for use on the Ohio river, but low bidder has not been announced. A large number of plate contracts, small in size, con-

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tinue to be placed by widely representative buyers. The market is quoted firmly at 1.90c, base, Pittsburgh.

Cleveland—Few large orders specifying heavy gage plates have been placed recently. Structural fabricating shops are the most active consumers, though most of the projects are in small tonnages. Mills report heavy backlogs. Shipments so far this month have exceeded July.

Chicago—Some prospective barge business for western rivers gives promise of bringing plate tonnage to mills, but so far it has not come to

the point of awards. Requirements of railroad equipment builders bring a continuous run of specifications for use in contracts already placed, with the prospect for considerably more rolling stock buying later in the summer.

Boston—Consumption in New England continues heavy and there are numerous orders involving lots of 100 tons or more, not including a large volume represented by smaller individual requirements. Generally, buyers want prompt shipment which, due to the extent to which mills are filled with business, is accomplished

with difficulty. Prices are firm on the level of 2.00c base, Coatesville, Pa., equivalent to 2.32c delivered, Boston.

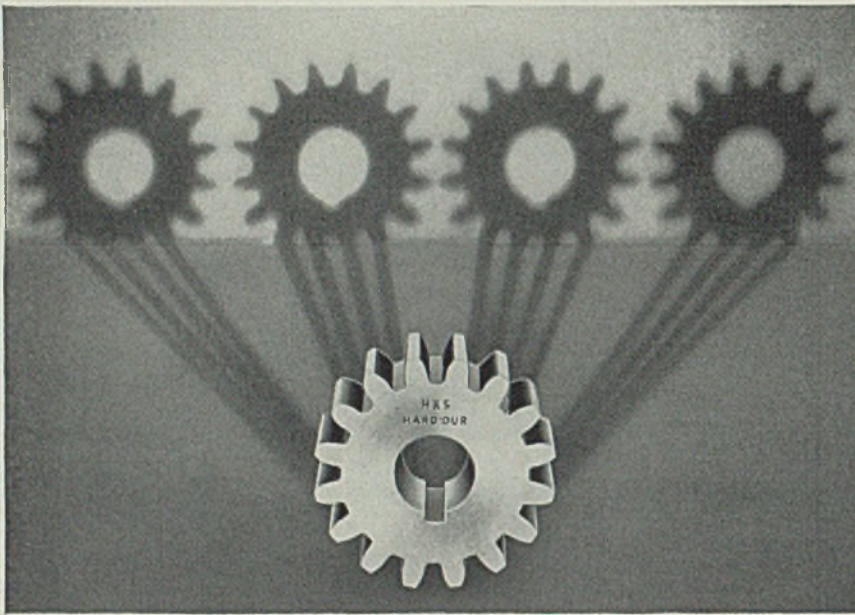
New York—Plate tonnage fairly well sustained although lacking in some of the larger orders, noted recently for railroad, ship and building work. The outlook for fall is considered promising, particularly in the railroad field. Effective Aug. 14, export price on plates advanced \$1 a ton to \$1.72½ F. A. S. New York. This applies to shipments to all foreign countries except Canada. On plates for Canada a greater increase is expected to be announced shortly, which will probably apply to fourth quarter shipments as tonnage for that country is quoted largely on quarterly basis.

Philadelphia—Momentarily miscellaneous demand is less active, the outstanding tonnages noted recently being absent. Producers continue optimistic, however, and expect some further good railroad equipment and ship tonnage to develop over the next few weeks. Eastern plate mills, due to their relatively large capacity, are in better position than others in the matter of deliveries it appears. Ten days to two weeks still appears to be the average for the eastern mills. Prices are firm at 2.00c, Coatesville, Pa., or 2.09c, delivered, Philadelphia.

Birmingham, Ala.—Demands are unchanged. Steady requirements by both mills and fabricators warrants continued steady operations, night forces still being retained. Several contracts, including pipe, barges, etc., are on books which require plate and there will be continued activity for some time, if not through the remainder of the year.

San Francisco—Increased activity is noted on the Pacific Coast although awards were limited. At the present time only six bidders contemplate submitting bids on the floating drydock for Pearl Harbor, T. H. Approximately 22,600 tons of plates will be required and over 7000 tons of shapes. The water and power department, Los Angeles, under specification X-36, will open bids on Aug. 17 for about 24,000 feet of 24 and 36-inch welded steel pipe involving 1000 tons. No award has been made as yet by the metropolitan water district, Los Angeles, on over 23,000 feet of 9-foot 8-inch diameter reinforced precast concrete pipe, calling for approximately 3500 tons of liner plates and the same tonnage of reinforcing material. San Francisco is expected to call for bids in the latter part of this month or early in September for 5000 tons for the second unit of the Crystal Springs pipe line. Bids will be called for soon for from 2000 to 3000 tons of welded steel pipe for Salem, Oreg.

Seattle—Several industrial projects, requiring about 1000 tons, are



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pending and local shops expect contracts to be placed shortly. Specifications are more numerous and increased activity is anticipated within 30 days. Two important water system extensions, calling for heavy tonnage, will be up for figures soon.

Contracts Placed

225 tons, three 15,000-barrel tanks, Gulf Refining Co., Cleveland, to Youngstown Boiler & Tank Co., Youngstown, O.
200 tons, 18-inch welded steel pipe, water and power department, Los Angeles, to Consolidated Steel Corp., Los Angeles.

Contracts Pending

5000 tons, 60-inch welded steel or reinforced concrete pipe, second unit, Crystal Springs pipe line, San Francisco; bids expected to be called in latter part of month.
2000 to 3000 tons, welded steel pipe, Salem, Oreg.; bids soon.
1000 tons, 24 and 36-inch welded steel pipe, specification X-36, water and power department, Los Angeles; bids Aug. 17.

Sheets

Sheet Prices, Page 70

Pittsburgh—Mills here have further added to their backlogs, and whereas five to six weeks could have been promised 10 days ago, the earliest delivery available today seems to be six weeks. Buying is coming from a wide variety of sources. Based on actual and not theoretical producing capacities, sheet mill operations in this district are at better than 80 per cent of capacity. Allegheny Steel Co. has announced a \$2 per ton increase on all eight grades of electrical sheets effective immediately, both f.o.b. Pittsburgh and f.o.b. Pacific coast ports. The following prices, f.o.b. Pittsburgh, 28 gage base, represent the advanced levels: field grade, 3.00c; armature, 3.35c; electrical, 3.85c; dynamo, 4.90c; dynamo special, 5.60c; transformer C, 6.10c; transformer B, 7.10c; transformer A, 7.60c.

Cleveland—Demand from farm equipment concerns has shown a slight tapering off since the first of the month. Requirements from household utilities and for building construction has held up in spite of seasonal influences. Most of the new business is spot buying, thereby making it difficult for the mills to meet delivery schedules. Prices remain firm.

Chicago—Sheet production is close to capacity, and although new business is somewhat less than a few weeks ago, it is holding up better through the summer than usual. Some small business from automotive builders for 1937 models is com-

ing out. Producers in this district are able to catch up to some extent on their backlogs.

Boston—Some good business in galvanized sheets, largely from jobbers who are paying the new price of 3.20c, base, Pittsburgh, equivalent to 3.62c, delivered, Boston, features the market here. New business also is reported good in hot-rolled and hot-rolled and annealed sheets, the former at 1.95c, base, Pittsburgh, and the latter at 2.50c, base, Pittsburgh.

New York—Little or no improvement is noted in sheet shipments

which average at least three to four weeks on hot products and five to six weeks on cold grades, with deliveries more extended. A leading producer is advancing prices \$2 a ton on electrical sheets for fourth quarter. The principal item known as electric grade is currently quoted at \$3.85c, Pittsburgh, for No. 28 gage. Sheet business is fairly brisk with sellers watching deliveries closely in view of possibility of price increases in other lines as well as electrical sheets.

Philadelphia—The recent slowing up in new inquiry has not been sufficient to result in any material im-

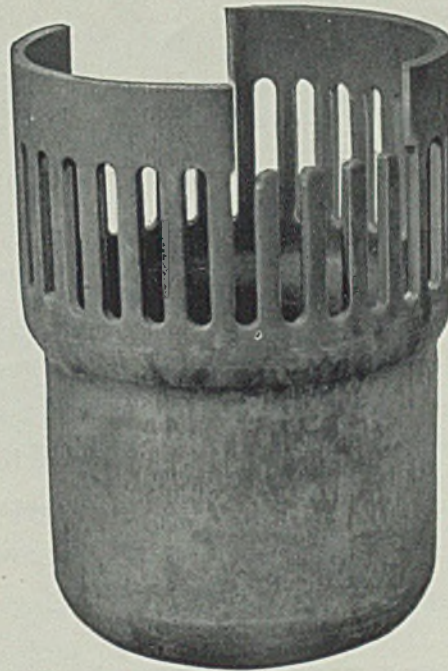
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provement in deliveries, sheet sellers declare. These interests are still having great difficulty getting tonnage out. Three to four weeks is the rule on hot-rolled sheets and five and six weeks and beyond on cold-finished.

An eastern sheet producer has abandoned production of wide cold finished sheets.

St. Louis—Producers and distributors report moderate slowing down in new sheet orders, though the current volume is somewhat above seasonal proportions. Backlogs continue sizable, and pressure for delivery on certain grades is urgent. Galvanized

material for general manufacturing purposes has developed no recessionary tendencies, but some slowing is noted in demand for roofing, particularly in the country. Independent can manufacturers in this area report sharply reduced orders and some cancellations in Missouri, Southern Illinois, Indiana and Kentucky.

Birmingham, Ala.—Sheet mills have maintained steady production for a longer period than for any other shape of steel. The end of the run does not appear in sight.

Cincinnati—Heavy specifications

from miscellaneous users are keeping schedules of sheet mills at a high level. Bookings assure good production almost until resumption of automotive buying. Galvanized demand has been unusually even.

Transportation

Track Material Prices, Page 71

The market on standard steel rails has been reaffirmed by producers at \$36.37½ per ton, f.o.b. mill, until Nov. 1, with shipments to be accepted until Jan. 1, 1937 at this price. However, the \$2 per ton price increase in tie bars, track spikes, and track bolts becomes effective on all specifications not placed prior to Aug. 30.

No freight car inquiries are pending with builders in Chicago though expectation is that some further buying will be done early in the fall. Chicago & Eastern Illinois is one road expected to come out soon for a considerable number of cars. Secondary buying of rails is looked for to bring a considerable tonnage for fall rolling. Orders for track accessories are in larger volume.

Nickel Plate distributed 5800 tons of rails to Bethlehem Steel Co., Carnegie-Illinois Steel Corp., and Inland Steel Co. A tonnage of tie plates also was purchased.

An inquiry has been issued by the government for 10,000 tons of 85-pound rails. Seaboard Air Line is in the market for 6280 tons of rails. Union Pacific contemplates purchase of 20 high-speed freight locomotives.

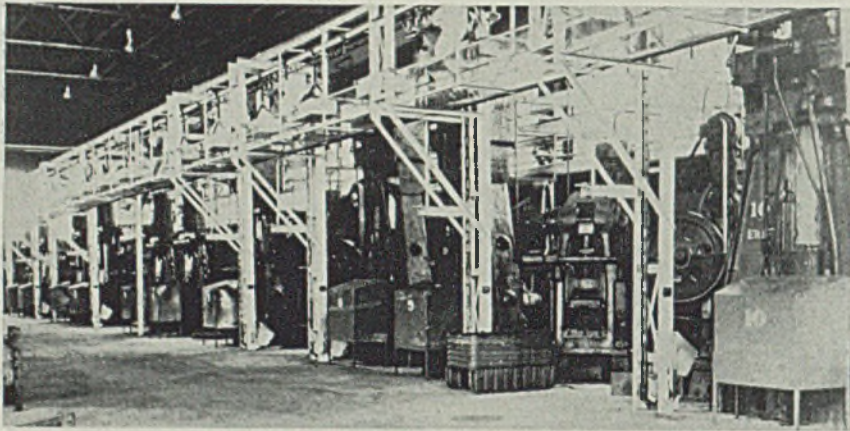
Pipe

Pipe Prices, Page 71

Pittsburgh—Jones & Laughlin Steel Corp. has been awarded a contract for approximately 12,000 tons of 12¾-inch line pipe by the Peoples Natural Gas Co., Pittsburgh. Williams Bros. Co., Tulsa, Okla., will construct the line and the Dresser Mfg. Co., Bradford, Pa., will furnish pipe couplings.

Cleveland—Strong activity in standard pipe for new buildings and repair work has been a bright factor in the market here. Jobbers stocks are moving at a steady pace, only a few have been buying for stock. Most mills are having little difficulty in meeting deliveries.

Chicago—With PWA projects nearing the end of activity pipe requirements are tapering and most activity now is in small lots to complete work already in progress and nearing completion. The city will take



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bids Aug. 18 on 3000 tons. No other important tonnages are pending.

New York—Standard Oil of New Jersey has purchased 11,000 tons of 12-inch steel pipe from the National Tube Co., Pittsburgh, for a 96-mile gas line for its subsidiary, the Hope Natural Gas Co., leading into Clendenin, W. Va. More activity is reflected in the cast iron pipe market and the prospect is brightened by the expectation that much tonnage long under consideration will be out soon for bids. Among such items is 8000 tons of 48-inch pipe for Atlantic City, N. J. The total on which the New York department of purchase will open bids Aug. 17 is 5300 tons.

San Francisco—Of outstanding importance in the cast pipe market was the award of 3572 tons of 6 and 8-inch pipe for Los Angeles. The city allocated 2800 tons to United States Pipe & Foundry Co., 400 tons to American Cast Iron Pipe Co. and the balance to National Cast Iron Pipe Co. Bids have been opened by the department of interior for 255 tons of 6-inch cast iron or asbestos cement pipe, delivered Ignacio, Colo.

Seattle—Demand for cast pipe continues to lag and new projects are developing slowly. Bids have been opened for an improvement at Union Gap, Wash., L. Coluccio, Seattle, being low at \$32,591. The project calls for 325 tons of 4, 6, and 8-inch cast pipe and fittings, but the award awaits PWA approval. Seattle has called bids for Aug. 20 for an extension on Rainier avenue involving 180 tons.

Cast Pipe Placed

3572 tons, 6 and 8-inch, specification 2045, Los Angeles, allocated as follows: 2800 tons to United States Pipe & Foundry Co., Burlington, N. J., 400 tons to American Cast Iron Pipe Co., Birmingham, Ala., and balance to National Cast Iron Pipe Co., Birmingham, Ala.

205 tons, 4 to 12-inch, White Plains, N. Y., to Warren Foundry & Pipe Corp., Phillipsburg, N. J.

180 tons, 6, 8 and 16-inch, Springfield, Mass., to United States Pipe & Foundry Co., Burlington, N. J.

175 tons, 20 and 24-inch, Yonkers, N. Y., to Donaldson Iron Co., Emaus, Pa.

125 tons, state hospital, Marcy, N. Y., to United States Pipe & Foundry Co., Burlington, N. J., through O'Connell Electric Co., Rochester, N. Y.

Unstated tonnage, 4000 feet 6-inch centrifugal pipe, to United States Pipe & Foundry Co., Burlington, N. J.

Steel Pipe Placed

12,000 tons, 96 miles of 12-inch gas line pipe for Hope Natural Gas Co. line from Hastings, W. Va., to Clendenin, W. Va., to the National Tube Co., Pittsburgh.

12,000 tons, 113-mile line of 12 $\frac{3}{4}$ -inch line pipe from Limestone, Clarion county, Pa., to connect with the western terminus of the New York Natural Gas Co. line, Potter county, Pa.

for Peoples Natural Gas Co., Pittsburgh, to Jones & Laughlin Steel Corp., Pittsburgh. Williams Bros. Co., Tulsa, Okla., general contractor. Pipe couplings to Dresser Mfg. Co., Bradford, Pa.

Cast Pipe Pending

8000 tons, 48-inch, Atlantic City, N. J. 400 tons, 6 and 8-inch, Public Service Corp. of New Jersey, Newark, N. J. 225 tons, 4, 6 and 8-inch and accessories, for Union Gap, Wash.; L. Coluccio, Seattle, low.

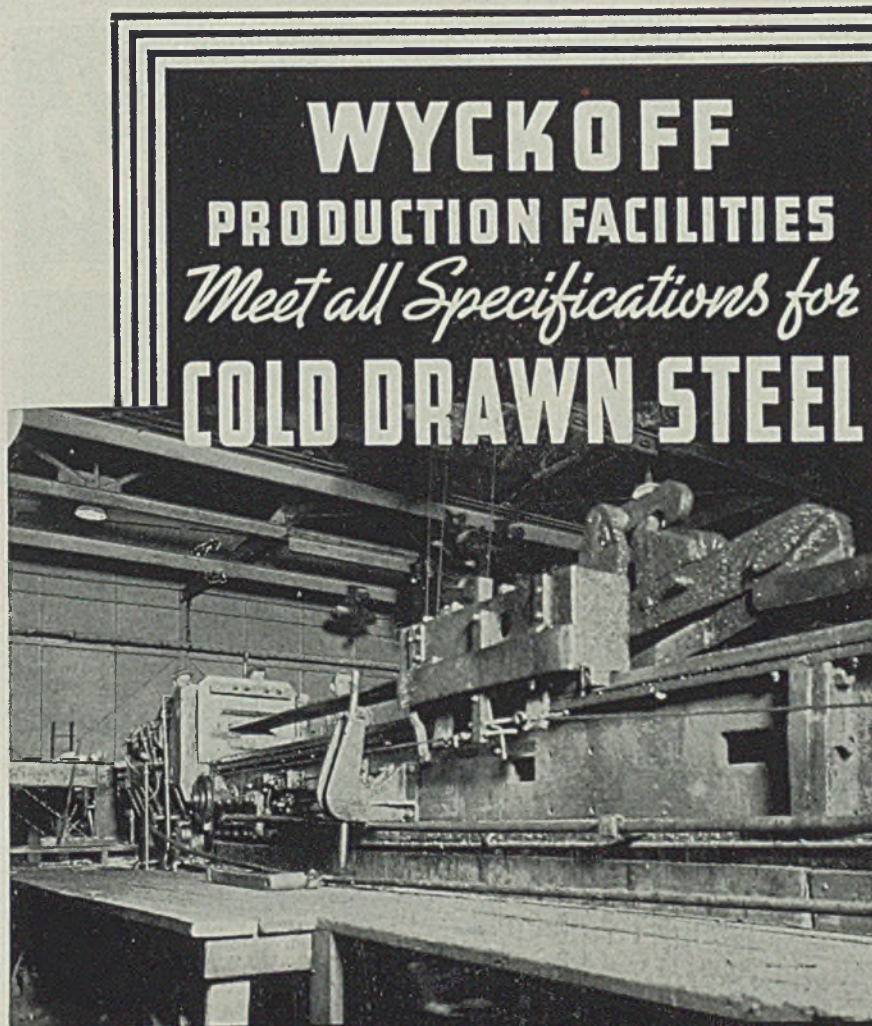
255 tons, 6-inch cast iron or asbestos cement pipe, department of interior, Ignacio, Colo.; bids opened.

180 tons, Rainier avenue extension, Seattle; bids Aug. 20.

Cold Finished

Cold Finished Prices, Page 71

Pittsburgh—Late September delivery is the earliest shipping date on cold-drawn bars that producers here could promise on new specifications appearing in the market last week. Automotive buying has engaged most mills to this extent, although a diversification is apparent



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in the frequency with which orders are placed by other consuming interests. The present market is quoted firmly at 2.25c, Pittsburgh.

Tin Plate

Tin Plate Prices, Page 70

Pittsburgh—Ability to make deliveries on both hot and cold-reduced tin plate is still a matter of grave concern to tin plate producers here. Many report their cold-reduced capacity is sold out until December and

the earliest on which hot mill deliveries can be made is four to five weeks hence. In some cases, can-makers are reducing their forecasts on the late summer and early fall crop prospects, but heavy call for general line cans is unabated. To care for the exceptionally active market at present most tin plate producers are still scheduling 16 to 17 operating turns weekly, or at a full 100 per cent. The market is unchanged on the basis of \$5.25 base box, f.o.b. Pittsburgh, for standard tin plate. Tin mill sizes of black sheets are named at 2.75c, Pitts-

burgh, and No. 24 unassorted long ternes, at 3.50c, base Pittsburgh.

New York—Reports that a leading canmaker and a principal supplier of tin plate have canceled their contracts for mutual consent as a result of the Robinson-Patman law have been reliably denied. Certain large sellers of diversified lines insist that to date they have not been called upon to revise any of their contracts as a result of the Robinson-Patman act. All companies however, are scrutinizing their selling practices closely.

Wire

Wire Prices, Page 71

Pittsburgh—Truscon Steel Co., Youngstown, O. and American Steel & Wire Co., which are working on a joint contract on 4,500,000 square feet of welded wire fabric for the second New Orleans district to be used in bank revetment, are nearing completion of their contract. Truscon will soon begin work on 90,000 twist wires and 20,000 end twist wires, also for revetment work in the Memphis, Tenn., district. Buying of cold-heading wire, spring wire, and other manufacturing wire specialties has shown some improvement. The price situation on wire products is irregular.

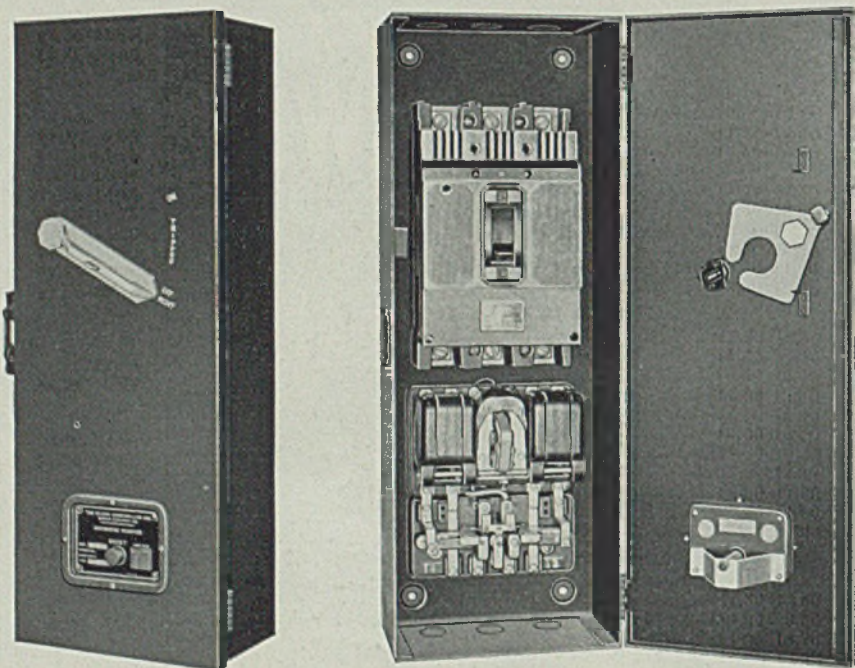
Cleveland—Nut and bolt manufacturers are at present the largest single consumers of wire. Little new business for 1937 models has been placed by auto partsmakers. Demand from miscellaneous consumers for woven wire fence, barbed wire, wire rods and nails, has continued to keep up the fast pace of the last two months.

Chicago—Demand is being maintained better than usual at mid-summer and automotive needs continue in fair tonnage. A better situation prevails in the price on nails, which is attributed by some observers to provisions of the Robinson-Patman law which seems likely to stop the undercutting which has prevailed in nails for some time.

Boston—Because of heavy consumption of wire throughout New England, mills continue behind in deliveries, although not to the extent of interrupting operations at consuming plants. Prices are firm at 2.50c, base, Worcester, on manufacturers wire and 3.15c, base, Worcester, on spring wire, with no indication as yet as to whether any changes will be applied in connection with fourth quarter business.

Philadelphia—Except for wire nails, wire products are holding firmly in price and in some trade quarters it is believed there is a strong possibility of an advance for fourth quarter. In nails, at least

Clark-Sundh



Here is the latest development in a Combination Across-Line A. C. Starting Switch. An externally operated Air Circuit Breaker takes the place of the usual fused disconnect switch. The Air Circuit Breaker therefore serves the purpose of a disconnecting switch and provides short circuit overload protection. This Starter may be operated by any one of the various remote control stations such as Push Buttons, Float Switches, Pressure Regulators, etc.

The toggle action quick-make and break feature of the circuit breaker provides high interrupting capacity.

The Breaker is operated by trip-free handle.

Thermal overload relays are also included with provision for external reset.

This device is known as Clark Bulletin 6020.



THE CLARK CONTROLLER CO.

1146 East 152nd St.
CLEVELAND, OHIO



1.90c Pittsburgh, can be done here, which is \$4 under the official market.

Strip

Strip Prices, Page 71

Pittsburgh—A number of automotive parts manufacturers have been buying further quantities of both hot and cold-rolled strip steel over the past week, in anticipation of heavy September assembly schedules. Recent hot-rolled strip buying has thoroughly tested the 1.95c, Pittsburgh, market and cold-rolled buying continues on the basis of 2.60c, Pittsburgh or Cleveland base. As in other finished steel markets, there is some discussion that fourth-quarter prices will be higher.

Cleveland—Auto manufacturers have come into the market for considerable tonnage, most of it for immediate delivery. Demand from electrical equipment concerns has been steadily increasing. Most mills are booked for the remainder of August, thereby making the delivery situation very acute.

Chicago—Stripmakers are busy with demand coming from a wide variety of general users. Last shipments for 1936 automobile parts are being made and some material for 1937 parts and cars are beginning to be specified.

Boston—Cold strip consumers continue to call for material in the largest volume in history. This is due not only to the vast improvement in business generally in New England but also to the fact that cold strip is being used for many purposes in addition to those for which it was used in former years.

New York—Earlier in the summer there was some stocking of narrow strip in expectation of labor trouble. This prospect having since been largely dissipated for the present, consumers of strip have been drawing more and more on their stocks in recent weeks. Despite some talk of a possible advance for fourth quarter, this tendency appeared more pronounced last week and contributed to lighter specifications.

Philadelphia—Contrary to the general situation in light flat products at this time, narrow strip is moving slowly. Prices are steady, at 1.95c, Pittsburgh, or 2.26c, Philadelphia, for hot strip, and 2.60c, Pittsburgh, or 2.91c, Philadelphia, for cold strip.

Semifinished

Semifinished Prices, Page 71

Pittsburgh—Rerolling billets, sheet bars, blooms, and slabs still reflect their recent heavy activity. In

addition, the placing of 24,000 tons over the past week in two sizable line pipe jobs is being felt in immediate call for tube rounds. The \$30 Pittsburgh market on billets and sheet bars is firm with a strong possibility that an advance will be made in the fourth quarter.

Boston—Market here is featured by numerous orders for forging billets in carloads at \$37, base, Buffalo. The rerolling market continues \$30, base, Buffalo. Wire rod demand is good, with the market firm at \$40, base, Worcester.

Bolts, Nuts and Rivets

Bolt, Nut, Rivet Prices, Page 71

Bolt and nut makers in the Chicago area find some decline in demand, but not a serious loss from the former level. Prospects are for a resumption of stronger buying within a short time. Agricultural implement makers and carbidders continue strong buyers, though their tonnages are somewhat lower than recently. Structural rivets continue at 3.15c, Chicago, and small rivets are 70-5 off.

The "LOCKWELD" Skid Platform All-Welded, Boltless Type.

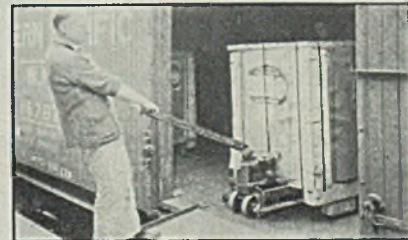
The Yale Standard Steel-Bound Bolted Type Skid Platform

The "ZEPHYR" Single Stroke Hand Lift Truck for loads up to 1,000 lbs.

MULTI-STROKE Hand Lift Trucks made in capacities up to 20,000 lbs.

YALE

THE lifting and hauling of materials, though it adds nothing to the value of a product, is an essential operation in every industrial plant. Materials handling cannot be eliminated but it can be done more swiftly, safely and economically—by means of a Yale Hand Lift Truck and Skid Platform System. Yale Trucks are distinguished for their speed, their ease of operation, their durability and long life. There are models to fit every requirement and the list of Yale users reads like a blue book of American industry.



THE YALE & TOWNE MFG. CO.
Philadelphia Division Philadelphia, Pa., U. S. A.

Shapes

Structural Shape Prices, Page 70

New York—While lettings aggregated only about 1000 tons, a large amount of tonnage is under negotiation for early closing. The pending list was augmented by a number of new projects involving about 7000 tons, the largest calling for approximately 5000 tons for six new hospital buildings on Welfare island, New York. From the rapidity with which

new work is developing it is expected that fabricating shops throughout the East will continue busy over most of the remainder of this year. The market on plain structural shapes continues 2.00c base, Bethlehem, Pa.

Pittsburgh—New inquiry has declined noticeably and contracts placed are averaging a smaller size individually. Bethlehem Steel Co. has been awarded 1070 tons for a plant building at Rossford, O., for the Libby-Owens-Ford Glass Co., and Harris Structural Steel Co., New York, is fabricating 1700 tons in a New York city apartment house. American

Bridge Co. has been awarded 450 tons for bleacher frames at Jersey City, N. J., and a 440-ton publishing plant at Cleveland. The state highway department, Harrisburg, Pa., has issued inquiry for over 620 tons of plain structural steel needed in 11 bridge projects, to be bid Aug. 28. Plain structural material is quoted unchanged at 1.90c, Pittsburgh.

Cleveland—Most mills are running close to capacity in an effort to clear up backlogs which in the majority of cases extend three to four weeks. Some fabricators are booked solidly for the next 60 days. Bids on a bridge requiring 400 tons at Ashtabula, O., and another involving 600 tons in Wood county, Ohio, are to be opened Aug. 18.

Chicago—Fabricators continue to suffer somewhat from delayed deliveries of plain material. Mills are working at as high a rate as possible, but are unable to overcome considerable delay. Current new business consists of a larger proportion of private contracts than for some time, in the experience of some, private tonnage exceeding that for public work. The electric utility at Chicago is asking bids on 1000 tons of shapes for a power house addition, and Allis-Chalmers Mfg. Co., Milwaukee, is in the market for 1200 tons for a factory building at Springfield, Ill.

Boston—Fair activity continues to characterize the market. Several fair-sized tonnages have been placed and much additional business is nearing the closing stage. The market on plain structural shapes continues firm and unchanged at 2.00c base, Bethlehem, Pa., equivalent to 2.305c delivered, Boston.

San Francisco—Awards totaled 5012 tons, bringing the aggregate for the year to 126,365 tons, compared with 67,564 tons for the same period last year. Important awards included 2900 tons of trusses for paving Golden Gate bridge, placed with Bethlehem Steel Co. Herrick Iron Works was awarded 850 tons for a plant at Woodland, Calif., for Spreckels Sugar Co. Western Iron Works took 375 tons for an addition to the General Brewing Co. plant. Bids have been rejected on 520 tons



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were built into the above display to convey the sales message of United States Steel.

- **NAME**—dominates the display—accomplishes name registry.
- **PRODUCTS**—move across a stage to show a cross section of the markets served.
- **TERRITORY AND DISTRIBUTION**—showing their many subsidiaries and wide field serviced.
- **SALES STORY**—presented in a compelling, graphic manner.
- **EYE APPEAL**—combines color, light and motion to stop traffic and complete the selling job.

We have designed and built many successful exhibits, both large and small. May we consult with you on your next convention display? Without obligation, of course!

GARDNER DISPLAYS

NEW YORK . . . 42-50 21st STREET, LONG ISLAND CITY
PITTSBURGH . . . 477 MELWOOD STREET

Shape Awards Compared

	Tons
Week ended Aug. 14.....	22,628
Week ended Aug. 7.....	28,125
Week ended July 31.....	28,282
This week, 1935.....	27,001
Weekly average, 1935.....	17,081
Weekly average, 1936.....	22,533
Weekly average, July.....	27,757
Total to date, 1935.....	501,888
Total to date, 1936.....	743,588

for a breakwater at Point Arguello, Calif., for the United States coast guard.

Philadelphia—Formal issuance of the Easton-Phillipsburg bridge inquiry is being deferred, although it may be brought out at any time. This project, it is estimated, will take around 4600 tons. Structural inquiry, in general, remains light, with eastern Pennsylvania fabricators and shape mills obtaining most of their work from the outside. Shape deliveries are holding at around three to four weeks. Shape prices are 2.00c, Bethlehem, Pa., or 2.11½c, delivered Philadelphia.

Seattle—Five radial gates of un-stated tonnage for the Cle Elum dam reclamation project, Washington, are being built by the Valley Iron Works, Yakima, Wash. As a rule, local plants are booked to capacity. Several small tonnages are pending.

Shape Contracts Placed

2900 tons, trusses, Golden Gate bridge, San Francisco, to Bethlehem Steel Co., Bethlehem, Pa.

2600 tons, dam No. 12, Bellevue, Iowa, to Treadwell Construction Co., Midland, Pa.

2275 tons, South Ashland avenue bridge, Chicago, to Mt. Vernon Bridge Co., Mt. Vernon, Ill.

1735 tons, two plant additions, Schlitz Brewing Co., Milwaukee, to Worden-Allen Co., Milwaukee.

1200 tons, state highway bridge, Venice, Ill., to Illinois Steel Bridge Co., Jacksonville, Ill.

850 tons, plant for Spreckels Sugar Co., Woodland, Calif., to Herrick Iron Works, Oakland, Calif.

810 tons, bridge, Saugatuck, Mich., to American Bridge Co., Pittsburgh.

620 tons, lock and guide walls for sanitary district, Chicago, to Bethlehem Steel Co., Bethlehem, Pa.

600 tons, two bridges, Milwaukee, for Chicago Northwestern railroad, to Milwaukee Bridge Co., Milwaukee.

575 tons, state bridge, Winslow-Waterbury, Me., to Bethlehem Steel Co., Bethlehem, Pa.

500 tons, Kings highway viaduct over Missouri Pacific railway, St. Louis, to Laclede Steel Co., St. Louis.

500 tons, plant addition for Owens-Illinois Glass Co., Streator, Ill., through Hughes Foulkrod, Philadelphia, general contractor to Pittsburgh Bridge & Iron Works, Pittsburgh; this is in addition to 1000 tons placed recently for same project with same fabricator.

500 tons, Campana Sales Corp., Bavalva, Ill., to Bethlehem Steel Co., Bethlehem, Pa.

440 tons, state highway bridge, Fort Wayne, Ind., to Bethlehem Steel Co., Bethlehem, Pa.

430 tons, highway bridge, Carlton, N. Y., to Fort Pitt Bridge Works, Pittsburgh.

385 tons, addition, F. W. Woolworth store, Milwaukee, to Wisconsin Bridge & Iron Co., Milwaukee.

375 tons, addition to General Brewing Co., San Francisco, to Western Iron Works, San Francisco.

349 tons, substructure, Marine Parkway bridge, Brooklyn, N. Y., to Gifford-Wood Co., Hudson, N. Y.

340 tons, Hudson House Inc. apartment,

Ardley-on-Hudson, N. Y., to American Bridge Co., Pittsburgh.

310 tons, state highway bridge, Hamilton, Ill., to Clinton Bridge Works, Clinton, Iowa.

310 tons, plant addition, Monsanto Chemical Co., Monsanto, Ill., to Stupp Bros. Bridge & Iron Co., St. Louis.

290 tons, bridge, Pulaski county, Arkansas, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

285 tons, building, Plain Dealer Publishing Co., Cleveland, to American Bridge Co., Pittsburgh.

275 tons, addition to Emerson school, Los Angeles, to Bethlehem Steel Co., Bethlehem, Pa.

250 tons, two bridges, Marathon county, Wisconsin, to Wausau Iron Works,

Wausau, Wis.

230 tons, state highway bridge, Paterson, N. J., to American Bridge Co., Pittsburgh.

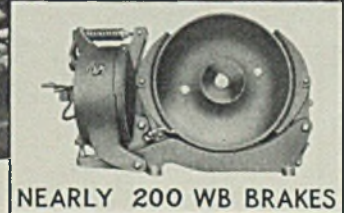
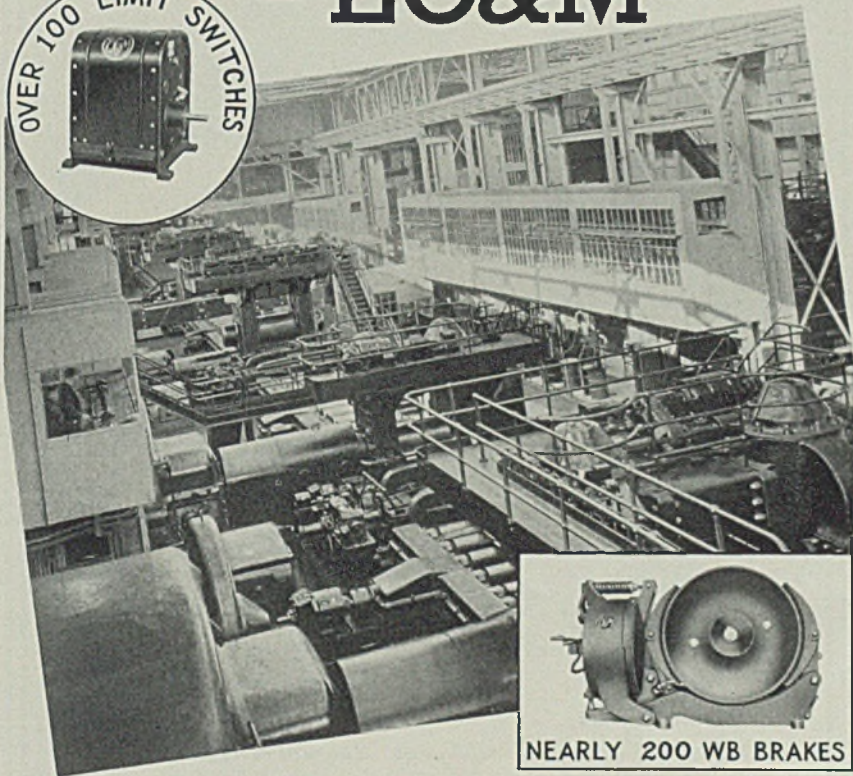
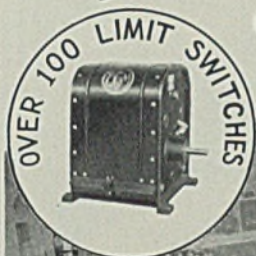
230 tons, plant addition No. 74, Crown Cork & Seal Co., Baltimore, to Dietrich Bros., Baltimore.

220 tons, Props apartments, San Francisco, to Herrick Iron Works, Oakland, Calif.

202 tons, wall armor, eye bars, buckle plates and turn buckles for gates of lock No. 24, Mississippi river, Hamburg, Ill., to American Bridge Co., Pittsburgh.

180 tons, state bridge, Lancaster county, Pennsylvania, through C. W. Good, contractor, Lancaster, to Bethlehem Steel Co., Bethlehem,

Again FORD selects - EC&M -



Over 100 TIME-CURRENT Controllers

Many exacting tests and dependable performance proven from more than 20 years experience with EC&M equipment were the guiding factors in the Ford Motor Company's selection of EC&M Limit Switches (Bulletin 1110-2), EC&M WB Brakes (Bulletin 1004-A) and EC&M Time-Current Controllers (Bulletin 920) for their new blooming and hot mill installations. The extra margin of safety and quality in EC&M equipment insures uninterrupted service to the user. Specify EC&M.

The ELECTRIC CONTROLLER and MFG. CO., CLEVELAND, OHIO

**AUTOMATIC CONTROL for CRANES • MILL DRIVES and MACHINERY
BRAKES • LIMIT STOPS and LIFTING MAGNETS.**

Pa.; approximately 75 tons of reinforcing bars also reported placed.
 170 tons, bridge, Addams-Jefferson counties, Mississippi, to Stupp Bros. Bridge & Iron Co., St. Louis.
 165 tons, crossing at Dover, Idaho, to unnamed interest.
 160 tons, state bridge, Berks county, Pennsylvania through Edwin A. Daylor, Coatesville, Pa., to Shoemaker Bridge Co., Pottstown, Pa.
 150 tons, crossing at Evanston, Uinta county, Wyoming, to unnamed interest.
 150 tons, bridge, Tigerton, Wis., to Vierling Steel Works, Chicago.
 150 tons, Sprague terminal building, Brooklyn, N. Y., to Harris Structural Steel Co., New York.
 150 tons, Butler county bridge, New

Miami, O. to Pan-American Bridge Co., New Castle, Ind.
 145 tons, bridge, Panola county, Mississippi, to Vincennes Bridge Co., Vincennes, Ind.
 143 tons, crossing near Hubbard, Marion county, Oregon, to unnamed interest.
 140 tons, warehouse addition, United States Gypsum Co., to Wendnagel & Co., Chicago.
 125 tons, Trumbull Park housing project, Chicago, to Vierling Steel Works, Chicago.
 125 tons, distillery buildings for 3-G Distillery Co., Burbank, Calif., to Western Iron & Metal Co., Los Angeles.
 125 tons, building for Armour & Co., Boston, to New England Structural

Co., Everett, Mass.
 125 tons, state highway bridge, Cedarsburg, Mich., to R. C. Mahon Co., Detroit.
 125 tons, mash house, Frankfort, Ky., to Ingalls Iron Works Co., Birmingham, Ala.
 110 tons, state highway bridge, Stamford, Conn., to American Bridge Co., Pittsburgh.
 108 tons, addition to Chevrolet Motor Co. plant, Oakland, Calif., to Herrick Iron Works, Oakland.
 Unstated tonnage, five radial gates for Cle Elum, Wash., reclamation project, to Valley Iron Works, Yakima, Wash.

Shape Contracts Pending

5000 tons, six hospital buildings, Welfare island, New York; bids Aug. 25.
 4600 tons, toll bridge between Easton, Pa., and Phillipsburg, N. J.; inquiry not issued as yet, although daily expected in some quarters; a concrete structure also is said to be considered.
 3300 tons, dam No. 22, Rock Island, Ill.; bids to United States engineers, Aug. 18.
 2600 tons, Rockland state hospital building, Orangeburg, N. Y.; low and only bidder, Turner Construction Co., New York.
 2000 tons, department of sanitation garage, West Fifty-sixth street and Twelfth avenue, New York; low bidder, William Kennedy Construction Co., Brooklyn, N. Y.
 1200 tons, factory building, Springfield, Ill., for Allis-Chalmers Mfg. Co., Milwaukee; bids Aug. 15.
 1200 tons, Liberty Mutual building, Boston; general contract to Turner Construction Co., Boston.
 1000 tons, Randall's island-Wards island bridge, New York; low bidder, Corbetta Construction Co., New York.
 1000 tons, addition to Flisk street power house of Commonwealth Edison Co., Chicago.
 620 tons (plain structural steel), highway work, 11 bridge projects, Pennsylvania; bids to state highway department, Harrisburg, Pa., Aug. 28.
 600 tons, highway bridge, Wood county, Ohio; bids Aug. 18.
 550 tons, bridge, Ottawa county, Ohio; bids Aug. 18.
 540 tons, four state bridges, Rumford, Windsor, Lewiston and Millbridge, Me.; bids Aug. 26.
 530 tons, bleachers, Yankee stadium, New York; general contractor, Leopold Neckerman Inc., New York.
 520 tons, sheet piling, breakwater, Point Arguello, Calif., for United States coast guard; bids rejected.
 500 tons, three manufacturing buildings, Cuba Pharmaceutical Co., Summit, N. J.; general contract to Walter Kidde & Co., New York.
 400 tons, bridge, Ashtabula, O.; bids Aug. 18.
 300 tons, weld and sheet metal building for Goldman Mfg. Co., Chicago; bids asked.
 290 tons, through-truss bridge, Cumberland and York counties, Pennsylvania; bids to state highway department, Harrisburg, Pa., Aug. 28.
 282 tons, Overland avenue bridge for United States engineer office, Los An-



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**800
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 with BATH**

\$2.50 single \$3.50 double

Famous for Fine Foods
Club Breakfasts—
 30c . . . 50c . . . 75c
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From the moment you enter our doors you will know that here you are indeed a guest. You will appreciate the courteous, cheerful, but unobtrusive service for which the Leland is noted. You will revel in the luxury you have a right to expect in a hotel that's as modern as tomorrow's motor car. You will like the superbly convenient downtown location. We hope you will accept our invitation to make the Leland your home in Detroit.

GARAGE IN CONNECTION

(AT CASS AND BAGLEY AVENUES)

DETROIT

geles; Minneapolis-Moline Power Implement Co., Minneapolis, low.
 260 tons, bus terminal, New York, for Greyhound Lines Inc.
 250 tons, heating plant, Chicago, for Jane Addams house.
 240 tons, highway bridge for Long Island railroad, Smithtown, N. Y.
 210 tons, state highway bridge, Canton, Mass.
 200 tons, bridge for New York Central railroad, Alden, N. Y.
 200 tons, asbestos cement mill for United States Gypsum Co., East Chicago, Ind.; bids on general contract Aug. 20.
 185 tons, maintenance building, Delaware River Bridge commission, Philadelphia, and Atlantic City, N. J.; contractor was low but bid rejected as exceeding appropriation.
 182 tons, invitation 816, Treasury department, San Bernardino, Calif.; bids opened.
 162 tons, department of water supply building alteration, Brooklyn, N. Y.; bids to be taken by procurement division, Treasury department, New York.
 160 tons, Sebasticook river bridge, Clinton, Me.; bids Aug. 26.
 140 tons, state bridge, Moosic, Pa.; bids Aug. 21.
 110 tons, state highway bridge, Canton-Norwood-Westwood, Mass.; low bidder, Martino & De Matteo, Roslindale, Mass.
 100 tons, state highway bridge, Westboro-Hopkinton, Mass.; low bidder, Middlesex Construction Co., Framingham, Mass.
 100 tons, Gas House bridge, Concord, N. H.; low bidder, Central Construction Co., Lawrence, Mass.
 100 tons, grade crossing elimination, Ashburnham, Mass.; bids Aug. 25.
 100 tons, school Montgomery, N. Y.; general contract to John W. Ryan Co., New York.
 100 tons, bridge, Elm Park, Staten Island, New York, for Staten Island Rapid Transit Co.
 100 tons, invitation 631-37-65, railroad for Great Northern, Fort Peck dam project, Montana; bids Aug. 25.

now can promise shipments on new orders no earlier than the third week of September. Certain bar distributors' quotations continue to indicate sharp weaknesses from the official market of 2.05c, Pittsburgh, on new billet quality bars.

Cleveland—Little new business of any consequence has been placed so far this month. Most of the orders are from private sources involving small tonnages of billet steel.

Chicago—Sellers notice an increasing proportion of private work coming out for bids and being placed, in contrast to the former heavy propor-

tion of public projects.

Boston—While no new business of size is reflected, considerable tonnage is under negotiation and expected to be placed within the next two weeks. The market continues quoted at 2.10c base, Buffalo, equivalent to 2.46c delivered, Boston.

Philadelphia—Tonnage continues spotty, with orders tight and with little pending work outstanding, apart from the requirements of two federal housing projects, one here and the other in Camden, N. J.

St. Louis—The final revised program for grade crossing separations

Reinforcing

Reinforcing Bar Prices, Page 71

New York—Orders were restricted to small lots, 2.05c base, Pittsburgh, or equivalent being done in most instances on billet rolled material. This price still can be shaded materially on large tonnages.

Pittsburgh—Producers are falling further in arrears on deliveries and

Concrete Awards Compared

	Tons
Week ended Aug. 14.....	8,316
Week ended Aug. 7.....	4,723
Week ended July 31.....	3,862
This week, 1935.....	7,382
Weekly average, 1935.....	6,862
Weekly average, 1936.....	6,723
Weekly average July.....	8,510
Total to date, 1935.....	146,889
Total to date, 1936.....	221,873

Quality Products

- "Sweda" Pig Iron—Foundry, Malleable & Basic.
- Forging Quality Billets—Blooms and Slabs.
- Re-rolling Quality Billets—Blooms and Slabs.
- Sheared Steel Plate—Tank, Ship, Boiler, Flange, Firebox, Locomotive Firebox.
- Structural and Dredge Pipe Qualities.
- "A.W." Super-Diamond Pattern Floor Plate.
- "A.W." Standard Diamond Pattern Floor Plate.
- "A.W." Diamond Pattern Floor Plate.
- "A.W." Sunk Diamond Pattern Floor Plate.
- Blue Annealed Sheets.
- "A.W." "70-90" Super-Strength Steel—Special Deep Drawing Quality Blue Annealed Sheets.
- Dredge Pipe Quality Sheets.
- Hard Red Sheets.

Any of above listed steel products also furnished in copper bearing or alloy analysis.

ALAN WOOD MINING CO. RAINEY WOOD COKE CO.
 Dover, N. J. • Oxford, N. J. Swadeland, Pa.
 Iron Ore Concentrates . . . Grit Metallurgical Coke . . . Coal Tar
 Sintered Concentrates . . . Sand Domestic Coke . . . Light Oil Products
 Crushed Stone . . . Engine Sand Foundry Coke • Ammonium Sulphate

ALAN WOOD STEEL COMPANY

Ivy Rock, Pa.

CONSHOHOCKEN, PA.

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BRANCHES:

Philadelphia, New York, Boston, Los Angeles, San Francisco, Seattle, Houston

110 YEARS' IRON- AND STEEL-MAKING EXPERIENCE



in Missouri to be erected at a cost of \$6,364,875 has been approved by the state director of the National Emergency council. Allocations un-

San Francisco—The market was active, 6460 tons being booked. Among the larger awards were 800 tons for paving the Golden Gate bridge booked by Bethlehem Steel Co. Truscon Steel Co. took 414 tons for the Treasury department, Los Angeles. Soule Steel Co. was awarded

Seattle—Public projects are furnishing local mills with considerable business and plant activity continues.

Reinforcing Steel Awards

- 1700 tons, Trumbull park housing project, Chicago, to Calumet Steel Co., Chicago.
- 800 tons, paving Golden Gate bridge, San Francisco, to Bethlehem Steel Co., Bethlehem, Pa.
- 700 tons, sanitary sewer, Chicago, to Concrete Engineering Co., Chicago.
- 500 tons, two hangars, Yerba Buena shoals, San Francisco, to Soule Steel Co., San Francisco.
- 500 tons, Kings highway viaduct over Missouri Pacific railway, St. Louis, to Mississippi Valley Structural Steel Co., Decatur, Ill.
- 440 tons, plant for Owens-Illinois Pacific Glass Co., Oakland, Calif., to

- Soule Steel Co., San Francisco.
- 414 tons, schedule 13101, Treasury department, Los Angeles, to Truscon Steel Co., Los Angeles.
- 275 tons, Washington state paving projects, to Northwest Steel Rolling Mills, Seattle.
- 265 tons, addition to Emerson junior high school, Los Angeles, to Soule Steel Co., Los Angeles.
- 250 tons, schedule 3162, Panama canal, to unnamed interest.
- 200 tons, wards No. 10 and 11, state hospital, Camarillo, Calif., to Blue Diamond Corp., Los Angeles.
- 200 tons, additional, foundations for Livestock building, San Francisco, to Bethlehem Steel Co., Bethlehem, Pa.
- 174 tons, invitation A-42056-A, bureau of reclamation, Salt River project, Arizona, to Bethlehem Steel Co., Bethlehem, Pa.
- 165 tons, invitation A-42058-A, bureau of reclamation, Potholes, Calif., to Bethlehem Steel Co., Bethlehem, Pa.
- 150 tons, addition to Buchanan street school, Los Angeles, to Concrete Engineering Co., Los Angeles.
- 148 tons, invitation 43078-A, Moon Lake project, Utah, for bureau of reclamation, to Bethlehem Steel Co., Bethlehem, Pa.
- 142 tons, aquatic park, Treasury department, San Francisco, to San Jose Steel Co., San Jose, Calif.
- 140 tons, warehouse, Thompson-Diggs Co., Sacramento, Calif., to Palm Iron Works, Sacramento.
- 137 tons, Arlington avenue school, Los Angeles, to Blue Diamond Corp., Los Angeles.
- 136 tons, Squallcum Creek bridge, Bellingham, Wash., to unnamed interest.
- 125 tons, plant addition, Dole Valve Co., Chicago, to Calumet Steel Co., Chicago.
- 125 tons, auditorium, Manual Arts high school, Los Angeles, to Blue Diamond Corp., Los Angeles.
- 120 tons, invitation A-42059-A, bureau of reclamation, Potholes, Calif., to Bethlehem Steel Co., Bethlehem, Pa.
- 110 tons, cement silos, San Bernardino, Calif., to Blue Diamond Corp., Los Angeles.
- 100 tons, bridge in Rainier national park for United States bureau of public roads, Pierce county, Washington, to unnamed interest.
- 100 tons, three bridge, Clear Creek county, Colorado, to unnamed interest.
- 100 tons, sewage plant, Stockton, Calif., to Kyle & Co., Fresno, Calif.
- 100 tons, schedule 12836, Treasury department, Los Angeles, to Blue Diamond Corp., Los Angeles.
- 100 tons, schedule 12745, Treasury department, Los Angeles, to Concrete Engineering Co., Los Angeles.
- 100 tons, building for high school, Ven-lee, Calif., to Patten Lumber Co., Los Angeles.
- 100 tons, Washington state paving job, to Bethlehem Steel Co., Seattle.

Behind the Scenes with STEEL

On the Carpet

THE "impulsive-with-a-bad-impulse" Mr. McC. of Baltimore touches sharply on two items which appeared in this department recently. First, he wonders if it is good business to pick flaws in a customer's advertisement; and second, he asks if nothing at all ever advertised in STEEL would be bought by the accountant whose subscription we mentioned having refused.

Well, Mac, old kid, to your first query, we are a flaw-picker from away back. When somebody slips, we pounce down just like a hungry vulture and proceed to tear him apart. Naturally we like to have people like yourself pounce on us once in a while, too. A pounce of prevention is worth an ounce of cure, they say.

About the second question, we find that sleeping on the right side will cure this condition.

Come again.

Business Note

BALTIMORE appears to be our "honor city" this week. We are informed that a certain company there ran two half-page advertisements in recent issues of STEEL and so far has received 15 inquiries, one of which resulted in business which considerably more than paid for the cost of the advertisements. Of course an occurrence such as this is nothing new for STEEL advertisers, but this is the latest one on which we have received word.

Reading Room

THEN there is the vice president of a certain Baltimore company who is a careful reader of STEEL each week but who had difficulty in finding time during the day to cover all the pages in an issue. And he has no time at home to read. So where do you suppose he keeps his file of copies of STEEL? That's right—but no wisecracks now. The v.p. tells us he has no more difficulty in reading through each week's issue in comfort—from cover to cover.

'ere's 'ow

INTERESTING news dispatch by *United Press* from Wombell, England, is handed us by John Caldwell of the editorial department who spends much of his time poking into the public prints for this and that. The bulletin

carries the startling information that false teeth made from an old motorcycle crankcase are the crowning climax of a life of dental experimentation by one Albert Orwin, roadworker living in the village of Jump.

First, Orwin tried his ingenuity on

INQUISITIVE CAMERA DEPT.—XIII



RT. "Bob" Mason, now circulation manager of STEEL who, since his arrival on the job in 1923, has done most everything from editing copy to getting rid of stray insurance agents. He's laughing over a new version of "Knock! Knock!" which he has just conceived.

the knuckle bone of a leg of mutton, but the bone was not big enough. Then he tried using a billiard ball which had the same defect. Success finally came as, weakly and wearily, he melted down the aluminum crankcase and poured the metal into a molded impression of the teeth.

Probably Albert is now going to set himself about changing that billiard ball into a leg of mutton and thence to a new motor for his cycle. Then he would have something!

Coming Soon

REPRINTS of the extended series on *Selection, Application and Use of Finishes for Metal*, concluded in STEEL recently, will shortly be available in the form of a neat 48-page booklet. Subscribers desiring copies for their files will please form a line at the right. Requests will be filled in the order of their receipt. Two bits per copy to cover cost of printing and mailing.

—SHRDLU

Reinforcing Steel Pending

- 5000 to 6000 tons, Federal building, Los Angeles; new bids Sept. 15.
- 1700 tons, Julia Lathrop housing project, Chicago; United States Fireproofing Co. and Henry Ericsson Co., both of Chicago, low on two sections.
- 933 tons, federal housing project, Camden, N. J.; Anthony Miller, Atlantic City, N. J., low on general contract.
- 642 tons, hospital, Northport, N. Y.; new bids to be opened Sept. 1.
- 555 tons, Los Angeles river bridge at Atlantic avenue near Long Beach, Calif.; bids Aug. 27.
- 470 tons, Hill Creek federal housing project, Philadelphia; Turner Con-

- struction Co., Philadelphia, awarded general contract; some contemplated revisions will likely lead to smaller bar requirements.
- 400 to 500 tons, Veterans hospital, Sattelle, Calif.; bids Sept. 1.
- 359 tons, paving Venice boulevard for Los Angeles county, California; bids Aug. 18.
- 325 tons, sewage plant, Sheboygan, Wis.
- 274 tons, Richmond sewer, San Francisco; MacDonal & Kahn, San Francisco, low on general contract.
- 250 tons, department of sanitation garage, West Fifty-sixth street and Twelfth avenue, New York; low bidder, William Kennedy Construction Co., Brooklyn, N. Y.
- 250 tons, Wards island-Randalls island bridge, New York; low bidder, Corbetta Construction Co., New York.
- 222 tons, state hospital, Ukiah, Calif.; bids opened.
- 220 tons, grade crossing elimination, Ashburnham, Mass.; bids Aug. 25.
- 212 tons, state highway work in Orange and Los Angeles counties, California; bids Aug. 27.
- 206 tons, New Jersey state highway, route 25, section 25; low bidder, Standard Bitulithic Co., New York.
- 200 tons, sewage plant, Lacrosse, Wis.
- 190 tons, seawall at Newport Beach, Calif.; bids soon.
- 107 tons, factory for Fisher Body Co., Oakland, Calif.; bids opened.
- 100 tons, state highway bridge, Westboro-Hopkinton, Mass.; low bidder, Middlesex Construction Co., Framingham, Mass.
- 100 tons, state highway bridge, Canton-Norwood-Westwood, Mass.; low bidders, Martine & De Matteo, Roslindale, Mass.
- 100 tons, Gas House bridge, Concord, N. H.; low bidder, Central Construction Co., Lawrence, Mass.
- 100 tons, Liberty Mutual building, Boston; general contract to Turner Construction Co., Boston.
- 100 tons, Rockland state hospital building, Orangeburg, N. Y.; low bidder, Turner Construction Co., New York.
- 100 tons, highway work in five Pennsylvania counties; bids to state highway department, Harrisburg, Pa., Aug. 28.

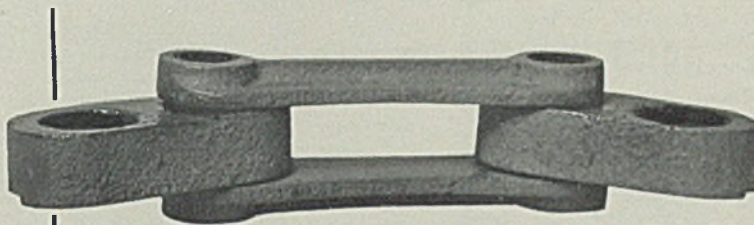
ry iron, this action has not marked the beginning of any general movement to buy pig iron for the future. Present buying is restricted to small and moderate sized lots for quick shipment.

New York—Recent resumption of operations at the Brooklyn iron foundries, following strikes, has influenced specifications for pig iron. Operations are now on in full swing. With domestic sellers likely to open their books for fourth quarter later this month, there is increasing speculation as to the probability of an ad-

vance. Some believe general increases will go into effect.

Chicago—Increasing activity is becoming evident, attributed to the rapid advance in prices of scrap and scarcity of scrap grades used in foundries. It appears that both gray iron and malleable foundry practice, based on low-priced scrap, is likely to be revised as the cost of scrap approaches that of pig iron.

Philadelphia—Pig iron sheets so far this month are being well sustained at the July rate, with the melt, if anything, even a little better than



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Whether it's chain links, digger teeth, crusher bars, gears, clamshell or shovel buckets and dippers, pug mill knives, scraper bars or similar heavy duty castings, you will get maximum satisfaction from the strength and hardness of Damascus castings.



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New Brighton, Pa.

(Pittsburgh District)

DAMASCUS STEEL CASTINGS
(Manganese and Alloy)

Pig Iron

Pig Iron Prices, Page 72

Pittsburgh—Increases in the size of the individual pig iron orders placed by district foundries recently has been attributed to the rising price of remelting scrap. Likelihood is still strong that one other merchant blast furnace near Pittsburgh may be blown in shortly.

Cleveland—August shipments have kept pace with July, however the remainder of the month is expected to show a slight lag. Some non-integrated steel mills are seriously considering changing their schedules of pig iron purchases.

Boston—Although one New England consumer recently placed about 5000 tons of foundry iron at prices equivalent to \$20.50, Everett, Mass., furnace, for the base grade of found-

Scrap

Scrap Prices, Page 73

last month. Specifications, however, are still largely on hand-to-mouth basis.

Buffalo—Pig iron is selling readily and rush orders for shipments indicate continued large consumption. Ten furnaces are in operation, with steelworks operators using increasing quantities of hot metal in their open hearths.

Cincinnati—Change in method of quoting pig iron at Cincinnati, using Birmingham base on No. 2 foundry, has caused no derangement of the market, which remains steady and at previous demand levels.

St. Louis—Shipments of pig iron have been moving steadily upward during the past week, following a temporary slowing down incident to a strike of molders.

Birmingham, Ala.—Market is considered strong. Much iron is moving. Greater number of purchases in small lots but specifications are for early delivery. While base price of \$15.88, No. 2 foundry, has been made in the Southern territory, differentials have held the price to \$15.50 except in a few cases.

Toronto, Ont.—Merchant pig iron sales are showing minor improvement. Melters are interested in spot needs and orders of 50 to 200 tons are being placed. Awards for the week were approximately 800 tons.

Pittsburgh—Two district mills here purchased in aggregate a few thousand tons of No. 1 heavy melting steel last week, paying \$16 a ton delivered, and thus causing a further advance in the quotable market. Some idea of the current demand for choice remelting scrap can be seen in the direct purchase by another district mill of a part of the Pennsylvania railroad's recent list of No. 1 steel at a price of just under \$17 per ton. For Pittsburgh district delivery, No. 1 steel and hydraulic compressed sheet scrap is now quoted \$15.75 to \$16.25, No. 2 steel, \$14.25 to \$14.75, blast furnace mixed borings and turnings \$10.50 to \$11, machine shop turnings, \$10.50 to \$11, and railroad steel specialties, \$18.50 to \$19. Owing to heavy supply, railroad malleable scrap is an isolated point of weakness.

Chicago—A general advance of about 75 cents per ton has been made on almost all grades, based principally on dealer activity. Some brokers are paying \$15.75 for No. 1 heavy melting steel to railroads, and while there has been no tonnage buying by mills, it is expected the next

movement will touch \$16 per ton. Stocks in hands of melters are thought to be well depleted.

Boston—Delivered prices are unchanged at New England consuming points, but the sharp advances paid by Eastern Pennsylvania and Pittsburgh district consumers have caused brokers here to increase their buying prices. Dock prices on steel scrap for export have risen 50 to 75 cents.

New York—Brokers and dealers are buying everything offered. Sharply increased demand from the Pittsburgh district has caused an increase in prices. The value of mixed borings and turnings, long a drug on the market, suddenly has been doubled. From a level of \$2.25 to \$2.50 f.o.b. cars New York and Brooklyn, brokers have moved their buying prices up to \$4.75 to \$5, largely for shipment to Steubenville, O., at \$10.50 delivered. Brokers also have increased their buying prices on cast iron borings to \$4.75 to \$5 f.o.b. cars New York and Brooklyn for shipment to Steubenville at \$10.50 delivered. Specification pipe, on sales at \$13 delivered Lebanon, Pa., has jumped up \$1 and brokers now are paying \$8.75 to \$9.25 New York and Brooklyn. Grate bars also are up \$1, the brokers paying \$7.25 to \$7.75. Compressed sheets are up \$1, brokers paying \$8.50 to \$9.25.

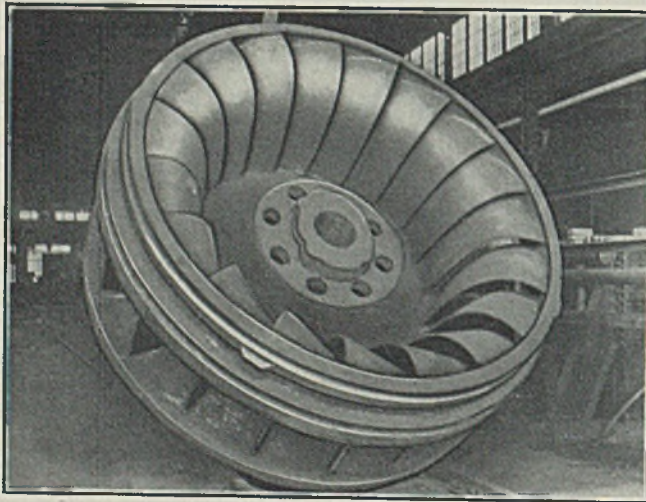
Philadelphia—Further advances in scrap prices are noted, with No. 1 and No. 2 steel advancing on small sales to \$14 and \$13, delivered consuming plant, respectively. Steel supplies appear to be coming out a little more freely than a fortnight ago but are still scarce. Heavy breakable cast is now \$14.50 to \$15, delivered consuming plant and No. 1 cupola cast \$15 to \$16.

Buffalo—Melters are anxious to buy scrap and willing to pay \$14 for No. 1 heavy melting steel, but little tonnage is available at this price. Dealers report shortages of all material.

Detroit—Advances of 50 cents a ton have been made in the market on No. 1 steel, No. 1 bushing, No. 2 steel and plate scrap over the past week, bringing the market to a level which finds No. 1 heavy melting steel quoted at \$12.50 to \$13 a ton. The fact that several large automobile plants here will not sell any scrap accumulations this month forecasts continued strength.

St. Louis—Additional advances have been recorded on nearly all items during the last few days. Dealers and brokers are in active competition for every ton appearing. The industries are also in need of material and are buying wherever it is possible to do so without bidding up the price. Heavy melting steel is quoted at

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Forgings—Steel Castings—Steel Tires
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\$13.00 to \$13.50, an advance of \$1.50 per ton since the third week in July. The latest advance has failed to bring any large tonnage of material to this market.

Cincinnati—Dealers' bidding on scrap iron and steel has sent prices higher. A large proportion of the current Louisville & Nashville railroad list of 7000 tons is in rails on which there is aggressive bidding from this district.

Birmingham—Conditions are better in scrap iron and steel in Southern territory, but there is very little more old material moving.

Seattle—While export business is quiet, dealers are optimistic in view of continued heavy buying by domestic plants and anticipated return of Japan to this market. Local mills are buying all materials offered at previous levels of \$10 for No. 1 and \$8 for No. 2. Choice export scrap is quoted at \$10.50, rails at \$12.

Toronto, Ont.—Trading in iron and steel scrap is specialized and spotty. While sales have been running somewhat under the year's average the movement is well ahead of any year since 1930. Current demand chiefly is for steel grades.

Warehouse

Warehouse Prices, Page 74

Cleveland—After a slight recession in demand for finished products during July a considerable improvement has occurred the first half of this month. Demand is well diversified.

New York—Iron and steel jobbers continue to enjoy active business and there is no indication of a summer let-down. Current volume is the best of the year and the best since 1929. The higher prices which became effective several weeks ago, are being obtained without any questions by consumers; the only exception is in galvanized sheets. Foreign bars and shapes continue to sell in considerable volume at lower prices than those in effect on domestic steel but the competition is not disturbing the market.

Philadelphia—Warehouse business here continues to reflect the sold-up condition of the mills on many products. Demand is down somewhat from a week ago, but is still in excess of earlier expectations.

Detroit—Sales out of warehouses are continuing at the 1936 peak, which was established in July. For some jobbers, business is now better than in any month for over eight years.

Cincinnati—Sales from warehouses are being maintained in volume to support belief August will equal June and July. Industrial demand is broad and above seasonal expectation.

Building material requirements are fairly heavy.

St. Louis—Warehouse sales so far this month are showing only a moderate decrease under the first half of June, and volume continues well ahead of a year ago. There is a brisk turnover of sheets, plates and bars. Manufacturers' wire is moving in good volume, offsetting in part decreased sales of wire fencing to the drouth areas. Bail ties continue active, tubular goods are in much better than seasonal demand, and railroad requirements are holding up well.

Seattle—The jobbing trade reports a seasonal decline, attributed in part to the higher price schedule, retailers having stocked heavily before the increase. Prices are being generally maintained in this area although Portland houses are still underquoting on some items.

Coke By-Products

Coke By-Product Prices, Page 71

New York—Concessions allowed recently on motor fuel business have resulted in a reduction of the price on benzol from 18 to 16 cents per gallon for spot shipment. This price is quoted f.o.b. Eastern plants, freight allowed to Eastern destinations, and it applies both to pure and 90 per cent benzol in tank lots. Otherwise the market on coke by products is unchanged, with demand for all products most active. Exception is naphthalene which has let down somewhat due to the fact that industrial consumption has not entirely compensated for the falling off in business due to the ending of the moth preventative season.

Metallurgical Coke

Coke Prices, Page 71

Pittsburgh—Though quotably higher at \$3.60 to \$3.75 a ton for standard furnace beehive coke, f.o.b. Connellsville, Pa., on all new business, the quotable range of the market is unchanged at \$3.30 to \$3.75 in view of the existence of this minimum price on the large requirement being taken by the Pittsburgh Steel Co. blast furnace at Monessen, Pa. Melters' demand for common foundry metallurgical coke is being placed at around \$4.25 to \$4.50 per ton, f.o.b. ovens, with premium analysis quoted \$5.50 per ton. Practically all available beehive capacity in western Pennsylvania is now operating.

Boston—By-product foundry coke continues at \$11.50 delivered at most New England consuming points. Volume of shipments is at the best level since 1929.

Cincinnati—Specifications for by-

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6494

product foundry coke are sustained at previous levels.

St. Louis—Shipments of by-product coke are holding up well. Consumer stocks are moderate. Production is expected to expand during the next few weeks.

Birmingham, Ala.—With requirements steady and surplus somewhat reduced, active production is under way in this district and a greater number of ovens at by-product works are in operation. Announcement by Tennessee Coal, Iron & Railroad Co. that 73 ovens, considered obsolete, would be rebuilt, at cost of \$2,000,000, is in line with expectations of greater need for coke in the future. Output of the company would be increased to 4200 tons daily. Coke price base is still given at \$6.50 foundry.

Steel in Europe

Foreign Steel Prices, Page 74

London — (By Radio) — Pig iron output in Great Britain in July snapped back sharply from the smaller tonnage made in June, because of one less day in the latter month. Production in July was 661,100 gross tons, compared with 644,100 tons in June and 661,000 tons in May. The daily average in July was 21,326 tons, in June 21,470 tons. At the end of July 110 blast furnace stacks were in blast, compared with 112 at the end of June.

Steel ingots and castings production in July was 974,000 gross tons, a daily average of 36,077 tons, com-

pared with a total of 965,900 tons in June, a daily average of 37,150 tons.

Demand for pig iron continues sharp and limited contracts are being booked for 1937 delivery. Strong domestic demand for steel of all classes is bringing curtailment of the summer holiday season. Some export markets are showing greater activity and advances of 10s have been made in some prices. Orders for rolling stock for railroads in South Africa and India have been received recently.

The Continent reports an active export trade but French domestic movement has been restricted by recent legislation.

Ferroalloys

Ferroalloy Prices, Page 72

New York—Ferromanganese shipments are being sustained at a rate about comparable with July. There has been very little fluctuation for more than four months, with the movement reflecting the continued good rate of steelmaking operations. Sellers are not expected to name their prices for fourth quarter much before the middle of next month. Domestic spiegeleisen, 19 to 21 per cent, also is in good demand.

British Indian Iron Enters

Arrival of 1795 tons of pig iron from British India featured iron and steel importations at Philadelphia during the week ended Aug. 8. In addition 18 tons of cold-drawn steel wire came in from Sweden.

Nonferrous Metals

Nonferrous Metal Prices, Page 72

New York — Continued active demand for lead and increased copper buying were outstanding features of the major metal markets this week. Prices generally held firm although tin continued unsettled and antimony eased late in the week.

Copper — Interest centered in the export market with prices advancing to the highest level since May, 1931. Sales were made late in the week within 2½ points of domestic parity. Sentiment also was strengthened by release of highly favorable July statistics showing a cut in world stocks of roughly 26,600 tons. Although the undertone of the domestic market was strong, no immediate price rise is expected. Sales jumped to 3275 tons on Thursday, but demand was less pressing Friday. Electrolytic closed firm at 9.75c, Connecticut.

Lead — All classes of lead consumers showed active interest in the market and accumulated bookings have become so large that sellers have revised estimates of probable August consumer needs. Prices held firm at 4.45c, E. St. Louis.

Zinc — Steady prices are foreseen for zinc indefinitely into the future due to sustained low levels in London. Consumption here is well maintained and the market has been orderly. Prime western held steady at 4.85, E. St. Louis.

Tin — Uncertainties and rumors as to negotiations regarding renewal of the tin control plan continued unsettling factors in the market. Straits spot closed lower around 42.25c.

Antimony — American antimony prices declined ¼-cent on reports of easiness in the market in China. Spot closed at 10.75c, and futures 10.50c, while Chinese spot held nominally unchanged at 12.50c.

Equipment

New York—Following an almost uninterrupted upward movement in demand for machine tools and allied equipment which has lasted fully a year and a half, to the highest volume since 1929, new buying now shows a letdown. This appears to be due largely to postponement of action due to absence of purchasing and specifying officials on vacations. The volume of business under negotiation has shown no diminution, so that the present letdown is regarded as temporary.

Seattle—All items of equipment and machinery are in good demand, mining, logging, lumber plants, industrial development, power projects and pumping units moving in much heavier volume than a year ago.

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Construction and Enterprise

Ohio

BARBERTON, O.—City plans to make PWA application immediately on plans prepared by Barstow & Lefebvre Inc., 31 North Summit street, Akron, O., consulting engineer, for a sewage disposal plant. Cost is estimated at \$420,000. Harry W. Alcorn is city engineer, and Fred Marvin, mayor.

BELLAIRE, O.—Kinney Bronze Tablet Co., 3349 Washington street, Robert Kinney, president, has been organized to manufacture bronze tablets.

BLUFFTON, O.—Village will vote Sept. 22 on \$45,000 worth of bonds with which to finance construction of a proposed sewage disposal plant estimated to cost \$90,000. George Champe & associates, 1025 Nicholas building, Toledo, O., is consulting engineer. Fred Tribelhorn is mayor.

CENTERVILLE, O.—Village, Walter H. Wood council member, has tentative plans for construction of a \$105,000 waterworks. This is a proposed WPA project.

CINCINNATI—Hill & Griffith Foundry Co. plant at 1262 State avenue was damaged by fire recently.

CINCINNATI—Chevrolet Motor Co., Smith road, Norwood, O., and 3044 West Grand boulevard, Detroit, plans to construct a 1-story addition at the Fisher Body plant and install electric power equipment. Albert Kahn Inc., New Center building, Detroit, is architect and engineer.

CLEVELAND—A. H. Marty Ornamental Iron Works, 6816 Union avenue, was damaged by fire July 30.

CLEVELAND—Reliance Electric & Engineering Co., 1088 Ivanhoe road, is contemplating erection of an addition to its factory. B. L. Collins is president.

CLEVELAND—City purchasing agent, C. B. Patterson, is in the market for 3 complete lathes and 1 milling machine.

CLEVELAND—National Box & Can Co., 4131 Broadway, Joseph C. Sparrow, president, plans to construct a \$5000 plant addition.

CLEVELAND—Forest City Foundry Co., 2500 West Twenty-seventh street, has been granted a permit to construct a \$2500 addition.

CLEVELAND—Dill Mfg. Co., maker of screw machine specialties and sheet metal stampings, 694 East Eighty-second street, has been granted a permit to construct a \$7500 plant addition. Joseph D. Williamson is president.

DAYTON, O.—Materiel division, contracting officer, air corps, Wright field, asks bids until Aug. 26 for drills, inventory 37-39.

DAYTON, O.—Duriron Co., 450 North Findlay street, proposes to construct a 50 x 80 foot 1-story addition to the foundry building. Geyer & Neuffer, Ludlow Arcade building, is architect.

DEFIANCE, O.—L. F. Serrick Inc., which recently acquired Defiance Screw Machine Products Co., may enlarge both plants. L. F. Serrick is president. (Noted STEEL Aug. 3.)

DELAWARE, O.—Delaware County Rural Electrification Co-Operative Inc. proposes to erect 160 miles of lines to serve 800 homes. W. O. Ziegler, care of Ohio Farm Bureau, 620 East Broad

street, Columbus, O., is president, and Carl Frye, same address, is engineer.

DOVER, O.—City, Homer Keppeler service director, is taking bids due Aug. 20 on contract No. 2 for pumps, starters. (Noted STEEL June 15).

EAST LIVERPOOL, O.—City, O. Earl Greenawalt mayor, probably will submit bond issue at November election for a \$1,500,000 municipal power plant. PWA has allotted \$675,000 for the project. Shrover & Loftus, Oliver building, Pittsburgh, is consulting engineer. (Noted STEEL July 6).

EAST PALESTINE, O.—City, H. F. Lemley service director, is considering the purchase of a 1500-horsepower boiler estimated to cost \$1500.

LIBERTY CENTER, O.—Village has engaged Champe, Finkbeiner & associates, 1025 Nicholas building, Toledo, O., to prepare plans for a waterworks system.

MECHANICSBURG, O.—Village voters have approved a \$20,000 bond issue, and PWA has approved proposed construction of a \$75,000 sewage disposal plant. E. R. Stockwell is mayor, and Floyd Browne, Marlon, O., is sanitary engineer.

NEW LEBANON, O.—Village, O. F. Brumbaugh clerk, has approved a \$10,000 bond issue for construction of a waterworks.

NEW STRAITSVILLE, O.—Village, J.

L. Meenan, New Lexington, O., solicitor, may submit a bond issue to a special election for funds to construct a waterworks. WPA application is to be made.

PAINESVILLE, O.—City contemplates installing new 550 horsepower boiler, stoker and piping changes that may total \$100,000 in a program to increase efficiency of municipal light plant. C. S. Fullerton is city manager, and F. O. Wallene, public utilities department, Cleveland, consulting engineer.

WAPAKONETA, O.—City awaits approval of PWA before advertising for bids for proposed \$150,000 municipal light and power plant. Vern J. Woehler is mayor, and Burns & McDonald, 107 West Linwood boulevard, Kansas City, Mo., is consulting engineer.

WEST UNITY, O.—Village has made application to PWA and is preparing preliminary plans for constructing a waterworks. W. E. Caughey is mayor, and Champe, Finkbeiner & associates, 1025 Nicholas building, Toledo, O., consulting engineer.

Michigan

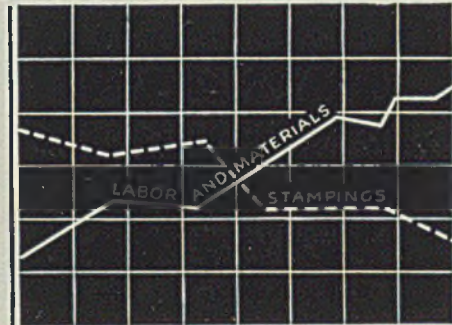
CHELSEA, MICH.—Village, Roy Harris mayor, has approved a bond issue to help finance construction of a \$54,000 sewage treatment plant. George W. Champe, 1025 Nicholas building, Toledo, O., is consulting engineer.

DETROIT—Detroit Rex Products Co., 13005 Hillview avenue, maker of degreasers, is seeking additional quarters to increase manufacturing space; new equipment is being purchased.

DETROIT—Truecraft Lock & Mfg. Co., 4401 Beaconsfield avenue, has

(Please turn to Page 93)

A STUDY IN "BLACK AND WHITE"



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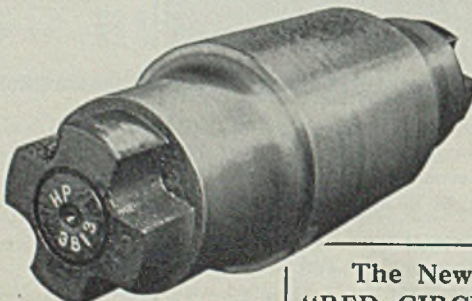
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TREATED gears for all kinds of service cut and finished to specifications.

Ample equipment for light and heavy gears . . . Prompt delivery.

The SIMONDS Mfg. Co.
25th St. - PITTSBURGH, PA.

(Continued from Page 91)

been incorporated by Adam F. Lickteig, to manufacture locks.

DETROIT—Hoff Screw Products Co., 6195 Selkirk avenue, has been incorporated to manufacture screw machine products. Robert H. Hoff, 5470 Helen avenue, is one of the incorporators.

FLINT, MICH.—Buick Motor Co. is having its engineering department draw plans for a 1-story addition.

KALAMAZOO, MICH.—Reed Foundry & Machine Co. has been incorporated with a capital of \$50,000. Ralph M. Fisher, 1527 Fulford street, is one of the incorporators.

MUSKEGON, MICH.—Muskegon Motor Specialties Co., subsidiary of Houdaille-Hershey Corp., 2188 National Bank building, Detroit, is having Benjamin McLaughlin, Grand Rapids, Mich., architect, prepare plans for a plant addition. James Albers is purchasing agent for the Specialties company, maker of cam shafts and combustion engines.

PONTIAC, MICH.—Wilson Foundry & Machine Co., D. R. Wilson president, will be reorganized as an independent concern, although it will continue to make motor blocks for the Willys-Overland Motors Inc., of which Mr. Wilson also is president.

Illinois

BREESE, ILL.—St. Joseph's hospital has plans for a 1-story, 29 x 79 foot power house. F. A. Ludewig Co., 3975 Tholgan avenue, St. Louis, is architect.

CENTRALIA, ILL.—City plans to improve waterworks with partial financing from PWA.

CHICAGO—Eureka Stamping & Mfg. Co., 43 East Ohio street, has been incorporated to deal in articles and devices made through a metal stamping process. F. Robert Hodges, Frank Troccoll, F. F. Hodges are the incorporators, and Rondeau & McNamara, 30 North LaSalle street, is correspondent.

GENESEO, ILL.—Farmers' Mutual Electric Co. has been organized and plans to erect transmission and distributing lines in part of Henry county with fund of \$60,000 secured through the federal government.

VIRDEN, ILL.—City plans to construct 3 pumping stations for a new \$189,000 sewage system. Wood, Walroven, & Tilly, 322½ South Sixth street, Springfield, Ill., is engineer for this PWA project.

Indiana

EVANSVILLE, IND.—Briggs Indiana Corp., maker of auto bodies, has purchased Graham-Paige Corp. plant here.

SOUTH BEND, IND.—Steel Furnace Mfg. Co. Inc., 2025 South Main street, has been formed to make furnaces. John S. Edwards, Byron D. Whiteman, Florence E. Edwards, Margaret A. Whiteman, and Marigrace Edwards are incorporators.

Pennsylvania

BUTLER, PA.—R. J. Ferguson & Son, wholesale grocer, 400 Locust street, is in the market for 3 power hoists or conveyors for installation in a new 1-story 40 x 80 foot warehouse.

EAST GREENVILLE, PA.—

Borough engineer has been authorized to prepare plans for improving the waterworks with partial financing from WPA.

FRANKLIN, PA.—Joy Mfg. Co., maker of automatic coal loaders, has purchased the Venango Mfg. Co. and will recondition and operate plant soon. W. E. Barrow is president.

GREENSBURG, PA.—Coral Coal & Coke Co. is considering the purchase of transmission and conveying equipment.

MIDDLETOWN, PA.—Purchasing and contracting officer, air corps, asks bids until Aug. 31 for furnishing 90 generator assemblies, type D-4.

PITTSBURGH—United States en-

gineer will take bids Aug. 18 on furnishing a portable electric arc welding machine for the federal boat yards, Charleroi, Pa.

PITTSBURGH—Mine Safety Appliance Co., 201 North Braddock avenue, plans to spend \$100,000 in building a plant and equipping it with conveyors, motors and controls and other equipment.

YORK, PA.—Brandt-Henry Mfg. Co. Inc. has received a state charter to manufacture machine tools and other equipment in a factory at 373 Kings Mill road. James G. Glessner is correspondent.

(Please turn to Page 95)



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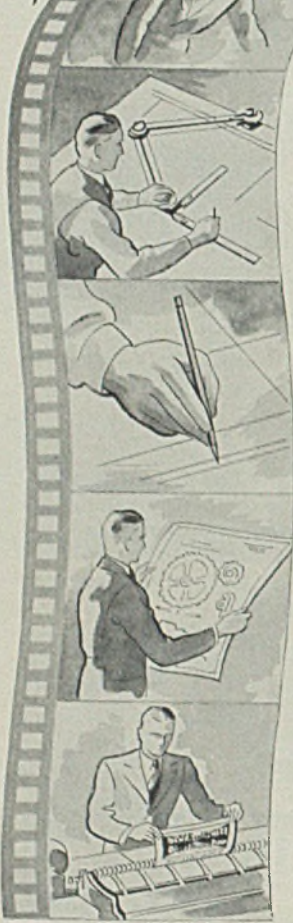
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STEEL

(Continued from Page 93)

New Jersey

DOVER, N. J.—Piscataway arsenal, war department, asks bids until Aug. 26 for furnishing drill presses, inventory 672-37-61; and a hydraulic press, inventory 672-37-60.

NEWARK, N. J.—Neeker Foundry Co. was damaged by fire recently.

New York

BATAVIA, N. Y.—City has engaged Wells Engineering Co., Geneva, N. Y., to consult on plans for improvement of the waterworks. (Noted STEEL July 27).

LINDENHURST, N. Y.—City will vote Aug. 25 on financing construction of a \$290,000 waterworks.

NEW YORK—Pedowitz & Fredental Inc., Manhattan, has been incorporated by J. J. Stern, 11 West Forty-second street, to do business in iron and steel products.

NIAGARA FALLS, N. Y.—E. I. du Pont de Nemours & Co. Inc., Buffalo avenue, has private plans for construction of a \$37,000 boiler house.

Connecticut

ANSONIA, CONN.—American Brass Co., Waterbury, Conn., proposes to install electric hoists, motors and controls, and other equipment in two additions to upper mills at a cost of \$100,000.

Massachusetts

BOSTON — Armour & Co., Union Stockyards, Chicago, is building a new plant here and plans to install electric hoists, conveyors, and motors and controls. A power house also is to be built.

PROVINCETOWN, MASS.—Provincetown Power & Light Co. is taking bids for construction of a 1-story power house addition. G. F. Clements, Hyannis, is architect.

District of Columbia

WASHINGTON — General purchasing officer, Panama Canal zone, asks bids for furnishing one grinding machine.

WASHINGTON — Division of purchases, sales and traffic, department of agriculture, asks bids until Aug. 25 for furnishing a rotary type vacuum pump, inventory 7053.

WASHINGTON—Procurement division, veterans' administration, Arlington building, asks bids until Aug. 24 for furnishing a steam driven fire pump, inventory 88-M.

Florida

PIENSACOLA, FLA.—City proposes to purchase sludge pumps for three sewage disposal projects to cost about \$105,000.

Texas

DALLAS, TEX.—El Dorado Foundry Machine & Supply Co. Inc. of Arkansas, has been granted a charter to manufacture. D. L. Butler, Rodessa, La., is Texas agent.

GEORGETOWN, TEX.—City approved issuance of \$60,000 worth of bonds to improve local power plant and install a diesel engine. Burns & McDonnell Engineering Co., 107 West Linwood boulevard, Kansas City, Mo., is consulting. (Noted STEEL June 15).

HOUSTON, TEX.—D. Helmin, 3119 Navigation boulevard, is in the market

for a 150 horsepower, horizontal return tubular boiler.

MERCEDES, TEX.—Hidalgo County Water Control and Improvement District No. 9 plans to install two boilers and three diesel engines at Thayer, Tex.

PLEASANTON, TEX.—City approved issuance of bonds for waterworks, including purchase of pumping equipment. Application has been made for \$45,000 loan and grant from PWA. A. A. Ririe, 655 East Woodlawn avenue, San Antonio, Tex., is engineer. (Noted STEEL July 6).

Wisconsin

ASHLAND, WIS.—Lake Superior District Power Co. has applied for permission to construct a \$200,000

power dam on west branch of Montreal river, near here.

BURLINGTON, WIS.—Burlington Brewing Co., A. C. Ketter president, plans to purchase \$35,000 worth of motors, machinery, and other equipment for a new bottling plant.

CORNING, WIS.—Wisconsin Public Service Corp., 1029 North Marshall, Milwaukee, has been granted permission to construct 25 miles of rural lines in parts of Lincoln and Marathon counties.

DEPERE, WIS.—City water department will accept bids until Aug. 25 for furnishing a deep well pump.

GRAFTON, WIS.—Grob Bros., (Please turn to Page 97)



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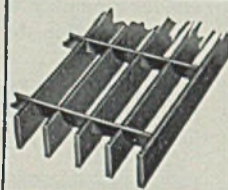
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(Concluded from Page 95)

West Allis, Milwaukee, maker of power filing machines, has bought a site here instead of at Jefferson, Wis., as noted in STEEL Aug. 3.

LA CROSSE, WIS.—Municipality is considering installation of a 200 kilowatt turbogenerator unit and auxiliary equipment in the waterworks power station.

MADISON, WIS.—Rural Electrification administration has made following allocations for electrical distribution systems in Wisconsin: Buffalo and Trempealeau counties, 251 miles, \$260,000; Chippewa county, \$96,000; Rock, Dane and Walworth counties, \$430,000; Douglas county, \$100,000. E. B. Wayte, state capitol, is chief engineer for Wisconsin REA.

MILWAUKEE — Stearns Magnetic Mfg. Co. plans to begin extensions to its present plant at 635 South Twenty-eighth street, which will almost double its present facilities.

Minnesota

BATTLE LAKE, MINN.—Village is considering plans for construction of a \$40,000 waterworks. Druar & Milnswski, 830 Globe building, St. Paul, is engineer.

NEW ULM, MINN.—Brown County Electric Co-Operative association is considering erection of 80 miles of electric lines in Brown county at a cost of \$80,000. E. Hovde, Hanska, Minn., is chairman.

South Dakota

SALEM, S. DAK.—City has voted to issue \$18,000 worth of bonds with which to construct a waterworks. C. H. McCoy is active in the proposed project.

Iowa

SPENCER, IOWA — Municipality has authorized Young & Stanley, Muscatine, Iowa, consulting engineer, to survey proposed extensions and improvements in the municipal power plant.

Colorado

DENVER — Bureau of reclamation asks bids until Aug. 20 for furnishing one 16-inch engine lathe, one 6-foot radial drill, a universal milling machine, a universal tool and cutter grinder, specification 820-D for Boulder Power plant; until Aug. 24 for furnishing steel castings, steel pipe railing, specification 822-D for the All-American canal system; and until Aug. 27 for furnishing two vertical shaft, 15,000 horsepower hydraulic turbines; two governors with pumping equipment; two 12,000 kilowatt ampere vertical shaft alternating current generators, specification 691.

Idaho

GENESSEE, IDAHO — Municipality has been granted a PWA allotment of \$11,454 to help finance construction of a \$25,454 proposed waterworks.

ST. MARIES, IDAHO—Municipality has been granted a PWA allotment of \$52,363 for a proposed water improvement to cost \$116,363.

Pacific Coast

LOS ANGELES—Rich Mfg. Co., maker of valves, 3851 Santa Fe avenue, has taken over the United States Foundry Co.

and Fenholtz Machine Co. Carl H. Anderson is president of the Rich company.

LOS ANGELES—Calmar Lines, 1151 South Broadway, plans to build six freighters and power them with high-pressure turbines. H. W. Warley is president and general manager.

STOCKTON, CALIF.—Superior Tractor Co. has been organized to conduct a toolmaking and foundry business. J. M. Kroyer, G. M. Kroyer, D. A. McAllister, R. B. Webster, and G. M. Giocovini, all of Stockton, are incorporators of the concern, capitalized at \$750,000.

NORTH BEND, OREG.—City plans construction of a power plant at the local air field, including the purchase of two 275 horsepower motors, two centrifugal pumps, water main extensions and two miles of power lines.

PORTLAND, OREG.—A. Leschen & Sons, St. Louis, wire rope manufacturers, have leased a new building at Thirtieth and Kearney streets.

WENATCHEE, WASH. — Azurite mines plans to purchase 500 horsepower electric motors and about 450 tons of machinery and equipment for a new cyanide plant.

Canada

KIRKLAND LAKE, ONT.—Morris Kirkland Lake mines plans to purchase conveyors, primary crushers, and electrical equipment. General Engineering Co., 100 Adelaide street, West, Toronto, Ont, is engineer.

ASBESTO, QUE.—City contemplates spending \$25,000 for a waterworks system.

BELOEIL, QUE.—City proposes to construct a \$35,000 waterworks. R. Phaneuf, Town hall, is engineer.

BOURLAMAGUE, QUE.—City is considering construction of a \$35,000 waterworks.

COWANSVILLE, QUE.—City plans to spend \$50,000 to extend and improve

the water and sewerage systems.

DRUMMOND, QUE.—City plans to spend \$40,000 to extend and improve the waterworks and sewerage systems. H. Bertrand, Town hall, is engineer.

GREENFIELD PARK, QUE.—City is laying plans for improving and extending existing waterworks and sewerage systems at a cost of \$30,000. G. Reakes, Town hall, is engineer.

JOLIETTE, QUE.—Municipality has underway plans for spending \$50,000 for improvements and extensions in the sewerage and waterworks systems. E. H. Lippe, Town hall, is engineer.

LACHINE, QUE.—City expects to extend and improve waterworks and sewerage systems at a cost of \$70,000. R. Dorion, Town hall, is engineer.

LAGUGUE, QUE.—Municipality has plans for \$30,000 worth of improvements in the waterworks. J. Asselin, Town hall, is engineer.

LOUISEVILLE, QUE.—City proposes to spend \$30,000 for a waterworks system.

MASSON, QUE.—City proposes to extend and improve waterworks and sewerage systems.

PLESSIVILLE, QUE.—City expects to spend \$35,000 for improving and extending the waterworks and sewerage systems.

RAWDON, QUE.—City plans to spend \$25,000 for a waterworks.

THREE RIVERS, QUE.—City proposes to extend and improve the waterworks and sewerage systems at a cost of \$50,000. Z. Lampert, Town hall, is engineer.

VICTORIAVILLE, QUE.—City contemplates spending \$50,000 to extend and improve the waterworks and sewerage systems.

VILLE LaSALLE, QUE.—Municipality, L. X. Robidaux, Town hall, engineer, plans to spend \$50,000 to extend and improve the waterworks and sewerage systems.

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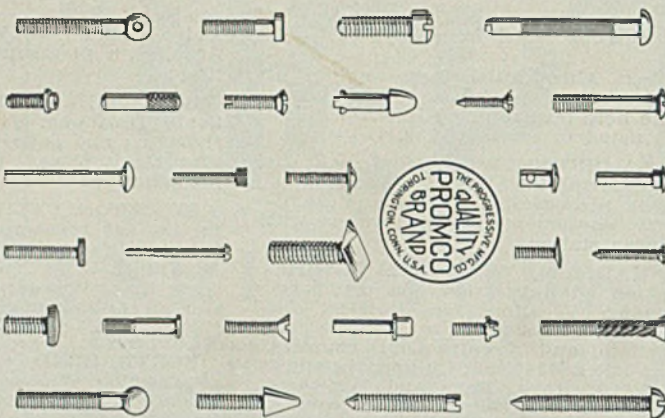

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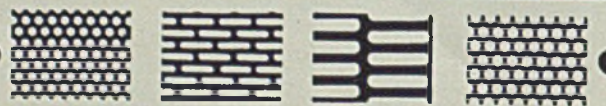


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