STEEL

FOR FORTY-EIGHT YEARS—IRON TRADE REVIEW

Contents

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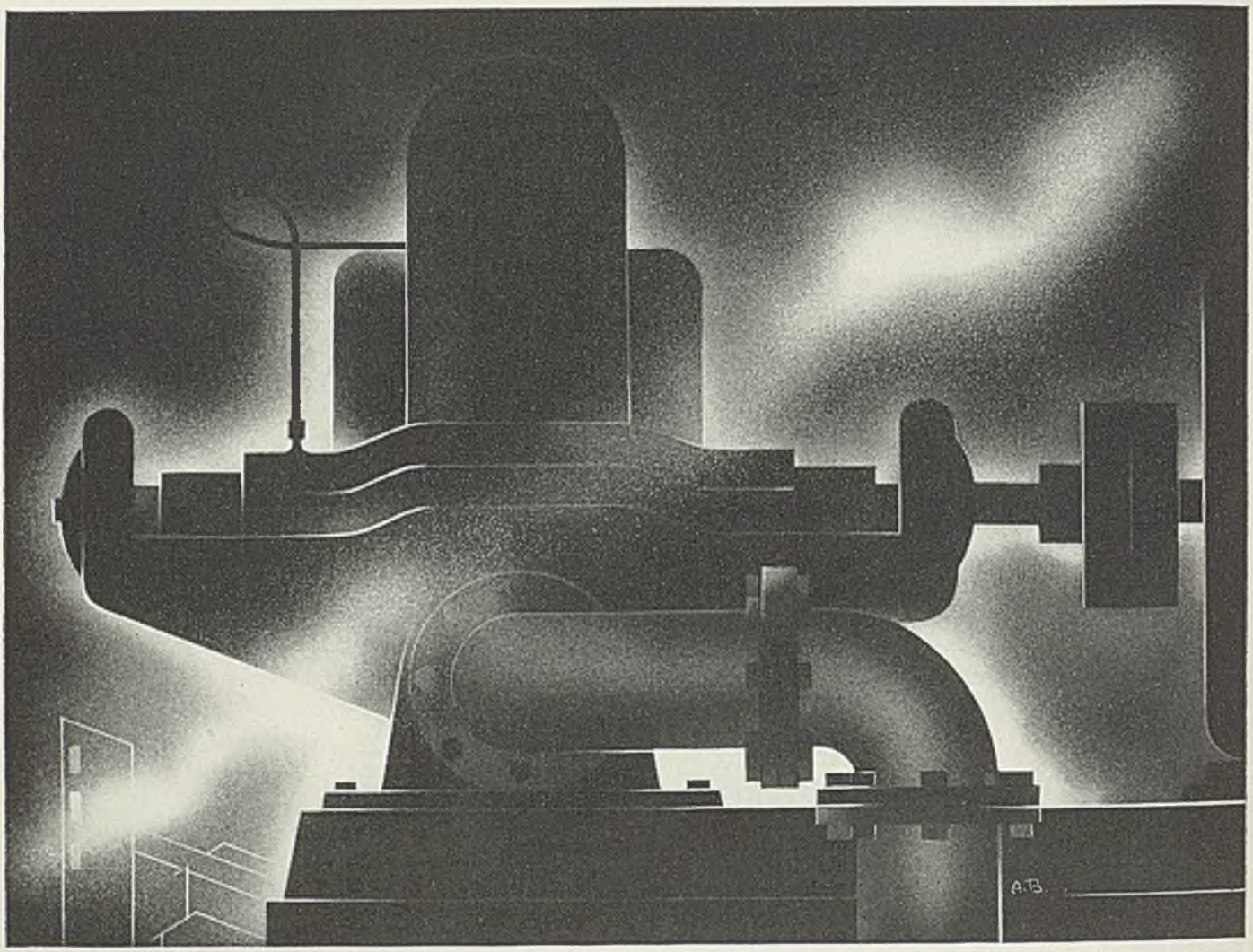

Obvious—or Effective

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STEEL
PRODUCTION • PROCESSING • DISTRIBUTION • USE

As the Editor Views the News

A FAVORABLE development in the present bluish-tinged situation is the increasing support for the repeal or modification of the undistributed profits tax. Several associations have been seeking expressions from industry as to the advantages and disadvantages of the tax. The returns show an overwhelming demand (p. 25) for relief from the present penalties. This protest, which is mounting daily, is arousing sympathy in congress. The fact that the tax has proved disappointing to the treasury as a revenue producer also carries weight in Washington. Today the outlook for early consideration of this problem is brighter than at any time since the tax was imposed.

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Continued sluggishness in business is causing industrial executives to recheck the outlook for short-term demand. It is too early to appraise the effect of the New York auto show accurately, but early impressions (p. 39) were disappointing. Meanwhile, activity continues to recede, but at a more moderate pace. The postponement of expected favorable signs is prompting speculation as to whether Washington will attempt any of the remedies which "economic planning" is supposed to provide. In some quarters hope is entertained that the administration, confronted with the necessity of making its plans work, will make belated overtures to allay the fears of industry and of investors.

Will U. S. Take Hand?

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To be effective promptly, remedial action by the federal administration would have to recognize the fact that wages have been increased and working periods shortened too rapidly. It will be embarrassing for the administration to seek corrective adjustments in wages and hours, yet such adjustment will be necessary before some of the more backward industries—building construction, for instance—can be placed on a sound basis. Tax reform, a let-up in the persecution of public utilities, and a more sympathetic attitude toward investors are remedies more easily applied—if the government is not too fussy about face-saving tactics. Meanwhile, industry faces a delicate task of adjusting operations to lower demand with the least possible jolt to employment. Monthly reports show that employers in the steel industry did a remarkably good job in this respect (p. 30) in September.

Remedy Embarrasses

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Open-hearth designers and operators will be interested in the performance of a new furnace in Australia which embodies departures from conventional practice (p. 61) to permit continuous operation for periods as long as four or five years. This unit, of 175 tons capacity, was developed by a well known American metallurgist. The principal innovations introduced in the hope of achieving continuous operation involve checker control. Limited checker temperatures, use of high-quality brick, and accessibility of certain parts for cleaning are features of the Australian open hearth. . . . Striking figures to show the advance of welding in shipbuilding and railroad car construction (p. 67) were presented at the recent meeting of the American Welding society. It was reported that 66 of the 120 vessels now under construction in this country are all-welded.

Continuous Open Hearth

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The pronounced success of the second annual foundry conference at the State University of Iowa, Iowa City (p. 54) emphasizes the increasing popularity of the regional technical meetings inaugurated under the auspices of the American Foundrymen's association. The Iowa conference, the recent sessions at Battelle Memorial institute and Missouri School of Mines and Metallurgy and the forthcoming conferences at Cornell, Michigan State college and Birmingham permit the results of the technical activities of A.F.A. to be disseminated broadly. They create new interest in the work of A.F.A. and undoubtedly will intensify the desire of many foundrymen to participate in the next annual convention of A.F.A. in Cleveland. Carrying the benefits of its technical work into the home districts of its members is a progressive step for A.F.A.

Regional Meets Click

E. L. Shaner

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RYERSON STEEL—SERVICE

Profits Tax May Be Amended; Checks Industry, Surveys Show

■ IN WASHINGTON last week a strong impression prevailed that in the coming, Nov. 15, special session of congress the undistributed profits tax will be amended.

It was stated in well-informed quarters that Marriner Eccles, chairman of the Federal Reserve board; Jesse Jones, chairman of the RFC; Undersecretary of the Treasury Magill; and Joseph P. Kennedy, former chairman of SEC, and now chairman, maritime commission—all close advisers to the President—believe that the tax should be repealed, or at least modified.

The story was to the effect that Mr. Roosevelt had practically been persuaded that something must be done about the tax, although, of course, he has not yet said so publicly.

The suggestion for the tax was put squarely at the door of Herman Oliphant, general counsel for the treasury department. It was understood that he led the secretary of the treasury and also the President to believe it would yield much more income than it has. The plan did not work out, and the tax has been merely a deterrent of business.

Believe Congress Will Act

So far as could be learned Mr. Oliphant is the only one of the many advisers of the President who still believes it is a good tax.

Moreover, it is understood that leaders in congress now are convinced that it was an ill-advised piece of legislation, and that there is little doubt that some action will be taken at the coming session. This, of course, would not relieve the tax drain on industry this year, but would go far to restore confidence in 1938.

That the tax is hindering expansion and seriously affecting employment was indicated last week by two industrial surveys made by two groups, independent of one another—the National Association of Manufacturers and the National Industrial Conference board.

One-fourth of the 405 manufacturers replying to a questionnaire by the Manufacturers' association stated they would require more employes if the tax were lifted and they were allowed to devote the money to plant expansion and new machinery. Another fourth said their demands in the labor market "probably" would increase.

Other effects cited by the manufacturers were: 18.5 per cent were handicapped by the tax on earnings used to pay off debts; 4.7 per cent were handicapped by contracts and state laws which prevented the distribution of earnings in the form of dividends; 68.7 per cent said they were paying out uneconomically large dividends.

Of 73 iron and steel manufacturers queried, 27 definitely would employ more men if the tax were lifted, 12 probably would, 26 would not and eight failed to say. Of 74 machinery manufacturers, 20 definitely would employ more, 21 probably would, 24 would not, and nine failed to say.

"It would appear," says the as-

From Fashion Revue to Steel Plant

■ To learn how steel for the modern car is made, four girls featured in "Fashions of the World" revue at Chicago's automobile show, which opened Nov. 6, visited Carnegie-Illinois Steel Corp.'s South Works. Left to right are: Anne Witlox, Miss Belgium; Evelyn Erickson, Miss Sweden; Anne Horvath, Miss Hungary; and Helen Wester, Miss Denmark. They are shown in front of a soaking pit as an ingot is lifted from the pit preparatory to rolling

sociation in analyzing the returns, "that there can be little real expectation of sound business expansion and further employment gains until the surplus profits tax is either repealed or drastically amended.

"Every approach which the association has made in surveying and studying the effects of this tax had indicated that it is seriously handicapping and adversely affecting business and re-employment throughout the country."

A tool company: "We are constantly forced to consider our cash position. If another depression should come about, we could not maintain our present payrolls and employment level because of depleted revenues of the company."

Another tool company: "We would unquestionably employ more men if it were permitted for us to buy new equipment, rather than pay the government a heavy premium for withholding earnings. This would come about through expansion of our manufacturing facilities.

Would Buy More Machines

"Equally as important, is the possible increase in employment in the machine tool industries that would have resulted, had we seen our way clear to buy new machines and additional equipment, which we have not purchased because of the heavy penalty attached to such purchases."

A steel casting company: "We consider that an exemption from this tax for the purchase of new machinery and equipment, or the erection of new buildings, is very desirable and we would avail ourselves of such opportunity if it existed. This would enable us to increase our output and number of men employed."

A spring company: "If the undistributed earnings tax is eliminated or drastically reduced, we will go ahead with the purchase of new equipment and machinery. This would be reflected in the employment of more men."

Disadvantages of the tax outweigh its advantages, a survey of 360 companies by the National Industrial Conference board indicates. Only two of the executives questioned believed such advantages equalled the disadvantages.

Disadvantages mentioned and the number of companies reporting them were: Hinders expansion from earnings, 138; prevents accumulation of reserves for lean years, 135; discourages debt retirement and penalizes companies with long-term debts, 61; penalizes small, growing, new and weak corporations, 52; will tend to accentuate depressions, 47; encourages increased reliance on the capital market and the banks, 43; fails to provide any allowance for losses of prior years, 42; induces payment of dividends in excess of sound financial policy, 39; prevents accumulation of working capital from earnings, 26; and places a penalty on thrift and prudent management, and fosters extravagance in operation, 24.

Advantages mentioned were: Prevents withholding of dividends when there is no reason for not declaring them, 14; stops accumulation of unneeded cash, seven; blocks manipulation of earnings to suit the tax exigencies of large stockholders, four; checks unwarranted expansion, three; adds to consumer purchasing power, two.

In the case of 196 corporations that paid the tax, it amounted on the average to 3.6 per cent of net income before federal taxes. A substantial number of corporations paid dividends equal to or in excess of earnings and were not subject to the tax.

An increase in the proportion of earnings distributed as dividends was reported by 193 corporations. Corporations reporting the amount of the increase because of the tax reported an increase of 51 per cent.

Dividends equal on the average to 76.8 per cent of earnings after deduction of all taxes other than the undistributed profits tax were reported by 272 corporations. This compares with an average of 64.8 per cent for all corporations, other than finance, reporting net income during the five-year period 1925-1929.

Navy May Ask New Bids On Ferromanganese, Ore

■ Although no official statement has been made, it is understood on good authority the navy department will reject all bids received Oct. 29 for manganese ore and ferromanganese and readvertise for bids under new specifications.

Considerable complaint has been expressed concerning the way the specifications were drawn.

Harvester To Build Plant in Australia

■ International Harvester Co., Chicago, has purchased a 45-acre site near Melbourne, Australia, for construction of a $2,000,000 manufacturing plant. About 450 men will be employed and the plant is expected to be in operation some time next year.

Officials of the company state that the growing system of Australian import duties and quotas in effect on American made farm implements have dictated the building of the new plant. The plant will be built and operated by the Australian affiliate of International Harvester Co. which heretofore has been a sales distributor and servicing agency.

19 New Buildings For Irvin Works

■ Carnegie-Illinois Steel Corp., Pittsburgh, has commissioned Rust Engineering Co., Pittsburgh, to prepare plans for 19 new buildings which will be erected at the new Irvin works, now under construction in Camden township, Pittsburgh suburb.

A general office, mill office, metallurgical and testing laboratories, hospital building and other accessary structures are included in the 19 new units.

Trucking Companies Consider Higher Rates

■ Trucking companies, which carry a considerable tonnage of steel and steel products in interstate commerce, will petition shortly for rate increases comparable to those granted the railroads, it was reported in transportation circles. Railroads last week filed their petition for a 15 per cent advance, in addition to the 10 per cent recently granted.

It now appears the new rates will not go in effect until Nov. 15, due to difficulties in publishing them.

Steel traffic men were pleased with a ruling simplifying the matter of fractions in compiling rates to eliminate much bookkeeping. On rates in cents per 100 pounds, fractions under one-quarter cent will be eliminated. One-quarter cent to 0.74-cent will be figured as a half-cent. From 0.75-cent up the fraction will be considered as 1 cent. In rates figured in cents per ton 0.49-cent and less will be eliminated, and 0.50-cent and up will take a full cent.

Tennessee Takes Over Houston, Tex. Warehouse

■ Tennessee Coal, Iron & Railroad Co. has acquired Carnegie-Illinois Steel Corp.'s warehouse in Houston, Tex. Opened in 1927, it has a total floor area of 350,000 square feet, part of which has been used by T. C. I. for several years.

The warehouse originally was constructed for use jointly by American Sheet & Tin Plate Co., American Steel & Wire Co., and Carnegie Steel Co. American Steel & Wire Co. will continue to use the property through an arrangement with T. C. I.

E. E. Aldous, Texas district manager of sales for T. C. I., will have charge of the warehouse. William Davis will be manager.

CIO's "Victories" Less Than Chiefs Expected

■ DECISIVELY defeated in Detroit, Cleveland, Akron, O., and Canton, O., elections last Tuesday most CIO leaders frankly admitted they are not the dominant political power they had hoped.

While John L. Lewis was singling out the few instances where labor showed undeniable strength, his top sergeants were saying they did not gain as much as they expected, that they had not yet sufficient political experience or power.

In accordance with tradition, organized labor failed to vote as a unit, and the situation was complicated further by the hostilities between CIO and the American Federation of Labor.

Survey of election results shows no definite pattern, indicates no definite conclusions. Elections essentially were local. Issues in some were multiple or confused.

In Detroit, where CIO centered its strength, it was soundly beaten. Here the union had entered its own candidate for mayor and five for council. Typical CIO methods were used, CIO money was spent.

Patrick H. O'Brien, CIO candidate for mayor, trailed Richard W. Reading, supported by the local branch of AFL, by 107,000 votes. All five CIO council candidates lost, with the strongest 23,000 votes behind the last man elected.

It was in Detroit that the Lewis union and its affiliate, the UAW, had threatened to "seize the reins of government." (See also p. 39.)

In Cleveland, Mayor Harold H. Burton, Republican opposed by the CIO and most of the AFL, was re-elected.

In Akron, Lee D. Schroy, Republican, was re-elected over municipal Judge G. L. Patterson, CIO candidate and a national labor relations board attorney.

In Canton, Mayor James Seccombe, Republican, was re-elected over Darrell D. Smith, who was endorsed by CIO. Mayor Seccombe's handling of the steel strike last summer was the principal issue.

In the Pittsburgh district, the CIO showed more strength. Cornelius D. Scully, Democratic CIO candidate, was elected mayor. Scully and his entire ticket were supported by SWOC Chairman Philip Murray.

In suburban Duquesne Elmer J. Maloy, a CIO official, defeated his Republican opponent for mayor. In Clairton, Pa., John J. Mullen was elected mayor with CIO support.

In the following other small Pennsylvania towns, the CIO-endorsed candidates for mayor or burgess were elected: Donora, Monessen, Rankin, Versailles, North Braddock, Aliquippa, Ambridge, Arnold and Brackenridge, Farrell, East Pittsburgh, Glassport, Port Vue.

However, CIO candidates for mayor or burgess lost in these communities: Charleroi, McKeesport (lost every office), Tarentum, Midland (lost every office), North Braddock, Pa., and Mingo, O. CIO's candidate for judge was defeated in Lawrence county, Pennsylvania, and its candidate for sheriff in Washington county also lost.

New York's Mayor La Guardia, Republican, was re-elected by a 454,000 majority over his Tammany opponent, Jeremiah T. Mahoney. La Guardia ran on a fusion ticket endorsed by the American Labor party. His ticket drew support from the Labor party, the Republicans and independent Democrats in a campaign to crush Tammany.

Leaders of the Labor party contended their vote supplied the balance of power. Their vote undoubtedly was heavy, but fell far short of the 600,000 expected.

Issues in the New York campaign, however, were multiple—Tammany, La Guardia's record, graft, crime and racket-busting.

River, Stay Away From This Steel Plant's Door

■ Weirton Steel Co.'s flood wall surrounding its Steubenville plant is nearing completion and attracting widespread attention in the Ohio river valley. It is designed for protection to a flood stage of 55 feet, 4 inches, which is 2 feet higher than any flood recorded at this point. Total height ranges from 22 to 30 feet, depending on ground formation, and height above ground is 12 to 16 feet. Where the wall intersects railroad tracks gates will be placed in grooves, thus isolating the entire plant

Extends Confirmation Of Follansbee Plan

■ Judge R. M. Gibson in Pittsburgh last week entered an order extending the confirmation of the plan of reorganization of Follansbee Bros. Co. to Feb. 4, 1938. The purpose is to allow the company to make other financial arrangements.

Counsel for the trustees stated sales during the period of trusteeship have exceeded $21,700,000, of which over $21,200,000 has been collected. More than $7,700,000 has been paid in wages in the same period.

Deny Lukens-Alan Wood Merger Reports

■ R. W. Wolcott, president, Lukens Steel Co., Coatesville, Pa., last week denied reports that a merger of his company with Alan Wood Steel Co., Conshohocken, Pa., was in progress. The reports are entirely without foundation since there have been no negotiations or conversations of such a merger, he said.

Officials of the Alan Wood company also denied the reports.

Increased Foreign Trade Holds Key to World Peace

■ WORLD HOPE for peace and contentment lies not in economic self-sufficiency but in the prosperity that comes from increased world trade.

This was the keynote sent to 900 business and industrial executives and government officials at the twenty-fourth national foreign trade convention at Hotel Cleveland, Cleveland, Nov. 3-4-5 by James A. Farrell, former president, United States Steel Corp.

Mr. Farrell, chairman of the National Foreign Trade council since 1914, was absent because of illness. His message to the council's convention was read by his son, James A. Farrell Jr., president, the American-South African Steamship line.

That foreign trade is essential to American industry was stressed throughout the three-day meeting. Not only do American manufacturers depend on a market abroad, but they also are dependent on foreign sources for many raw materials, F. C. Crawford, president, Thompson Products Inc., Cleveland, pointed out. Chrome, tungsten, cobalt, nickel and other materials necessary in ferroalloys were cited as examples.

Mr. Farrell took issue with the school of thought "to whom the doctrine of economic self-sufficiency appeals as a means of avoiding international entanglements."

"The premise in this case, that international co-operation leads to ill-will and war, will be vigorously disputed . . . We have seen much in recent times to bring disillusionment, much to shake our belief in progress through international co-operation; but we have seen also that the problems that confront the world today are chiefly due to lack of international co-operation and, above all, to a type of economic nationalism which has rendered more difficult the solution of these problems through a greater expansion of world trade . . .

Trade Agreements Succeed

"Sixteen trade agreements, resulting in a substantial increase in total trade, demonstrate the soundness of our trade agreement policy as the most effective instrument yet devised for the gradual freeing of the normal channels of international commerce from the obstacles that prevent more rapid recovery."

Chief function of government in relation to business is the freeing of private enterprise from harmful restrictions, he declared.

"The tendency of a government-planned economy is that of devising and crystallizing artificial restraints upon legitimate freedom. Carried to its logical conclusion, as witnessed in a number of countries today, we have governmental control of production and trade, internal and external, and the strange spectacle of government buying and selling agencies superseding private enterprise."

Speaking in a similar theme were Paul W. Litchfield, president, the Goodyear Tire & Rubber Co., Akron, O., and Graeme K. Howard, general manager, General Motors overseas operations.

Artificial Barriers Denounced

Developments in the labor movement in the past 18 months, attempts to prevent management from doing its job efficiently, and artificial trade barriers were cited by Mr. Litchfield as factors that cannot help but injure industry.

Moderate optimism for an increase in America's foreign trade was expressed by Joseph C. Rovensky, vice president, Chase National bank, New York. Recently returned from a visit to Great Britain and the Continent, Mr. Rovensky assured the convention business abroad is better than popularly believed in America, that Europe generally is not contemplating another war, that rearmament programs are not wholly responsible for the better business there. Uneasiness exists abroad, he admitted, due in part to European concern over business conditions in America, and in part to international politics.

On the whole, he concluded, "The economic status of Europe is on as good a basis as it has been for a good many years."

Film Shows Manufacture Of High-Speed Steel

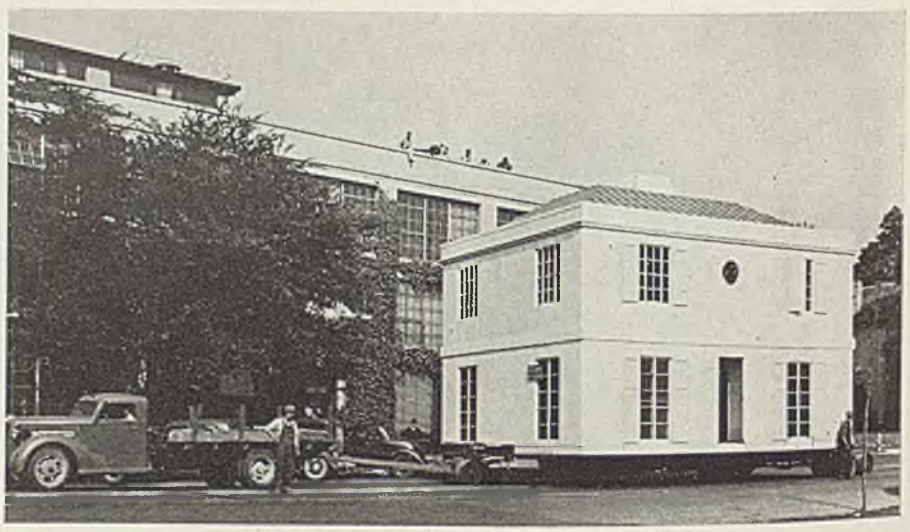
■ Premier showing of a new moving picture describing molybdenum-tungsten high-speed steels was made by Ludlum Steel Co., Watervliet, N. Y., Nov. 1, before 550 members of the Cleveland chapter, American Society for Metals. The film was presented by A. W. F. Green, director, company's physical laboratory.

Molybdenum-tungsten steel contains 1.30-1.80 per cent tungsten, compared to about 18 per cent for the 18-4-1 type of high-speed steel. Interest in it is growing because war in the Far East is interfering with tungsten supplies.

Completed only ten days ago, the film therefore is timely. It contains many fine and unusual color shots. J. V. Emmons, metallurgist, Cleveland Twist Drill Co., Cleveland, and inventor of molybdenum-tungsten steel, was technical chairman.

Another feature was the showing of several reels of hunting and fishing pictures taken by H. G. Batcheller, president, Ludlum Steel Co.

All-Welded Steel House Enroute to Location



■ This factory-built steel house is being moved to location while workmen finish the interior. Of all-welded construction, it contains three bedrooms, four other rooms and a central hall. Plumbing, fixtures, wiring, all will be ready for occupancy when the house is placed on a previously prepared foundation. Photo courtesy Hobart Bros. Co., Troy, O.

October Iron Output Drops 18.1 Per Cent

■ Blowing out or banking of 30 blast furnaces in October, the largest number for any month since early 1924, brought average daily production of coke pig iron for the month down 18.1 per cent below September, and to a level which was the lowest since September, one year ago. This was the most severe set-back production has experienced in three years.

Average daily output in October was 93,259 gross tons, against 113,932 tons in September, a drop of 20,673 tons. This was the lowest for any month since September, 1936, with a daily rate of 90,942 tons. The decline in October was the sharpest since July, 1934, when a daily rate of 39,630 tons declined 24,933 tons from the June rate of 64,563 tons. Production in October, 1936, was 96,509 tons per day.

Peak production for 1937 was reached in August with an average daily rate of 116,676 tons. Thus, in two months, output has fallen off 23,417 tons per day. Active blast furnaces reached their top in July with 192. In three months, the loss has been 41 stacks, bringing the total down to 151 on Oct. 31. The loss of 30 stacks in October was the largest monthly loss since May, 1924, with 47.

Total production in October amounted to 2,891,026 gross tons, a decline of 526,934 tons, or 15.4 per cent, from the 3,417,960 tons made in the preceding month. This was the lowest monthly production since September, 1936, with 2,728,257 tons. Production in October, a year ago, was 2,991,794 tons.

For the ten months ended in October, iron production has aggregated 33,197,634 gross tons, and is ahead of 1936 ten-months production of 24,607,570 tons, by 8,590,064 tons, or 34.9 per cent. Output in the corresponding period of 1935 was 16,858,694 tons.

Relating production to capacity, operations in October were at the rate of 68.4 per cent, against 83.7 per cent in September and 85.7 per cent in August. This was the lowest rate since September, 1936, with 66.9 per cent. In October, one year ago, operation percentage was 71.0.

During October, three steelworks or nonmerchant furnaces resumed and 29 were blown out or banked, making a net loss of 26. Four merchant stacks suspended and none resumed. The total of 151 furnaces on the last day of the month was the lowest for any month since August, 1936, with 148.

Stacks blowing in during October were: In Ohio: Lorain No. 4, National Tube Co. In Pennsylvania: Monessen No. 1, Pittsburgh Steel Co. In West Virginia: Weirton No. 2, National Steel Corp.

Furnaces blowing out or banking were: In Ohio: Canton and Youngstown No. 4, Republic Steel Corp.; one Mingo and one Ohio, Carnegie-Illinois Steel Corp.; Campbell No. 3 and Hubbard No. 1, Youngstown Sheet & Tube Co.; Martins Ferry and Portsmouth, Wheeling Steel Corp.; Central B, American Steel & Wire Co.; Lorain No. 1, National Tube Co.; Hamilton No. 2, Hamilton Coke & Iron Co. In Pennsylvania: Two Carrie, one Duquesne and two Edgar Thompson, Carnegie-Illinois Steel Corp.; two Aliquippa and two Eliza, Jones & Laughlin Steel Corp.; Bethlehem G, Bethlehem Steel Co.; Midland No. 2, Pittsburgh Crucible Steel Co.; Sharpsville, Pittsburgh Coke & Iron Co. In Maryland: Maryland F, Bethlehem Steel Co. In Illinois: South Works Old Nos. 1 and 3, South Works New Nos. 5 and 9, Carnegie-Illinois Steel Corp.; Federal A, Interlake Iron Corp. In Indiana: Gary Nos. 6, 10 and 12, Carnegie-Illinois Steel Corp.; Indiana Harbor No. 1, Youngstown Sheet & Tube Co.

MONTHLY IRON PRODUCTION

Gross Tons

	1937	1936	1935
Jan.	3,219,741	2,029,304	1,478,443
Feb.	3,020,006	1,838,932	1,614,905
March	3,470,470	2,046,121	1,770,990
April	3,400,636	2,409,474	1,671,556
May	3,545,180	2,659,643	1,735,577
June	3,115,302	2,596,528	1,558,463
July	3,501,359	2,595,791	1,520,340
Aug.	3,616,954	2,711,726	1,759,782
Sept.	3,417,960	2,728,257	1,770,259
Oct.	2,891,026	2,991,794	1,978,379
Tot. 10 mo.	33,197,634	24,607,570	16,858,694
Nov.	.....	2,949,942	2,066,293
Dec.	.....	3,125,192	2,115,496
Total	.....	30,682,704	21,040,483

AVERAGE DAILY PRODUCTION

Gross Tons

	1937	1936	1935	1934
Jan.	103,863	65,461	47,692	39,537
Feb.	107,857	63,411	57,675	45,385
March	111,951	66,004	57,120	52,438
April	113,354	80,316	55,719	57,873
May	114,360	85,795	55,986	66,370
June	103,843	86,551	51,949	64,563
July	112,947	83,735	49,043	39,630
Aug.	116,676	87,475	56,767	34,199
Sept.	113,932	90,942	59,009	29,969
Oct.	93,259	96,509	63,818	30,689
Nov.	.....	98,331	68,876	31,930
Dec.	.....	100,813	68,242	33,161
Ave.	109,202	83,832	57,694	43,774

OCTOBER IRON PRODUCTION

	No. in blast last day of Oct.	Sept.	Total tonnage Merchant	Nonmerchant
Ohio	32	42	143,766	533,320
Penna.	48	59	143,318*	700,081*
Alabama	17	17	125,821	112,843
Illinois	10	15	97,451	146,496
New York	14	14	87,866	174,856
Colorado	2	2		
Indiana	11	15	7,261*	427,140
Maryland	4	5		
Virginia	1	1		
Kentucky	2	2		
Mass.	1	1		
Tenn.	0	0		
Utah	0	0	22,892	167,915
West Va.	3	2		
Michigan	4	4		
Minnesota	2	2		
Missouri	0	0		
	151	181	628,375*	2,262,651*

z*Includes ferro and spiegeleisen.

RATE OF OPERATION

(Relation of Production to Capacity)

	1937[1]	1936[2]	1935[3]	1934[4]
Jan.	76.6	48.2	34.2	28.3
Feb.	79.5	46.6	41.4	32.5
March	82.5	48.5	41.0	37.5
April	83.7	59.1	40.0	41.4
May	84.3	63.1	40.2	47.5
June	76.6	63.6	37.2	46.3
July	82.9	61.5	35.2	28.4
Aug.	85.7	64.3	40.7	24.5
Sept.	83.7	66.9	42.5	21.5
Oct.	68.4	71.0	45.8	22.1
Nov.	....	72.3	49.5	22.8
Dec.	....	74.2	49.0	23.7

[1]First half based on capacity of 49,512,737 gross tons, Dec. 31, 1936—second half on capacity of 49,727,737 tons, June 30, 1937; [2]capacity of 49,777,893 tons, Dec. 31, 1935; [3]capacity of 50,845,741 tons, Dec. 31, 1934; [4]capacity of 50,975,561 tons, Dec. 31, 1933. Capacities by American Iron and Steel Institute.

Institute Issues Second Section Steel Manual

■ American Iron and Steel institute has issued the second section of its steel products manual, dealing with semifinished steel products. The first section was issued late in August and covered pig iron and ferroalloys. Other sections will be prepared and published from time to time in the effort to present current methods and the terms used to describe them.

FINANCIAL

ROLLING MILL STOCK SHOWS WIDE OWNERSHIP

■ American Rolling Mill Co., last week declared a dividend of 40 cents on common stock payable Dec. 15 to record of Nov. 15. This brings the total for the year to $2.

An average ownership of 63 shares of stock among 37,136 common and preferred stockholders was reported by Charles R. Hook, president.

Of 28,777 common stockholders 25,454 own lots of 100 shares or less, and 3323 own lots of more than 100 shares. Of 8359 preferred stockholders, 7791 hold lots of 100 shares or less, and 568 hold lots of more than 100 shares, the survey showed.

"This analysis, I believe, is typical of the wide ownership of American commerce and industry," Mr. Hook said. "For every employe on the Armco payroll there two stockholders. A great many of these stockholders are employes of our company."

EARNINGS

Granite City Steel Co., Granite City, Ill., reports net profits in the three months ending Sept. 30 equal 37 cents a share or $140,541, against $84,633 or 22 cents a share in the September quarter last year. For the first three quarters this year net profits were $464,036 or $1.21 a share, compared with $190,075 or 49 cents a share in the same period a year ago.

In the first nine months this year Ludlum Steel Co., Watervliet, N. Y., with net profits of $1,201,197 has exceeded the entire record year of 1936 by $159,952 when $1,041,245 was reported.

National Supply Co., Toledo, O., including Spang Chalfant & Co., reports nine months net profit of $6,614,289 on present capitalization, or $5 a share on common against $2,881,843 or $1.75 a share in the comparable period a year ago, based on present number of shares. Third quarter net was $1,846,150 compared with $1,047,311 in September 1936 quarter.

For the three months ending Sept. 30, Eastern Rolling Mill Co., Baltimore, reports net profit of $19,664, equivalent to 9 cents a share on 210,000 shares of capital stock. This compares with $82,476 in the preceding quarter and $13,193 in September quarter last year. For the first nine months this year the indicated net profit was $164,899, equal to 78 cents a share, against $8985, or 4 cents a share in the same period a year ago.

DIVIDENDS DECLARED

United Engineering & Foundry Co., Pittsburgh, has declared the regular quarterly dividend of $1.75 a share on the preferred and 50 cents on common, both payable Nov. 16 to record Nov. 6.

Directors of M. A. Hanna Co., Cleveland, have declared the regular quarterly dividend of $1.25 per share on $5 cumulative preferred stock, payable Dec. 1 to record Nov. 15.

LABOR

STEEL EMPLOYMENT STEADY, THOUGH OUTPUT DROPS

■ Steel employment in September remained almost at the August level, despite a decline of 11.8 per cent in volume of steel output, according to the American Iron and Steel institute.

A total of 602,700 employes were on the payrolls in September, the report indicated, less than one-tenth of 1 per cent below the 603,100 employed in August, and 14 per cent greater than the 527,000 in September, last year. Steel ingot production in September amounted to 4,301,869 gross tons, compared with 4,875,671 in August, and 4,151,388 in September, 1936.

Total payrolls of the industry in September likewise failed to reflect the full extent of the 11.8 per cent drop in production, September payrolls of $86,161,000 showing a decline of only 7 per cent from the August total of $92,663,000. The September, 1937, steel payrolls were 31 per cent above $65,611,000 paid out during the same period last year.

Because reduced operations eliminated the necessity for much of the overtime work, for which most companies in the industry pay time-and-a-half, average hourly earning of wage-earning employes amounted to 84.3 cents in September, compared with 86.1 cents in August. The average hourly wage paid in September, however, was 27 per cent above the 66.3 cents in September, 1936.

STRUCTURAL STEEL WORKERS RECEIVE WAGE ADVANCE

Wage increases for all classes of structural steel workers employed by American Bridge Co. in the Pittsburgh area have been agreed to following a meeting between workers and the management, it was announced by Attorney David M. Harrison, representing the structural workers.

Under the new scale, effective immediately, bridge men will receive $1.50 per hour, against $1.37½ paid previously. Sheeters will be paid $1.80 per hour, compared with $1.65 formerly received. Corresponding increases were announced for other classifications. About 1000 men are affected.

Consumers' Earnings Show Average of 41% Increase

■ Net earnings of 50 identical companies among equipment manufacturers and other leading consumers of iron and steel for the first nine months of 1937 average 41 per cent higher than in the corresponding period last year. STEEL's tabulation, Oct. 25, page 24, included 19 identical consumers, while the subjoined table lists 31.

	Third Quarter		Nine Months	
	1937	1936	1937	1936
Stewart-Warner Corp., Chicago	$542,625	$469,795	$2,084,546	$1,524,157
Worthington Pump & Machinery Corp., Harrison N. J.	501,300	.....	1,402,076	492,552
Cutler-Hammer Inc., Milwaukee	310,146	406,759	1,312,639	980,553
U. S. Hoffman Mach. Corp., New York	115,713	108,299	579,765	420,537
Link-Belt Co., Chicago	861,737	623,739	2,600,322	1,382,061
Minneapolis-Honeywell Regulator Co., Minneapolis	778,956	1,076,350	2,220,040	1,750,150
National Acme Co., Cleveland	498,244	160,816	1,196,155	468,946
Midland Steel Products Co., Cleveland	351,249	262,188	1,564,040	1,299,657
Doehler Die Casting Co., Toledo, O.	260,247	219,595	936,209	710,552
Yale & Towne Mfg. Co., Philadelphia	214,539	266,319	949,115	675,454
Electrolux Inc., New York	541,675	632,574	2,152,893	2,191,332
Ex-Cell-O Aircraft & Tool Corp., New York	196,157	151,387	480,205	285,264
Savage Arms Corp., New York	227,440	129,056	422,524	130,104
Bendix Aviation Corp., Chicago	279,207	267,310	1,911,168	2,136,870
National Cash Register Co., Dayton, O.	827,858	613,516	2,831,580	1,772,528
Briggs Mfg. Co., Detroit	1,886,640	1,993,146	7,815,310	8,867,248
Allis-Chalmers Mfg. Co., Milwaukee	2,644,588	1,492,212	6,786,336	3,580,813
Twin Coach Co., Kent, O.	132,239	262,704	561,862	524,731
Briggs & Stratton Corp., Chicago	255,012	299,378	1,155,674	892,605
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.	5,394,748	3,185,728	16,726,520	11,123,706
United Aircraft Corp., E. Hartford, Conn.	1,032,643	364,190	2,720,698	912,750
Maytag Co., Newton, Iowa	643,202	838,813	1,948,471	2,184,099
Hoskins Mfg. Co., Detroit	148,082	141,826	501,082	393,160
International Business Machines Corp., New York	2,608,618	2,261,905	6,572,666	5,738,406
Electric Auto-Lite Co., Toledo, O.	866,091	808,170	3,182,467	3,007,378
Kelsey-Hayes Wheel Co., Detroit	24,004	42,140	789,082	990,278
Motor Wheel Corp., Lansing, Mich.	439,018	374,132	1,593,242	1,387,870
Motor Products Corp., Detroit	318,006	152,345	1,772,878	958,243
Spicer Mfg. Corp., Toledo, O.	264,367	217,127	983,564	911,843
L. A. Young Spring & Wire Corp., Detroit	59,741	192,120	1,261,306	1,358,472
Master Electric Co., Kent, O.	133,684	110,344	450,541	245,409

Products Win Awards of Merit

■ Awards of merit for Massachusetts-made products were announced at the annual meeting and industrial conference of the Associated Industries of Massachusetts, Copley-Flaza hotel, Boston, Oct. 28.

Exhibited were the following products of interest to the steel and allied industries:

The Norton Co., Worcester, Mass.—material for coating radio tube filaments; high temperature furnace tubes; diamond wheel; a new type vitrified grinding wheel; composite grinding wheel; artificial pulp-stone; hydraulic universal grinding machine; an improved type of crank and camshaft lapping machine; a special grinding machine for diesel engine crankpins.

Gilbert & Barber Mfg. Co., Springfield, Mass.—the "Calco-Meter," an automatic calculating gasoline pump.

Heywood-Wakefield Co., Gardner, Mass.—A steering gear for baby carriages; a reclining back motor coach chair. The manufacture of these seats started this year with an order for 200 General Motors buses for Greyhound.

Florence Stove Co., Gardner, Mass.—improved oilburning domestic heaters.

Dies Use Special Process

Greenfield Tap & Die Corp., Greenfield, Mass.—high speed steel taps, drills and reamers with the "Maxi" process, a special surface treatment which makes high-speed steel taps, drills and reamers extraordinarily resistant to wear on metals and compositions with abrasive or gravity characteristics, resulting in longer tool life and more economical production.

Package Machinery Co., Springfield, Mass.—a cellophane milk bottle hood and machines for its application.

Simplex Time Recorder Co., Gardner, Mass.—New Simplex Electro-touch, a time recorder.

Boston Gear Works Inc., North Quincy, Mass.—spiral miter gear box to furnish a right-angle transmission of power; ratiomotor adapted to operate either vertical or horizontal by turning part of housing; flexible coupling of high efficiency and silent operation; a motorized speed reducer.

Lockwood Hardware Mfg. Co., Fitchburg, Mass.—builders' hardware.

Westinghouse Electric & Mfg. Co., Springfield, Mass.—1938 refrigerator with many new features.

General Electric Co., Lynn, Mass.—sodium vapor lamps.

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Nov. 6	Change	Same week 1936	Same week 1935
Pittsburgh	41	None	70	44
Chicago	42	—2	76	55.5
Eastern Pa.	38	—5	47.5	39
Youngstown	51	—3	74	63
Wheeling	54	—8	89	84
Cleveland	54	—5	79.5	69
Buffalo	23	—28	84	37
Birmingham	54	—10	67	58
New England	30	+5	88	70
Cincinnati	44	—26	91	†
Detroit	90	None	100	88
St. Louis	42.4	—9.2	65	†
Average	47	—4	73	53

†Not reported.

United Engineering Trustees Elect Officers

■ D. Robert Yarnall, chief engineer, Yarnall-Waring Co., Philadelphia, has been elected president of United Engineering Trustees, joint agency of the four founder societies of civil, mining and metallurgical, mechanical, and electrical engineers. Mr. Yarnall succeeds George L. Knight, vice president, Brooklyn Edison Co., New York.

Albert Roberts, secretary, Minerals Separation North America Corp., New York, and Henry A. Lardner of the J. G. White Engineering Corp., New York, were chosen vice presidents. H. R. Woodrow, vice president, Consolidated Edison Co., New York, becomes treasurer to succeed Mr. Roberts. J. P. H. Perry, vice president, Turner Construction Co., New York, was named assistant treasurer. John H. R. Arms, general manager of the trustees, continues as secretary.

The following trustees were elected by the founder societies: American Society of Civil Engineers—Mr. Perry; Col. John P. Hogan, chief engineer, New York World's Fair of 1939; Otis E. Hovey, New York consulting engineer.

American Institute of Mining and Metallurgical Engineers—Mr. Roberts; W. D. B. Motter Jr., the Chile Exploration Co., New York; A. L. J. Queneau, the United States Steel Corp., New York.

American Society of Mechanical Engineers—Mr. Lardner; Mr. Yarnall; Kenneth H. Condit, editor, *American Machinist.*

American Institute of Electrical Engineers—H. P. Charlesworth, assistant chief engineer, the American Telephone and Telegraph Co.; Mr. Woodrow; Frank M. Farmer, vice president and chief engineer, the Electrical Testing Laboratories, New York.

PRODUCTION

■ The national steelworks operating rate last week dropped 4 points, to 47 per cent of capacity.

Cleveland—Declined 5 points to 54 per cent, as Otis Steel withdrew two open hearths, to operate 4 out of 8. American Steel & Wire Co., Cleveland blew out its B blast furnace of the Central group and National Tube Co., Lorain, also blew out one stack last week.

Pittsburgh—Unchanged at 41 per cent. Blast furnace operations have shown a further decline, with 31 stacks active in the district compared to 34 which were operating one week ago.

Wheeling—Off 8 points to 54 per cent of capacity.

Chicago—Down 2 points to 42 per cent, seventh consecutive weekly decrease.

Interlake Iron Corp. has banked one blast furnace stack at Chicago and one at Duluth, leaving it with four active stocks out of six.

New England—Advanced 5 points to 30 per cent. Several units are expected to resume in the next few weeks.

Cincinnati—Down 26 points to 44 per cent, one mill taking off all open-hearth furnaces while reducing ingot stocks.

Youngstown—Lost 3 points to 51 per cent as two open hearths were taken off. District has 44 open hearths and three bessemer units in operation. Schedule for this week is expected to drop slightly to about 49 per cent, with 42 open hearths, Republic dropping one at Warren and Sheet & Tube one at Brier Hill works.

St. Louis—Down 9.2 points to 42.4 per cent as three open hearths are put out.

Birmingham, Ala.—Off 10 points to 54 per cent, with 11 open hearths active.

Buffalo—Down 28 points to 23 per cent, following elimination of 11 open hearths. Republic was to restart five open hearths Saturday, placing the local rate at 32½ per cent.

Detroit—Unchanged at 90 per cent, and although one producer has made reductions in rolling schedules, all open hearths continue to melt.

Central eastern seaboard—Dropped 5 points to 38 per cent. One plant is down completely. The leading interest is reported at about 35 per cent with the smaller independents averaging about two furnaces each. One blast furnace is scheduled to go out Nov. 15.

Exports at Record In Third Quarter

■ Exports of steel and iron products during the third quarter, excluding scrap, totaled 1,155,993 gross tons valued at $69,880,468, the highest quarterly level since 1920, in which year a quarterly export average of 1,177,138 tons was maintained, according to the department of commerce.

In September exports of steel and iron products, excluding scrap, totaled 286,549 gross tons, valued at $19,275,915, a decline of 29.7 per cent in volume and 20 per cent in value from August. Compared with September, 1936, exports of 77,926 tons valued at $5,726,072, increases of 367.7 per cent in volume and 236.6 per cent in value were registered.

Cumulative exports for nine months, excluding scrap, totaled 2,526,070 tons valued at $155,769,831, compared with 827,246 tons valued at $60,553,832 in the same period of 1936, a gain of 205 per cent in quantity and 152 per cent in value.

Scrap exports in September totaled 256,191 gross tons, valued at $4,815,993, compared with August scrap exports of 478,296 tons, valued at $9,305,239, a decline of 46.4 per cent in volume and 48.2 per cent in value.

Scrap exports for nine months attained the largest volume in the history of this industry, 3,335,194 tons, valued at $66,079,851. This compares with 1,625,689 tons, valued at $20,054,594 in the first nine months of 1936, a gain of 105 per cent in quantity and 229.4 per cent in value.

Total imports in September dropped to 37,031 gross tons, from 61,489 tons in August. This compares with 59,993 tons in September, 1936. Excluding scrap, September imports were 28,505 tons, compared with 38,379 tons in August. Scrap imports dropped from 23,110 tons in August to 8566 tons in September.

Imports for nine months this year total 444,086 tons, compared with 487,766 tons in the same period of 1936.

FOREIGN TRADE OF UNITED STATES IN IRON AND STEEL

Gross Tons

	1937		1936	
	Imports	Exports	Imports	Exports
Jan.	43,063	201,692	50,489	241,564
Feb.	41,628	290,987	43,358	213,802
March	51,805	570,584	56,720	264,337
April	68,197	683,674	49,277	301,987
May	49,050	969,222	59,391	314,950
June	44,771	826,534	59,910	294,951
July	47,012	889,438	47,490	296,738
Aug.	61,489	836,319	60,697	295,341
Sept.	37,071	542,740	59,993	235,784
9 mos.	444,086	5,861,264	487,766	2,453,668
Oct.	.....	.....	64,509	261,882
Nov.	.....	.....	61,970	203,297
Dec.	.....	.....	52,584	244,156
Total	.....	.....	666,838	3,162,694

ORIGIN OF SEPTEMBER IMPORTS

Gross Tons

	Iron ore	Pig iron	Manganese ore	Ferromanganese
Norway	6,713	200	.....	1,099
Sweden	17,037	.....	.....	.....
Canada	2,245	465	.....	638
Cuba	27,000	.....	.....	.....
Chili	131,600	.....	.....	.....
Australia	3,004	.....	.....	.....
Netherlands	.....	1,506	.....	.....
British India	.....	5,740	4,151	.....
Germany	.....	.....	5	.....
Soviet Russia	.....	.....	8,458	.....
Brazil	.....	.....	3,386	.....
Gold Coast	.....	.....	4,162	.....
France	.....	.....	.....	84
Japan	.....	.....	.....	77
Total	187,599	7,911	20,162	1,898

	Sheets, skelp and sawplate	Structural steel	Steel bars	Hoops and bands
Austria	7	.....	.....	.....
Belgium	5	2,082	952	750
United Kingdom	6	47	89	.....
France	.....	378	26	140
Germany	.....	28	155	38
Cuba	.....	2	.....	.....
Sweden	.....	.....	472	4
Canada	.....	.....	1	.....
Austria	.....	.....	10	.....
Czechoslovakia	.....	.....	9	.....
Total	18	2,537	1,714	932

U. S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL PRODUCTS

Gross Tons

Articles	Sept. 1937	Aug. 1937	Jan. thru Sept.'37
Pig iron	7,911	7,952	84,038
Sponge iron	230	520	2,410
Ferromanganese (1)	1,898	812	22,560
Splegeleisen	3,000	1,442	16,894
Ferrochrome (2)	.....	7	240
Ferrosilicon (3)	504	376	2,384
Other ferroalloys (4)	.....	.....	52
Steel ingots, blooms	.....	.....	124
Billets	101	146	1,488
Concrete reinf. bars	149	58	3,752
Hollow bar and drill steel	105	238	1,864
Bars, solid or hollow	1,714	2,894	37,990
Iron slabs	.....	.....	1
Iron bars	286	111	1,627
Wire rods	1,658	1,475	12,497
Boiler and other plate	.....	5	204
Sheets, skelp, saw plate	18	120	8,343
Die blocks or blanks	2	14	93
Tin plate, taggers' tin and terne plate	29	10	191
Structural shapes	2,537	4,150	64,552
Sashes, frames (5)	.....	.....	.....
Sheet piling	.....	399	2,161
Rails, fastenings	1,134	136	7,673
Cast iron pipe, fittings	658	181	2,616
Malleable iron pipe ftgs.	117	33	404
Welded pipe	357	1,105	7,464
Other pipe	1,573	9,866	27,563
Cotton ties	.....	.....	454
Other hoops and bands	932	1,784	21,927
Barbed wire	1,624	1,781	12,262
Iron and steel wire	345	493	3,823
Teleg. and tele. wire	.....	4	16
Flat wire and strips	371	307	2,814
Wire rope and strand	320	337	2,818
Other wire	146	79	2,986
Nails, tacks, staples	321	1,368	13,037
Bolts, nuts, rivets	10	109	477
Horse and mule shoes	64	94	341
Castings and forgings	391	541	3,691
Total, gross tons	28,505	38,379	373,829
Iron and steel scrap	8,566	23,110	70,257
GRAND TOTAL	37,071	61,489	444,086

(1) Manganese content; (2) chrome content; (3) silicon content; (4) alloy content; (5) formerly included with "structural shapes."

UNITED STATES EXPORTS OF IRON AND STEEL PRODUCTS

Gross Tons

Articles	Sept. 1937	Aug. 1937	Jan. thru Sept.'37
Pig iron	64,945	114,035	653,369
Ferromanganese and splegeleisen	1	120	1,626
Other ferroalloys	635	167	2,103
*Ingots, blooms, etc.:			
Not containing alloy	18,909	68,467	182,251
Alloy incl. stainless	1,778	834	6,776
Bars, iron	138	108	1,856
Bars, concrete	1,913	964	12,998
*Other steel bars:			
Not containing alloy	9,722	13,291	89,160
Stainless steel	9	9	180
Alloy not stainless	546	392	4,866
Wire rods	7,571	7,858	43,568
Boiler plate	537	344	5,424
*Other plates, not fab.:			
Not containing alloy	42,497	51,083	266,169
Stainless steel	111	3	139
Alloy not stainless	55	33	2,390
Skelp	11,830	6,668	69,997
Sheets, galv. iron	400	567	3,970
Sheets, galv. steel	6,794	7,258	55,062
*Sheets, "black" steel:			
Not containing alloy	27,069	27,118	205,901
Stainless steel	124	450	1,005
Alloy not stainless	992	507	4,543
Sheets, black iron	1,372	957	8,481
*Strip steel, cold-rolled:			
Not containing alloy	3,868	3,153	24,945
Stainless steel	49	31	342
Alloy not stainless	39	40	455
*Strip steel, hot-rolled:			
Not containing alloy	6,839	4,458	61,439
Stainless steel	2	.....	102
Alloy not stainless	14	21	512
Tin plate, taggers' tin	20,815	29,170	234,082
Terne plate	404	430	4,092
Tanks, except lined	3,534	2,566	24,444
Shapes, not fabricated	10,585	16,636	109,304
Shapes, fabricated	3,055	2,361	28,066
Plates, fabricated	1,335	3,571	17,322
Metal lath	239	164	1,559
Frames and sashes	177	320	1,251
Sheet piling	296	1,180	3,771
Rails, 60 lbs.	7,124	5,009	52,118
Rails, under 60 lbs.	1,211	708	9,194
†Rails, relaying	1,369	2,173	17,379
Rail fastenings	339	791	7,691
Switches, frogs, etc.	287	216	1,892
Railroad spikes	159	273	2,226
R. R. bolts, nuts, etc.	110	140	879
Boiler tubes, seamless	830	1,290	9,436
Do welded	120	59	426
Pipe:			
Seamless casing and oil line	4,903	5,419	53,076
Do welded	573	535	5,520
Do seaml's, blk.	573	1,155	10,061
Pipe fittings:			
Mall. iron screwed	284	359	3,761
Cast iron screwed	285	313	2,407
Pipe and fittings for:			
Cast iron pressure	3,293	1,312	17,214
Cast iron soil	510	524	5,629
Pipe, welded:			
black steel	1,684	1,542	17,015
black wrought iron	170	485	3,731
Galvanized steel	1,481	1,570	14,990
Galv. wrought iron	181	167	1,590
Pipe and fittings:			
Riveted iron or steel	8	90	508
Wire:			
Plain iron or steel	1,831	3,131	26,603
Galvanized	1,260	2,967	18,601
Barbed	2,434	3,861	27,625
Woven wire fencing	129	231	2,578
*Woven wire screen:			
Insect	24	58	461
Other	56	43	846
‡Wire rope	694	1,119	5,165
‡Wire strand	255	469	1,062
†Card clothing	1	7	43
Other wire	673	748	7,010
Wire nails	968	398	14,340
Horseshoe nails	75	77	687
Tacks	36	37	288
Other nails, staples	288	261	2,306
Bolts, etc.	1,065	731	8,705
Castings:			
*Gray iron, semi-steel	365	782	4,533
Malleable iron	85	266	3,587
*Steel, not alloy	158	215	1,674
Alloy incl. stainless	125	130	1,236
Car wheels, tires, axles	1,673	1,717	12,607
Horseshoes and calks	2	4	169
*Forgings, n. e. s.:			
Not containing alloy	1,126	1,189	6,905
Alloy incl. stainless	54	120	676
Total	286,549	408,023	2,526,070
Scrap, iron and steel	252,713	473,933	3,281,508
Scrap, tin plate	622	1,105	12,812
†Tin plate, circles, strips, cobbles, etc.	2,260	1,870	12,660
Waste-waste tin plate	596	1,388	28,214
Total scrap	256,191	478,296	3,335,194
GRAND TOTAL	542,740	886,319	5,861,264
Iron ore	153,653	201,725	1,062,716

*No comparisons available; †New class; ‡No distinction prior to 1936.

MEN OF INDUSTRY

■ W. B. Todd has resigned as a director and vice president in charge of sales of Jones & Laughlin Steel Corp., Pittsburgh. Mr. Todd has been with the company since 1922, having at that time resigned as vice president of Union Drawn Steel Co. to go with Jones & Laughlin as manager of the cold finished sales division.

♦

Roy Fickle has joined the Acme Porcelain Enameling Corp., New York, as plant superintendent of the enamel division.

♦

Charles R. Hook, president, American Rolling Mill Co., Middletown, O., has been elected a director of the Cleveland, Cincinnati, Chicago & St. Louis Railway Co.

♦

C. C. Dornbush has been appointed to the sales department, Dravo Corp., Pittsburgh. He formerly was connected with the barge department of Jones & Laughlin Steel Corp., Pittsburgh, for many years.

♦

H. J. Wallace has been appointed acting manager of sales, Pittsburgh district sales office, National Tube Co. The appointment follows the death recently of R. R. Jardine who was sales manager.

♦

Ralph R. Shultz has been appointed traffic manager, Basic Dolomite Inc., with headquarters at the company's Cleveland office, 845 Hanna building. He previously served as traffic manager of White Motor Co., Cleveland.

♦

Irvin Paul has been appointed superintendent of the 80-inch hot strip mills, and R. G. Ebert superintendent of the 42-inch hot strip mills at the Gary sheet and tin mills of Carnegie-Illinois Steel Corp. Both

W. B. Todd

men previously served as assistant superintendents of their respective mills.

♦

Dr. Frank J. Tone has been elected to receive the Perkin medal of the Society of Chemical Industry for 1938, for his work in the development of abrasives and refractories. The medal will be presented on Jan. 7 at a meeting to be held at the Chemists' club, New York.

♦

John T. Gossett has been named eastern sales manager for Wilson & Bennett Mfg. Co., manufacturers of steel pails and drums, Chicago. Mr. Gossett, formerly associated with the Aro Equipment Corp., Bryan, O., will have headquarters at the Jersey City, N. J., office of the company.

♦

L. A. Lambing has been made superintendent, open hearth and bessemer department, Pittsburgh works, Jones & Laughlin Steel Corp., and W. A. Holt has been named superintendent of the blooming mill. F. L. Raum, J. M. Morris and C. J. Wyrough have been appointed superintendents, respectively, of the mill order and shipping department, new maintenance department, and steam efficiency.

♦

Alexander C. Brown, first vice president, Cleveland Cliffs Iron Co., and Philip E. Bliss, president, Warner & Swasey Co., both of Cleveland, have been appointed members of the board of trustees, Case School of Applied Science, Cleveland.

♦

E. S. Boston has been appointed district sales manager, Patterson Foundry & Machine Co., East Liverpool, O., with headquarters at St. Louis, and will have charge of the territory adjacent to St. Louis. Heretofore he had been identified with the laboratory of the Anaconda Copper Mining Co.

♦

Charles D. Brenner, associated for the past seven years with Maydwell & Hartzell Inc., manufacturers' representatives in San Francisco and Los Angeles, has been appointed assistant manager for the company in the Los Angeles district and will have active charge of steel products sales in the southern California territory.

♦

Wade H. Oldham, formerly manager of the Birmingham district, Republic Steel Corp., has been named district manager of the recently consolidated Birmingham-Gadsden districts. He has been with the corporation since 1929, and prior to that was for five years general superintendent of the Fairfield steelworks, Tennessee Coal, Iron & Railroad Co.

C. L. Bransford, now assistant district manager, Birmingham, has been appointed general superintendent of the corporation's Birmingham opera-

Irvin Paul

R. G. Ebert

Wade H. Oldham

tions. He specialized in chemical engineering and joined the Tennessee Coal, Iron & Railroad Co. as a chemist. In 1929 he became superintendent of blast furnaces and coke ovens for the Republic Iron & Steel Co., Republic Steel predecessor.

♦

E. G. Bailey, vice president, Babcock & Wilcox Co., New York, and president, Bailey Meter Co., Cleveland, has had the honorary degree of doctor of engineering conferred upon him by Lehigh university, for "notable and distinguished accomplishment in the field of combustion and steam engineering".

♦

David Maitland Harvey has been appointed superintendent, oil department, Philadelphia plant of E. F. Houghton & Co. Mr. Harvey spent six years at the Houghton plant in

David Maitland Harvey

Manchester, England. His experience includes more than 20 years as superintendent of production for major oil and chemical manufacturers.

♦

E. Kent Hubbard, Middletown, Conn., was nominated for president, Manufacturers Association of Connecticut in the list to be acted on at the association's annual meeting, New Haven, Conn., Nov. 12. John H. Goss, vice president, Scovill Mfg. Co., Waterbury, Conn., was renominated for vice president. Harold D. Fairweather, treasurer, Colt's Patent Fire Arms Mfg. Co., Hartford, was named for treasurer to succeed C. L. Campbell, who has been nominated for director-at-large on the board.

Other nominations are Herbert H. Rapp, treasurer, Powdrell & Alexander Inc., Danielson, Conn., for director representing Windham county; and R. E. Pritchard, vice president, Stanley Works, New Britain, and Edwin Pugsley, vice president, Winchester Repeating Arms Co., New Haven, for directors-at-large.

♦

George T. Horton, president, Chicago Bridge & Iron Co., Chicago, and alumnus of Rensselaer Polytechnic institute, Troy, N. Y., has contributed $20,000 for the establishment of a new welding laboratory at the institute. In the past, Mr. Horton has presented the institute with a large cabin passenger airplane for use in the aeronautical engineering course and has founded four permanent scholarships.

♦

Gen. Otto H. Falk, chairman of the board, Allis-Chalmers Mfg. Co., Milwaukee, was presented with a distinguished service medal by the Milwaukee Cosmopolitan club at a testimonial dinner, Oct. 26, in recognition of his outstanding service to the community. More than 400 civic and industrial leaders and guests attended.

♦

Stephen M. Jenks has been appointed assistant general superintendent of Gary works, Carnegie-Illinois Steel Corp. He first joined United States Steel Corp. subsidiaries in 1925 with the American Sheet & Tin Plate Co. as an engineer. In February of this year he was appointed chief engineer at Gary works.

C. P. Kimmel, assistant general superintendent of Gary works since 1918 and associated with that works since 1908, has been made assistant to the general superintendent there.

George H. Bauer has succeeded Mr. Jenks as chief engineer. The former has been at Gary works since 1920, previously having spent four years with the Canadian Steel Corp., Ojibway, Ont. He was made assistant engineer at Gary in 1929 and assistant chief engineer in 1934. Siguard Landen, appointed to succeed Mr. Bauer as assistant chief engineer, since 1934 has been division engineer.

T. R. Miller has been named assistant division superintendent of the West mills. He joined the industrial engineering department in 1935 and last year was named plant industrial engineer in charge of the department. Walter J. Kirton has been made plant industrial engineer at Gary works where he has been located since 1925.

Stephen M. Jenks

♦

Clarence E. Bleicher has been named vice president and general manager, De Soto division of Chrysler Corp., Detroit, succeeding Herman L. Weckler, who recently became vice president in charge of industrial relations for Chrysler. For the past seven years Mr. Bleicher has been on the staff of K. T. Keller, Chrysler president, in charge of the design and installation of all production facilities.

♦

Edward A. Brown Jr. has been named assistant to the general superintendent, Duquesne works of Carnegie-Illinois Steel Corp. He attended Carnegie Institute of Tech-

Edward A. Brown Jr.

nology and in 1911 began his career as an engineering department tracer and detailer at Homestead works. Early this year he became assistant to the chief engineer in charge of fuel and steam, Homestead works.

♦

Sir Harold Carpenter, F.R.S., immediate past president of The Iron and Steel institute, Great Britain, and professor of metallurgy at the Royal School of Mines, Imperial College of Science and Technology, London, was awarded the Carl Lueg gold medal recently by the Verein deutscher Eisenhuttenleute (German Ironmasters' association) at its general meeting in Dusseldorf, Germany. James Henderson, honorary treasurer of the institute, and also a director, United Steel Companies Ltd., and deputy-chairman of Appleby-Frodingham Steel Co. Ltd., was elected an honorary member of the Verein.

♦

George S. Davison, Pittsburgh industrialist and civil engineer, has been elected to honorary membership in the American Society of Civil Engineers. He served as president of the society in 1926. He also has served as president of the

Allen S. Davison Co. and as chairman of the board of Davison Coke & Iron Co. and the Pittsburgh Aviation Industries Corp.

♦

William P. Witherow, president, Blaw-Knox Co., Pittsburgh, has been appointed by the board of directors, United States Chamber of Commerce to serve on the American committee of the International chamber of commerce for the period 1937-1939.

♦

Wayland S. Bowser has been appointed to the staff of the vice president in charge of office methods and procedures of Carnegie-Illinois Steel Corp., Pittsburgh, and Kemp G. Fuller is now manager of market research and sales statistics. Mr. Bowser formerly was manager, bureau of sales statistics, and Mr. Fuller, manager of market research.

♦

W. H. Nesbitt and W. C. Swickert have been elected assistant vice presidents, Wheeling Corrugating Co., Wheeling, W. Va. Mr. Nesbitt has been sales manager of the company for a number of years at Wheeling, and Mr. Swickert for a number of years has been manager of the company's warehouse at Atlanta, Ga. Mr. Swickert will be succeeded in Atlanta by E. C. Schaaf, transferred from the Columbus, O., warehouse, where he has been manager. Mr. Schaaf will be succeeded by E. B. Carter, appointed manager of the Columbus warehouse. These changes became effective Nov. 1.

♦

A. B. Crawford has been named manager of railway sales, Continental Roll & Steel Foundry Co., with headquarters in Pittsburgh. He has been active in steel castings sales for many years, first with the Duquesne Steel Foundry Co. and continuing with the Continental company, which was formed in 1930 by a merger of the Duquesne company with Hubbard Steel Foundry Co., East Chicago, Ind., and Wheeling Mold & Foundry Co., Wheeling, W. Va.

James L. Cawthon Jr., until recently Pittsburgh district manager of sales, American Steel Foundries, has become affiliated with the Continental organization as sales engineer, with headquarters at Pittsburgh.

♦

H. H. Benfield has been named conduit sales manager for Steel & Tubes Inc., Cleveland. He has been associated with Steel & Tubes since the introduction of its conduit line and for the past seven years has been sales manager of the San Francisco district. His new headquarters will be in Cleveland.

Succeeding Mr. Benfield as district sales manager in San Francisco is A. V. Grove, who has been identified with the firm 12 years in operating and sales capacities. He is being transferred from Chicago.

H. H. Benfield

♦

Harry W. Croft has resigned as chairman of the board and as a director, Harbison-Walker Refractories Co., Pittsburgh. He will be succeeded as chairman by J. E. Lewis, who also continues as president. Richard G. Croft has been elected a director to succeed his father, who has been closely associated with the company 50 years and desired to be relieved of further active duties.

♦

Laurence S. Dahl, since April 1, 1937, superintendent of the hot strip mills at the Gary, Ind., sheet and tin division of the Carnegie-Illinois Steel Corp., has been made superintendent of the Irvin works. He began his career in 1924 as a machinist and roll turner and later worked in the mechanical erection field for several companies. He held various positions of operating responsibility with American Sheet & Tin Plate Co., and upon merger of the tin plate company with Carnegie-Illinois in 1936, he was named superintendent of the sheet mill, cold reduction, annealing and temper mill departments.

Laurence S. Dahl

DIED:

John F. Keller, 75, nationally-known steel specialist with the engineering extension department, Purdue university, at his home in West Lafayette, Ind., Oct. 27. Born in Ireland, Mr. Keller came to the United States at the age of nine. In his younger days he was a blacksmith in the shops of the Big Four railroad, Indianapolis. About 11 years ago he took his present position with Purdue. For a brief period, while on leave of absence from Purdue, Mr. Keller served as director of the extension divisior, American Society for Metals. In 1920 he was president, Steel Treating Research society, which that year amalgamated with American Steel Treaters' society to form American Society for Steel Treating, now American Society for Metals.

♦

Charles W. Mayer, 84, former manager at Indianapolis for Crucible Steel Co. of America, in that city, recently.

♦

Ernest E. Finch, 62, vice president and general manager, Karl Kiefer Machine Tool Co., Cincinnati, in Cincinnati, Oct. 24.

♦

Joseph Vollkommer, president and founder, Vitro Mfg. Co., Pittsburgh, manufacturer of chemicals and enamel, in Germany recently.

♦

Alfred H. Gawthorp, 56, district manager in charge of the Wilmington, Del., plant of American Car & Foundry Co., in Wilmington, Oct. 22.

♦

Frank E. Learned, 57, vice president in charge of operations, Philadelphia & Reading Coal & Iron Co., in Merion, a suburb of Philadelphia, Oct. 23.

♦

H. A. Clum, 72, founder and president for many years of Clum Mfg. Co., Milwaukee, manufacturing a varied line of electrical supplies, metal stampings, etc., in that city, Oct. 18.

♦

Arthur John Ramsay, 63, vice president of Pittsburgh Rolls, a division of Blaw-Knox Co., Pittsburgh, in that city, Oct. 31. Born in England, Mr. Ramsay came to the United States in 1890. His first employment was with the American Steel & Wire Co., Cleveland. He next went with Illinois Steel Co. where he worked ten years, followed by a six-year period with Bethlehem Steel Co. He joined Pittsburgh Rolls in 1913, becoming vice president in charge of sales in 1930.

Activities of Steel Users and Makers

■ Vulcan Rail & Construction Co., Maspeth, N. Y., manufacturer of standard pipe railings with malleable fittings, has purchased from the Fabricated Steel Products Co., Wheeling, W. Va., all its patents covering welded pipe handrailings and the machinery for producing them and will operate the fabricating plant at Wheeling as part of its business. The plant at Maspeth will be continued as before.

The Vulcan company was incorporated in 1906 and department heads have been with the company from 15 to 25 years, assuring experienced service. The president was one of the organizers and has occupied that position continuously.

♦

Price Iron & Steel Co., for 27 years engaged in the iron and steel scrap business in the Chicago district, will move its offices Nov. 15 to new and larger quarters in the Peoples Gas building, 122 South Michigan avenue, Chicago.

♦

Manhattan Rubber Mfg. division of Raybestos-Manhattan Inc., Passaic, N. J., was recently awarded honorable mention for its industrial trade paper advertising at the annual convention of the National Industrial Advertisers association held in Chicago.

♦

Raw materials, including manganese, silica and steel scrap, contained in buildings No. 1 and 11 of the Eagan-Johnson Steel & Iron Co. plant on Chester Pike opposite Crum Lynne station, Chester, Pa., will be sold on the premises at a public sale, Tuesday, Nov. 9 at 10 a. m., by Samuel D. Eagan and the Delaware County Trust Co., receivers.

♦

Graham Transmissions, manufacturer of Graham variable speed transmissions, Milwaukee, has appointed R. L. Johnstone, 1407 North Hanley road, St. Louis, representative in that territory. Other new representatives are Charles C. Grant, 436 Second National building, Akron, O., and George P. Coulter, 322 Curtis building, Detroit.

♦

Electrol Inc., Clifton, N. J., has developed a new automatic, oil fired, warm air conditioner in which ventilation, circulation, cleansing and humidification are combined. It also has developed a split system unit which can be attached to any steam or hot water system to enable the home owner to adapt his present equipment to air conditioning. Two new burners for such units also have been designed by the company.

♦

Northern Equipment Co., Erie, Pa., has appointed Cochrane Steam Specialty Co., Boston, as New England representative for the sale and service of its feed water regulators, differential valves, pump governors, reducing valves, desuperheaters and allied equipment.

♦

Construction of a large, modern manufacturing building which will provide Detroit Rex Products Co., 13005 Hillview avenue, Detroit, with approximately 30,000 square feet of additional floor space has been completed by Austin Co. Increased demand for solvent degreasing machines and degreasing solvents necessitated this expansion program, according to R. A. Emmett, president. A power plant has been incorporated in a special building adjoining the plant. The entire project represents an investment of approximately $100,000, exclusive of equipment.

♦

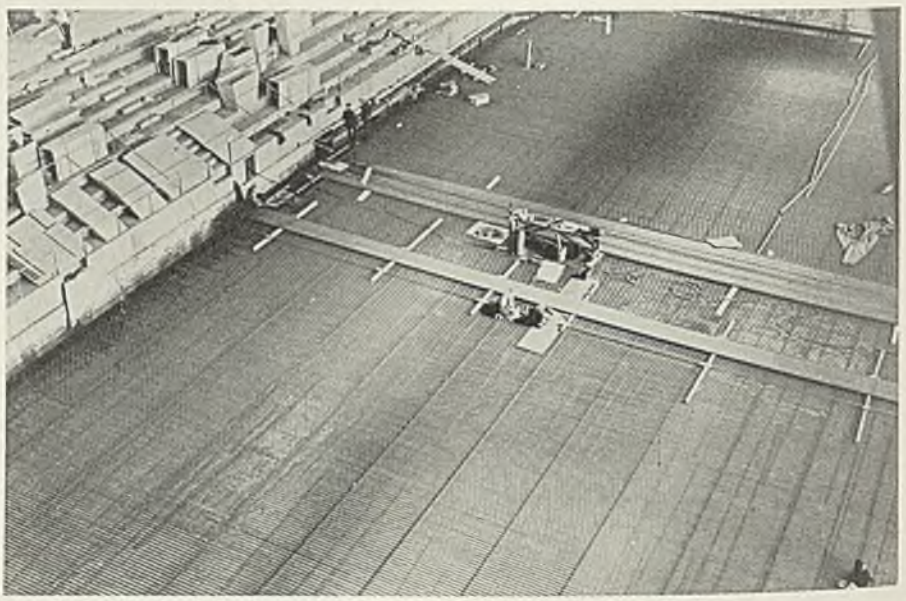
Parker Rust-Proof Co., Detroit, has under construction adjacent to its present building on East Milwaukee avenue, a new addition to provide additional office and laboratory facilities. One portion of the ground floor will be devoted to an enlarged testing and demonstration laboratory equipped with the latest precision instruments and equipment for testing and studying surfaces, while the remainder of the space will be devoted to a sheet metal shop and storage space for rust-proofing chemicals. The second floor will be used exclusively for offices and laboratory space.

♦

Inter-Continental Engineering Co. Ltd., Shell-Mex House, London, Eng., has been organized to offer specialized engineering service in design and construction of modern steelworks, including reconstruction and modernizing of existing plants and equipment. It will offer a complete unit as consultants and contracting engineers, to centralize responsibility. It will offer the service in Great Britain and all parts of the world, except in the United States, where DeLaval Sales & Service Inc., an allied interest, covers the field.

The company is an outgrowth of Alfa Laval Co. Ltd., taking over the latter's specialized engineering division and expanding it. The latter has been awarded a contract by Richard Thomas & Co. Ltd. in connection with its new continuous hot and cold strip mills at Ebbw Vale, South Wales, covering hydraulic descaling, roll cooling, centralized pressure lubrication, palm oil application and similar special service. Theodore J. Kauffeld is chairman and managing director. He is designer of special engineering applications for a number of American strip mills and directed activities of DeLaval Sales & Service Inc., Pittsburgh.

Ice Arena Takes 1800 Tons of Steel



■ Twelve hundred tons of structural steel, 500 tons of steel bars and 85 tons of 1¼-inch steel pipe are used in the new Cleveland hockey arena. The rink floor is 84 x 195 feet, contains 200 tons of reinforcing bars. Photo shows the arrangement of pipe for refrigeration. Four 204-foot steel trusses, carrying the longitudinal load, provide maximum vision to spectators. Gillmore, Carmichael, Olson Co., Cleveland, are the contractors

Steel Down 12.3% In Third Quarter

■ Production of finished steel for sale during the third quarter was 8,782,015 gross tons, representing 74.1 per cent of capacity, according to the American Iron and Steel institute. This compares with 8,072,543 tons during third quarter of 1936, which was at 71.3 per cent of capacity.

For nine months this year total production was 28,801,036 tons, representing 81 per cent of capacity, compared with 22,478,875 tons, at 66.2 per cent of capacity for the corresponding period of 1936.

Third quarter production represents a loss of 12.3 per cent from the 10,013,647 tons made in second quarter, which was at 84.5 per cent of capacity. The average rate of 81 per cent of capacity for nine months compares with 84.4 per cent for first half.

In structural shapes third quarter production was 632,348 tons, compared with 810,703 tons in second quarter, a loss of 178,355 tons. Materials rolled for railroad use showed a sharp decline from second quarter, standard rails dropping from 448,883 tons to 240,438 tons in third quarter. Splice bars and tie plates declined from 153,333 tons in second quarter to 80,763 tons in third quarter. These two items show a loss of practically half.

Among materials used on farms barbed wire declined from 122,024 tons in second quarter to 75,417 tons in third quarter.

Flat-rolled products showed a sharp recession from second quarter, probably largely due to smaller automobile consumption. Sheets in third quarter totaled 1,882,455 tons, compared with 2,158,570 tons in second quarter, a shrinkage of 276,115 tons. Hot-rolled strip declined from 589,523 tons to 492,446 tons in third quarter and cold-rolled from 210,685 tons to 170,427 tons.

AMERICAN IRON AND STEEL INSTITUTE
Capacity and Production for Sale of Iron and Steel Products

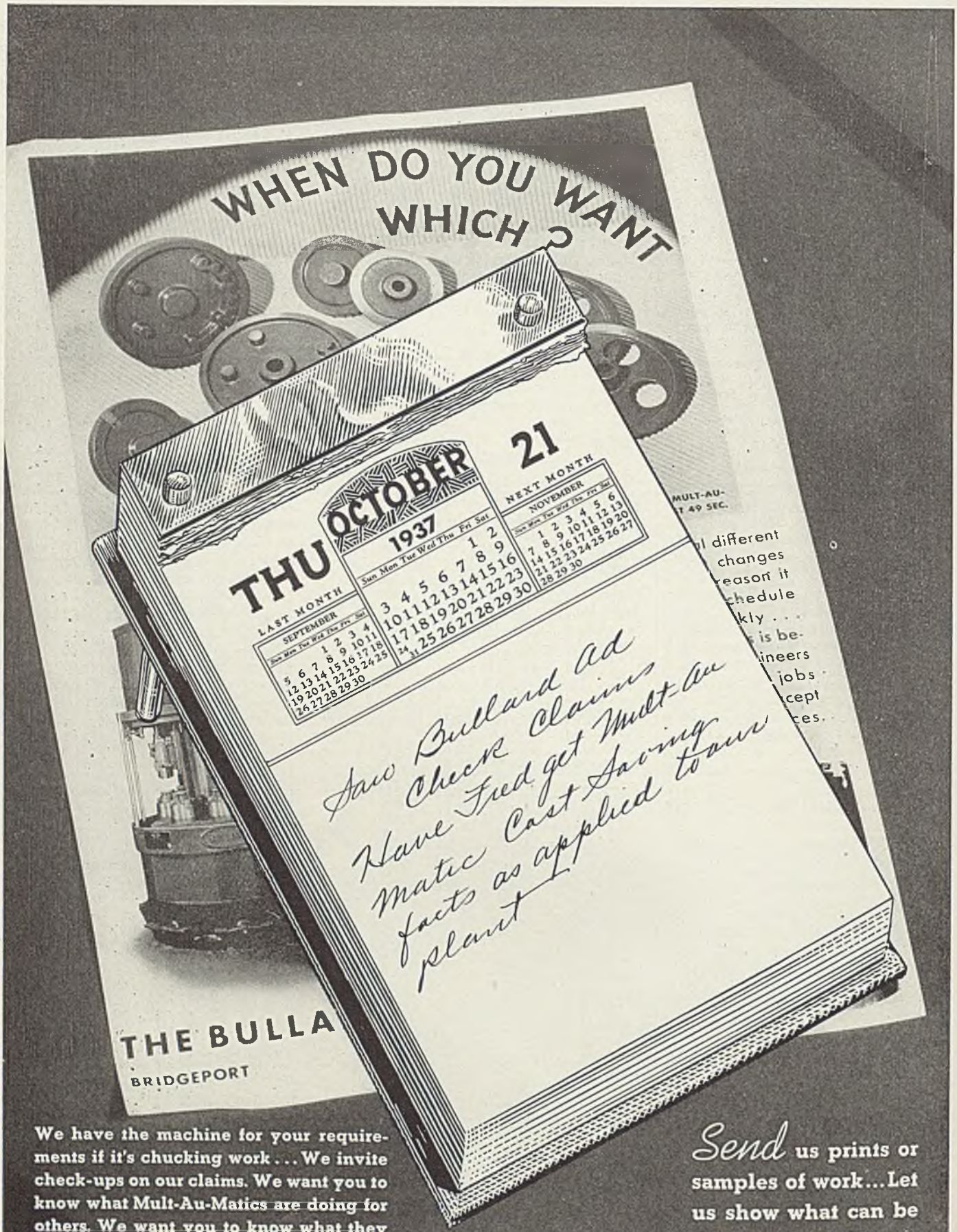
Third Quarter - 1937
PERIOD

		Number of companies	Item	Annual Capacity Gross tons	Production for Sale—Gross Tons: Current Quarter — Total	Current Quarter — Per cent of capacity	Current Quarter — Shipments: Export	Current Quarter — Shipments: To members of the industry for conversion into further finished products	To Date (9 Months 1937) — Total	To Date — Per Cent of capacity	To Date — Shipments: Export	To Date — Shipments: To members of the industry for conversion into further finished products
STEEL PRODUCTS	Ingots, blooms, billets, slabs, sheet bars, etc.	31	1	xxxxxxx	1,180,076	xxx	138,805	635,399	3,275,101	xxx	242,641	1,976,765
	Heavy structural shapes	9	2	4,739,805	632,348	53.4	32,532	-	2,150,196	60.5	98,352	xxxxxxx
	Steel piling	4	3	264,800	32,826	49.6	3,400	-	88,835	44.7	5,881	xxxxxxx
	Plates—Sheared and Universal	22	4	6,335,219	914,361	57.7	158,748	4,041	2,607,248	54.9	293,751	19,597
	Skelp	7	5	xxxxxxx	148,676	xxx	25,404	74,992	545,335	xxx	68,550	308,680
	Rails—Standard (over 60 lbs.)	4	6	3,575,000	240,438	26.9	12,687	-	1,105,227	41.2	23,105	xxxxxxx
	Light (60 lbs. and under)	7	7	433,500	21,080	19.5	1,950	-	83,987	25.8	8,771	xxxxxxx
	All other (Incl. girder, guard, etc.)	2	8	140,000	5,403	15.4	827	-	36,435	34.7	6,164	xxxxxxx
	Splice bar and tie plates	15	9	1,472,193	80,763	21.9	1,601	-	420,995	38.1	4,688	xxxxxxx
	Bars—Merchant	41	10	xxxxxxx	923,972	xxx	30,464	95,955	3,243,978	xxx	74,089	374,310
	Concrete reinforcing	29	11	xxxxxxx	218,117	xxx	6,313	-	668,350	xxx	22,664	xxxxxxx
	Cold finished—Carbon	18	12	xxxxxxx	154,519	xxx	2,672	-	545,219	xxx	5,410	xxxxxxx
	Alloy—Hot rolled	16	13	xxxxxxx	200,721	xxx	4,002	13,445	590,548	xxx	9,147	45,873
	—Cold finished	13	14	xxxxxxx	27,848	xxx	317	-	72,063	xxx	977	xxxxxxx
	Hoops and baling bands	4	15	xxxxxxx	26,260	xxx	559	-	74,439	xxx	908	xxxxxxx
	TOTAL BARS	60	16	11,644,826	1,551,437	53.3	44,327	109,400	5,194,597	59.5	113,195	420,183
	Tool steel bars (rolled and forged)	17	17	106,092	10,698	40.5	28	-	37,698	47.4	118	xxxxxxx
	Pipe and tube—B. W.	16	18	1,810,472	161,983	35.8	7,500	-	652,624	48.1	24,098	xxxxxxx
	L. W.	11	19	1,469,099	165,907	45.2	8,484	-	574,349	52.1	21,729	xxxxxxx
	Electric weld	4	20	586,107	55,948	38.2	821	-	162,555	37.0	1,203	xxxxxxx
	Seamless	15	21	2,772,828	438,971	63.3	28,318	-	1,312,044	63.1	73,195	xxxxxxx
	Conduit	7	22	155,270	21,199	54.6	784	-	66,331	57.0	2,184	xxxxxxx
	Mechanical Tubing	5	23	188,800	30,303	64.2	1,910	-	99,586	70.3	4,673	xxxxxxx
	Wire rods	20	24	xxxxxxx	169,230	xxx	19,416	43,990	581,564	xxx	40,954	187,026
	Wire—Drawn	38	25	1,889,827	291,605	59.6	14,896	2,597	1,011,053	71.3	46,930	16,124
	Nails and staples	19	26	1,123,793	100,102	35.6	3,217	-	420,754	49.9	17,481	xxxxxxx
	Barbed wire and fence	17	27	1,181,008	75,417	25.5	9,567	-	330,154	37.3	29,525	xxxxxxx
	Bale ties	11	28	115,277	13,748	47.7	65	-	45,137	52.2	218	xxxxxxx
	All other wire products	5	29	31,000	1,211	15.6	-	-	5,321	22.9	1	xxxxxxx
	Fence posts	14	30	144,300	13,604	37.7	215	-	53,105	49.1	808	xxxxxxx
	Black plate	12	31	572,229	96,184	67.2	7,249	39,824	303,538	70.7	13,086	94,526
	Tin plate	14	32	2,961,812	687,756	92.9	81,973	-	1,941,726	87.4	269,083	xxxxxxx
	Sheets—Hot rolled	19	33	xxxxxxx	486,883	xxx	34,354	3,476	1,640,782	xxx	71,096	35,097
	Hot rolled annealed	21	34	xxxxxxx	449,926	xxx	21,403	293	1,542,855	xxx	62,155	1,311
	Galvanized	17	35	xxxxxxx	328,013	xxx	21,798	-	993,570	xxx	59,353	xxxxxxx
	Cold rolled	19	36	xxxxxxx	479,505	xxx	35,090	-	1,651,780	xxx	80,723	xxxxxxx
	All other	16	37	xxxxxxx	138,128	xxx	6,354	-	464,994	xxx	13,534	xxxxxxx
	TOTAL SHEETS	30	38	10,157,327	1,882,455	74.1	118,999	3,769	6,293,981	82.6	286,861	36,408
	Strip—Hot rolled	28	39	3,473,374	492,446	56.7	14,304	71,204	1,769,771	67.9	48,715	274,572
	Cold rolled	39	40	1,200,333	170,427	56.8	2,656	-	620,423	68.9	7,287	xxxxxxx
	Wheels (car, rolled steel)	5	41	380,319	37,360	39.3	156	-	143,599	50.3	1,758	xxxxxxx
	Axles	5	42	425,900	29,894	28.1	561	-	112,087	35.1	1,491	xxxxxxx
	Track spikes	11	43	308,458	21,994	28.5	381	-	83,906	36.3	1,047	xxxxxxx
	All other	5	44	27,907	1,381	19.8	11	-	5,655	27.0	111	xxxxxxx
	TOTAL STEEL PRODUCTS	149	45	xxxxxxx	9,767,231	xxx	741,792	985,216	32,134,917	xxx	1,757,704	3,333,881
	Estimated total steel finishing capacity based on a yield from ingots of 70.9 %	-	46	47,401,500	xxxxxxx	74.1	xxxxx	xxxxxxx	xxxxxxx	81.0	xxxxxxx	xxxxxxx
IRON PRODUCTS	Pig iron, ferro manganese and spiegel	29	47	xxxxxxx	1,702,614	xxx	92,726	465,207	5,014,522	xxx	244,884	1,427,415
	Ingot moulds	4	48	xxxxxxx	110,863	xxx	1,872	-	327,101	xxx	4,446	xxxxxxx
	Bars	13	49	237,019	11,359	19.2	29	246	50,162	28.2	160	794
	Pipe and tubes	4	50	185,457	9,705	20.9	299	-	42,206	30.3	660	xxxxxxx
	All other	4	51	113,660	1,988	7.0	342	375	14,046	16.5	1,985	1,964
	TOTAL IRON PRODUCTS (ITEMS 49 to 51)	16	52	478,176	23,052	19.3	670	621	106,414	29.7	2,805	2,758

Total companies included - 174

Total steel products produced for sale, less shipments to members of the industry for conversion into further finished products: Current quarter 8,782,015 G.T. 74.1% of Finishing Capacity. To date 28,801,036 G.T.: 81.0% of Finishing Capacity.

The above tonnages represent 70.9 % of the ingots produced by companies whose products are included above.



We have the machine for your requirements if it's chucking work . . . We invite check-ups on our claims. We want you to know what Mult-Au-Matics are doing for others. We want you to know what they can do in your plant. If others Profit by the Mult-Au-Matic Method, So can You.

Send us prints or samples of work . . . Let us show what can be done on your short or long run jobs.

BRIDGEPORT **THE BULLARD COMPANY** CONNECTICUT

MIRRORS OF MOTORDOM

DETROIT

■ BUSINESS and industry here was less jittery after the results of last week's election became known. Although most advance predictions had indicated Richard W. Reading would be elected mayor by a comfortable majority, there were some doubts over the race for council in which five CIO-sponsored nominees were entered. But along with Patrick H. O'Brien, the labor group's mayoralty candidate, they were defeated.

Readings' majority was slightly over 106,000 votes, with a total vote of 415,000 cast in a record turnout for a purely municipal election. Maurice Sugar led the list of CIO candidates for council, but was 24,000 votes behind the last of the nine men to be elected. So, as far as city administration is concerned, Detroit will not be in the toils of the CIO after Jan. 4, despite the fact not much can be said of the caliber of political talent which was voted into office.

Campaign Dents Union Treasury

The campaign for mayor was characterized on the part of the CIO forces by muckraking and mudslinging reminiscent of the raw type of machine politics; there were numerous instances of beatings and intimidation of workingmen who professed adherence to Reading. Conceding his defeat at midnight Tuesday, Judge O'Brien refused to congratulate the winner, assuaged his campaigners with the promise of reward in the "not distant future," warned that the CIO fight would be "continued in one form or another."

Estimates of the amount of money dumped into the campaign in Detroit by the CIO range as high as $275,000. At any event, a serious dent was made in the CIO and United Automobile Workers' treasury with little to show for the expenditure. And at the present time, this treasury is not in the healthiest of conditions. There are opinions heard that the proportion of prompt dues payers in the UAW ranks currently is as low as 10 per cent. Pressure for the checkoff system inevitably will become stronger if the UAW is to remain solvent.

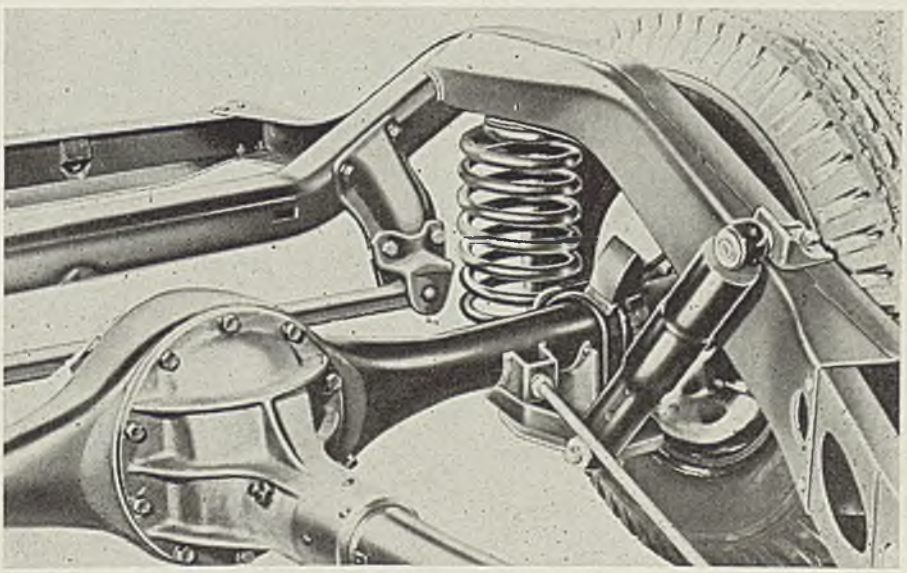
BY A. H. ALLEN
Detroit Editor, STEEL

The question logically may be asked: What can the UAW offer prospective members, now that industry appears to be in the midst of a downward spiral? Increased wages, in view of current conditions, are only a distant dream. Shorter hours can result only in lower net earnings. The sole salvation for the union in the automobile industry is the checkoff system which removes from the shoulders of union officials the burden of dues collection. Little likelihood of establishing the checkoff system in automobile plants is evident.

But beyond all this, there is a very definite wave of apprehension sweeping through the minds of executives throughout the industrial sections of the country over what union labor, especially in the automobile industry, proposes to do next. Despite the fact nothing critical has appeared on the horizon as yet, despite the fact the CIO has made practically no headway in political campaigns, apprehension over the future will not be downed.

One discernible bogieman is the UAW campaign to unionize the

Knees for Rear Wheels



■ Coil spring rear suspension, a major automotive development for 1938, is being pioneered by Buick. The rear coil suspension is combined with airplane-type shock absorbers to improve ride and steering qualities, especially at higher speeds. Mounting for the spring includes a spring seat on the rear axle housing behind the axle to which the coil is welded. Spring is of sillicomanganese steel, prepared from centerless ground rods

MIRRORS OF MOTORDOM

Ford Motor Co., scheduled to start around the first of the year. Reports are heard from many sources that UAW forces will be called upon to boycott Ford until he signs with them. Another possibility is that UAW labor in Ford suppliers' plants might refuse to work on Ford orders.

On either score, the only sure loser would be the UAW workmen. If, conceivably, a Ford boycott should be successful, it would only mean that Mr. Ford would shut down his Rouge plant and other far-flung assembly systems with a consequent crippling of workers' incomes and a demoralization of employment in industry.

If, on the other hand, UAW labor should refuse to handle Ford parts and material, it would mean little as far as Ford is concerned, for he has built up sufficient self-contained capacity to permit production of easily 15,000 cars per week without depending on outside sources. And this integration at Ford is proceeding rapidly, so that in the space of three years, the Rouge plant will be virtually impregnable against bottle-necking by outside suppliers.

What a shutdown at the Rouge plant would mean can be realized from what happened after Ford shut down his Kansas City assembly plant following attempts of the UAW to dominate this plant's activities. Besieged by pleas of workers thrown out of jobs by the closing, the city manager rushed to Detroit and urged Ford officials to reconsider, promising adequate police protection to the plant. No definite statements were made public by Ford executives, but the city official indicated the plant would be reopened shortly.

Probably it will not be for long, since Ford will have a huge new assembly plant in operation in St. Louis within the next year or two, if present plans are not discarded, and undoubtedly all Kansas City production will be transferred there.

■ MARK up a sharp deviation in policy this year on the part of Ford, by the way. For years Ford has been a one-car producer, concentrating all efforts on mass production of a single design such as the model T and the model A. With the acquisition of Lincoln and introduction of Lincoln Zephyr came the first step toward breaking away from this traditional policy. Next came the development of two different power plants for the same Ford model. This year, Ford breaks sharply away from former practice and introduces two distinctly different models — different in appearance, different in power, as distinct as Chevrolet and Pontiac, for example.

Some observers attribute this change to the influence of the Ford sales department, a move to give Ford dealers something beyond a single model to sell, a perhaps temporary accession to power of the sales over the manufacturing end at Ford. Others see in it another demonstration of Mr. Ford's recent promise to show the rest of the industry "some real competition" in 1938.

In any event, Ford is spreading his product more widely over the price field, and if present plans for a third Ford model, with 100-horsepower motor having larger bore but same stroke, are carried through, he will have driven still another wedge into the competition. It is not generally understood why Ford is proposing to offer a still more powerful motor, since the present 85-horsepower engine is considered to provide ample, if not too much, power for the size of the car.

Automobile Production

Passenger Cars and Trucks—United States and Canada
By Department of Commerce

	1935	1936	1937
Jan.	300,335	377,244	399,634
Feb.	350,346	300,810	383,698
March	447,894	438,943	519,177
April	477,059	527,625	553,415
May	381,809	480,518	540,357
June	372,085	469,368	521,139
July	345,297	451,206	456,909
Aug.	245,075	275,934	405,064
Sept.	92,728	139,820	175,620
9 mos.	3,012,628	3,461,468	3,955,013
Oct.	280,316	230,049	*352,565
Nov.	408,550	405,799	.....
Dec.	418,317	518,958	.....
Year	4,119,811	4,616,274	.....

Estimated by *Ward's Automotive Reports*

Week ended:	
Oct. 9	71,958
Oct. 16	89,680
Oct. 23	91,905
Oct. 30	90,155
Nov. 6	†89,770

	Week ending †Nov. 6	Oct. 30
General Motors	46,215	45,225
Chrysler	26,000	27,775
Ford	1,250	1,375
All others	16,305	15,780

*Estimated. †Tentative figures.

■ STUDIED opinion on the probable sales picture for the next year, as reflected by the New York automobile show, adds up about as follows: Sales officials estimate (for public consumption) that 1938 sales will fall short of the 1937 total by 10 per cent. When the doors are closed they may revise their guesses to a 30 per cent drop from 1937. Chief irritant to closing sales appears to be the higher prices and it is problematical to what proportions this objection may grow. Used car prices as yet have not felt the upward impetus of higher new car prices and some prospective buyers are preferring to hold onto their old cars until they can realize more from them. It is not at all unlikely pressure on new car prices may lead to an adjustment, possibly some time after the first of the year. The automobile industry always listens carefully to the rumblings in its stethoscope on the chest of public opinion, and if the public balks at paying the higher prices, there is only one answer.

Assuming some form of price reduction were carried out, it would simply mean the industry would have to find some means to absorb this narrowing of profit margin. This might mean pressure on materials and parts. As yet, there is not the remotest sign of such pressure from automotive buyers.

■ AUTOMOBILE production schedules are being lopped off further as dealers are becoming well stocked. Plymouth is understood to have sliced 160 units per day from its present rate of 13,000 weekly. Buick is reported to have lowered its last-quarter schedules by 8000 cars, as well as making some downward adjustments in its advertising for this period.

Repeated delays have forced postponement of volume production by Ford. It was thought last week assembly lines would reach a rate of 1000 cars daily, but this was not the case. Ford has been down since about Sept. 15 and it may be Nov. 15 before assemblies appear in customary volume. On Wednesday of last week, it was reported public announcement of the new Ford lines would be made Saturday.

Extensive additions to Ford foundry facilities now being started are understood to center around a new process for centrifugal casting of alloy steel. High fatigue resistance shown by material cast by this new method may lead to its supplanting some of the present forged steel parts used by Ford.

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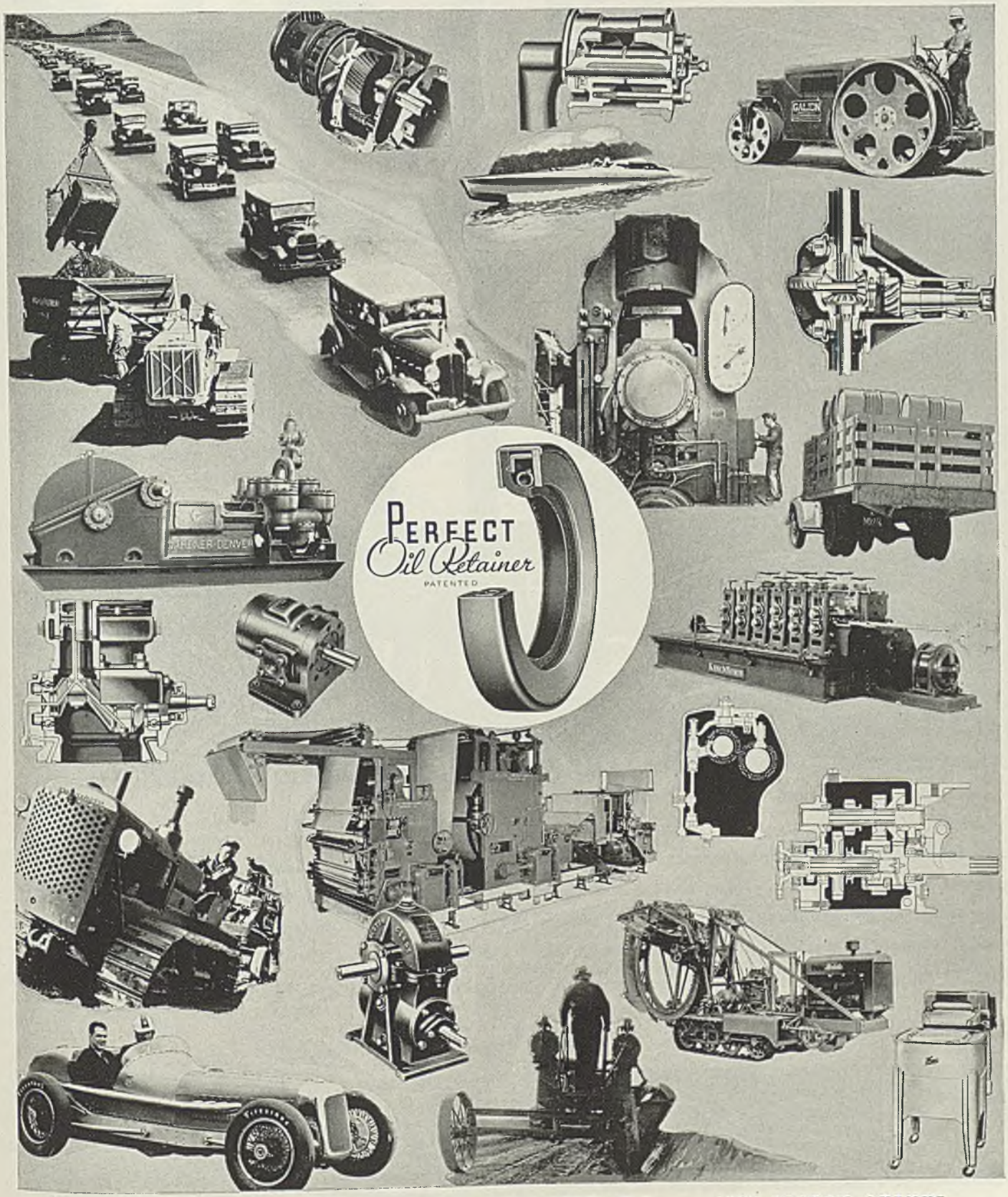

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TEMPERED AND UNTEMPERED FLAT AND ROUND - HIGH CARBON WIRES

WINDOWS OF WASHINGTON

WASHINGTON

■ SENATOR George Berry, Tennessee, former head of labor's nonpartisan league, who has been a thorn in the side of the administration a number of times, although a New Deal partisan, has come back into the picture, this time with a proposed new hours and wage bill. The bill will also be introduced in the house, where this legislation will be pending when congress gets back on the job.

Senator Berry said last week that while he voted for the hours and wage bill which has already passed the senate that he never thought that it would be workable. He proposes that his bill shall be a complete substitute for the pending measure.

It would provide, the senator says, a statutory maximum work week for the country as a whole of 40 hours in all industries, and a minimum wage of either 30 or 35 cents an hour. No independent board or bureau would be appointed to administer the proposed law, but enforcement would be under the justice department through district attorneys in each state.

It will be recalled that the bill which passed the senate provided for a new labor board and also prescribed 40 hours per week and a maximum of 40 cents per hour but under no hard and fast rule, as proposed in the new Berry measure. There was considerable criticism at the hearings on this measure last winter, before it was reported, both among the labor and industrial spokesmen, all against the discretionary rule by the board, which left the door wide open for the board to do almost anything that it saw fit. It is thought that the new Berry bill may complicate the already strained situation with regard to labor legislation.

BORAH WELCOMES CHANCE TO AID ANTITRUST DRIVE

Apropos of the antitrust drive the New Deal seems determined to start at the coming session of congress,

BY L. M. LAMM
Washington Editor, STEEL

Senator William E. Borah, an arch enemy of monopolies, returned to Washington last week and announced that he would "co-operate enthusiastically" in any administration effort to tighten the antitrust laws.

The senator has always been opposed to monopolies and it is said he will renew his fight for his own antimonopoly bill, introduced at the last session.

The report here is that Borah discussed the monopoly situation with the President when the latter was in Iowa last summer. It is expected the senator will discuss the question with the President sometime in the near future. In the meantime Senator Borah has been working with Senator O'Mahoney, Wyoming, who has a bill for federal incorporation and compulsory licensing of corporations to check the destructive influence of monopoly. It is said the two senators have been trying to eliminate vital differences in the two measures and to agree on common principles.

FTC FINDS PATMAN LAW WORKING TO GOOD PURPOSE

While there are some ambiguities in the Robinson-Patman law, members of the federal trade commission, charged with its administration, feel that it has worked better than could have been expected.

One member of the commission who has made a close study of the law and who refused to be quoted, told the writer that while he realized some members of congress are anxious to tack on amendments he felt it would be better to leave the law as it is until after there has been some final adjudication in the courts, perhaps the Supreme Court.

It is said that hundreds of cases under this law have come to the notice of the trade commission and in the vast majority of these cases, the company in question did not even stipulate with the commission, but changed its practice at once without even entering into a stipulation order. In most of the cases now coming before the commission, it is said on the highest authority, there is a borderline question.

The commission has issued complaints under each section and if the respondent wishes he can take it into the court. Only one or two cases, so far, have been appealed to the courts and in no case has a ruling been made.

UNEMPLOYMENT CENSUS PLANS LOSING ENTHUSIASM

The publicity campaign of John D. Biggers, directing the unemployment census work, which will begin Nov. 16, has apparently bogged down. He is not getting nearly the publicity he desires, to put over this big piece of work.

There is every indication also that labor is not taking as much interest in the census as might have been expected. The A. F. of L. has sent out a story over its own news heading urging that its members not report unemployment unless they want a job.

At best this job will be difficult but if sufficient co-operation is not received from the country at large it will fail. This has been the feeling among some well known government officials, but congress asked for it and when Mr. Biggers was appointed, with all of his pep and energy it was thought it would be successful. However, considerable skepticism has been shown during recent weeks. It may be that there was too much ballyhoo to begin with, with nothing new left to fall back on.

PRODUCERS PROTEST NAVY MANGANESE BUYING PLAN

American Manganese Producers association, through its president, J. Carson Adkerson, made protest last week when the bureau of supplies and accounts, navy department, opened bids for some 50,000 tons of manganese ore or its equivalent

of ferromanganese for the stock pile which the navy is to accumulate at the request of congress.

Adkerson sent a letter to Admiral Charles Conrad, chief of the bureau opening the bids, in which he claimed that "the specifications seriously discriminate against domestic ores and fail to safeguard the original purpose and intent of congress in the passage of the legislation under which this appropriation was made available to the navy."

Mr. Adkerson went into considerable detail as to why the bureau should buy domestic rather than imported ore and said: "This is the first time in history that the United States government has started buying manganese for stockpile purposes and all precedents to be established should be carefully considered.

"In the purchase of manganese by the government it is to the best interest of the United States that the ores be of domestic origin. To safeguard the will and intent of congress and to insure the further development and operation of domestic manganese mines, in behalf of domestic producers we respectfully request that there be no discrimination against domestic ores."

JAPAN TIGHTENS CONTROL OF IRON, STEEL INDUSTRY

The most important recent development in Japan in the iron and steel industry was the passage and enforcement of the iron industry control law. This provides for amplification and extension of licensing provisions of the law, makes various changes in government subsidies and tax exemptions, and generally extends government supervision over every aspect of the industry.

A report to the department of commerce on the subject states that market conditions during recent weeks have been characterized by increasing optimism, despite uneasiness caused by fear of more rigid government control. Prices have moved upward slowly with the market undertone decidedly firm. The report states that it is certain that the August advance would have been much larger but for the restraining effect of various governmental price control measures.

Information concerning foreign trade in iron and steel is no longer available, the Japanese government having decided to exclude such figures from official trade returns during the present emergency. There is little doubt that August imports reached an alltime high, the report states, since the combined total for all ores and metals reached the unprecedented figure of 10,000,000 yen. It is probable that iron and steel imports exceeded 700,000 metric tons.

Production of iron and steel in Japan and Manchuria during June totaled 283,287 metric tons of pig iron, 505,021 tons of ordinary carbon steel ingots and 412,885 tons of fabricated steel products.

FARM IMPLEMENT CENSUS SCHEDULES ARE PREPARED

The census bureau has completed drawing up the schedule for the annual canvass on the manufacture and sale of farm equipment and related products for 1937. The canvass will be conducted by mail with the schedules going out to manufacturers about Jan. 1.

The census will cover the number of establishments engaged in manufacturing farm equipment and related products during 1937. It will show the number of pieces of equipment manufactured and their value. In addition, important sales information will be gathered which will show domestic and export sales. Leaders of the farm equipment industry were consulted in the preparation of the questionnaire.

FARM TOOL EXPORTS GROW

United States exports of agricultural implements and machinery during September were valued at $7,081,986, an 86 per cent gain over the corresponding shipments last year totaling $3,806,881, according to the machinery division of the department of commerce.

Most types of equipment were exported in much greater volume, but the best advances were registered in tractors and harvesting implements.

September foreign sales were lower, seasonally, than in August, but the total for the first nine months of this year, amounting to $57,306,161, was 74 per cent greater than the comparable January-September figure for last year of $32,843,692, and over 13 per cent above the exports during the entire year 1936, valued at $43,993,899.

September exports of tractors and parts were valued at $5,146,074, which is 96 per cent above the September, 1936, shipments, amounting to $2,620,998. Wheel tractor sales abroad made a gain of 105 per cent, totaling $2,304,208.

TAX AUDIT PLAN CHANGED

Announcement was made last week that effective Nov. 1 auditing of tax returns under title eight of the social security act was transferred from the bureau of internal revenue headquarters in Washington to collectors' offices throughout the country.

The field offices have been performing part of the work of examination of the tax returns under this title, but the final audit has been made in Washington and where adjustments have been found necessary they have been referred to the collectors. The object of the move is said to be to facilitate prompt adjustments and increase efficiency by concentrating more of the work in the field, where ready contact may be made with taxpayers.

EXPORTS TO CHINA AND JAPAN CUT DOWN SHARPLY

There was an outstanding decrease in American exports to both China and Japan in September compared with August, according to the department of commerce.

Figures just available show that in August exports of iron and steel scrap, including tin scrap, to Japan, were valued at $4,473,394 while in September the exports were valued at only $1,401,878.

Pig iron exported to Japan in August was valued at $1,371,475, decreasing in September to $711,812, while exports of steel ingots, not containing alloy, in August were valued at $2,870,624, dropping in September to $208,394. In September also exports of iron and steel plates, not fabricated, were valued at $1,247,798, decreasing in September to $781,800.

The same figures show that exports to China of unfabricated iron and steel plates declined from a value of $304,000 in August to $49,000 in September and black steel sheets from $175,000 to $37,000.

MACHINERY EXPORTS HIGH

United States exports of machinery in September totaled $19,723,879, representing a gain of 50 per cent over the corresponding shipments last year valued at $13,083,340.

All of the eight major machinery groups shared in the advance, the gains ranging from 19 per cent in power-driven metal-working machinery to 158 per cent in power-generating machinery.

Foreign sales of machinery so far this year already exceed the total for all of last year, the exports from January through September aggregating $182,399,218 compared with $169,836,427 for January-December of last year.

TRADE WITH TURKEY GROWS

The American government plans negotiation of a trade agreement with Turkey, according to announcement just made.

Figures available at the commerce department indicate that while our exports of iron and steel to Turkey are not heavy they have been increasing steadily. Last year exports of iron and steel to that country totaled 22,000 tons compared with exports of 5000 tons in 1935. The United States exports wire rods, tin plate and sheets to Turkey.

Effectiveness of Organized Labor's Vote Still To Be Demonstrated

ON THE strength of the assistance given by the youthful American Labor party to Mayor La Guardia in his impressive victory last Tuesday, the editorial writers of leading New York newspapers opine that "labor" will hold the balance of power in future elections.

Considerable evidence is available to support this conclusion. That portion of "labor" represented by A. F. of L. and CIO was unusually vociferous in last week's municipal elections. The influence of these organizations was apparent in numerous contests.

However, the results of organized labor's political activity were far from uniform. In New York city, the labor party was allied with diversified interests backing a fusion candidate against a Tammany opponent. The outstanding issue was not pro-labor versus anti-labor; it was good government against government dictated by machine politics. In this instance, the labor party was aligned with a conservative major party in a popular reform movement.

Minority Pressure Group Domination Effort Loses In Emphatic Rejection by Detroit Electorate

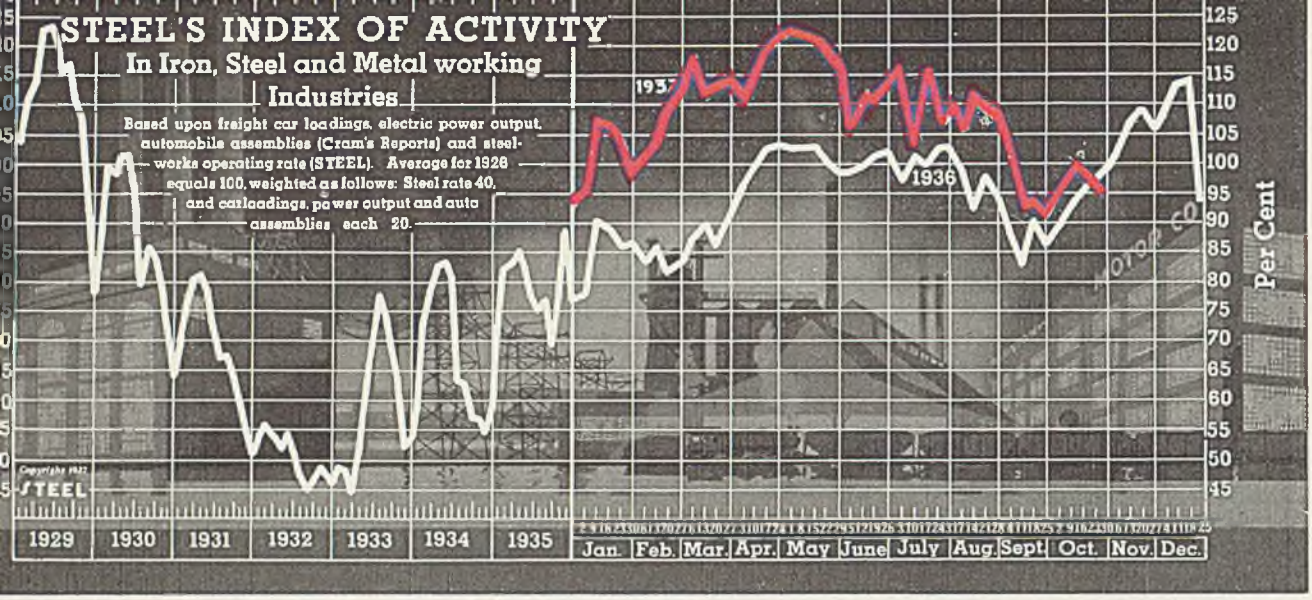
In Detroit the situation was almost reversed. CIO put up its own candidate, who was opposed by a conservative backed not only by unorganized citizens but also by A. F. of L. The issue was essentially government-for-all versus government-for-a-minority-pressure-group. The CIO aspirant lost by more than 100,000 votes—an emphatic and eminently gratifying verdict in favor of democratic government.

In Cleveland a mayor running upon a platform of efficient government defeated an opponent strongly backed by both factions of organized labor. In Pittsburgh, the opposite was true. There the CIO-endorsed candidate was elected.

Effectiveness of Organized Labor Votes Depends On Political Attitude of Independent Workers

Obviously it is futile to generalize dogmatically from such divergent results as are enumerated above. Organized labor undoubtedly can deliver considerable voting power under certain conditions. But the net effectiveness of the vote thus delivered cannot be appraised accurately unless one knows how the unorganized workers voted in each community. Also there is nothing to show how many CIO or A. F. of L. members heed the recommendations of their officers.

Organized labor's venture into politics presents a challenge to industry. Industrial leaders can meet if by devoting their efforts to the promotion of efficient, clean local government. If last Tuesday's election is a criterion, industrialists pursuing this course will find that, except under some unusual circumstances, an encouraging proportion of employes will be on their side.



STEEL'S index of activity declined 1.7 points to 95.8 in the week ending Oct. 30:

Week ending	1937	1936	1935	1934	1933	1932	1931	1930
Aug. 21	110.3	97.9	77.0	60.3	71.6	44.9	67.3	88.5
Aug. 28	108.5	94.0	77.3	55.1	70.3	45.2	66.5	87.4
Sept. 4	104.8	87.5	70.9	53.5	65.5	45.4	65.3	79.0
Sept. 11	94.3	83.1	70.1	58.7	69.1	44.9	60.9	85.0
Sept. 18	95.0	90.1	69.4	58.1	68.2	47.8	65.6	86.2
Sept. 25	93.0	86.2	68.5	89.3	66.9	48.0	65.2	83.8
Oct. 2	96.0	89.0	73.3	54.7	67.4	47.7	62.4	81.0
Oct. 9	99.0	83.4	74.9	56.4	66.0	48.4	61.5	79.4
Oct. 16	101.8	95.5	77.4	58.2	60.9	48.7	57.9	77.5
Oct. 28	97.5†	97.1	82.4	56.3	58.0	48.7	58.2	78.8
Oct. 30	95.8*	99.1	86.4	55.0	52.3	48.4	59.2	72.5

*Preliminary. †Revised.

Rate of Decline in Activity Is Less Pronounced

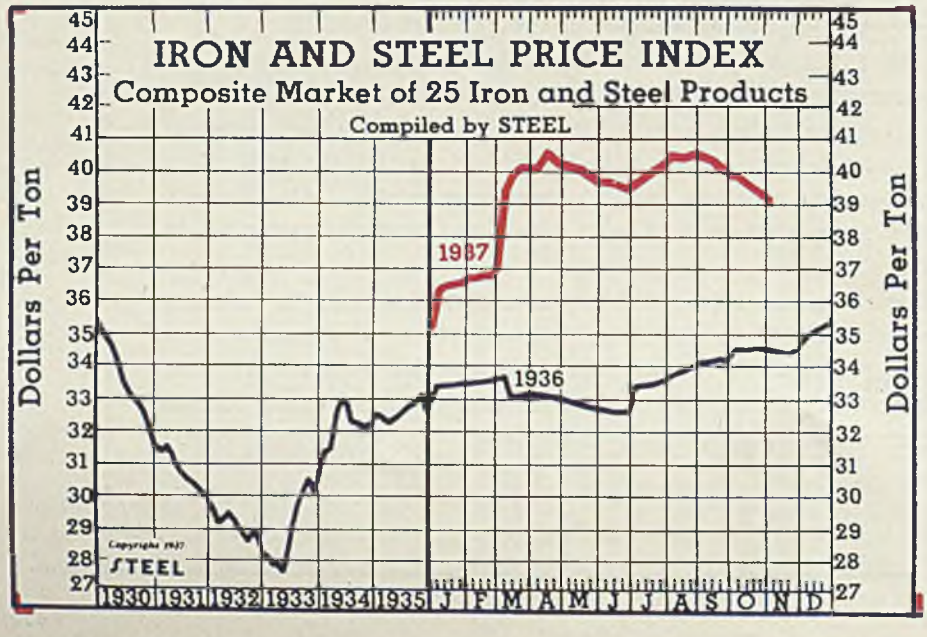
CONTINUED sluggishness in activity is reflected in the barometers for the week ending Oct. 30. While the degree of recession is less pronounced, support strong enough to indicate an early reversal of the present downward trend is not in sight.

A slight decline in automobile production, combined with further moderate recessions in the rate of steelworks operations, electric power output and revenue freight car loadings forced STEEL's index of activity from 97.5 to 95.8.

The failure of electric power output and freight traffic to follow the seasonal pattern more consistently is more indicative of the slump in general activity than is the depressed rate of steelworks operations. The normal peak in railroad freight traffic appears in the third or fourth week of October. This year the peak appears to have occurred in the last week of September.

Similarly, electric power output normally builds up rather steadily to a peak in the second or third week of December. This year the high point probably will occur according to seasonal schedule, but in the meantime power output in October showed inconsistent weakness which can be attributed only to a decided slackening in the use of power by industry.

STEEL's index now is definitely below the 1936 trend line.

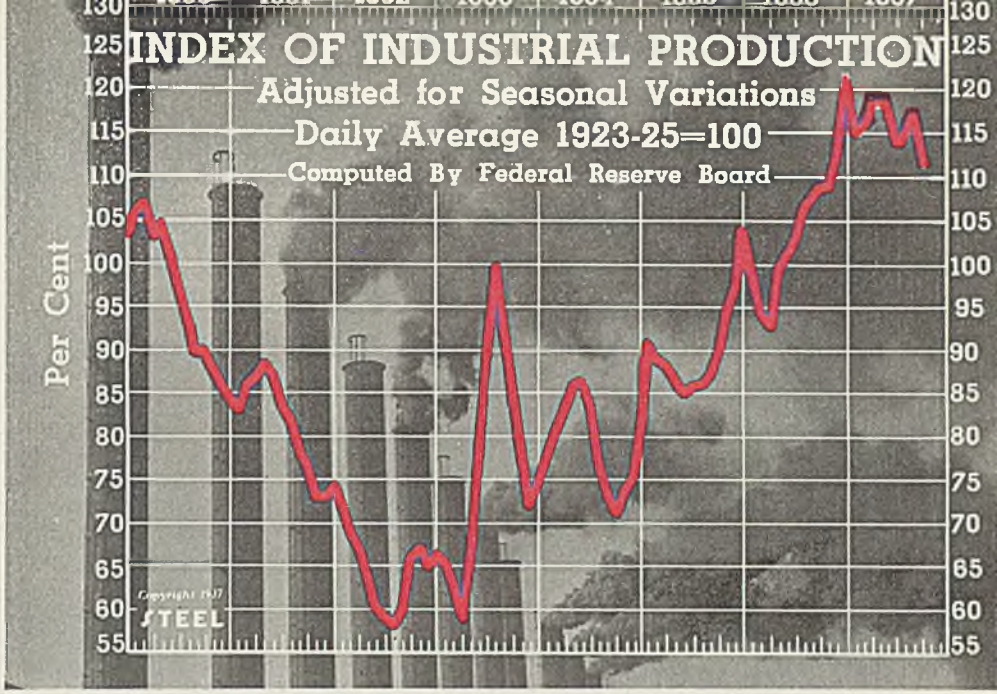


	1937	1936	1935
Oct. 30	$39.33	$34.62	$32.98
Oct. 23	39.47	34.66	32.85
Oct. 16	39.60	34.68	32.83
Oct. 9	39.73	34.68	32.86
Oct. 2	39.81	34.62	32.82
Sept. 25	39.98	34.19	32.87
Sept. 18	40.19	34.22	32.83
Sept. 11	40.21	34.10	32.81
Sept. 4	40.27	34.10	32.79
Aug. 28	40.36	34.03	32.78
Aug. 21	40.36	33.94	32.72
Aug. 14	40.32	33.88	32.68
Aug. 7	40.32	33.82	32.64
July 31	40.27	33.72	32.59

BUSINESS TREND

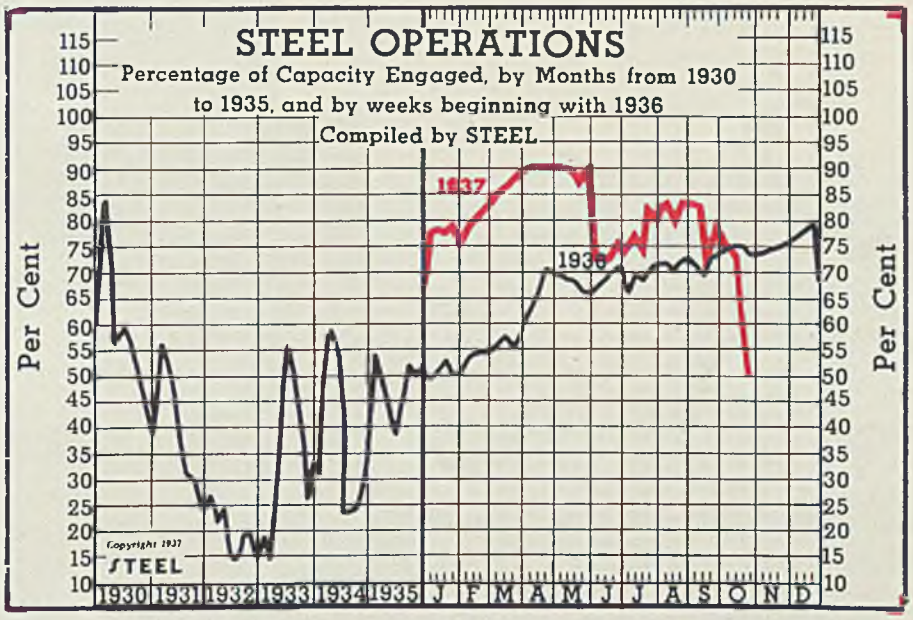
Industrial Production Index Declines to 111 Per Cent

January	115	98	91	78
February	116	94	89	81
March	118	93	88	84
April	118	98	91	78
May	118	101	85	86
June	114	103	91	78
July	114	107	86	75
August	117	108	87	73
September	111	109	89	71
October	...	109	95	73
November	...	114	98	74
December	...	121	104	86



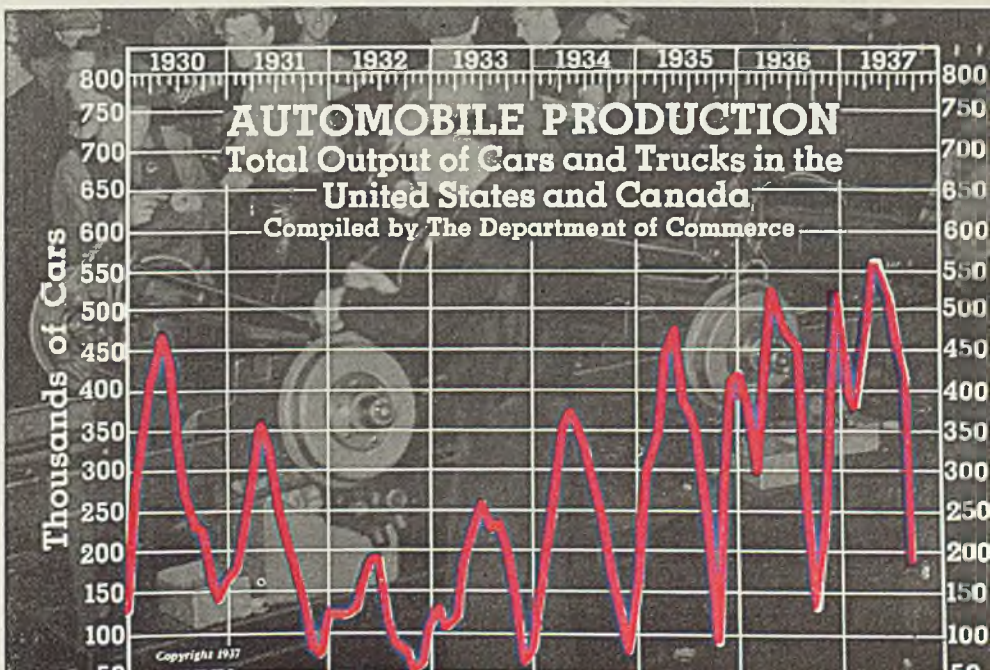
Steelworks Operations Off Slightly to 51 Per Cent

	Per Cent		
	1937	1936	1935
Oct. 30	51	73	54.5
Oct. 23	53	73	52.5
Oct. 16	63	75	51
Oct. 9	66	75	52
Oct. 2	74	74.5	53.5
Sept. 25	76	73	51
Sept. 18	80	72.5	52
Sept. 11	72	69.5	54.0
Sept. 4	83	71.5	52
Aug. 28	83	73	52.5
Aug. 21	81	72	52.5



Automobile Production Off Sharply in September

	1937	1936
January	399,634	377,244
February	383,698	300,810
March	518,977	438,943
April	553,415	527,625
May	540,357	480,571
June	521,139	469,868
July	451,481	451,474
August	405,064	275,951
September	175,620	159,785
October	.....	229,989
November	.....	405,702
December	.....	519,132



BUILDING BANTAM AUTOS

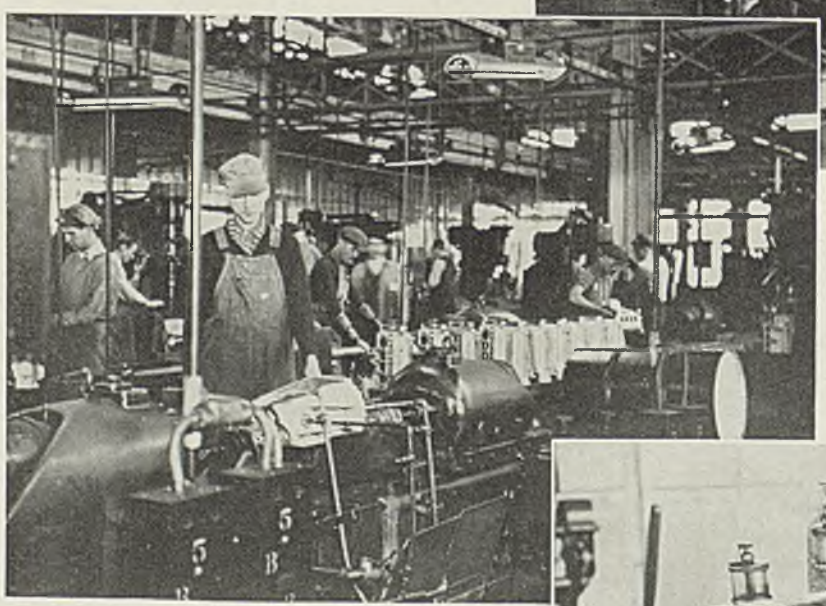
■ In the manufacture of machine parts of any kind in quantities, production lines must be laid out to keep the work flow steady, while the machine tool equipment must be up to date in all respects.

This is strikingly exemplified at the plant of the American Bantam Car Co., Butler, Pa., just getting into production with its new models which include a coupe, a roadster and a truck. The plant occupies some 340,000 square feet of floor space located on a 15-acre tract. About 1000 men per eight-hour shift can be employed, while the yearly production per eight-hour shift is set at 40,000 cars for the present.

The plant formerly was occupied by the American Austin Co., but the new company has no connection whatsoever with the former manufacturers. The Bantam company will continue to furnish repair parts for the Austin cars. Production never ceased entirely at the plant after the old Austin company went out of business, as the improved form of the Austin motor has been in constant production. These units find a ready market for marine propulsion and for industrial uses.

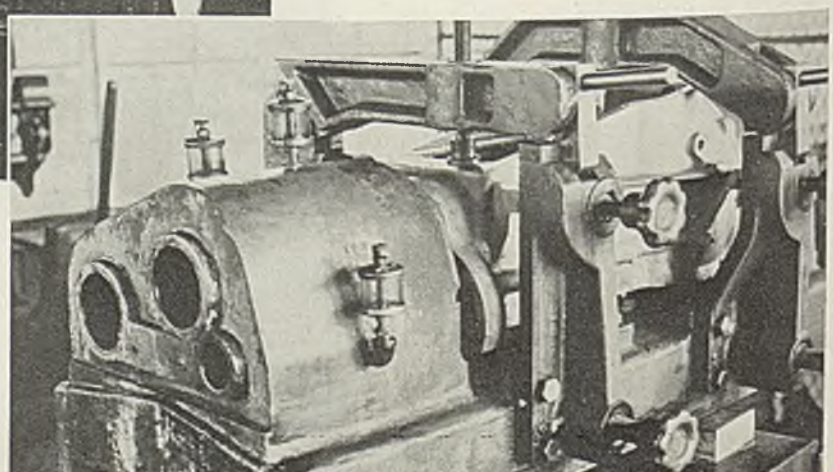
However, the motor as now used in the Bantam cars has been entirely redesigned. It is a four-cylinder unit capable of developing 20 actual brake horsepower at 3900 revolutions per minute. It has a 2.2-inch bore with a 3-inch stroke. The motor weighs 130 pounds complete. The cylinder head, crankcase, pistons, fan bracket, and other accessories are aluminum alloy. The chassis and bodies also have undergone radical changes so the American Bantam is an entirely new car, streamlined and fitted with balloon tires. The following illustrations from photographs taken by the STEEL camerman depict graphically operations in the plant.

1—Here is shown the start of the flywheel production line. These machines are Gisholt turret lathes and machine the flywheel from start to finish. The flywheel is cast iron, 10 inches in diameter, 1¼ inches thick, with the clutch plate located in the recess. Due to the light weight of the parts, the roller conveyor system keeps the units moving from machine to machine without delay



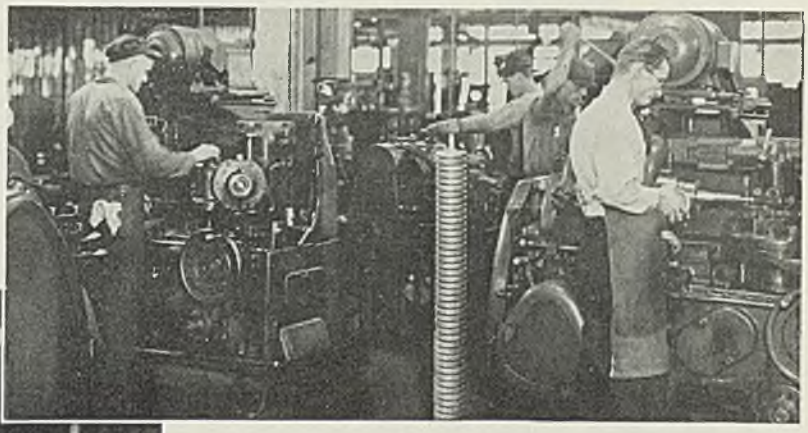
2—This partial view of the crankcase line shows a crankcase in position for drilling a multiplicity of holes simultaneously in a Barnes horizontal drilling machine. As the illustration shows, drills work from two heads located at opposite sides of the machine

3—Below is one of the substantial type boring fixtures employed for crankcase boring. It is quick acting and heavily constructed and bores three holes simultaneously

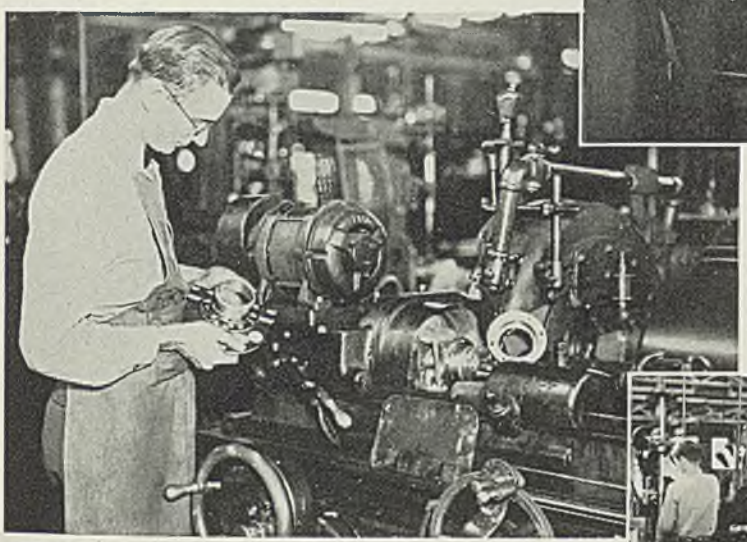


In a Modern Plant

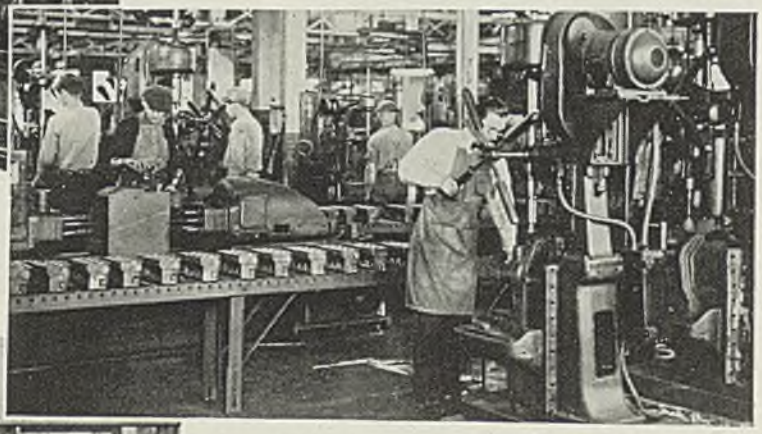
BY FRED B. JACOBS



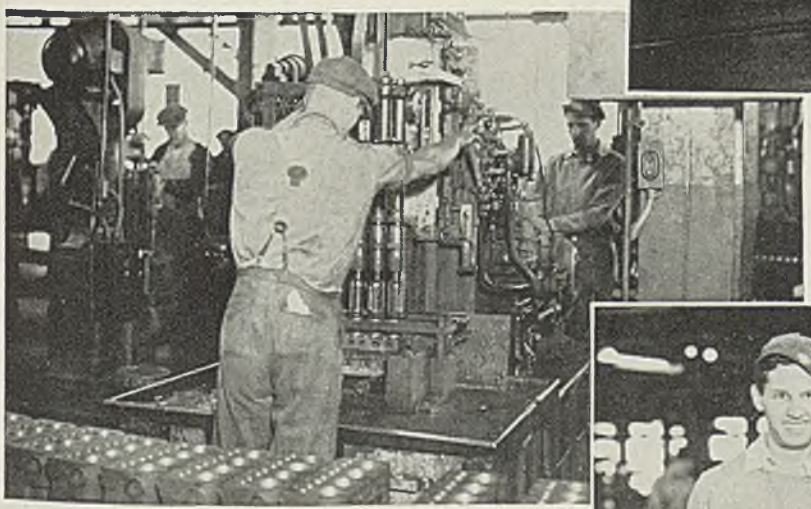
4—Partial view along the gear line. These machines are Lees-Bradner gear hobbers while the gears shown in the foreground are steel timing gears



5—Precision grinding enters largely into the finishing of various components. This machine is a Norton cylindrical grinder while the operation consists of accurately finishing the outer diameter of a rear bearing retainer with an outer diameter of 3¼ inches.



6—Part of the cylinder block production line where the roller conveyor system is used. The machine in the left foreground is a Barnes horizontal multiple drill arranged for finishing

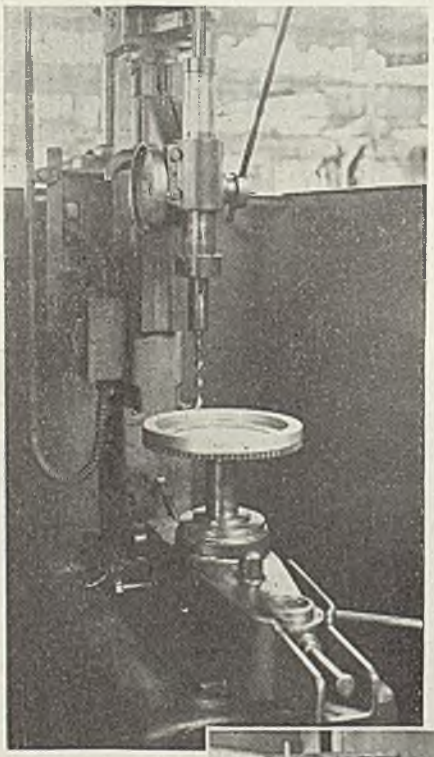


7—Cylinder blocks are finished by honing on a Moline Tool Co. hole hog. Hones are of the automatic type furnished by the Micromatic Hone Co. About 0.0035-inch is left for finishing by honing

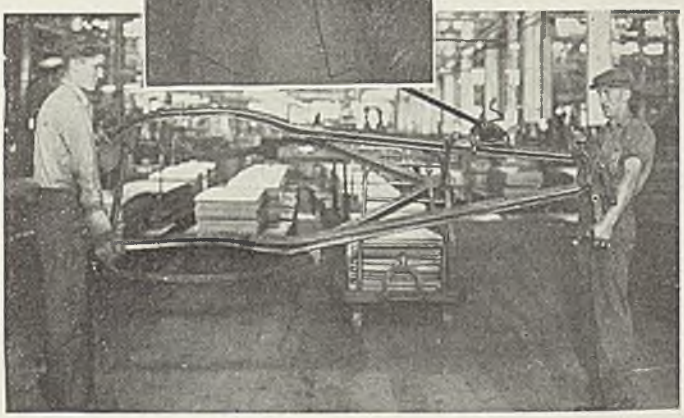
8—Compactness of the Bantam cylinder block can be judged readily from this illustration where the operator holds a block in each hand with no apparent effort. These blocks are 11½ inches long, 5½ inches high and 4¾ inches wide. A set of valves ground in place goes with each block to the assembly

9—The operator in the foreground is inspecting bores for sandholes and other imperfections. A strong light is located under the conveyor which illuminates the bores so that defects are readily seen. The operator in the background is testing bores for size with a dial indicator

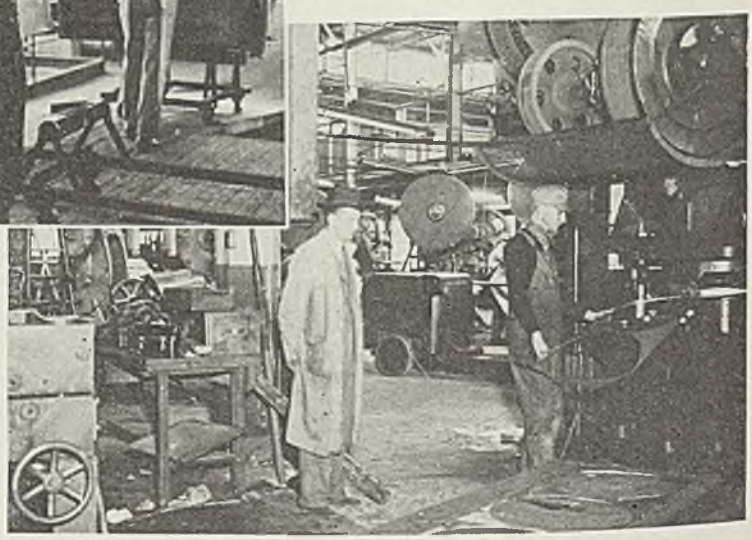
10—The Bantam crankshaft at left is drop-forged steel with two main bearings, 2½ inches in diameter and 1⅛ inches long, and four crank pins, 1 5/16 inches in diameter and 1¼ inches long



11—The illustration at left shows the interesting method followed in obtaining flywheel balance. When the wheel is in balance the floating fixture on which it sits will show level by bringing a bubble central in the round level in the foreground. If the bubble is off, the flywheel is drilled to compensate for the error. The device registers the error and designates how deep to drill to compensate for it. This apparatus is a product of the Merit Equipment Co.



12—The Bantam frame appears to be a light unit as shown in this illustration, but in reality it is exceptionally strong



13—Bantam bodies, above, are electrically welded. Ingenious welding fixtures are used to locate the various sections in place and bring the welding electrodes into position.

14—An adequate sheet metal department is in operation as all the bodies are made on the job. At right is a partial view of this department with one of the larger presses in at the right foreground. This press is a product of the Cleveland Punch & Shear Co.

CHROMIUM-VANADIUM SPRINGS ON CHICAGO SURFACE LINES...

These trolley buses of Chicago Surface Lines, furnished by The J. G. Brill Company, Philadelphia, have Chromium-Vanadium chassis springs.

Chicago Surface Lines operate 152 trolley buses and 105 gasoline buses which cover 812,000 miles per month and carry approximately 65,000,000 passengers per year.

The new a. c. f. buses furnished to the Chicago Surface Lines by J. G. Brill and other buses recently purchased by Chicago Surface Lines are equipped with Chromium-Vanadium Steel Springs.

Bus service calls for the best in springs . . . riding comfort . . . dependability . . . economy. Chicago Surface Lines, like many other fleet operators of buses and trucks, know from experience that Chromium-Vanadium Springs are easy riding, long-lived springs that stand up under hard service.

VANADIUM CORPORATION OF AMERICA
420 LEXINGTON AVENUE, NEW YORK, N. Y.

Plants at Bridgeville, Pa., and Niagara Falls, N. Y.
Research and Development Laboratories, Bridgeville, Pa.

Vanadium Steels

METALS VANCORAM ALLOYS

FERRO ALLOYS
of vanadium, silicon, chromium, and titanium, produced by the Vanadium Corporation of America, are used by steel makers in the production of high-quality steels.

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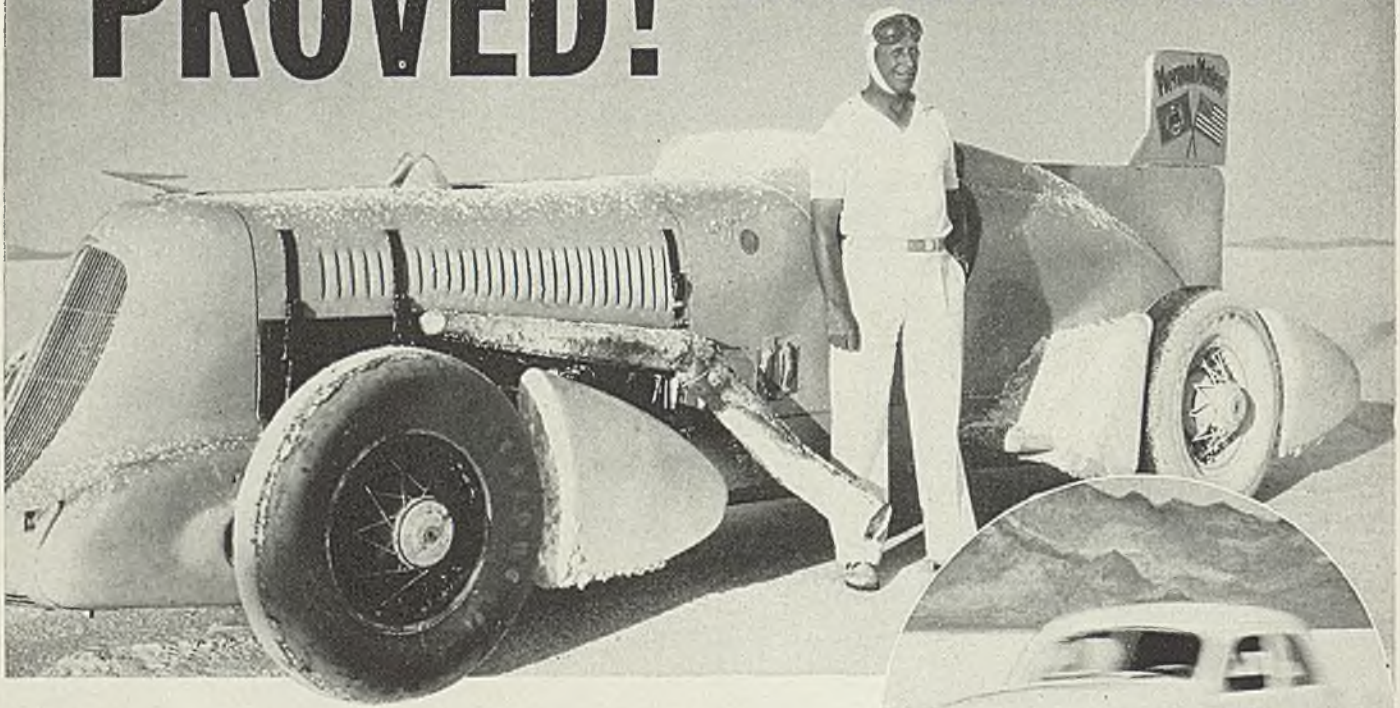
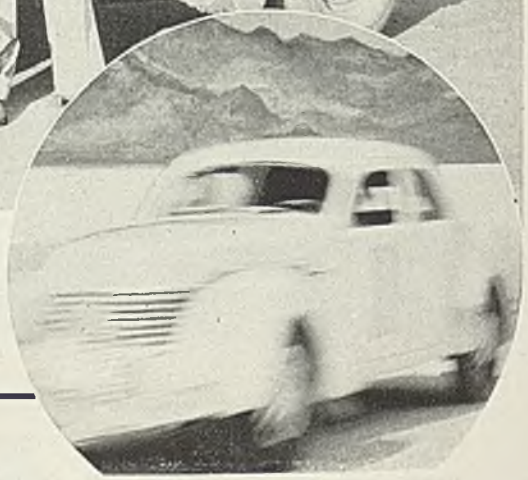
GULF DEPENDABILITY PROVED! ON UTAH SALT BEDS



87 world and international speed records were smashed by Ab Jenkins in his powerful racing car shown above—raising world's unlimited 24-hour record to average of 157.27 m.p.h. He also broke the 1-hour record at a speed of 177.05 m.p.h.



Car driven by Ab Jenkins photographed while breaking 36 "unlimited" and 36 "Class C" stock closed car records—all well above 100 m.p.h. For 24 hours he averaged 101.72 m.p.h.

Ab Jenkins sets 159 new speed records.... using Gulfpride Oil and No-Nox Ethyl Gasoline

(Supervised and timed by the Contest Board of the American Automobile Association)

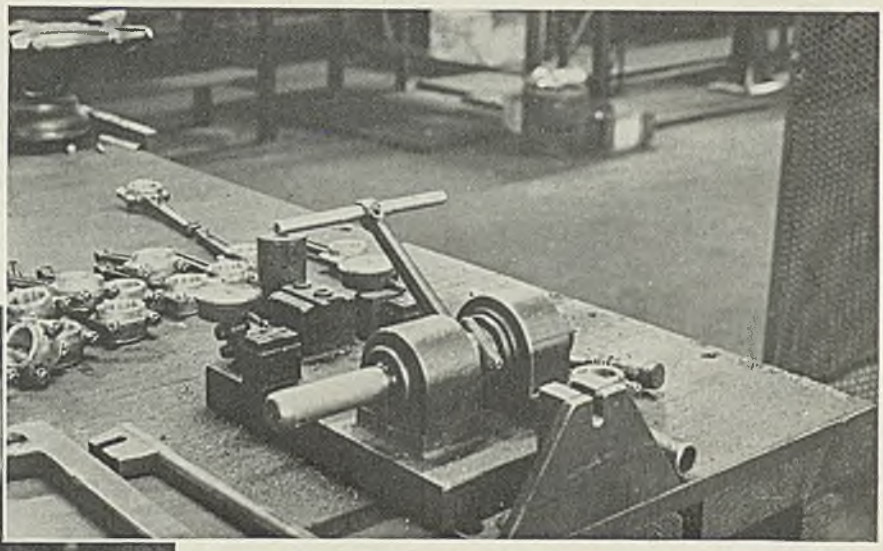
NO special lubricants or fuels were used by Ab Jenkins when he recently hung up 159 new speed records with his big racer and his stock car sedan on the Bonneville salt beds in Utah.

He used the same Gulfpride Oil and Gulf No-Nox Ethyl Gasoline that are giving thousands of car owners new motoring economy and satisfaction every day! *The same gas and oil you can buy for your car from any Gulf dealer!*

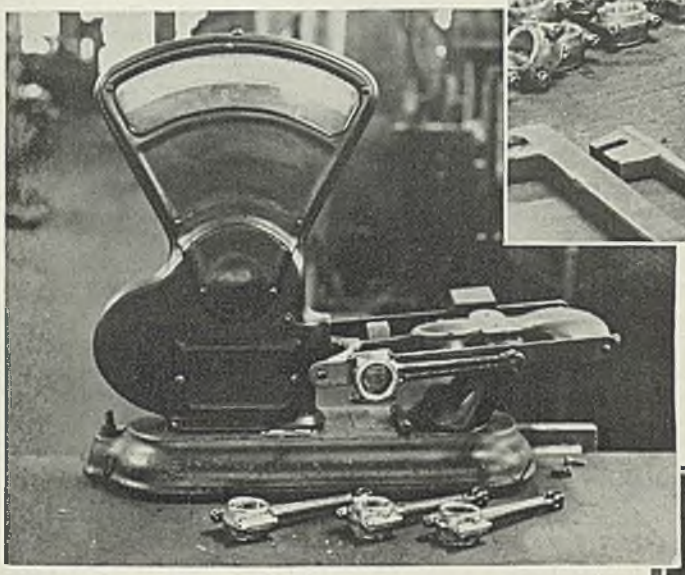
Gulfpride Oil has unique qualities which make it an ideal lubricant for all operating conditions. It is refined by a special process — Gulf's exclusive and patented Alchlor process — which removes 20% more waste, carbon, gum and sludge-forming elements. The result is an oil of greater stability, greater resistance to oxidation, better lubricating qualities and longer life.

This same refining process is used in the preparation of Gulf's finest industrial lubricants. Thus, operators of steam turbines, air compressors, Diesel engines and many other types of industrial equipment can secure for their engines and machines the same protection against friction, wear and repair expense that Ab Jenkins received from Gulfpride Oil when he made 159 new speed records in Utah. GULF OIL CORPORATION · GULF REFINING COMPANY, GENERAL OFFICES, PITTSBURGH, PA.

GULF INDUSTRIAL LUBRICATION

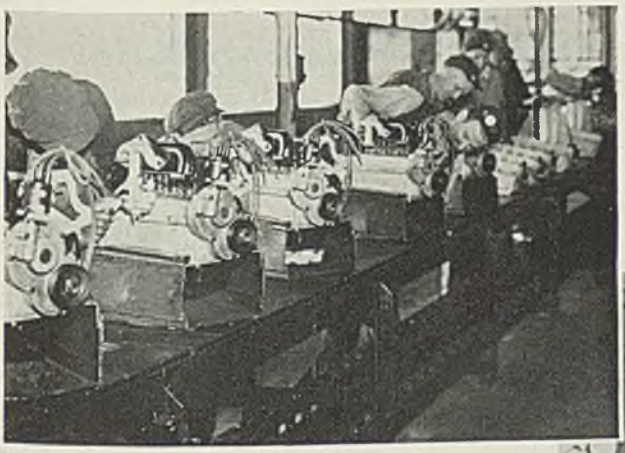


15—All finished parts are subjected to rigid tests to make sure that they meet predetermined specifications. In this illustration is shown the type of fixture used to test the alignment between the two holes in a connecting rod. Two dial indicators register any error

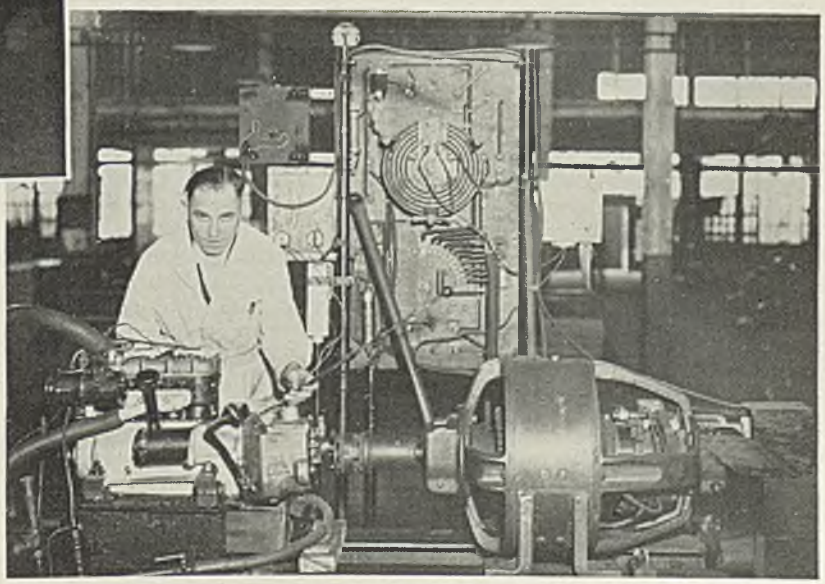


16—As four rods to enter into the assembly of a given engine must be of the same weight, they are tested carefully as shown here. This precaution is taken to assure quiet running of the completed motor

17—Here are shown two tests on pistons. The operator at the right is testing pistons under an amplifying gage and classifying them according to diameters. The operator at the left is testing piston-pin holes with a plug gage



18—Part of the assembly line where motors are put together. Attention is called to the open-end fixtures on which the crankcases sit and the type of conveyor employed, which consists of pads mounted on endless chains



19—Each motor is given a thorough dynamometer test as this method shows up any power defects. Current generated in the test is turned into the power lines. Facilities are at hand for testing 17 motors at one time. The man in the background is John De Palma, noted race driver and an expert on internal combustion engines

Foundrymen of Midwest Discuss Their Problems At Iowa City Meeting

■ Increasing interest in technical problems of the foundry was demonstrated at the second annual conference held Oct. 29-30 at the State University of Iowa, Iowa City, Iowa, for attendance was larger than a year ago. The conference was conducted under joint sponsorship of the engineering college of the university, the American Foundrymen's association, the Quad-City chapter of the association and the Northern Iowa Foundrymen's association.

Welcoming visiting foundrymen to the campus, Dean F. M. Dawson, college of engineering, indicated the desire of the university to keep in close touch with industry and stated that meetings of the conference type serve a most useful purpose. One of the problems of the day, said Dean Dawson, is to provide proper guidance for the men who are going to be the industrial workers of the future.

Topics with which the conference dealt in sessions on the two days included sand problems, testing procedure, melting practice, nonferrous metals and alloy cast iron. A dinner was served on the evening of the first day.

Applying Test Results

At the session devoted to testing, Prof. H. L. Daasch, Iowa State college, Ames, Iowa, discussed physical tests of cast iron, pointing out that any machine or structure has three general steps in its development; namely, design, manufacture and use. All three are concerned with physical properties. The difficult problem is to understand the test procedure and to apply correctly the results of tests to best advantage of the designer, producer, and user.

Prof. Daasch said the designer works on the basis of physical properties a particular casting will have when produced. The producer may check properties only after the part has been produced, therefore, the only physical property tests of value to designer or producer are those which have been made on other castings. Consequently, success of production depends upon having reliable test data which may be applied to the particular problem at hand. The best post-mortem test is a study of the service rendered by a particular structure.

The speaker discussed a few of the tests which may be made on castings, and outlined the shortcomings of each. Strength tests include tension, compression, torsion, and transverse. Creep is a long-time test; impact a short-time test. Prof. Daasch asserted he does not believe wear is proportional to hardness. He also stressed importance of damping properties of gray iron.

Explains Tension Test

Advisability of using the tensile test as a measurement of the strength of cast iron was questioned by the speaker, since cast parts seldom are subjected to tension. H. Bornstein, Deere & Co., Moline, Ill., explained the reason for the tension test in A. S. T. M. specifications, the most important consideration being that designer and engineer are familiar with the tensile test and its results, and therefore better understand data on that particular property when presented in specifications. Mr. Bornstein also said that it is possible to correlate hardness with other tests of cast iron. In his opinion, "a test bar is only a test bar," and he prefers a test on the casting. A. E. Hageboeck, Frank Foundries Corp., Moline, Ill., pointed out that it is possible to obtain good results in test bars, but poor castings with metal from the same ladle.

John Fielding, State University of Iowa, Iowa City, presented an interesting discussion and demonstration of methods used in analyzing cast iron for carbon, sulphur, manganese, phosphorus and silicon. He enumerated some of the difficulties encountered in making proper determinations. It was emphasized that while a routine could be established and the details of making the tests could be mastered in a short time, it is necessary to have a trained chemist or metallurgist available when results are not coming properly.

A session on melting practice developed considerable interest. L. D. McClaren, Republic Coal & Coke Co., Chicago, outlined equipment and process followed in manufacture of by-product coke. A. W. Gregg, Whiting Corp., Harvey, Ill., discussing cupola operation said he believes that placing tuyeres below the windbox is a definite advantage in that it keeps the windbox free from slag. He showed slides illustrating cupolas, yard layout, charging equipment, duplexing with the air furnace, continuous pouring devices, and hot blast cupolas.

The speaker contended foundries must develop their own practice following careful study of their requirements. He stated that cupolas also are to be used in connection with duplexing for open-hearth furnaces in plants in which blast furnace metal is not available.

Garnett P. Phillips, International Harvester Co., Chicago, also discussed cupola practice, presenting a chart showing recommended bed height for different pressures. He also gave cupola operating data for plants specializing in agricultural work, giving statistics on cupola diameter, cross sectional area, weight of coke, weight of charge, blast data and melting rate per hour.

The closing session was devoted to alloy cast iron. E. K. Smith, Electro Metallurgical Sales Co., Detroit, pointed out that a base metal good for one particular alloy addition may not be at all satisfactory for another. He stated that chromium is used to resist wear, heat and other forms of corrosion. Higher pouring temperatures make it possible to alloy chromium in the ladle satisfactorily.

Vanadium Is Beneficial

R. G. McElwee, Vanadium Corp. of America, Detroit, expressed the opinion that as yet vanadium has not received as much attention as it should in the cast iron field. The element is used infrequently alone, since it works so well with the other alloys. The speaker asserted that if it is possible to get a satisfactory base metal to which alloying elements are to be added, inclusion of vanadium will permit more uniform control day by day.

The tensile test may not represent conditions in the casting, especially if sections of various sizes are represented in the cast piece, Mr. McElwee stated. In his opinion, vanadium makes iron less sensitive to the rate of cooling. He stated that if it is desirable to avoid acicular pearlite, vanadium changes this constituent to lamellar pearlite.

V. A. Crosby, Climax Molybdenum Co., Detroit, advised a thorough consideration of properties and service results derived through addition of molybdenum, before the matter of

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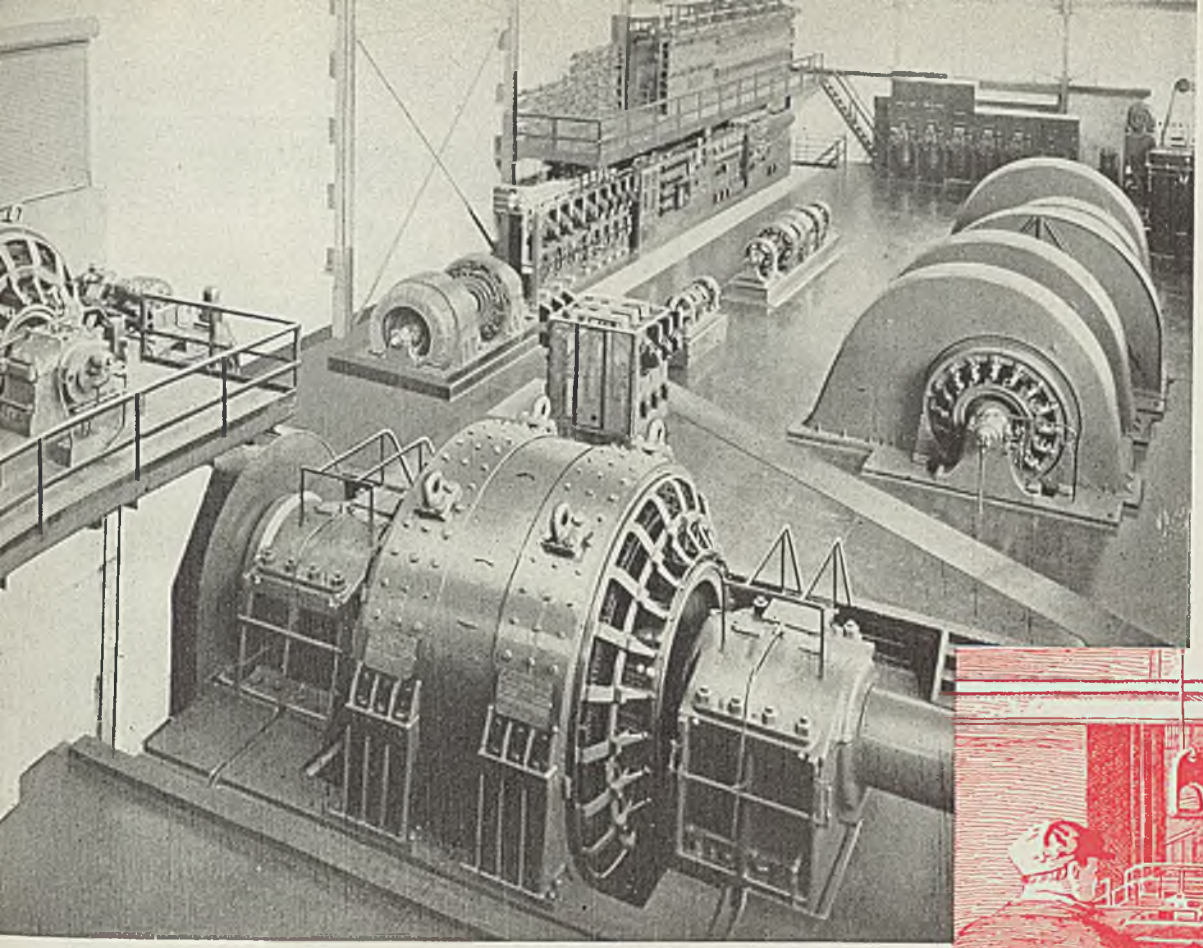
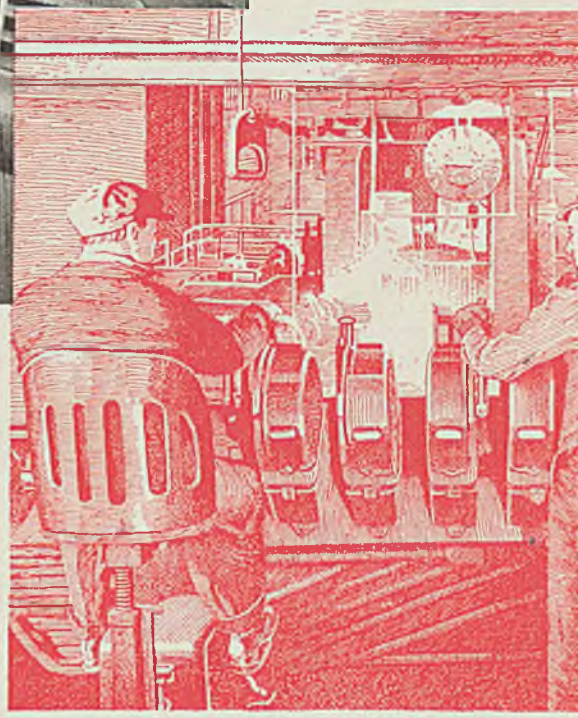


Motor room in a new 40- by 90-inch reversing slabbing mill. G-E 7000-hp main-horizontal-roll drive in foreground and G-E 2500-hp vertical-roll drive at left. G-E 9000-kw motor-generator set in background



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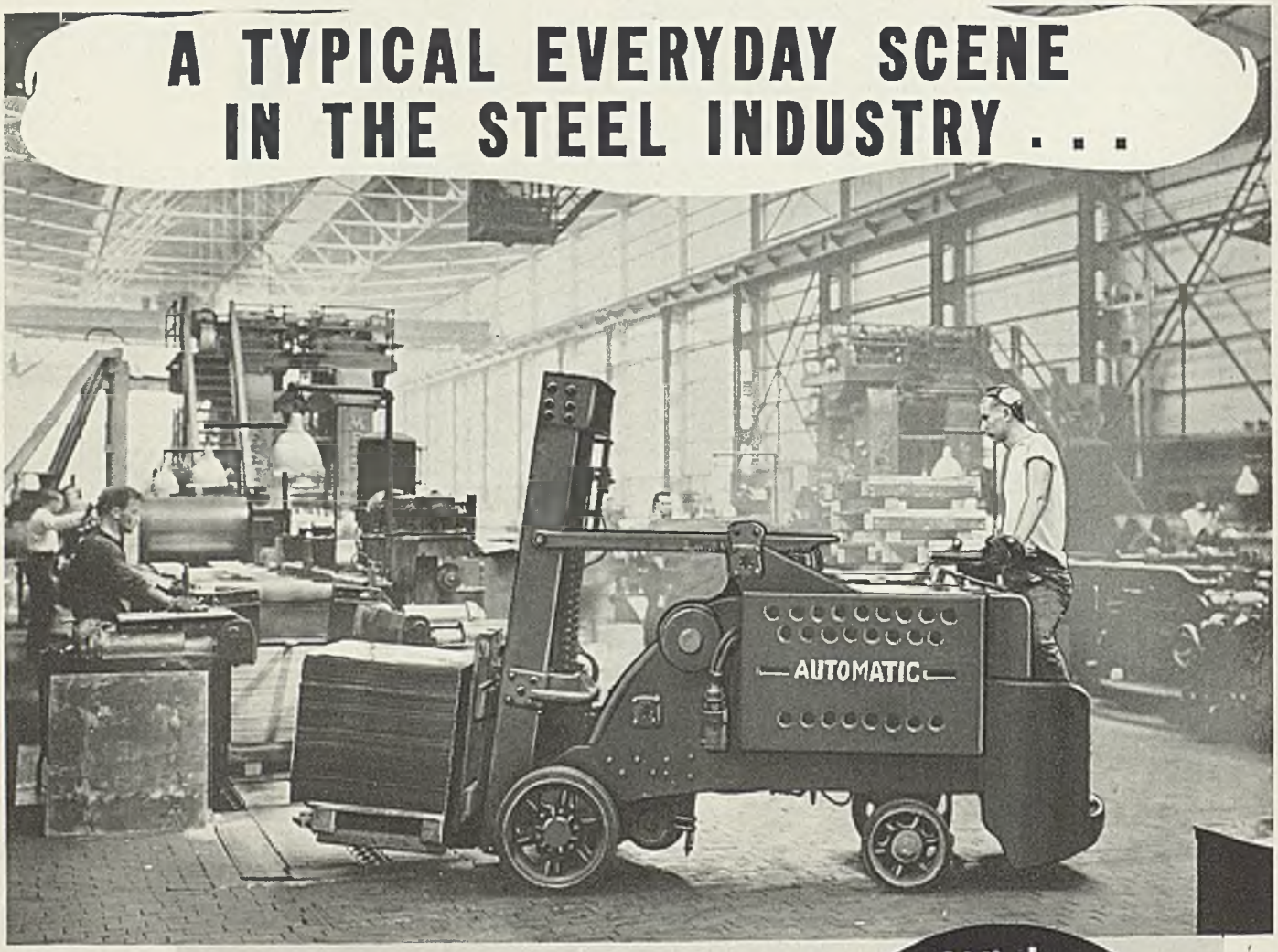
If you have new or unusual problems, G-E engineers will help you find a solution. If the problem has been tackled before, they may suggest a better and newer way to solve it.

They bring to every new project long experience in designing electric equipment for mills, large or small, of all types and for all purposes. They design and build *complete* equipments, thoroughly co-ordinated in all parts. They give to every job, regardless of size, the same complete service and careful attention to details. For further information, call the nearest G-E representative. General Electric Company, Schenectady, N. Y.

A TYPICAL EVERYDAY SCENE IN THE STEEL INDUSTRY . . .



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MATERIALS HANDLING

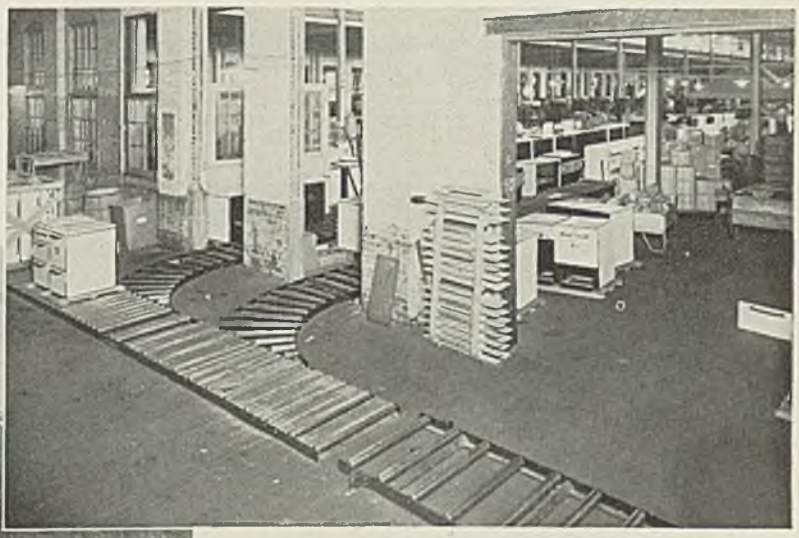
New Handling System in Stove Plant Raises Efficiency; Reduces Costs

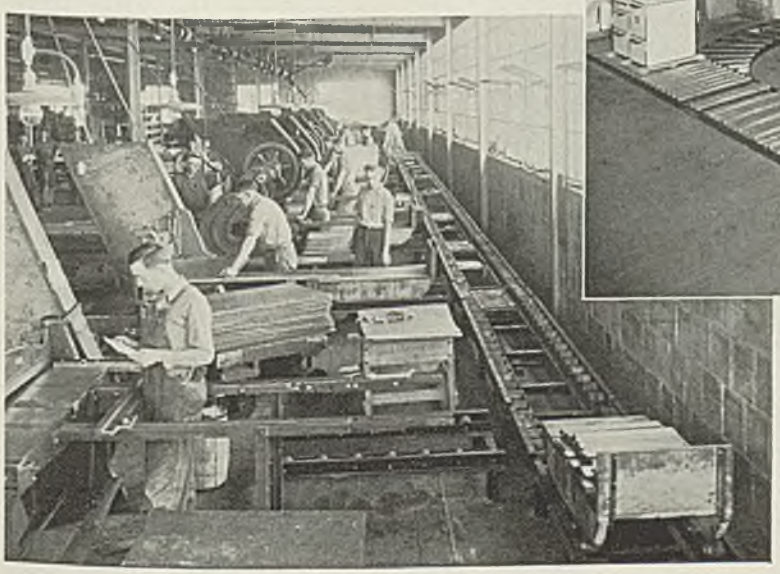
BY R. L. HARTFORD
Associate Editor, STEEL

■ NEW from start to finish; new in efficiency highs; new lows on the cost sheets—these are the earmarks of the materials handling system installed at the Florence-Wehrle Stove Co., Newark, O. Not new in its principles—it consists of a combination of overhead chain conveyors, gravity rolls, belts, skids and trucks—but new in that it was installed in an old plant and required extensive alterations in walls, floors and partitions.

One of the oldest companies devoted to the manufacture of all types of stoves, the Florence-Wehrle establishment is housed in brick-walled buildings of rather ancient vintage for the most part. The only handling system the plant had ever known until recently was the use of hand trucks entirely. Dozens of handlings from raw material to finished product were required by this method. Under the new system two or at the most three handlings are the maximum.

The most important raw material used in the plant is sheet steel. Unloaded from the railroad siding, it is stacked in the warehouse by a sheet metal grab. The warehouse also houses the shear line shown in an accompanying illustration. Sheets, taken from stock, are sheared to the desired size and placed on skids which are conveniently located on short sections of roller conveyor beside each shear. The loaded skids then are rolled out to turntables in the roller conveyor line which extends the length of the shear line, where the skids are turned 90 degrees and placed on the line. When the loaded skids reach the end of





Steel sheets are trimmed to size on the shear line shown at the left, piled on skids and transported by the roller conveyor to the forming presses. Illustration above shows two gravity roller conveyors on which stoves completely assembled and tested enter the shipping room for packing. Photos courtesy Standard Conveyor Co.

MATERIALS HANDLING

this conveyor, they roll off onto two parallel chains which take them down to another short roller conveyor on the floor below.

On this level are the presses. The sheets are formed on these presses and hooked on an overhead chain conveyor which dips down at each press to enable operators to hook on stampings as they are finished. The stampings are carried through other fabrication steps for welding, grinding, buffing, drilling and the like. After the basic parts are complete, they are hooked back on the same conveyor. This conveyor then rises to the next floor above where the finishing operations are carried on.

Stampings Are Sorted

Entering the finishing department, the stampings are sorted according to the enamel they require—ground coat, finish coat and color. At this point the cast-iron pieces also enter the line. The Florence-Wehrle company operates its own foundry adjacent to the building where the main finishing and assembly operations take place. This foundry is served by a monorail system and overhead cranes. Cast-iron parts are carried out in tote boxes to the central conveyor which transports them to the finishing department.

For the most part, surface finishes are porcelain enamel. The conveyor passes through the spray booths where parts are sprayed without removing them from the chain. The sprayed parts then are fired in continuous-type ovens and given a thorough inspection.

After the coated parts are inspected, they move through the subassembly department. Those which are used in any of the subassemblies are taken off at the required point, while the remainder go along to the storage bins. A separate conveyor travels through the subassembly department, picking up the assemblies as they are completed and carrying them to the storage bins.

Throughout the day finished parts are stacked in the storage bins. From this point the main conveyor returns to the press room, and the subassembly conveyor back to the beginning of the subassembly department. Each night a crew comes in and transfers the parts from storage bins to some 500 stock boxes which are lined up on both sides of seven belt conveyors which constitute the final assembly lines.

As the assemblies progress along the conveyors, the stoves are tested. Stoves are of four types, depending upon the fuel they burn—gas,

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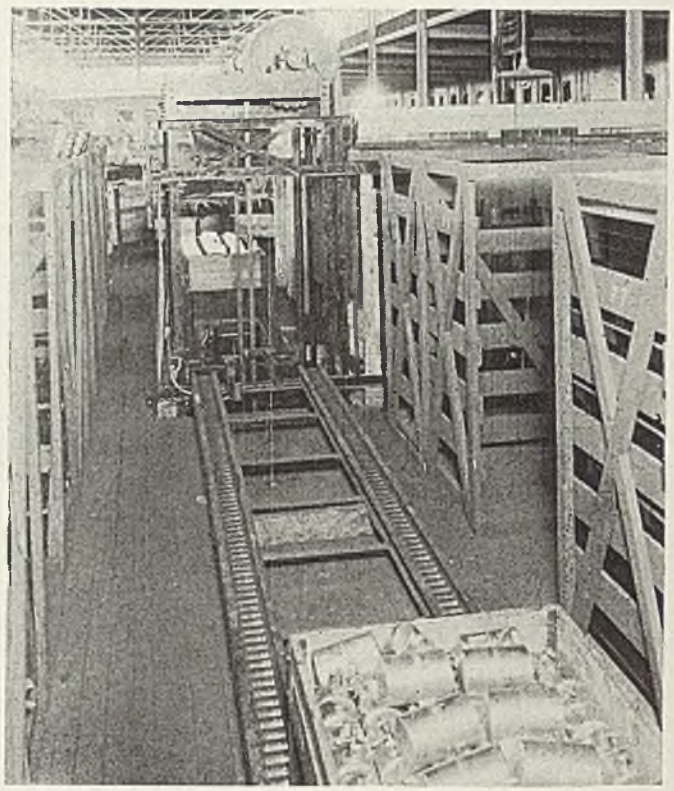
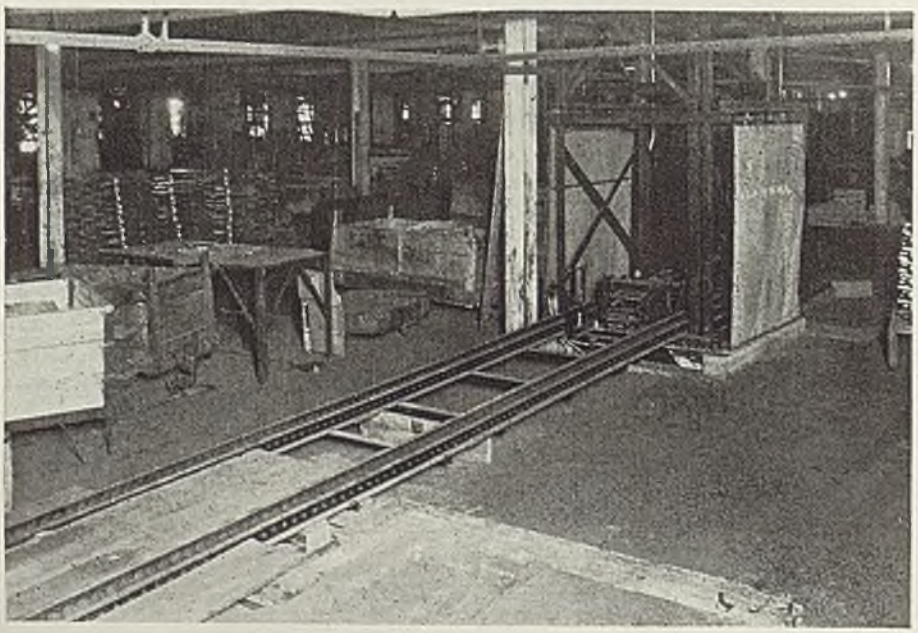


This vertical conveyor is used to transfer loaded skids from the lower floor to the upper floor. Operation is automatic, including the loading of skids on the conveyor on the first floor and unloading them on the second floor



Skid loads of material on the first floor of the plant are loaded on the roller conveyor by electric or hand floor trucks. These skids then are automatically elevated to the second floor by the vertical conveyor and discharged on another roller conveyor

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Molybdenum-Tungsten High Speed Steel

A balanced alloy of four powerful elements challenges all comparable high speed steels for the banner of quality. Year after year of ever broadening acceptance and use shows that Molybdenum-Tungsten high speed steel is the best answer to the most severe production requirements.

It is commercially established.
Mill stocks are ample.
Thousands of tons of it have been made and used.
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Think how much its superior performance can save you!

Leading steel companies in North America and Europe are now licensed to make MO-MAX. A booklet giving the essential data may be obtained by addressing The Cleveland Twist Drill Company, Cleveland, Ohio.

SHIFT TO MO-MAX FOR QUALITY AND QUANTITY PRODUCTION

*MO-MAX is a proprietary name owned and controlled by The Cleveland Twist Drill Company and its only licensed use by others is on steel made and sold by licensees under U. S. Patent Nos. 1,937,334; 1,998,953; 1,998,954; 1,998,955; 1,998,956; 1,998,957; and Canadian Patent Nos. 346,506; 364,032 and 364,033.

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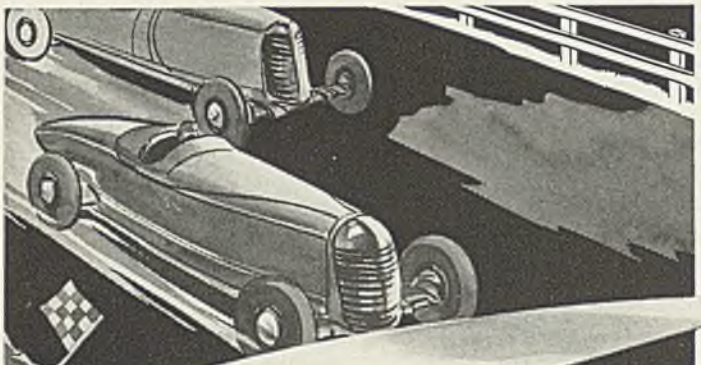

LOOKS "GOOD AT THE FINISH"

ENTRANTS in any contest of performance all look good at the start.

As the contest progresses—some fall by the wayside not having what it takes to remain long in the race. Some products are like that too.

In the desire to capture the approval of the buyer and to sell him a product that will not only stay in the race of performance, but that will also look good at the finish—use SUPERIOR STAINLESS STEEL. It's an endurance winner!

Superior also produces hot and cold rolled carbon strip steel. With nearly 50 years experience and a recently augmented organization make this strip the best obtainable.

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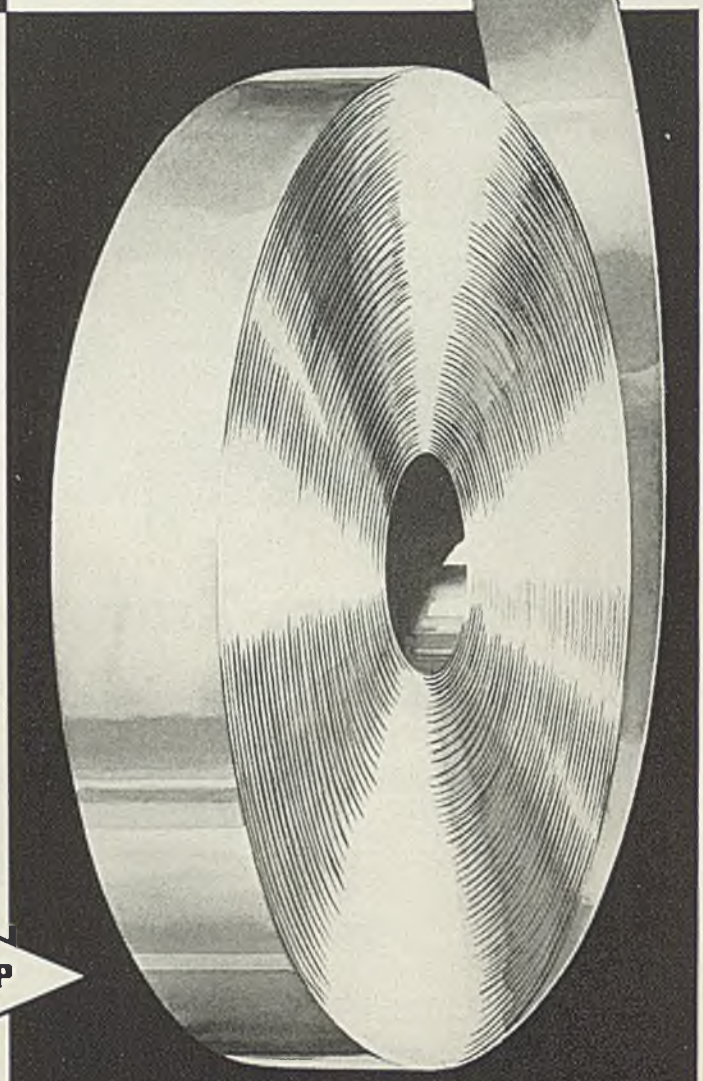

Superior STAINLESS STRIP Steels

SUPERIOR STEEL CORPORATION

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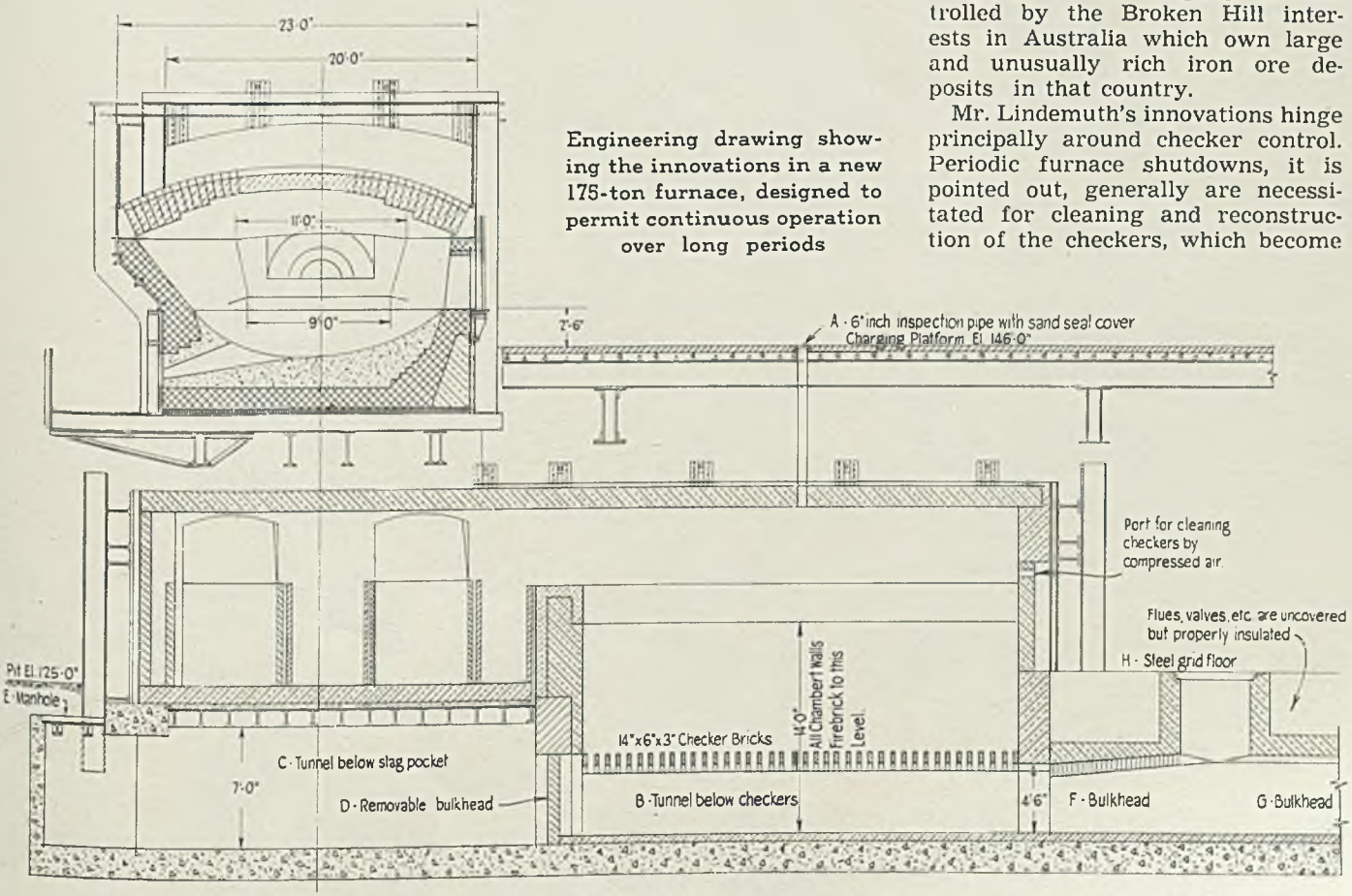
PROGRESS IN STEELMAKING

Innovations in Open Hearth Design Permit Continuous Operation

■ SEVERAL innovations in open hearth design have been incorporated in a new 170 ton furnace constructed for the Australian Iron & Steel Co., Port Kembla, New South Wales, Australia, by Lewis B. Lindemuth, American metallurgist. These departures from conventional practice permit continuous furnace operation for periods of as long as four to five years, according to Mr. Lindemuth, who is developing steelmaking facilities for the Australian company. This company is controlled by the Broken Hill interests in Australia which own large and unusually rich iron ore deposits in that country.

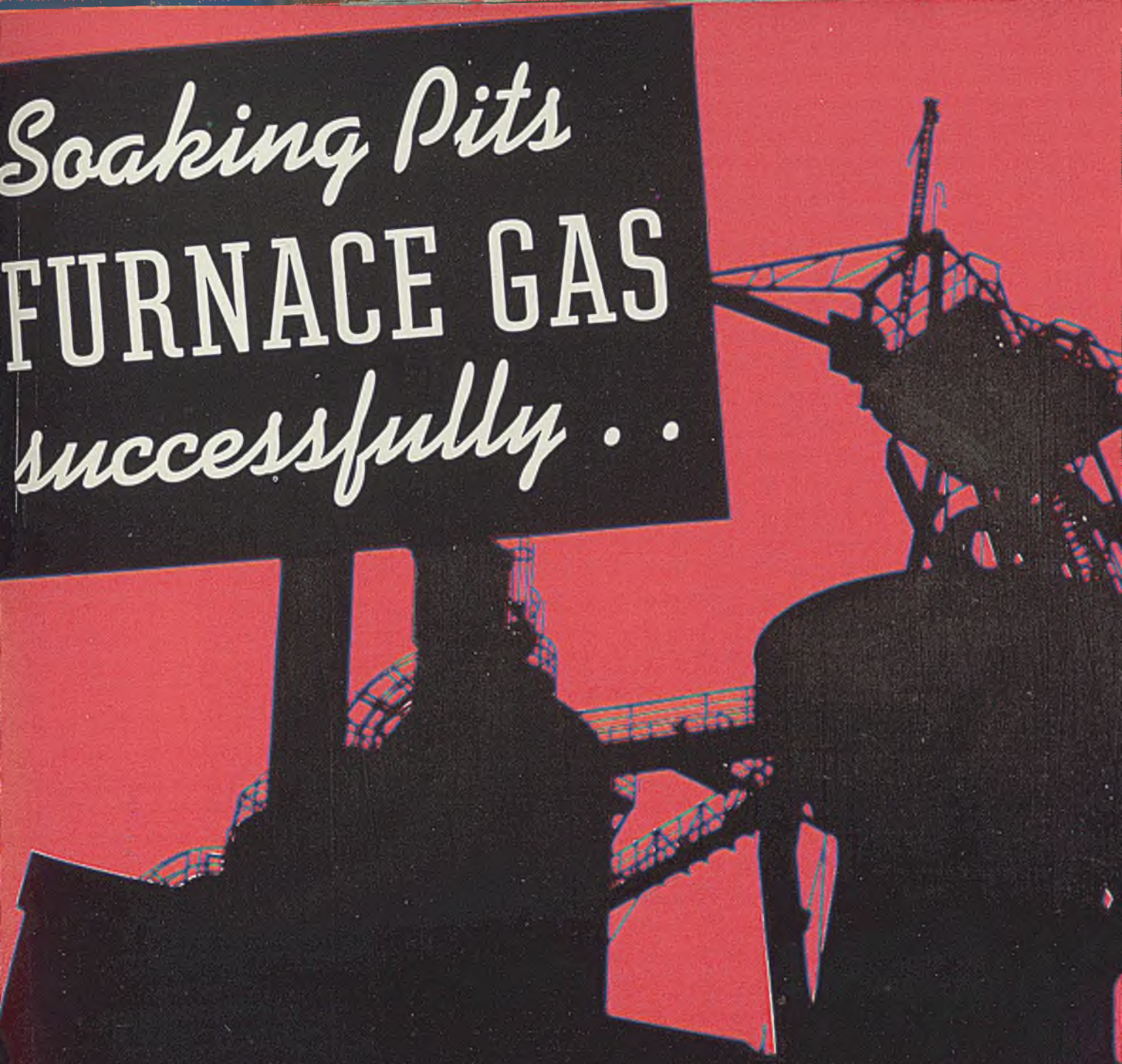
Mr. Lindemuth's innovations hinge principally around checker control. Periodic furnace shutdowns, it is pointed out, generally are necessitated for cleaning and reconstruction of the checkers, which become



Engineering drawing showing the innovations in a new 175-ton furnace, designed to permit continuous operation over long periods


For Firing
STRAIGHT BLAST
is now being used

Soaking Pits FURNACE GAS *successfully . .*



• Heating cold ingots is accomplished just as fast with *straight blast furnace gas* in the one-way fired pit as with straight coke oven gas in conventional reversing pits. Let SC engineers tell you how you can utilize *straight blast furnace gas* with all the advantages of automatic control of temperature, pressure and atmosphere.

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SURFACE COMBUSTION

Builders of... ONE WAY FIRED SOAKING PITS, BILLET HEATERS, PACK OR PAIR, ANNEALING, CONTROLLED ATMOSPHERE FURNACES, NORMALIZERS

clogged with the products of combustion. In present practice, shutdowns usually are necessary after a period of approximately six months of continuous operation. Of course, if the furnace may be operated without cessation for as long as four to five years, the resulting economies are immediately apparent. The length of furnace roof life determines the period of continuous operation.

One of the innovations comprises the installation of a stainless steel tube, six inches in diameter, through the charging room floor so that the furnace operator visually can determine the temperature of the checkers below. This tube is designated A in the accompanying illustration. The tube has a steel cover which sits in a sand seal so that it may be lifted readily by the operator for inspections as frequently as desired.

It has been found that by limiting the temperature of the checkers to 2100 to 2200 degrees Fahr., and by using high quality brick, the accumulations from the products of combustion will not become congealed on top of the checkers and can be blown off clean with air pressure of 60 to 100 pounds, the latter pressure being most effective. The top of the checkers is made accessible by a port through the checker chamber wall. The compressed air hose nozzle, incidentally, should be shaped somewhat like vacuum cleaner accessory for greatest facility of operation.

Tunnel Below Slag Pit

While cleaning of the tops of the checkers thus is cared for, additional facilities must be provided for removing the accumulations in the tunnel, B, which leads to the stack. This has been done by constructing a tunnel, C, below the slag pit which leads up to the end of the tunnel underneath the checkers. The two tunnels are separated by a brick bulkhead, D, which may be easily removed.

It will be noted that the roof of this second tunnel is constructed with I-beams. Access to the tunnel is gained through a manhole opening, E, on the pit side of the furnace and about two feet below the floor level of the pit. Thus the manhole cover, constructed with I-beams covered with steel plate, ordinarily is amply protected for shocks by the two feet of earth should a ladle drop accidentally.

The cleaning operation is performed simply by descending through the manhole into the tunnel below the slag pit and removing the bulkhead which separates it from the section below the checkers. The waste material in the latter is raked out and removed through the manhole opening. When the manhole cover and the bulkhead have been removed, cool air is drawn through by the stack, thus protecting the man performing the cleaning operation.

To further facilitate cleaning two additional bulkheads have been constructed in the sides of the tunnel in approximately the positions marked F and G in the illustration. In this connection it is pointed out that the conventional type of earthen cellar floor, H, has been replaced with a steel grid floor which eliminates the necessity for manholes. All flues, valves, etc., are uncovered, but properly insulated, and therefore are readily accessible for possible repairs or adjustments.

Revise Manual of Refractory Practice

■ Covering every phase of the subject of industrial furnace refractories, the second edition of "Modern Refractory Practice" has recently been released by Harbison-Walker Refractories Co., Pittsburgh. This publication is a service handbook, an up-to-date technical review, and a catalog combined in a single volume. While it follows the general lines of the first edition, published in 1929, the book has been completely rewritten, and increased in size from 180 to 296 pages.

Sixteen full-page furnace drawings have been prepared on the basis of current industrial practice in cooperation with engineers specializing in furnace design. These drawings show in detail the standard types of refractories used at every point as well as alternative types used to meet special conditions of operation. A discussion of the particular problems encountered in the use of refractories in each type of furnace is also included.

One chapter is devoted to suggestions of a practical nature regarding the selection, care and use of refractories, including ordering and handling brick, bonding methods, the best ways to provide for thermal expansion, arch construction, design and placement of skewbacks, and factors affecting service life. Another new chapter, "Refractories and Their Properties", gives basic technical data on the composition, structure, and properties of refractories as affected by furnace temperatures, furnace gases and slags. A glossary and a selected list of minerals and rocks of significance to those concerned with refractories is unusually complete.

A new arrangement of formulas for calculating brickwork permits simple application by practical operating men, while at the same time offering a more fundamental approach for engineers who wish to use it. The tables showing combinations of brick required to turn circles call for much less interpolation than in the past, as the diameters are given in one-inch intervals within the range of dimensions commonly employed. Tables for combinations of brick required to form arches of various spans and rises have been expanded and improved.

Provides Means of Escape

■ Lifelines always are available for men working on cranes or crane runways at a steel plant in the Chicago district. The sheet steel box in which the life line is stored is made waterproof by a protective strip positioned along the opening between the lid and the box. Holes are drilled in the bottom of the box to drain out any water in the event the lid is open while it is raining.

New Treatise on Roll Pass Design Is Now Available

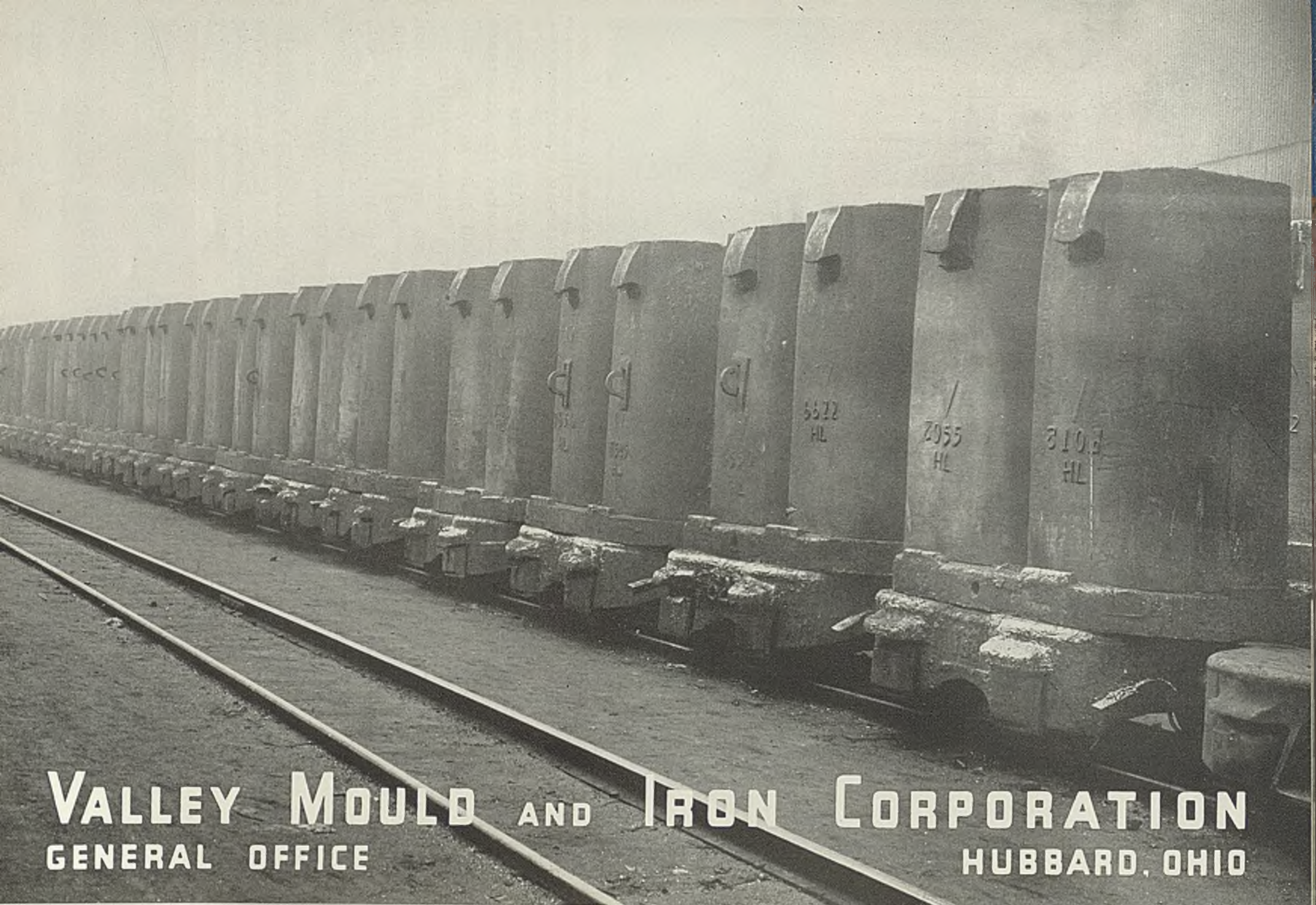
■ *Supplement to Roll Pass Design* (Vols. I and II), by W. Trinks; 88 pages, 6 x 9 inches; 63 illustrations and 3 tables; published by the Penton Publishing Co., Cleveland; supplied by STEEL, Cleveland, for $1.50; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

Considerable progress has been made in the past few years in the design of rolls and roll passes. New methods have been developed, information on old methods long withheld has been brought into the open, and as a result laws governing plastic deformation are better understood by those engaged in the rolling industry.

Manuscripts for Roll Pass Design, Vols. I and II, were written in 1930 and revised three years later. Since then so much new information has been brought to light that a new edition became necessary.

Almost all the material contained in the two volumes, however, is just as practical under present-day practice as when first written, and it did not appear fair that roll designers should be obliged to purchase new books containing the same textual matter plus additional new information. Hence, the present supplementary volume was written by the author.

The new work by itself is a collection of disconnected information on roll pass design. It is useful only in conjunction with the text contained in Vols. I and II and refers, where possible, to the pages which are supplemented by the new material.



VALLEY MOULD AND IRON CORPORATION

GENERAL OFFICE

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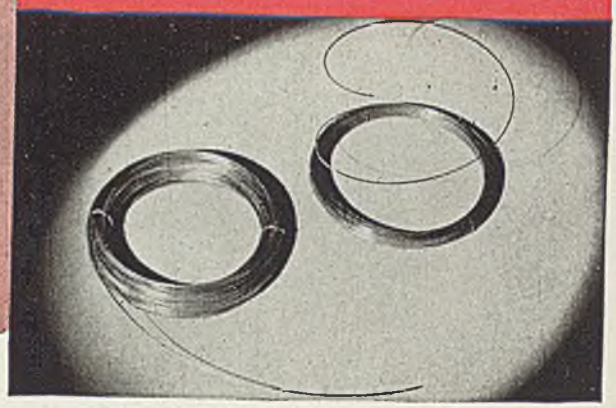
PROPER CAST MAKES WIRE WORKABLE



Wild wire spreads upward. Wire straightened-in-coil is without this tendency and will tend to straighten in the plane of the bundle when freed.

11th in a series of advertisements designed to help you make a better selection of wire for maximum value per unit of cost.

ONE of the most frequently occurring and troublesome defects of wire and one that is often unrecognized, is improper cast *(wild wire)*. Properly killed round wire may be spread in coils (see illustration above) without any of the loops showing a tendency to rise from the horizontal plane. With proper cast wire, the spring maker can produce his finished products of uniform diameter and length. Wire fabricators find that cut lengths of crimped wires will lie flat, wire forms are true to shape . . . cast makes the difference between easy and hard working wire. In the Wickwire Spencer Mills cast is recognized as an important physical property. Every care is exercised that the dies are kept in alignment with drawing blocks. Thus the primary cause of improper cast is eliminated.

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

WISSCO WIRE
by Wickwire Spencer

Welding Processes Gain Ground in Shipbuilding and Railroad Fields

■ Progress of welding in the shipbuilding and railroad fields, and in the handling of alloy steels commanded the attention of members of the American Welding society at the three closing sessions of their eighteenth annual meeting in Atlantic City, N. J., Oct. 18-22, during the National Metal congress. The session on alloy steels dealt with both high and low alloy materials and took the form of a symposium.

The rapid strides made by welding in the shipbuilding industry were brought out forcibly at the session devoted to shipbuilding. According to American Bureau of Shipping figures, 66 of the 120 vessels under construction in this country are all-welded. Welding likewise plays a major role in the construction of the other 54 vessels.

T. M. Jackson, electrical and welding engineer, Sun Shipbuilding & Drydock Co., Philadelphia, described the methods of welding and assembly employed by his company in the construction of tankers. Complete sections are welded with automatic equipment in the shop and then assembled in place on the ways with portable equipment. Approximately 65 per cent of total welding is done on automatic equipment in the shop and includes such sections as longitudinal and transverse bulkheads, bottom, deck and side shells.

Barge Building Mechanized

George F. Wolfe, Dravo Corp., Pittsburgh, told about the assembly-line method of constructing steel river barges when the company went to completely-welded construction at its Neville Island plant. Various units are fabricated in as large sections as can be handled conveniently. These then are assembled on a special fitting table. Sides of the barge consist of box sections 30 feet long, 10 feet deep, 3 feet wide, weighing 10 tons each.

Lieut. Commander W. P. Roop, United States navy, said that no straight line production is employed by the navy department since no two jobs are exactly the same. Although treaty restrictions have been removed, naval vessels still must be built within definite weight limits, he said. The principal problem involved is in determining proper strength and the solution of this is difficult due to the fact that it is impossible to obtain real technical data. Even where a ship fails in service, naval inquiries develop little information of value because of the personal factor. Some progress has been made by the Germans in collecting data, he said, by carefully studying the behavior of vessels in service.

The discussions which followed these papers drew attention to the fact that there is a strong tendency toward use of automatic equipment where practicable. The Dravo Corp., for instance, has just purchased such equipment for use in its Neville Island plant. It also was concluded welding results in reduction in maintenance costs and a decided saving in weight which far offsets any possible increase in cost. The tendency likewise was noted toward use of more welding in larger vessels where, in most instances, hulls still are riveted.

Welded Cars Stand Up

Railroad cars of the future will be assembled largely by gas, arc and spot welding, V. R. Willoughby, American Car & Foundry Co., New York, declared at the final session of the American Welding society devoted to welding in the railroad field. Cars built by welding have performed with entire satisfaction since 1930, the speaker declared.

Skillful designers make use of various advantages of welding. For example, the free discharge of cement from hopper cars practically requires the smooth interiors made possible by welding. Alloy steel and aluminum cars as well as tank cars for liquified gases also have been welded with entire success, the speaker stated.

In passenger cars, the two main factors mentioned by Mr. Willoughby were appearance and weight. In the Zephyrs and Budd-Michelin stainless steel self-propelled rail cars, both appearance and light weight are achieved by use of spot welding in the car itself and of arc or gas welding in the frame.

I. T. Bennett, Revere Copper & Brass Inc., Rome, N. Y., described the building up of locomotive driving boxes. Weld metal can be deposited on a part wherever it is desired to build up, or to increase the dimensions of the box, he explained.

The locomotive driving box has a metal lining which accommodates the large driving wheels during occasional misalignment, as in rounding a curve. In the past it was customary to cast bronze on the face of the driving box to produce the lining. These cast bronzes were a source of continual trouble, and welding now is employed to produce a built-up lining of great wearing qualities.

Performance of the arc welded linings can be judged by the interval between repairs. The old-style cast linings, the speaker stated, required renewal every 30,000 miles or so, whereas the built-up linings have a life of up to 120,000 miles. Although the driving box lining is only one of a great number of locomotive parts, nearly $100 per locomotive is saved by use of built-up welding linings. The locomotive repair shops have demonstrated similar savings by application of welding to many other locomotive parts.

How Lining Is Deposited

New boxes are lined in about 40 minutes, he explained. The welder simply deposits as many layers of bronze as necessary on the iron driving box. The bronze is supplied by an electrode made of 96 per cent copper, 3.5 per cent silicon and 0.5 per cent tin. The electrode is ½-inch round and is covered with a fluxing material which protects the bronze from burning as it melts from the electrode in the iron driving box under the influence of a welding current of 650 amperes. The molten bronze alloys with the iron to some extent and is firmly bonded.

H. Bass, welding supervisor, New York Central railroad, Cleveland, discussed machine gas cutting in the centralized blacksmith, boiler and machine shops which have re-

placed the smaller repair shops in the maintenance of a railroad's large amount of locomotives, rolling stock, rails and auxiliary equipment.

The gas cutting torch is a large factor in making repair parts of standard dimensions and on a production schedule, Mr. Bass contended. It cuts through steel of any thickness, he explained, by heating the steel to a red heat by an oxy-acetylene flame, followed by igniting the red hot steel with a stream of oxygen. The oxygen literally burns the steel in the line of the cut.

Apply intelligent welding practice and follow the same principles as in the welding of carbon steels, declared A. B. Kinzel, chief metallurgist, Union Carbide & Carbon Research Laboratory Inc., New York, in opening the symposium on the welding of low-alloy steels. Apply similar standards and tests as a measure of the results, he said.

It should be realized that after all welding low-alloy steels is a small step beyond welding plain carbon steels and that welding, therefore, can be adopted to such steels in the same manner and in the same degree, Mr. Kinzel said further.

No Difficulty in Welding

The speaker pointed out that any one of the great variety of low-alloy steels available is suitable for welded construction. Steels in which the carbon is kept below 0.15 per cent and ultimate strength below 80,000 pounds per square inch are classified as practically foolproof. Those having higher carbon content and ultimate strength not above 95,000 pounds per square inch likewise may be welded with complete satisfaction, provided stress relieving is applied.

At the same session, G. S. Mikhalapov, welding engineer, Heintz Mfg. Co., Philadelphia, said that low-alloy steels are by no means less suited for welded construction than mild carbon steel but that a different design technique must be followed. In other words, he said, spot welding in alloy-steel structures must cease to be a haphazard hit-or-miss proposition and become an exact and accurate science.

Mr. Mikhalapov said that alloy steels by virtue of their comparatively high electrical resistance and low thermal conductivity are much more sensitive than carbon steel and require a much stricter adherence to welding rules if satisfactory results are to be obtained. Low-alloy steels always will have a stronger tendency to form gas pockets due to their considerably lower heat conductivity. This may be overcome by limiting welding temperatures, which usually is not practicable, or by preventing expansion through increasing the welding pressure. Mild carbon steels require pressures up to 500 pounds but in welding alloy steels pressures ranging from 50 to 100 per cent higher are required, he explained.

So much data is available on stainless steels that handling them involves little or no difficulty for fabricators, said J. C. Holmberg, chief metallurgist, Struthers Wells-Titusville Corp., Titusville, Pa., in discussing stainless steels as applied to pressure vessels. The phenomenal growth in the use of stainless is clearly demonstrated by the vast tonnage now used in pressure vessels alone, he said. He described a number of vessels built by his company for use in a large number of industries such as food, textiles, papers, chemical, etc.

The carbide precipitation problem in welding high-alloy steels such as 18-8 can be solved by cutting down the carbon content to 0.07 or 0.08 per cent, declared V. W. Whitmer, Republic Steel Corp., Cleveland, in discussing welding of stainless steels. While alloys of the chromium-nickel group make by far the most satisfactory welds from the standpoint of physical tests, he explained, they sometimes exhibit a tendency toward weld decay under certain conditions.

In making a weld, the metal deposited and the joint itself are heated to about 2690 degrees Fahr. but there is a zone parallel to and near the weld which will be heated to between 1000 and 1500 degrees Fahr., the speaker pointed out. Where the steel contains over 0.08 per cent carbon, carbides will be precipitated in this area which renders it more susceptible to corrosion than the parent metal. This carbide can be placed back in solution by heating to a temperature of 1900 degrees Fahr. or higher and cooling rapidly through the critical range.

Stabilizing Elements Help

Reducing carbon content below 0.07 per cent practically will eliminate precipitation of carbides during the period of welding, Mr. Whitmer said, but it will not necessarily stop such condition in equipment operating continuously between 1000 and 1500 degrees Fahr. Addition of such alloys as columbium, titanium or molybdenum, however, will reduce this tendency still further.

In discussion, it was pointed out that as long as more money is spent for low-alloy steels, more care should be taken in making welds and the welder should go to the trouble of determining the exact technique required for each alloy. It also was stated that welding of low-alloy steels often is for the purpose of cutting down weight and stresses therefore are important.

It was brought out that welding is an exact metallurgical process involving casting and hardening requiring trained men, as in any other industry. Too often, perfect work is expected from an operator with little or no training. Another excellent point brought out was the fact that most of the larger shops are well aware of the problems involved in welding alloy steels but that many of smaller ones still employ somewhat haphazard methods.

Foundrymen of Midwest Discuss Their Problems

(*Concluded from Page* 54)

price is considered. He claimed that molybdenum improves all of the properties in the iron, and presented slides showing the effect on increasing chill, tensile strength, transverse strength, deflection, brinell hardness, structure, wear resistance and heat resistance.

Referring to remarks of Mr. McElwee, Mr. Crosby stated several materials can be used to change acicular pearlite or Bainite to lamellar pearlite. In his experience, maximum toughness is secured in an iron having acicular pearlite or Bainite structure.

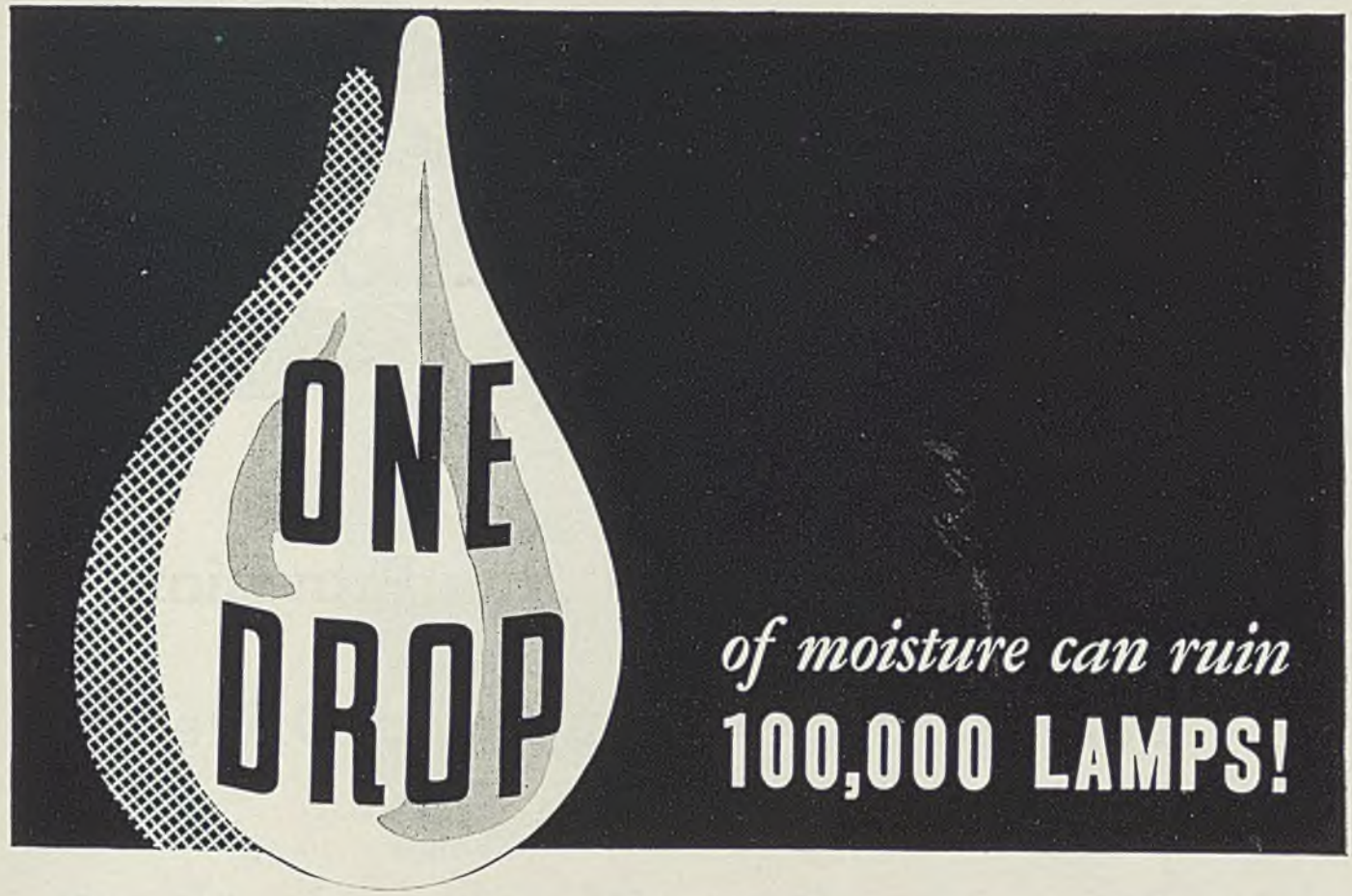
Many Compositions Obtainable

Don J. Reese, International Nickel Co., Bayonne, N. J., substituting for Fred J. Walls, same company, stressed the fact that through use of alloys and the normal alloying materials found in cast iron, perhaps a million different materials may be produced, all under the gray iron classification. The foundry is limited in the number of alloys produced by the materials available, and by the variations in practice.

Through slides, Mr. Reese showed how the grain of the iron may be closed by the addition of nickel. From ½ to 2½ per cent addition is considered normal. Irons with 4½ or more per cent nickel are used for wear resistance. Corrosion and heat resistance irons are produced with from 14 to 16 per cent nickel. Nickel decreases the tendency to chill, and for that reason some foundrymen are using the element simply to decrease casting problems. Nickel also improves machinability.

Wiley B. Rutledge, dean of the law school, University of Iowa, was the principal speaker at the dinner, directing his attention to the engineer or technical man and the lawyer. He stressed the point that the legal profession needs men with training, both engineering and law.

H. Bornstein and R. E. Kennedy, president and technical secretary, respectively, American Foundrymen's association, spoke on the many services which the association renders to the foundry industry.



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It takes only 1/100,000 of a drop of water inside a lamp to blacken it—a single drop can cut the efficiency of one hundred thousand lamps! No wonder, then, that Westinghouse takes unusual precautions to guard against moisture—the gas pumped into every bulb is processed to remove every trace of it, and the glass bulb itself is heat-treated to drive out whatever small amount of moisture there might be on its surface.

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Lamps differ in quality. Inefficient lamps waste current and increase the cost of light. Our free booklet, *"How to Judge a Lamp"*, tells the important points to consider when buying lamps. Send for it today. Westinghouse Lamp Div., Westinghouse Elec. & Mfg. Co., 150 Broadway, New York, N. Y.

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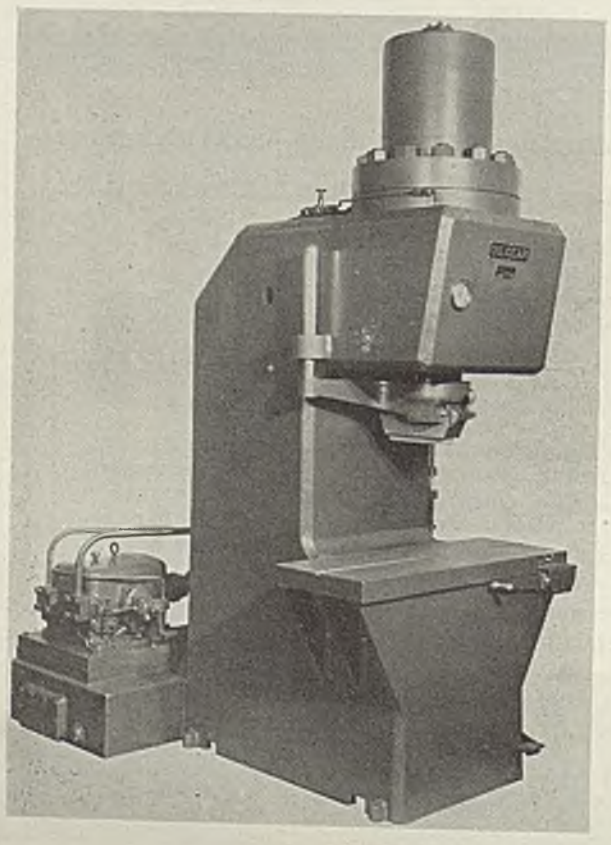
POWER DRIVES

Welded Steel Press Has Provision For Changing Pump and Drive

■ Two interesting features of the 200-ton gooseneck type straightening press shown in an accompanying illustration, are the all-steel, welded construction and the provision for changing the fluid power pump and motor drive when greater speed and production may be required.

This press is used for straightening front axle I-beams for heavy trucks and busses in a plant in the Detroit area. Nine other smaller straightening presses of similar make are also employed in this plant.

Since, in many cases, machines intended for a particular task and production may become obsolete with changes in requirements this plan of making provisions for probable future needs has wide applications.

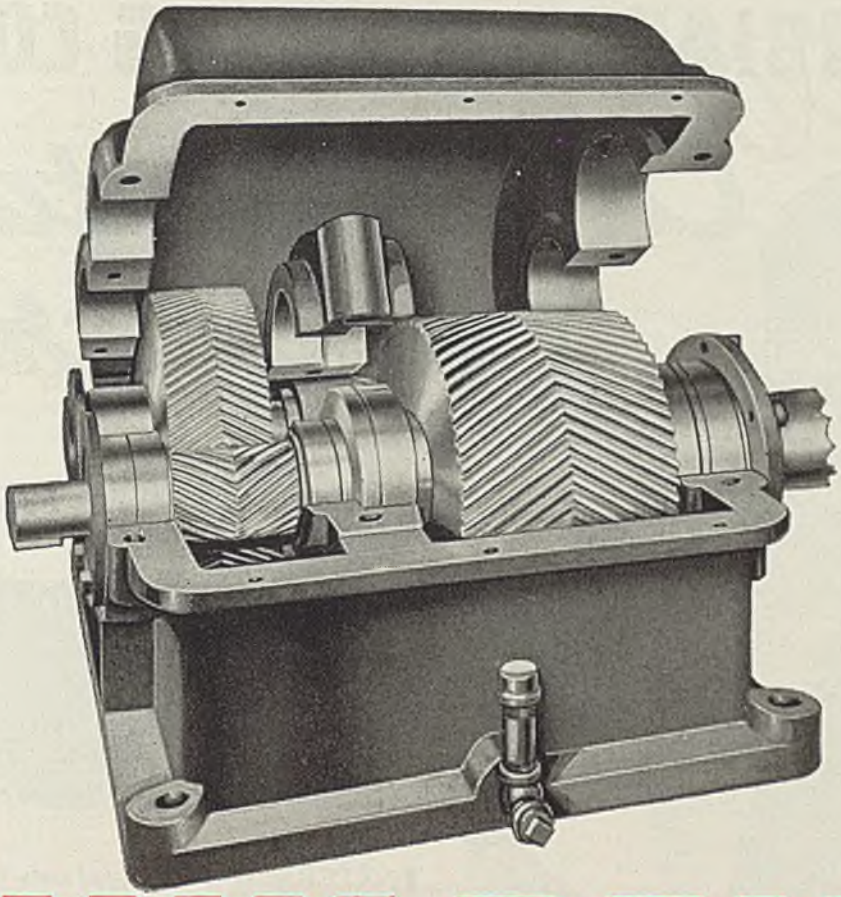


This all-steel, welded 200-ton, fluid power, straightening press has the provision for increasing size of pump and motor for changed production requirements. Photo courtesy Oilgear Co., Milwaukee

The press frame and motor mounting are of all-steel, welded construction from plates welded together into a single unit and normalized. Plates up to 3 inches in thickness are used in parts of the frame. The frame alone weighs 12,800 pounds and required the use of over 1100 pounds of welding rod in its fabrication. Frames of this size would weigh more if made of cast iron and require an expensive pattern which, because of the special nature of such machines, necessitating different dimensions in throat opening, might not be usable on any other unit without making extensive changes. The press complete, as shown, weighs about 19,000 pounds, is 120 inches high and occupies a floor space 72 x 88 inches.

Careful tests after completion indicated a maximum deflection of only 0.025-inch at full tonnage on the centerline of the ram. The 9½-inch ram, which is fitted with a sliding ram nose, has a 12-inch stroke and is accurately guided in the long yoke liner bushing. The flanged, bottle-type cylinder is fitted with a 13½-inch ring-type piston.

Fluid pressure at 2500 pounds per square inch is supplied by an Oilgear,



LINK-BELT

HERRINGBONE GEAR REDUCER

• Precision built and engineered — dependable, silent, durable — the Link-Belt Herringbone Gear Reducer is a worthy member of the Link-Belt positive drive group, which includes also reducers of the Worm and Motorized Helical Gear types, Silent and Roller Chain Drives, and Variable Speed Transmissions.

It is fully enclosed, compact, self-contained — built in a variety of sizes in single, double and triple reductions, in a large range of ratios and horse powers. Ability to withstand shock loads and conservation of space are outstanding qualities of this unit.

Link-Belt Company, Philadelphia, Chicago, Indianapolis, Atlanta, San Francisco and Toronto. Offices in principal cities.

Send for these Books

Herringbone Gear Reducer Book No. 1519.

Motorized Helical Gear Reducer Book No. 1515.

Worm Gear Reducer Book No. 1524.

FOR UNBIASED BEARING COUNSEL

Call a Bantam Engineer!

EXPERIENCE clearly shows that any one particular type of bearing cannot be used with equal effectiveness on all applications.

To get the maximum efficiency from the many and varied machines used in industry, there is need for several types of bearings—Tapered Roller, Straight Roller and Ball. For that reason Bantam makes each type.

When you call in a Bantam engineer to discuss your problem he has the advantage of being able to recommend the bearing which will *best* serve your requirements!

For unbiased bearing counsel call Bantam.

BANTAM BEARINGS CORPORATION
South Bend, Indiana
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THE TORRINGTON COMPANY
Torrington, Conn.

BANTAM BEARINGS

TAPERED ROLLER • • • STRAIGHT ROLLER • • • BALL BEARINGS

two-way, variable delivery pump driven by a 15-horsepower, direct-connected motor operating at 1200 revolutions per minute. The pump and motor are mounted on the oil reservoir which is welded to the frame, making a single compact unit.

The ram has a down speed of 24 inches per minute. By removing a special space plate on the base, a larger pump and 25-horsepower motor may be installed to provide a down speed of 38 inches per minute and a return speed of 76 inches per minute at the same pressure. This change will be made when and if changes in production should require increased speed of operation. In the meantime operation is at the increased economy of the smaller unit.

Control is by hydraulic motor operated by foot or hand lever which provides rapid acceleration and controlled follow-up or reversal of pump displacement. Depressing the hand lever or foot pedal causes the ram to move down at a speed proportionate to the amount of movement of the control. Thus, any speed up to maximum is obtained at will.

For straightening operations, the smooth ram movement with sensitive, instant control enables the operator to bring the ram in contact with work without impact and to deflect the piece the desired amount without over-running. The ram motion is always under the instant control of the operator, regardless of resistance met by ram.

The press control is spring-loaded, so releasing hand lever or foot pedal reverses ram motion at any speed desired up to maximum. The operator can start, stop or reverse the press instantly whenever desired and control its speed in relation to the movement of his hand or foot.

Contamination by User

■ So many factors enter into satisfactory use of lubricants and other petroleum products that sometimes one wonders that they serve as well as they do.

For example, a lubricant must be made for a particular type of service requirement, it must be applied properly to a suitable bearing operating under the conditions for which the lubricant and bearing are intended, and it must be stored and handled to avoid contamination and deterioration from the time it is made until used in the bearing.

The lubricant manufacturer has no control, except advisory, over any of these points after the product leaves his hands. However, the lubricants are frequently blamed for bearing troubles in operation.

Manufacturers of lubricants go to great expense in ferreting out the causes and making recommendations for overcoming lubrication troubles, even though most of the difficulties are not their fault. Laboratory tests and the expense of field investigations amount to considerable each year, but the more established producers feel the cost justified.

Some of the difficulties encountered in determining the cause of trouble are related in the October issue of *Esso Oilways*. For example one user claimed that in an alleged industrial lubricant the oil solidified rapidly, causing machine parts to stick.

On examination, the sample was found to be extremely hard and gummy. However, none of the usual petroleum solvents dissolved the substance. Finally, ordinary hot water was tried and dissolved the sample quickly. With a liquid that could be analyzed, the chemists went to work. As a result they determined the alleged lubricant contained glue, a product used in the complainant's manufacturing process.

In another case a black, rubber-like material was submitted. Tests showed no rubber present but that the sample was oxidized material, probably linseed oil. A mass of decomposed grasshoppers was found in the bottom of another sample returned because of the offensive odor.

The article also stated that in many cases where samples are submitted to the laboratory for inspection and analysis, the sender unwittingly contaminates the product, which makes it more difficult to determine the true cause of complaint. Samples sent in whiskey bottles, mayonnaise jars, or other containers which have not been thoroughly cleaned, add ingredients that interfere with the analysis.

These are only a few of the many cases of contamination of the product by the recipient after it gets on his premises. A supposedly-empty glue or linseed oil barrel may seem to be a convenient storage container, but neither adulterant aids in lubrication. Dirty or open containers are also a prolific cause of bearing trouble. In many plants an open pail of grease is found exposed to the dusts and abrasives in the atmosphere created by the shop processes. Neither cast iron nor grinding wheel dusts have any lubricating value, and can do much damage to a bearing.

With the modern sealed storage and dispensing equipment available for handling lubricants in the plant and with care exercised in the transfer from storage to the bearings, there should be little reason for contaminating the lubricant.

Lubricating Large Motor

■ Dual provision for lubrication has been built into new motors said to be the largest of the squirrel-cage ever manufactured.

These motors are of the 2-pole type and rated 1750 horsepower at 3600 revolutions per minute. They are designed for reliability and continuity of service in high-pressure boiler-feed pumps.

Bearings are oil lubricated under pressure by a positive feed pump driven by the motor shaft through special gears. Oil rings supply oil at time of starting and in case of failure of oil or water supply. A water cooling coil in the oil tank keeps the oil at the proper temperature. Flow indicators are provided in both oil and water supply lines to give an alarm in case of failure of either.

Where bearings operate at high speed, assurance of lubrication, until the drive may be shut down in case of failure of positive oil feed, is necessary to prevent serious damage to the bearings. These motors were manufactured by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

♦

In the lubrication of antifriction bearings be sure that the lubricant does not contain fibrous material, talc or filler, which are nonlubricating materials, as the presence of these ingregients is injurious to such bearings. Another important point is to select a lubricant that will maintain the required consistency throughout the temperature range in which bearing normally operates

♦ ♦ ♦

Main Street Reflects Modern Developments

■ "What Makes Main Street?" is the question put by a book recently issued by R. K. Le Blond Machine Co., Cincinnati. According to the book, Main street today represents the developments of the past fifty years. Home, business, recreation all take their keynote from what is offered by Main street.

In order to parallel a fifty-year development, the Le Blond company conceived and styled the book to commemorate the company's years of service to industry. The book itself is an attempt to provide a panoramic presentation of a product in factually interesting form. In doing so, the authors have attempted to make the facts less difficult to assimilate. It links the company's product in direct relationship to the "Main street of civilization." This presentation covers the wide range of Le Blond lathes with the individual features of each lathe covered by an illustrated paragraph.

SURFACE TREATMENT AND FINISHING OF METALS

Will Lacquer Displace Tin In the Can Industry?

■ Whenever control of a commodity falls into foreign hands, American consumers usually seek to develop new sources of supply or to discover substitutes. This was the history of the rubber-restriction program of 10 years ago when the attempt was made to maintain prices at artificial levels.

A similar situation appears to be developing with respect to the use of tin. American consumers of the metal—chiefly manufacturers of tin plate, or tin-coated steel—are becoming restive under the firm control wielded by the foreign cartel over the price and supply of tin.

About half of the world consumption of tin is accounted for by the United States, but, as it happens, there are no tin mines in this country or in its possessions. Recently foreign producers agreed among themselves to continue to restrict production until 1941.

Now, many American tin plate makers are seeking to find a substitute coating. Some are using aluminum, others are experimenting with lacquer. Perhaps in the not distant future the idea may prove to be disconcerting to the owners of tin mines from Cornwall to Singapore.

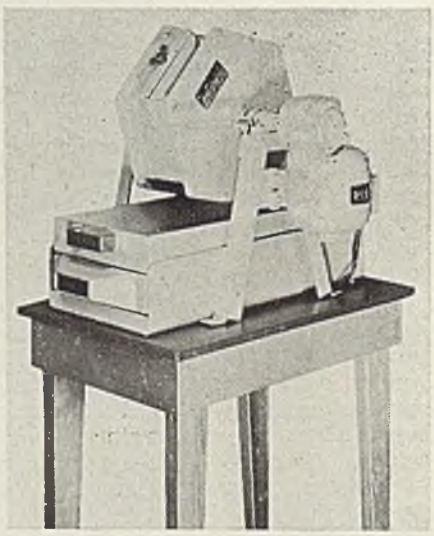
Metal Finishing Subject Of Metal Society Program

■ Fall educational program of Detroit chapter, American Society for Metals, will feature a series of lectures on the subject of "Protective Coatings for Metals." Meetings will be held in the ballroom of Hotel Fort Shelby, Detroit, Mondays, at 8 p.m.

Subject and date of lectures are as follows: Oct. 25—"Graphical Illustrations of the Plating Bath," W. M. Phillips, research laboratory division, General Motors Corp., Detroit. Nov. 1—"Nickel, Copper and Chromium Plating Control and Uses," Prof. E. M. Baker, University of Michigan, Ann Arbor, Mich. Nov. 15—"Cadmium, Zinc and Tin Plating Control and Uses," Gustav Soderburg, The Udylite Co., Detroit. Nov. 29—"Lacquers, Enamels and Paints," J. L. McCloud, Ford Motor Co., Detroit. Dec. 6—"Parkerizing, Bonderizing, Anodizing, Etc.," speaker to be announced.

The first lecture is open to the public while the remainder are limited to members of the American Society for Metals.

Small Lot Burnisher



■ This small lot burnisher, ruggedly designed for continuous hard service, has many applications. It can be used for getting out sample lots on estimates or for production on small jobs. Hotels and restaurants have also found it useful for brightening cutlery. The rubber lined cylinder of this unit is 6 inches wide and 10½ inches in diameter. Work and ball container pans are designed to speed handling and reduce costs. It is a product of the Belke Mfg. Co., Chicago

Heavy Galvanized Sheets Withstand Drawing

■ Research has perfected a revolutionary type galvanized sheet with a heavy coating of commercially pure zinc that will not crack or peel when it is subjected to relatively severe drawing or forming operations, according to an announcement by American Rolling Mill Co., Middletown, O.

The new material, produced in both sheets and coils, is known as Zincgrip and is said to carry from 50 to 75 per cent more protective zinc than tight coat sheets generally used for fabricated products.

Up to now, hot dipped zinc coated coils in sheet widths have not been produced. Armco Zincgrip, from 16 to 28 gage, is made available in any of the basic grades of galvanized iron or steel sheets and strip manufactured by the company.

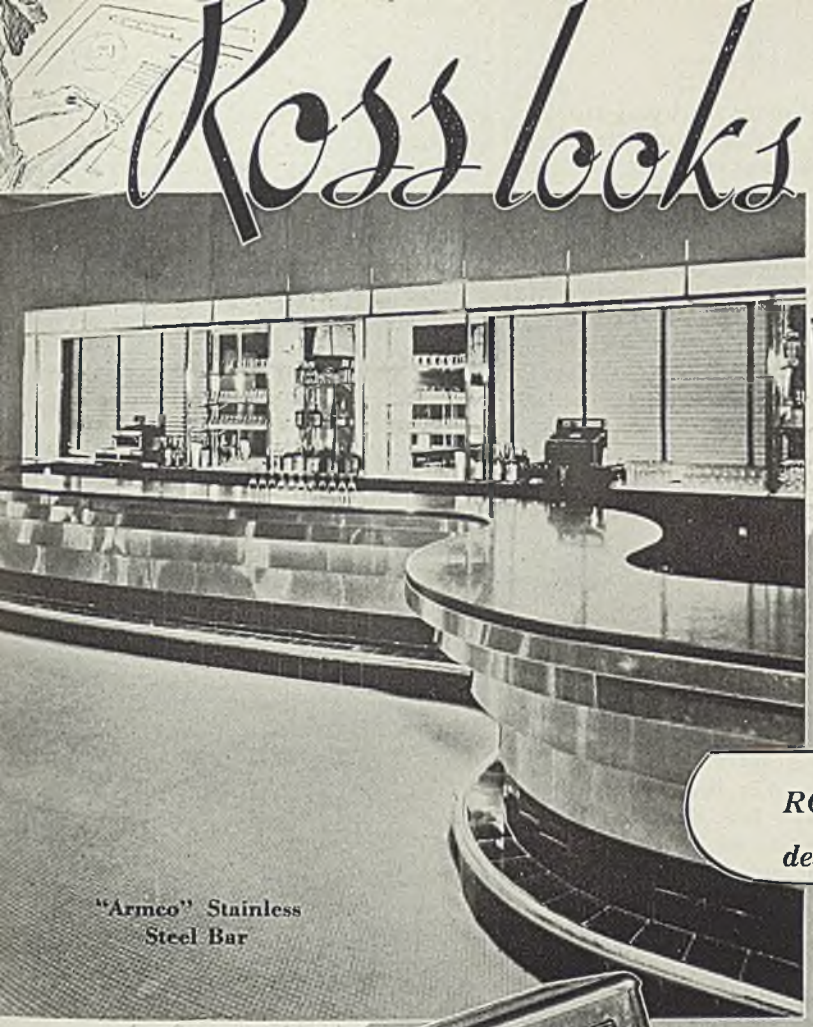
It is an accepted fact that zinc provides an excellent protective coating for iron and steel sheets. Broader use of heavily coated galvanized sheets has been restricted only because relatively severe fabricating operations fractured the zinc coating.

With these new sheets, exceptionally good adherence is obtained irrespective of the weight of the coating, the company's metallurgists say.

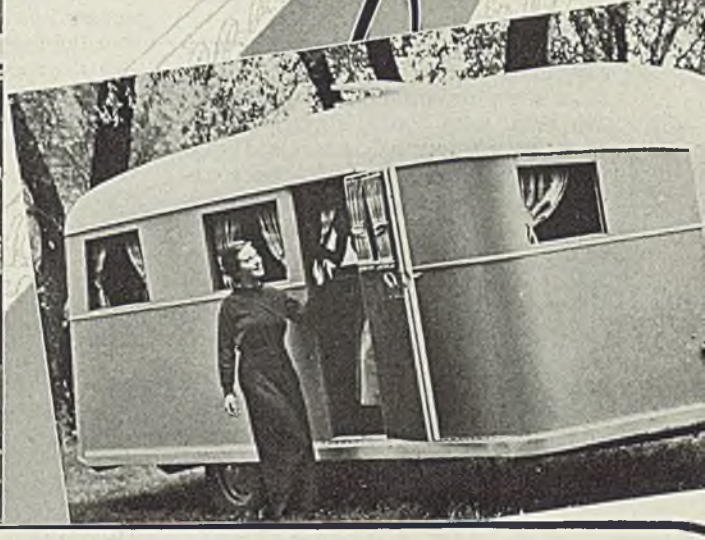
Potential applications are said to open new fields for the use of zinc coated steel. For more than a year, Zincgrip has been used in the production of spiral corrugated lock-seam drainage pipe and has proved entirely satisfactory, according to the manufacturer.

According to extensive experiments made by the company and by

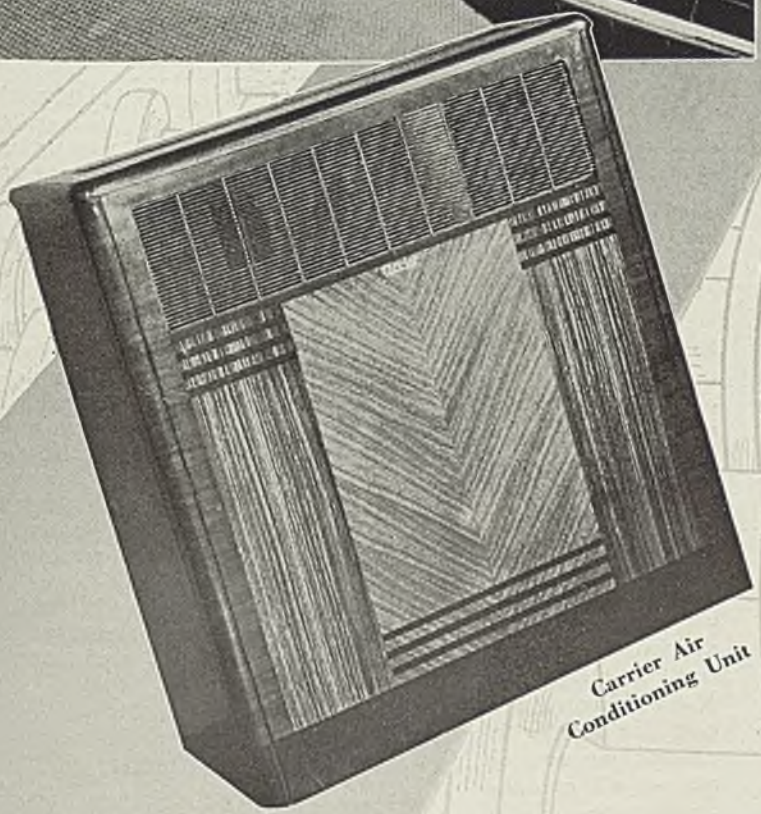
Ross looks to the future



"Armco" Stainless Steel Bar



ROSS looks to the Future in improving today designs of Air Heaters and Ovens for baking protective coatings on steel. . . . .



Carrier Air Conditioning Unit

CONTINUOUS sheets of steel are rolling over cooling tables to be converted into steel prod of the future — prefabricated houses, modernistic i riors and furnishings, streamlined trains, trailers, in trial equipment—all depending upon the science surface treating and finishing to make them thorou practical.

J. O. Ross Engineering Corporation is constantly ai designers and manufacturers of steel products by rec mending and supplying the necessary equipment baking protective coatings on metal.

No other organization is better qualified in experie to render such engineering assistance. Ross Air Hea and Ovens, so widely used throughout the automo industry, providing every conceivable feature to in efficient baking of protective coatings, afford the va ble background for developing future equipment finishing new steel products.

Consult with our engineers, or write for Bulletins No. 122 and No. 123.

J. O. Ross Engineering Corporation

Main Office—350 Madison Avenue, New York

201 North Wells St., CHICAGO, ILL. 12953 Greeley Ave., DETROIT, MICH. 2860 N. W. Front Ave., PORTLAND, ORE.

fabricators, it is well suited for other products such as roof drainage parts, shapes and stampings made by cold drawing and rolling processes, and many other applications.

Tests have been made for a variety of commercial articles, which have been drawn and formed from Zincgrip with only slightly more care than is normally exercised with uncoated sheets. For instance refrigerator water shed pans are being successfully drawn to a depth of five inches, and the coating remains intact.

Zincgrip's highly protective coating and its ability to withstand a heavier draw than has ever before been accomplished with full-weight galvanized sheets makes it attractive for many kinds of fabricated products where resistance to corrosion is desirable.

Primer Dries Dust Free in Five Minutes

■ Synthetic primer for use on metal products that air-dries out of dust in 5 minutes and, therefore, reduces the rejects due to shop dust and dirt, has been developed by Maas and Waldstein Co., Newark, N. J.

This new "speed" primer is suitable for use under air-drying lacquer-enamels or baking synthetic enamels, or as a shop coat. It air-dries, or can be force dried or baked, and is said to give a very flexible schedule ranging from 2 hours at 160 degrees Fahr. to 20 minutes at 275 degrees Fahr. It is claimed to have good adhesion, excellent building and holdout properties and is easily sanded. It is supplied in many colors for either dipping or spraying.

Teaches Electroplating By Correspondence

■ Supplementing his regular night school course in practical electroplating, offered for the past three years at Columbia university, New York, Dr. C. B. F. Young announces a complete course in practical electroplating by correspondence.

The course is divided into two sections. The first deals with inorganic chemistry as it applies to the electroplater and is designed to furnish the fundamental background in chemistry necessary in the study of electroplating. The second section is designed to acquaint the practical electroplater with the latest methods of obtaining better deposits by applying scientific methods of electrochemistry to electroplating.

Each division consists of 12 lessons and each lesson includes a lecture and a set of laboratory experiments. Each division is furnished with notebooks, textbooks, writing paper and envelopes.

Both sections are supplied with all necessary chemicals, glassware and apparatus with the exception of an analytical balance. In the first course the experiments are of a fundamental chemical nature. In the second course copper, nickel, zinc, cadmium, chromium, silver and brass are deposited by the student who also analyzes each solution. While depositing these metals, factors governing the characteristics of the deposit are to be noted by the student and reported.

Further information can be obtained by writing to Dr. C. B. F. Young, Box 292, Flushing, L. I., N. Y.

Corrosion and Its Prevention Described

■ A comprehensive booklet describing the uses and effectiveness of its corrosion preventing products has been issued by Alox Corp., P. O. Box 556, Niagara Falls, N. Y.

Beginning with an explanation of the theory of corrosion, this booklet enumerates the causes of rust under various conditions and recommends methods and materials to combat or prevent it.

The Alox line includes a series of anticorrosives scientifically formulated from partially oxidized petroleum fractions, certain organic acids, esters, ketones, lactones, secondary and tertiary alcohols and other materials. Each product is formulated to withstand specific corrosive conditions. It is claimed that these compounds will not crack, peel or rupture; will prevent corrosion due to handling; will resist actinic rays; are easily applied and removed; have no unpleasant odor.

They are offered in a wide variety of forms, sufficient to meet practically every condition encountered in practice.

Stirs Them Up

■ In designing its new Typhoon portable mixer, Patterson Foundry & Machine Co., East Liverpool, O., has used metallic finishes exclusively, combining polished aluminum with chromium and nickel plated surfaces. Built in sizes from ½ to 5-horsepower and for use with electric current of almost all characteristics, these units allow for extreme adjustment of shaft length, are provided with antifriction bearings and have adjustable clamps which permit of any working angles

Covered Dip Tank Improves Work

■ Counter-weighted dip tank cover in the electrical department of a large factory has been found of value in keeping out dust and preventing evaporation of solvent. The cover stays only in the full open of full closed positions, thus making closing of the cover almost an automatic operation. Insulating qualities also have been improved by the exclusion of dust from the tank.

HYSPEED MEANS HIGH PRODUCTION

The increasing tempo of business demands ever greater quantities . . . higher quality . . . further economies . . . in production.

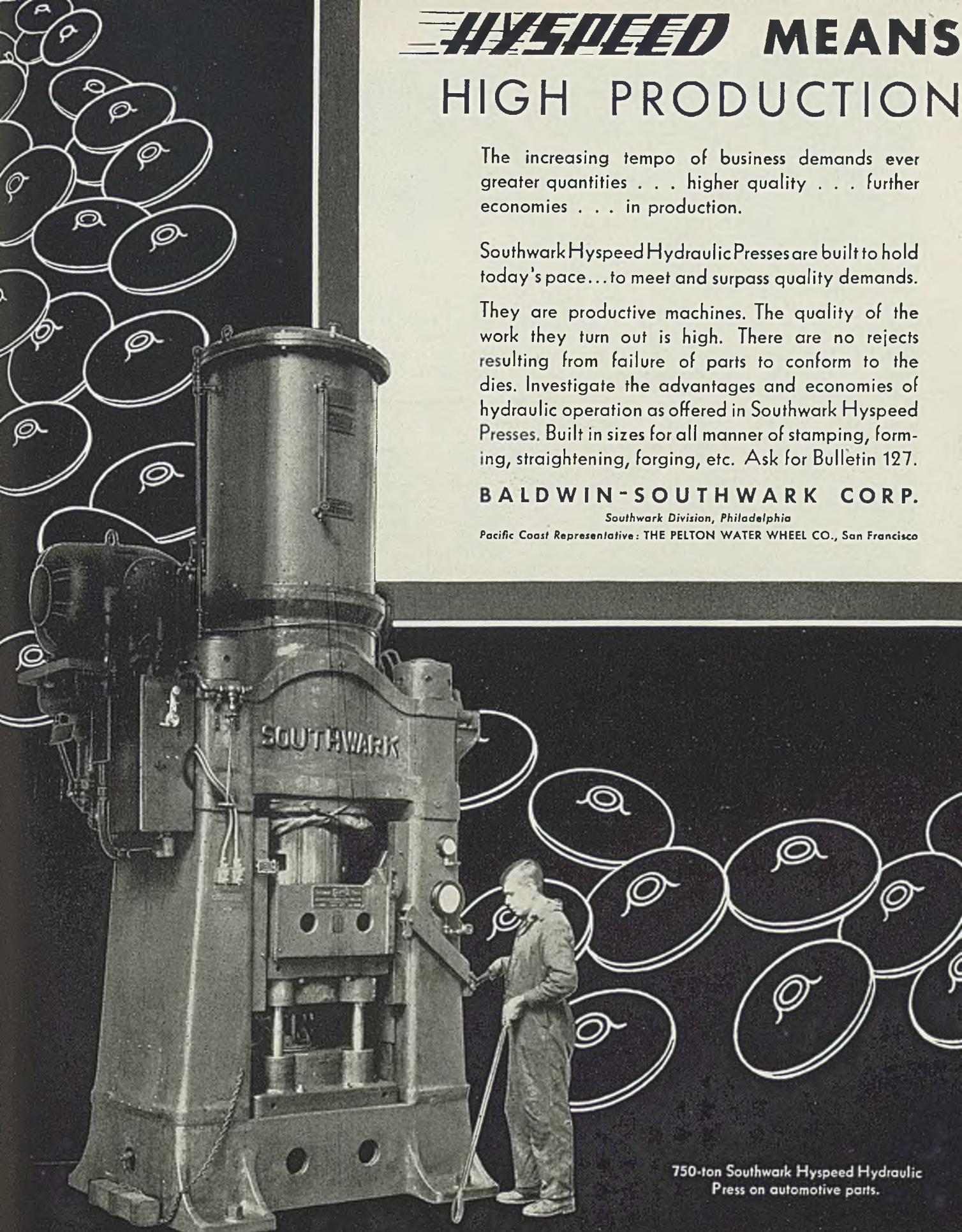
Southwark Hyspeed Hydraulic Presses are built to hold today's pace . . . to meet and surpass quality demands.

They are productive machines. The quality of the work they turn out is high. There are no rejects resulting from failure of parts to conform to the dies. Investigate the advantages and economies of hydraulic operation as offered in Southwark Hyspeed Presses. Built in sizes for all manner of stamping, forming, straightening, forging, etc. Ask for Bulletin 127.

BALDWIN-SOUTHWARK CORP.

Southwark Division, Philadelphia

Pacific Coast Representative: THE PELTON WATER WHEEL CO., San Francisco



750-ton Southwark Hyspeed Hydraulic Press on automotive parts.

SOUTHWARK HYSPEED PRESSES

WELDING, ETC.

BY ROBERT E. KINKEAD

Business and Market Affect Welding Industry

■ Probable effect of the present business and stock market conditions on the welding industry was a source of considerable discussion behind the scenes at the recent Metal how.

If prices have gone up until purchasing power has been seriously impaired, the welding industry is an innocent bystander and not a wrecker of economic recovery. Prices of welding machines, gas, welding rod and power have not increased during the ascending spiral of prices of other products. Yet wages have been increased for those who produce these products of the welding industry. The industry has made a substantial contribution to recovery in this respect.

The welding industry is not the only one that has contributed to recovery by holding prices down, increasing wages, and earning profits out of economies arising from increased volume. Motor fuel, incandescent lamps, electric power, automotive production and others have followed the same course. Steel prices have increased slightly, but the amount of increase is almost imperceptible compared with the increases in food, clothing, and some of the services. The final net result, as far as the welding industry is concerned, is that its sales will recede more slowly and will start upward much sooner than in the case of those products in which there were runaway prices.

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.

Granting for the sake of argument that industries which have been contributing to economic recovery are suffering from the price policies of industries which have brought about the present recession —what can be done to prevent the same thing from happening again? Both Mr. Hoover and Mr. Roosevelt had a fair chance to deal with the problem. Sufficient data is now available on Mr. Roosevelt's performance to say conclusively that neither of these presidents had any solution to the problem, although both made serious efforts in this direction.

There is hope in education by collection and publication of statistics showing that when prices get too high purchasing power decreases. Strangely enough, industries which suffer from others who increase prices too rapidly have never tried in a large way to persuade the offenders that the practice wrecks everyone. Persuasion as a means of controlling avarice has its drawbacks but since Mr. Hoover and Mr. Roosevelt have shown that passing laws will not do it, it deserves a trial. Even an animal can be taught not to dirty its own nest.

Germany Welds Bridges

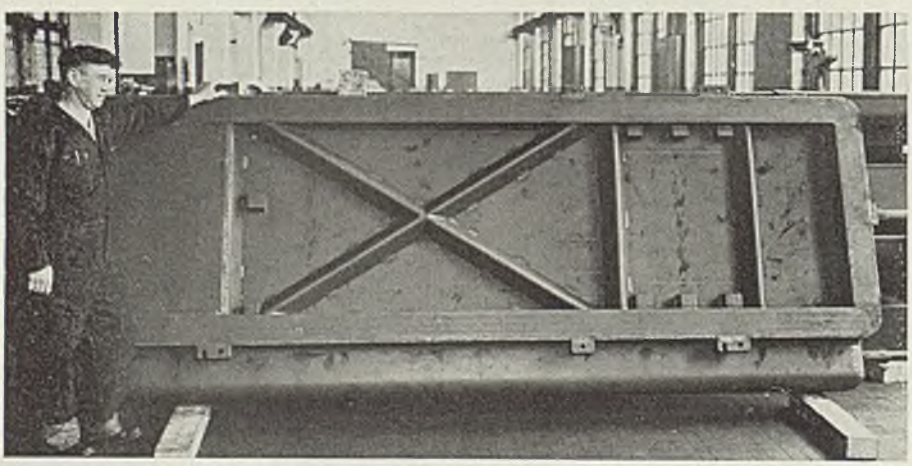
■ Welding is used in Germany in bridges and buildings more than in any other country. Excellence of design is characteristic of their welded structures and inspection by X-Ray of such structures is far more common than in this country.

Total overall costs of welded construction exceed those of riveted construction by about 5 per cent, in spite of considerable savings of material. While comparisons with conditions in the United States are difficult, the fact remains that the structures are subjected to loadings and service conditions that are comparable, and the welded structures made in Germany might be substituted for riveted structures made here if the loading and service conditions were the same.

Any attempt to explain the greater amount of welded construction in the bridge and building field in Germany necessarily will revolve around labor costs which are lower there than they are here. Electric arc welding, including preparation for welding is 75 per cent to 85 per cent labor cost, so that a variation in labor cost changes the total cost rapidly. German labor costs, being not over half American labor costs, determine the issue. In the immediate situation, conservation of material obtained by welded design is another important factor in Germany.

But the situation in Germany relative to use of welded construction is significant as a forecast of practices here, for the reason that at least two extremely fast, automatic welding processes are coming over the horizon which promise reduction in labor cost of electric fusion welding of the order of two thirds. Equipment of a few American structural shops with such machinery would change the welding practice in this country almost over night.

Welded Lathe Base Resists Distortion



■ New one-piece welded base for heavy-duty turret lathe built by Warner & Swasey Co., Cleveland, has two to three times the stiffness of same size cast iron pedestal base with bolted-on pan, or more recently-developed welded base of standard structural angles with bolted-on pan. In this 8½-ton machine, legs, pan and tank are fabricated into one section of welded rolled steel. So rigid is this unit that spindle alignment varied only 0.0005-inch per foot when jacked up under opposite corners

Whitey Sez:

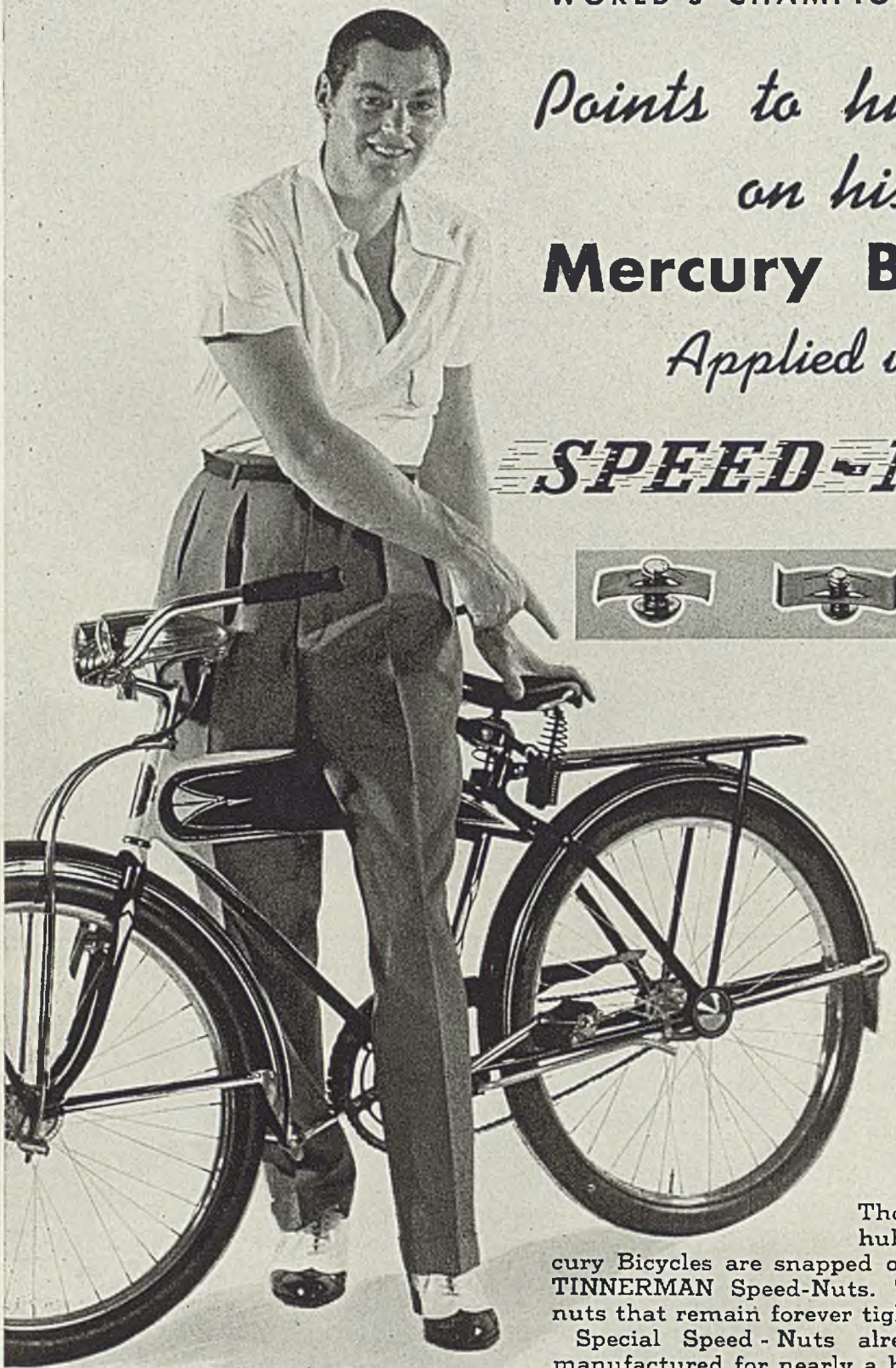
"It takes years and years to grow an oak, but for a squash—six months is sufficient . . . We're not raising acorns, but the fruits of our ten years' labor could hardly be squeezed thru a colander, either!"

MAURATH, INC., CLEVELAND

BUILDER OF BETTER WELDING ELECTRODES IN ALL ANALYSES

Johnny Weissmuller

WORLD'S CHAMPION SWIMMER



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Mercury Bicycle,

Applied with

SPEED-NUTS

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A.S.M. Papers Report Researches on Wide Range of Metals Problems

■ Technical sessions conducted on the closing days of the annual meeting of the American Society for Metals held in Atlantic City, N. J., Oct. 18-22, in connection with the Nineteenth annual National Metal congress, directed attention upon research and studies of many problems associated with the production, structure, heat treatment and applications of iron and steel. Many of the papers presented represented the results of long laboratory investigations and added significant information to knowledge of met als.

Effect of mass on the properties of cast steel was investigated by C. W. Briggs and Roy A. Gezelius, metallurgist and associate metallurgist, respectively, Naval Research Laboratory, Washington, who drew a number of significant conclusions including a loss of strength and ductility as measured at the center of a section, as the mass increases; decrease in density and carbon content, an increase in Izod impact value; a tendency to produce large grain structure; and lack of effect of different pouring temperatures on mechanical properties.

Important to Power Plants

The subject was deemed of practical importance, especially to designing engineers engaged in designing power plant equipment where steel castings are being installed in systems subject to greater pressures and higher temperatures than those previously used. Coupons varying from ½-inch to 8 inches in cross section were cast and tensile bars prepared and tested in both the as-cast and annealed conditions. Density measurements, segregation studies and photomicrographs also were obtained on the various sections.

W. J. Merten, metallurgist, Pittsburgh Rolls Corp., Pittsburgh, in discussing the paper cited his faith in one of the fundamentals of melting practice for high quality steel castings: Keep the temperature of the melting furnace as low as is consistent with proper liquid dispersion of the elements of composition, allowing time rather than superheat to bring about proper homogeneity of the liquid bath, providing and allowing just sufficient excess heat for additions of ferroalloys, tapping into the ladle and teeming from the ladle into the mold without having an excessive scull left in the ladle Mr. Merten gave as his opinion, based on experience, that the coarse cast structure of large section steel castings cannot be modified thermally for satisfactory service performance where they are subjected to dynamic stress cycles below a temperature of 1900 degrees Fahr.

Molding Practice Important

C. H. Lorig, Battelle Memorial institute, Columbus, O., cited a survey or properties of specimens taken from the hub, spokes and rim of five large gear blank castings, from attached coupons and from individually cast keel blocks, indicating good uniformity of properties throughout the section, as a result of careful attention to gating and molding practices in the foundry, and by subsequent heat treatment to minimize the influences of change of section.

Importance of microstructure was alluded to by John Howe Hall, consulting metallurgist, High Bridge, N. J., who stated that in his opinion microstructure has more to do with the variation of physical properties in heavy sections than has the carbon segregation, and probably more than differences in density.

Pursue Creep Investigation

A comprehensive report on the influence of heat treatment on the creep of carbon-molybdenum and chromium-molybdenum-silicon steel was presented by R. F. Miller, research laboratory, United States Steel Corp., Kearny, N. J., associated with him in preparation of the paper being R. F. Campbell and R. H. Aborn of the same laboratory and E. C. Wright, chief metallurgist, National Tube Co., Pittsburgh.

Specimens of a carbon-molybdenum steel were tested in creep for 3000 hours at 1100 degrees Fahr. after normalizing and after six different tempering treatments. Specimens showing the greatest change of structure during the creep test also showed the greatest tendency to assume an increasing creep rate, and structural stability accompanied a constant creep rate. Mechanical tests indicated that time at temperature under stress lowered the strength and slightly increased the ductility.

Effect of sandblasting, steel shot blasting and steel grit blasting on the fatigue resistance of steel was investigated by J. H. Frye Jr. and G. L. Kehl, metallurgical department, Lehigh university, Bethlehem, Pa. From results of their research, they concluded the endurance limit of steel cleaned by sandblasting varies little with three types of sand studied, but does vary considerably with change in the combination of pressure and angle of blast. They found blasting with steel grit, shot or mixtures of the two to be superior to sandblasting or the usual sulphuric acid pickle in its effect on the fatigue limit. Here the blasting medium was held highly important.

Conclusions Are Drawn

In general, it was concluded that fatigue strength obtained by blasting with either sand or steel media was the result of two opposing surface effects — cold working and notching.

Three highly technical papers constituted the program for a session on the morning of Oct. 21. Two of the papers dealt with graphitization and third with x-ray study of the critical points of iron and iron-nickel alloys.

In the opening paper on the initial stages of graphitization, H. A. Schwartz and M. K. Barnett, manager of research, and research chemist, respectively, National Malleable & Steel Castings Co., Cleveland, reported on a re-investigation of the course of the time-graphite curves with special reference to the interval when but little graphite has formed. The authors showed that the previously established relation in which graphite is proportional to the 3/2 power of time may be preceded by an interval in which graph-

ite increases, very slowly, in direct proportion to time. This interval probably is that considered by other investigators to be an incubation period before the start of any reaction.

Graphitization in high-purity iron-carbon alloys was discussed in an extremely comprehensive paper by Cyril Wells, metals research laboratory staff, Carnegie Institute of Technology, Pittsburgh. Graphite has been produced in high purity alloys of carbon contents between 0.13 and 2.98 per cent carbon. Behavior of these alloys due to the presence of graphite was studied by dilatometric and microscopic methods. Cementite was shown to be unstable at temperatures below the eutectic temperature.

Effect of rates of heating and cooling (2 degrees Cent. to ⅛-degree Cent. per minute) on superheating and undercooling in iron-carbon alloys containing graphite also was studied. Mr. Wells gave an equilibrium iron-graphite diagram in the vicinity of the eutectoid, its accuracy being about ± 5 degrees Cent. It was shown that the rate of graphitization of the alloys is increased greatly by presence of graphite nuclei, and the rate of decomposition of carbide into graphite + austenite is increased considerably as temperature is increased.

Evidence was presented by the author to show that in hypereutectoid alloys two austenites of similar mass and containing in solution the same concentration of carbon may have at the same temperature two different volumes, depending upon whether the carbon came from graphite or carbide. The mechanism of graphitization was discussed, and it was shown that graphite may form directly from austenite as well as from carbide.

Carbide Composition Changes

Mr. Wells stated that graphite has been found in crystallographic planes in carbide masses. He gave evidence which indicated that the carbide may change in composition during graphitization. Different structures arising from different conditions of graphitization were observed and discussed.

Sidney D. Smith, E. I. du Pont de Nemours & Co., Charleston, W. Va., contributed a paper which reported on an x-ray study of the Ar_3 and Ac_3 points of iron and iron-nickel alloys. In the investigation, samples of iron and iron-nickel alloys of a high degree of purity and homogeneity were prepared by precipitation of the hydroxides which subsequently were reduced in pure hydrogen and worked to form wires or ribbons as desired. These wires or ribbon samples were heated under carefully controlled conditions of temperature in an atmosphere of pure hydrogen and x-ray photographs made of the diffraction patterns using Coolidge x-ray tubes with molybdenum targets. Practically monochromatic radiation was obtained by using zirconium oxide filters.

In this manner, Mr. Smith determined the value of a reversible A_3 point for iron of high purity and values for the Ar_3 and Ac_3 points of iron-nickel alloys containing up to 5.3 per cent nickel.

A paper presented at an afternoon session on Oct. 21 was concerned with the rate of austenite transformation in cast iron. In this contribution, the authors, D. W. Murphy, W. P. Wood and D. Girardi, research associate in the department of engineering research, professor of metallurgy and graduate student, respectively, University of Michigan, Ann Arbor, Mich., described their further studies in resolution of the austenitic grain size in cast iron.

Network Patterns Similar

From this study they ascertained that the macro grain size pattern appears to be a trace of a condition arising soon after solidification is complete. A fine network structure representative of the austenitic grain size on reheating and outlined by nodular troostite was developed. The macro and micro network structures seem to be parallel in a given series, that is, irons of coarse macro network pattern show also the coarse micro pattern.

It was shown by the authors that the differences between the hardened structures of deep and shallow hardening cast irons are associated with wide differences in austenitic transformation rates. Fine-grained, shallow-hardening irons transform considerably faster at 1000 degrees Fahr. than do the coarse-grained, deep-hardening types. In general, the authors pointed out, the rate of transformation of austenite at 1000 degrees Fahr. is much slower than for plain carbon steel.

Effects of columbium and other addition agents on low-chromium steels were discussed by Russell Franks, Union Carbide & Carbon Research Laboratories Inc., Niagara Falls, N. Y. Considerable 4-6 per cent chromium steel has been used in the last few years for corrosion resistance, and some of it has displayed brittleness or low toughness. Most of the data available, said Mr. Franks, has dealt with steel containing 0.15-0.30 carbon.

In the present investigation, steels considered had 0.10 per cent or less carbon, with and without molybdenum or tungsten additions. These steels, the speaker reported, are susceptible to air hardening. Columbium exerts a marked stabilizing influence and this is important for steels which are welded. Addition of molybdenum to a columbium-bearing steel improves creep strength.

Discussion brought out the fact that about 25 per cent of the columbium content is lost during welding, while 75 per cent is retained. The columbium addition to the steel is roughly six to eight times the carbon content, according to Mr. Franks.

Effects of longitudinal scratches on valve spring wire were reported in a paper contributed by F. P. Zimmerli and G. D. Wilson, chief engineer and metallurgist, respectively, Barnes - Gibson - Raymond Division, Associated Spring Corp., Detroit, and W. P. Wood, professor of metallurgical engineering, University of Michigan, Ann Arbor, Mich.

Object of the study was two-fold: 1. Development of a method for measurement of depths and contours of surface scratches upon spring wire; and, 2. to determine effects of scratches with varying depths and contours upon the endurance limit in torsion of a typical steel spring wire. A special type of machine for carrying out torsional fatigue tests upon small sections of wire was built. Scratches of controlled depth and contour were produced upon straight wire sections and their endurance limit in torsion compared with that of the same wire in the unscratched condition.

As would be expected, the authors found that presence of longitudinal scratches lowers the endurance limit of wire to an appreciable extent. The decrease in endurance limit produced by the scratches, however, was not as great as the differences observed between polished and commercial wire when in the form of helical springs. Contours of the scratches were much more important than depths of the scratches.

Seam Defects Are Serious

It was asserted by the investigators that mechanical defects such as scratches produced during drawing and coiling operations never can be as serious in causing spring failures as seams produced in the wire during manufacture of the wire.

Recovery of cold-worked nickel on annealing was discussed in a paper by Erich Fetz, research metallurgist, Wilbur B. Driver Co., Newark, N. J. Object of the investigation was to study further the various factors which may be responsible for the unusually wide temperature range of softening of cold-worked nickel as established by different investigators. The temperature range of hardness recovery from cold working now extends from less than 300 to over 800 degrees Cent.

In the paper, the author concerned himself with effects of chemical analysis, origin of testing material, time of annealing, annealing atmos-

Old Cap Carter

puts a steel mill to work

A million American dinners tonight, of delicious deep-sea fish, would never be eaten except for steel. First the old fisherman must mend his nets with a steel needle. Then he puts to sea in a steel boat, unloads his catch into a steel trough, cleans and prepares the fish with steel implements, and finally ships the fish in steel cans plated with tin.

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phere, thickness before rolling, and speed of plastic deformation. Effect of these factors on recovery was studied by means of hardness measurements.

Methods of coloring various metals and alloys by chemical and electrochemical processes were given in a paper by C. B. F. Young, instructor of chemical engineering, Columbia university, New York. Research has aided the metallurgist in applying hard, durable, fast colors which are in some cases resistant to corrosion, said the author.

The paper gave chemical solutions for coloring aluminum, brass, cadmium, chromium, copper, iron, magnesium, silver, tin and zinc, also electrochemical processes for coloring aluminum, chromium, magnesium, nickel, cobalt and tin.

An interesting black coating for magnesium and tin has been developed, Mr. Young stated. This is produced in a chromic acid-trisodium phosphate solution using 15 to 30 amperes per square foot. The process holds promise for coloring other metals but is unsuccessful when applied to iron and zinc.

An alloy deposit consisting of cobalt and nickel is proving commercially important as the coating produced is whiter than nickel and has better corrosive resisting properties. The color approaches that of pure silver.

Need for systematic research is great, Mr. Young declared, in suggesting that industrial concerns and scientific societies give encouragement to investigators in the metal finishing field. Little has been done and much remains to be discovered, he said. The future in this field appears bright due to the fact that the public is demanding metallic products be finished in attractive colored designs.

Inclusions Are Investigated

Deoxidation type inclusions in alloy steels, their nature, properties and relation to furnace practice, were investigated and reported in a paper by W. A. Hare and Gilbert Soler, research engineer and manager of research, respectively, Steel & Tube Division, Timken Roller Bearing Co., Canton, O. Their paper summarized results of an extensive series of tests on deoxidation type inclusions as they occur in alloy steels and discussed the formation and effect of various types of inclusions as they occur in commercial steels.

Inclusions were separated from the steel by chemical means. After separation, metallographic, petrographic, x-ray and chemical analyses and studies were made, determining the mineralogical phases of various types of nonmetallic inclusions in several types of steel. The authors discussed the relation existing between the known inclusion phases and equilibrium diagrams of the oxides.

Effect of variations in furnace practice on inclusions was treated in some detail and a table presented showing chemical analysis of the inclusions, their mineralogical phases, deoxidation practice used in making the steel and the per cent FeO in the steel before the final deoxidation was effected as determined by analysis of the gases evolved from the molten metal.

Some problems in the production of low-carbon sheets in noncontinuous mills were considered in a paper by M. L. Samuels and Alfred Boyles, metallurgists, Battelle Memorial institute, Columbus, O. Failure of sheets in cold forming was discussed from the standpoint of grain size. Examples were shown of failures due to very fine grain as well as to coarse grain.

Among the factors influencing the degree of strain produced by rolling, the authors pointed out two in particular: 1. Effect of segregation in the core of rimmed ingots; and 2. effect of grain size of the sheet bar previous to rolling into sheets.

Phosphorus Increases Strain

They advanced the view that phosphorus, by increasing the stiffness of the metal at finishing mill temperatures, increases the degree of strain and consequently produces a finer grain size after box annealing. Fine-grained cores in sheets from the upper part of the ingot are attributed in part to this cause.

Experiments were described by Messrs. Samuels and Boyles illustrating the effect of grain size of the sheet bar before rolling on the grain size of the sheet after box annealing. It is thought that a coarse-grained sheet bar is strained less in rolling than one having a fine grain. Irregularities in structure in the finished sheet may sometimes be traced to exaggerated grain growth on the surface of sheet bars due to their having been stacked hot at the bar mill.

Relation of size of spheroids in tool steel to its machinability and to holding edge of cutter was the subject of a paper presented by Donald E. Roda, metallurgist, Electric Writing Machine Division, International Business Machines Corp., Rochester, N. Y. Quality of a machined surface depends among other factors on ability of the cutter to hold its sharp cutting edge. Mr. Roda's paper illustrated how a small difference in size of carbide particles in a tool steel makes a great deal of difference in fracturing the cutting edges of cutters.

A new method of breaking down the stable iron and manganese carbides in steel was advanced by the author. In addition, microcharacter was used to show definitely the characteristics and well-appreciated hardness of the carbide spheroids in spheroidized steel.

Coal Problems Are Given Study

■ DESIGNED to develop a better understanding of the interlocking problems of coal producers and consumers, the joint meeting of the coal division, American Institute of Mining and Metallurgivan Engineers, and fuels division, American Society of Mechanical Engineers, held in Pittsburgh, at the William Penn hotel, Oct. 27-28, attracted an attendance of approximately 350 persons. Program for the meeting, first of its kind to be arranged, included several technical sessions, plant visitations, and a banquet.

Addressing the banquet on the evening of Oct. 28, Charles Hosford, chairman, national bituminous coal commission, Washington, discussed future problems involved in governmental regulation of the coal industry.

In presenting a technical paper, B. E. Tate, chief power plant engineer, National Cash Register Co., Dayton, O., pointed out that proper selection of coal for pulverized firing provides one of the most attractive opportunities for the boiler plant to reduce operating costs, and he urged co-operation between the purchasing agent and engineer.

Discusses Stoker Firing

With regard to fuel choice, chain and traveling grates probably are the most versatile of stokers, contended Gosta Anbro, power engineer, Colgate-Palmolive-Peet Co., Jersey City, N. J. "However," he said, "definite limitations and preferences for efficient operation are found. No operator likes to handle strongly coking coals on a chain grate, and particularly not those from the eastern slope of the Alleghenies. These coals need agitation of the fire bed and as yet the chain grate does not provide for that."

H. F. Hebley, advisory engineer, Commercial Testing & Engineering Co., Chicago, discussed swelling characteristics of coal, ash fusion and clinkering, sulphur, pulverization and grindability, and uniformity, all of which enter into economics of preparing coal for generation of steam. For accuracy, tests should be conducted, he said.

Effects of chemicals on reactivity and ignitability were discussed by P. Nicholls, United States bureau of mines, Pittsburgh.

Plants visited included the Champion No. 1 plant of the Pittsburgh Coal Co. and the Colfax station of the Duquesne Light Co.

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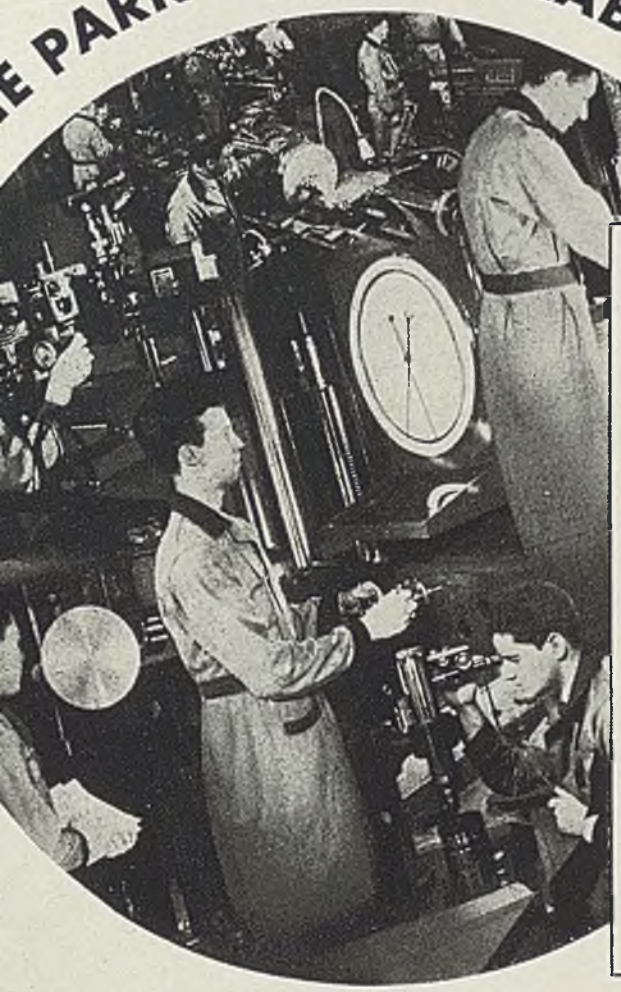

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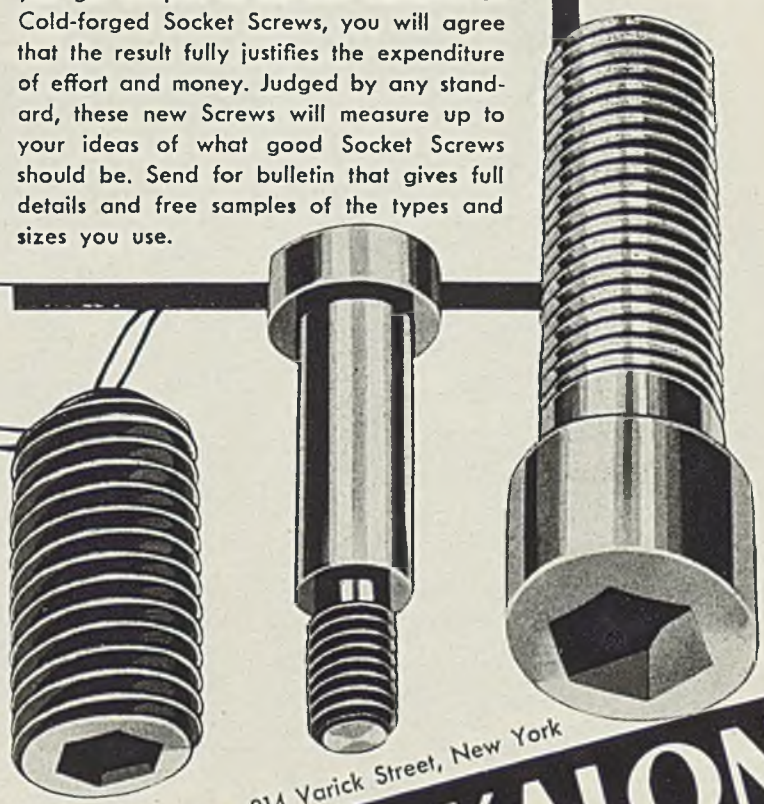

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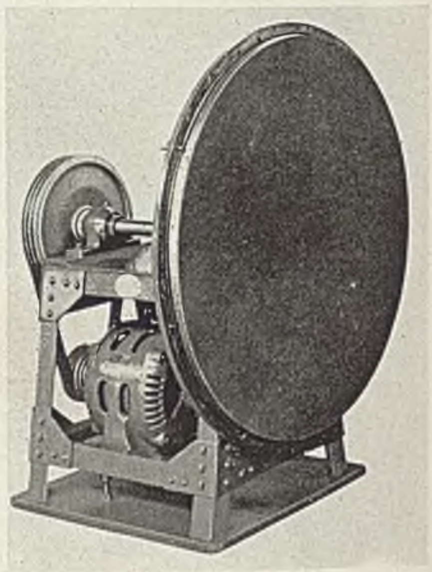
NEW EQUIPMENT

Disk Sander—

B. M. Root Co., York, Pa., lately has built the M207 disk sander, adaptable for sanding and grinding of light metals and composition materials. Base is of heavy plate steel and frame, of structural steel, has connecting points riveted and welded and is reinforced through heavy gusset plates and welded to the base. An extra heavy disk shaft revolves in precision ball-bearing pillow blocks having double dust seals. Sanding disk is of metal with accurately machined face and rim and carefully balanced to assure smooth operation without vibration and for close sanding requirements. Disk is faced with semihard composition board. In fastening sanding or abrasive material to the disk, a ring of round steel, slipped over the abrasive, pulls the scarfed edges over the tapered shoulder of the disk. Metal fingers, hooking over the metal ring, seat it against the shoulder of the disk through wing nuts and at the same time tighten the abrasive and stretch it evenly over the face of the disk. Release is quickly accomplished. Entire surface of the paper is available for sanding, there being no obstruction such as a metal ring on the face of the disk to interfere. V-belt transmits power from motor, mounted in frame of machine, to the disk shaft. Motor is mounted on a hinged base to provide for any possible slack in belt. Equipment includes 48-inch diameter sanding disk, motor and V-belt drive. Machine can also be equipped with 30



Entire abrasive surface on Root disk sander is available for sanding, there being no obstructions on the face to interfere

or 36-inch single disks, or double disks in 30, 36 and 48-inch sizes. Motor is 5 horsepower, 1200 revolutions per minute, and speed of disk is 460 revolutions per minute.

Conveyor Scale—

Toledo Scale Co., Toledo, O., has designed the new Chronoflo totalizing scale to weigh automatically and indicate the amount of materials transported over belt conveyors. Totalizing unit is separate and can be located at any point re-

mote from the operation, while a dial continuously indicates the scale load in per cent of maximum scale capacity. Positive action and accuracy are said to be obtained by complete elimination of friction drives. The transmitter sends impulses to the totalizer 15 times per minute, insuring accuracy of results for short or long runs. Totalizer is driven from conveyor belt to provide full automatic compensation for variations in belt speed. With convenient belt tare adjustment, equipped for both negative and positive integration, a simple adjustment produces zero creep of totalizer indicators with no load on belt, even though sections of belt vary considerably from average tare weight.

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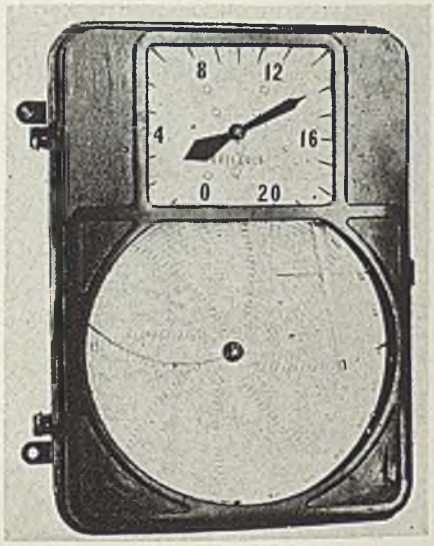
Potentiometer Pyrometer—

Bristol Co., Waterbury, Conn., has developed a new potentiometer pyrometer for recording and indicating thermocouple temperature. Known as the Bristol Indicating Recording Pyromaster, the instrument provides for direct marking on a 12-inch round chart and scale indication on a large dial. It employs the potentiometer method of measuring electromotive force in terms of temperature, using standard thermocouples and extension leads, but operates on a new, simplified principle. Rugged, it is unaffected by excessive vibration, and involves no mechanical motion of any kind except when a change in temperature occurs. Simple and compact operating mechanism consists of a highly-dampened, sensitive galvanometer ruggedly pivoted in jewel bearings; a special relay unit actuated by the galvanometer to operate the motor that balances the electromotive force from the thermocouple and positions the recording pen arm and scale indicator; a standardizing unit; a power pack; the potentiometer, or recording and indicating units. Pen arm is actuated through the relay switches in small steps at a rate depending on the rate of change in temperature at the thermocouple. No lubrication is required and the cold-junction compensator is fully automatic. No manual adjustments are necessary. Unit is housed in a standard Bristol case and is available as a recorder, indicator, recorder with indicating scale, recorder controller or recorder controller with indicating scale. Controllers are of either pneumatic or electric type.



Pyromaster provides for marking on 12-inch round chart and scale indicating on large dial

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Gas Engine Compressors—

Worthington Pump & Machinery Co., Harrison, N. J., has announced a line of four-cycle, angle-type gas engine compressors known as type LCE units. Medium-sized and self-powered, the new units occupy little space and, although designed for permanent heavy-duty work, they combine ruggedness with portability and are adaptable for temporary locations. They are built with one


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to four compressor cylinders, corresponding to 75 to 300 horsepower. All compressor cylinders are horizontal and at right angles to the power cylinders. Each compressor cylinder has two corresponding power cylinders and the compressor element can be arranged to deliver any combination of volume and pressure within the limits of the engine rating. Compressor cylinders are of the standard Worthington design and are fitted throughout with light-weight feather valves. Other features of the compressor include the large water jackets and close clearances, combining, it is said, to give high volumetric efficiencies. The engine is a vertical four-cylinder type, with power cylinders comparatively small. Large water jackets with clean-cut plates have been provided. Regardless of engine-compressor size, most parts are interchangeable. Force feed lubrication is used throughout and a deep oil sump is provided in the base of the engine. A separate force lubricator is provided for the power and compressor cylinders. All running gear is totally-enclosed, dirt and dust-

♦

Steel Valve—

Manning, Maxwell & Moore Inc., Hancock Valve division, Bridgeport, Conn., has announced the Hancock Duravalve, new steel valve developed expressly for high pressure and high temperature service—1500 pounds at 950 degrees Fahr. The manufacturers claim Duravalves with internal Stellite seats will end valve maintenance necessitated by steam leaking between the valve seat ring and the valve body. Desngn permits seat to be welded in easily and serviced even on small size valves. Valves are made in one size and tapped, or bored for welding, for ½, ¾ and 1-inch pipe.

♦

Bench Shaper—

Atlas Press Co., Kalamazoo, Mich., has announced its new 7-inch shaper. Ram-driving mechanism is bull-gear type and stroke, with quick return, is from ½ to 7⅜ inches. Complete V-belt drive from the motor to the bull-gear spindle provides four speeds between 45 and 200 strokes per minute. Automatic cross feed provides five feeds in either direction between 0.005 and 0.025 inches per stroke. The shaper is designed to be run from a ½-horsepower, 1740-revolutions per minute motor. Floor stand is available. All bearing surfaces are large and accurately finished and provision is made for adequate lubrication. Cutting speeds are 3½ to 116 feet per minute, table travel is 8½ inches horizontal and 4½ inches vertical, maximum distance table to ram is 5⅛ inches and minimum distance table to ram is ⅝-inch.

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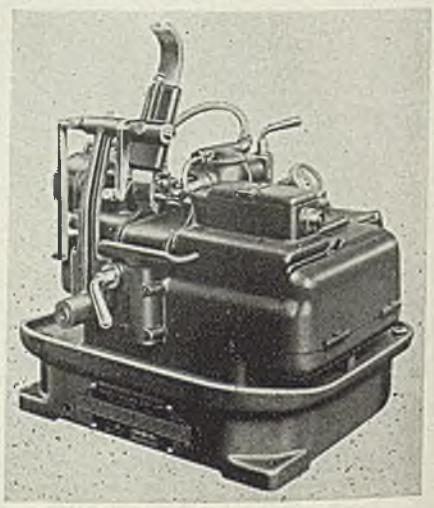
Hobbing Machine—

Barber-Colman Co., Rockford, Ill., recently has developed the type S automatic hobbing machine for high-speed, continuous hobbing of spur gears and pinions for small precision instruments. It handles



Barber-Colman machine is for automatic, high-speed, continuous hobbing of spur gears and pinions for small precision instruments

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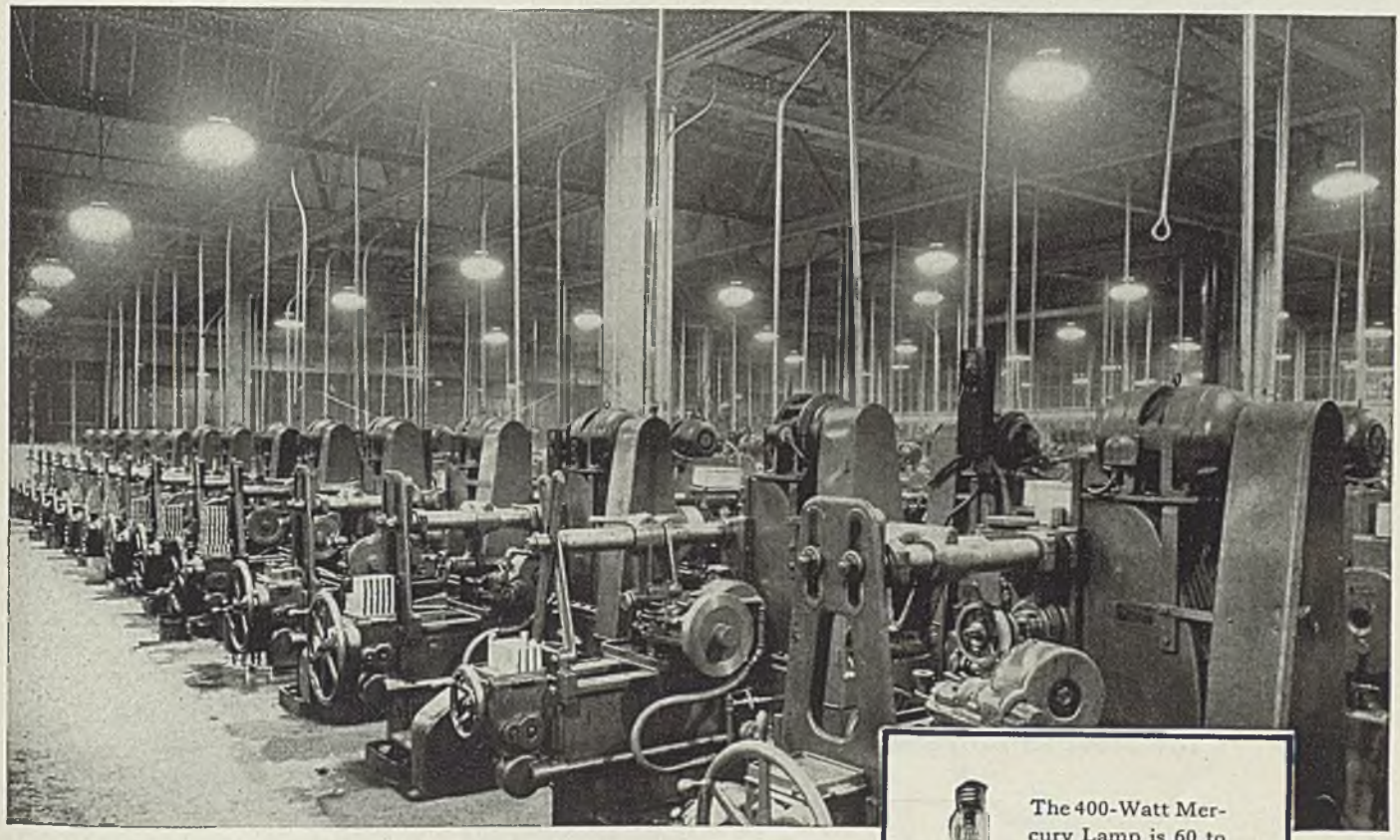

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work up to 1-inch diameter by ½-inch face of any machinable material. Automatic cycle includes work-loading, rapid approach to hob, feed, quick return, ejection of work and repeat. Unit is easy to set up, it is claimed. Hob can be adjusted laterally by collars on spindle. Adjustment of hob to work of various diameters is easily and quickly accomplished by turning a knurled disk on top of the machine. Hob spindle can be set quickly and accurately to lead angle of hob by means of clean-cut graduations and vernier, and locked in place securely by quick-acting clamp. Gear cases are readily accessible and changes are made quickly. All change gears for speed, feed, and index trains are interchangeable. Equipment includes 1/3-horsepower, 1800 revolutions per minute motor, one set of 24 change gears, and arbor equipment and magazine for one work piece.

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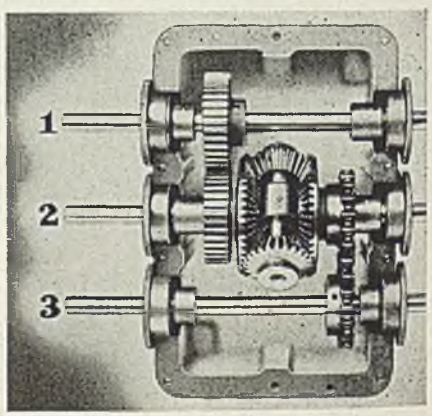
Differential Unit—

Reeves Pulley Co., Columbus, Ind., has developed the model MDB-3 differential to supplement its line of accessory equipment for use with the Reeves Variable Speed transmission. New unit is similar to the differential in a motor car and is used for a variety of requirements in automatic speed control. Within a unit housing are mounted three parallel shafts operating in a bath of oil. Gears of 1 to 1 ratio drive between shaft 1 and the differential gearing. Between shaft 3 and the differential gearing is a 1 to 1 chain drive. Special ratios are also available. For automatic control service, shafts 1 and 3 are connected to the driven machine or machines. Shaft 2 is connected to the speed changing screw of the Reeves transmission. When shafts 1 and 3 are driven in the same direction at the same speed, shaft 2 stands still. When the speed of the driven machine varies above or below desired speed, this variation is transmitted to shaft 2, which speeds up or slows down the transmission until synchronous speed is restored. Differential may also be used as primary driving equipment for loads not exceeding its rated torque and speed capacity. Infinite range of speed variation is possible by connecting shafts 1 and 3 to the constant and variable speed shafts, respectively, of the transmission. By turning the speed control handwheel on the transmission, shaft 2 may be adjusted to any speed in either direction. Overall dimensions of the unit are 8 inches wide, 11 inches long, 6⅝ inches high. Shafts are extended on both sides so installation may be made as desired.



Shafts of Reeves differential unit are extended so installation may be made as desired

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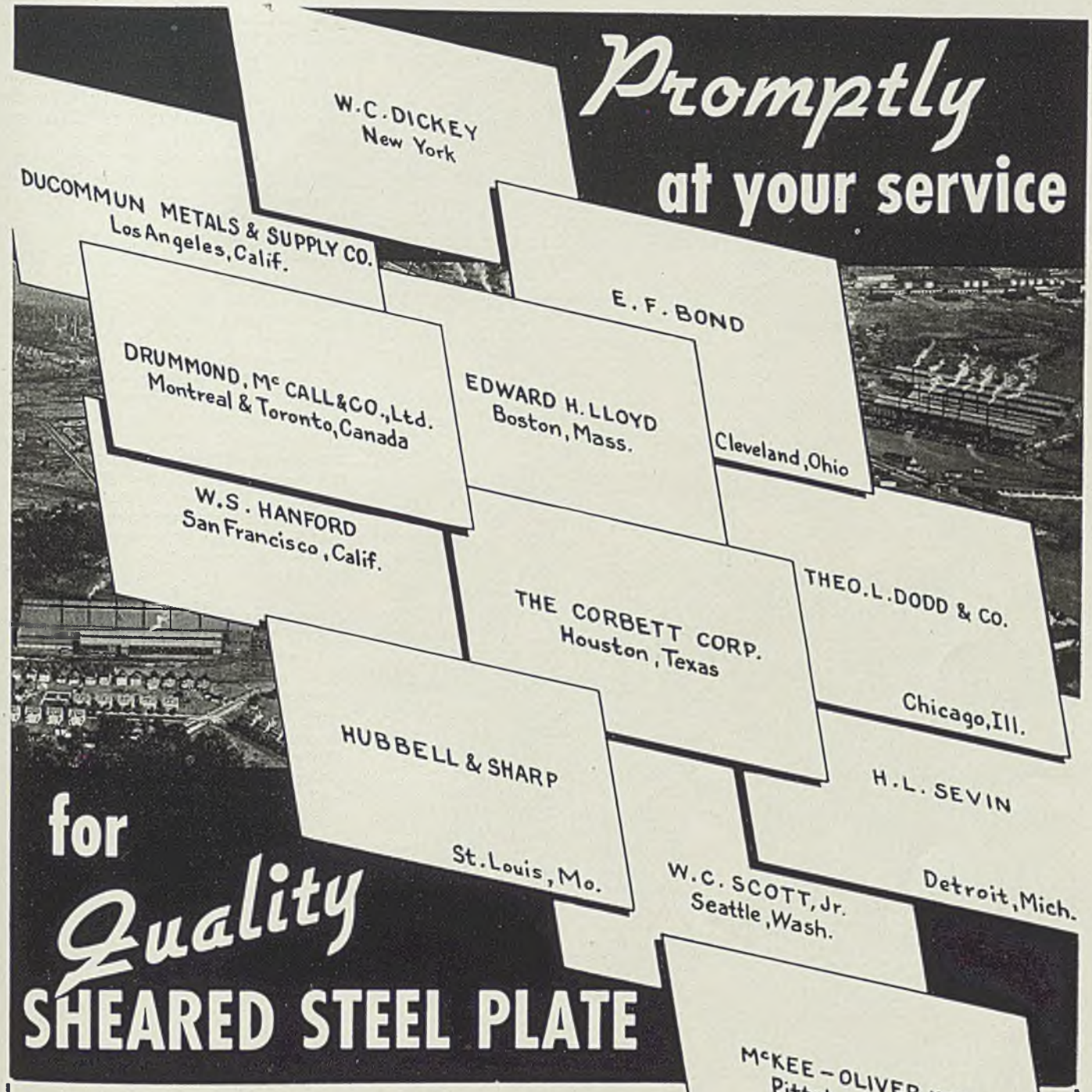
Flexible Coupling—

Lovejoy Flexible Coupling Co., Chicago, recently has developed a new flexible coupling, the L-R type WQ. It has one set of jaws made in the form of a removable ring. Ring is held in place and driven by 3, 5, 7 or 9 hexagon nut, alloy steel, screw caps which operate from the jaw body. As the pilot which holds the jaw ring in place is ⅛-inch deep, while the gap between the cushions



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and the jaw body is 3/16-inch, when the removable jaw ring is pulled over, there develops a clearance of 1/16-inch which is ample for rotating either half of the coupling. Disconnecting is secured without moving the load cushions or steel retaining band; only work necessary is to take out the cap screws and reverse them so they operate from the other body. Three types of cushions are used: Metalflex, a long-wearing brake lining material, used where heavy shock loads develop; leather load cushions of quality oak-tanned, belting leather, for use on sustained loads and greater misalignment; Multiflex cushions, a rubber duck fabric vulcanized under pressure and employed where loads fluctuate considerably and maximum resiliency is important.

♦

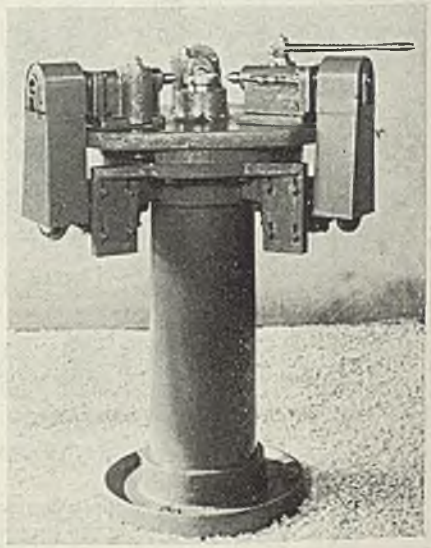
Molding Machine—

Reed-Prentice Corp., Worcester, Mass., has announced its improved model 10-A plastic injection molding machine. The stationary die plate has been increased to a 4⅞-inch thickness and is cut from solid steel plate. Steel movable die plate has been increased to 4½-inch thickness, while improved ribbing of die plate and longer bearing on the tie bars are regularly furnished. Plate is equipped with bronze bushing with oil facilities. Larger pump capacity gives 120 inches per minute continuous material plunger speed. Pressure on material is 2000 to 21,000 pounds per square inch. Regular equipment now includes automatic indicating control pyrometer and also two rheostats are furnished, one for rear of heat unit for independent control of heat to front and rear heating bands. Machine, weighing approximately 10,000 pounds, requires 15-horsepower motor, 1200 revolutions per minute on 60 cycle, and 1000 revolutions per minute on 50 cycle. Improved heating unit gives greater capacity estimated up to 3½ ounces. Torpedo has circular rather than slotted holes to eliminate trouble of light colors lodging in corners and burning. On the nozzle a heating unit is being furnished that can be shut off after the machine is functioning properly, and solidifying of materials in the nozzle eliminated.

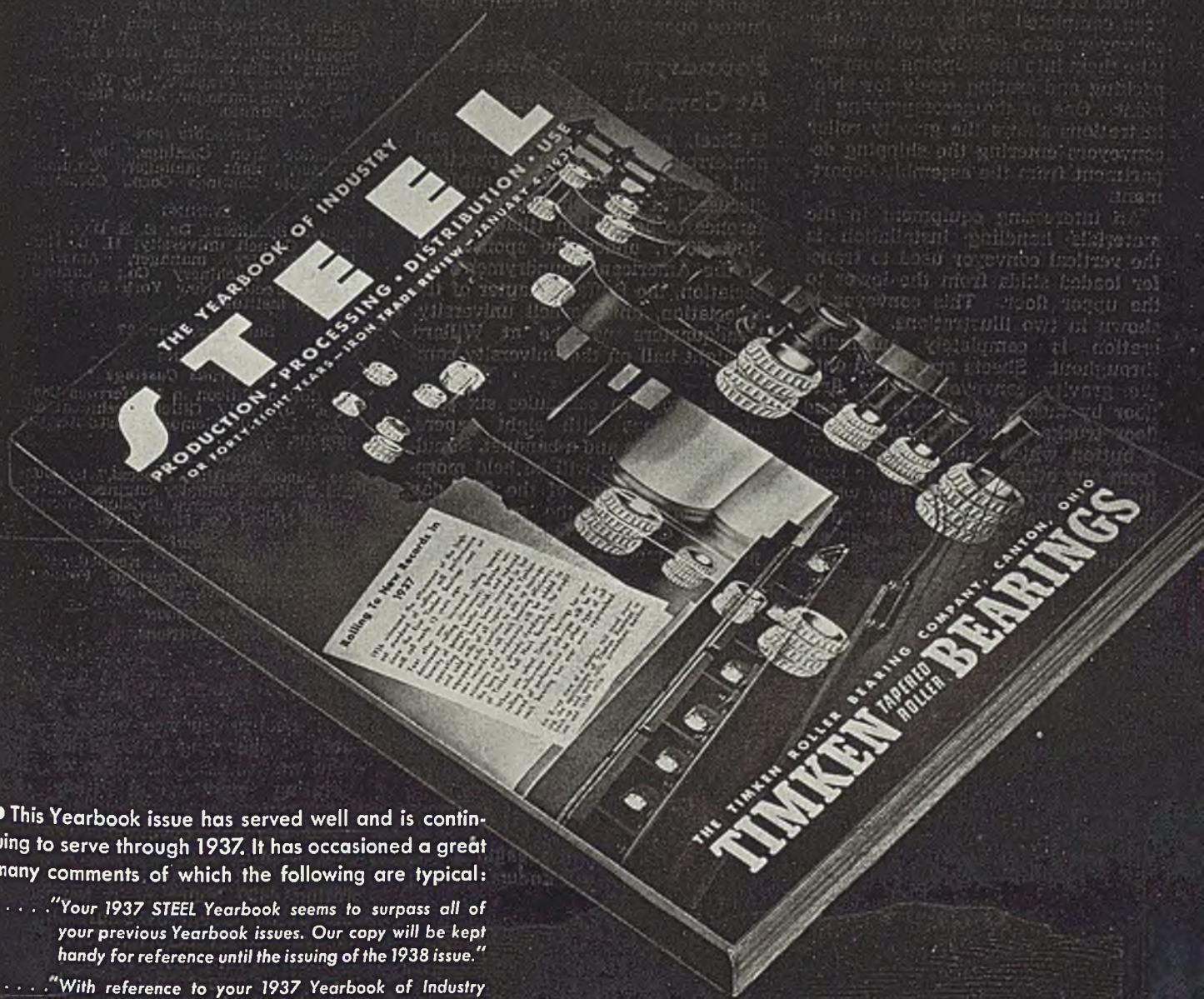
♦

Drilling Machine—

Langelier Mfg. Co., Providence, R. I., is manufacturing a three-way, horizontal, floor-type drilling machine designed for drilling holes 120 degrees apart. It is constructed with three horizontal, hand-fed drilling units and interconnected so heads will feed simultaneously, with suitable fixtures on the machine table. Individual motors are used to drive the drill spindles. The machines can be arranged for tapping operations by using reversing tapping chucks to fit the drill spindles. If machine is to handle both drilling and tapping, cone pulleys may be provided in order to change spindle speeds.



Langelier three-way, horizontal, floor-type machine is designed for drilling holes 120 degrees apart



● This Yearbook issue has served well and is continuing to serve through 1937. It has occasioned a great many comments of which the following are typical:

. . . . . *"Your 1937 STEEL Yearbook seems to surpass all of your previous Yearbook issues. Our copy will be kept handy for reference until the issuing of the 1938 issue."*

. . . . . *"With reference to your 1937 Yearbook of Industry issue, I am particularly glad to see that you have continued the same general format from last year, which I feel is highly successful. Getting so much information between two covers without having it somewhat jumbled and difficult to locate is rare. Last year's setup arranged the material admirably and you were wise to continue it."*

. . . . . *"I expect to keep this 1937 Yearbook of Industry issue of STEEL on my desk until it is replaced by the 1938 issue."*

STEEL'S 1938 Yearbook issue will soon be a fact. Arrange now for adequate representation.

MATERIALS HANDLING

Handling System Raises Stove Plant Efficiency

(*Concluded from Page* 58)

coal, gasoline and electricity. At the end of the testing, the units have been completed. They move off the conveyor onto gravity rolls which take them into the shipping room for packing and crating ready for shipment. One of the accompanying illustrations shows the gravity roller conveyors entering the shipping department from the assembly department.

An interesting equipment in the materials handling installation is the vertical conveyor used to transfer loaded skids from the lower to the upper floor. This conveyor is shown in two illustrations. Its operation is completely automatic throughout. Sheets are loaded onto the gravity conveyor at the first floor by means of electric or hand floor trucks. The operator presses a button which calls the conveyor from any other position to the loading position on the first floor where the skid is automatically loaded to the carriage. The carriage then automatically rises to the second floor and automatically unloads the skid onto a section of roller conveyor. The loading and unloading points, as well as the carriage itself, are protected by means of safety switches to stop movement of the carriage should necessity for stoppage arise during operation.

Foundrymen To Meet At Cornell University

■ Steel, malleable, cast iron and nonferrous castings; cupola practice; and foundry sands, will be subjects discussed at a regional foundry conference to be held in Ithaca, N. Y., Nov. 26-27, under the sponsorship of the American Foundrymen's association, the Buffalo chapter of the association, and Cornell university. Headquarters will be at Willard Straight hall on the university campus.

The program schedules six technical sessions with eight papers, two luncheons and a banquet. Simultaneous sessions will be held morning and afternoon of the first day and morning of the second day. Prof. A. C. Davis, head, department of experimental engineering, Cornell university, is chairman of the committee on arrangements.

Details of the program follow:

Friday, Nov. 26

MORNING

Foundry Sands

"Mixing and Blending of Foundry Sands (Iron, Steel and Nonferrous)," by L. B. Knight Jr., vice president, National Engineering Co., Chicago.

"Facing Mixtures for Gray Iron, Malleable, Steel and Nonferrous Castings," by Norman Dunbeck, Eastern Clay Products Inc., Elfort, O.

Alloy Cast Iron

"Practical Aspects of Production of Alloy Cast Irons," by R. G. McElwee, Vanadium Corp. of America, Detroit.

NOON

Luncheon. Speaker: Dexter S. Kimball, dean emeritus, college of engineering, Cornell university.

AFTERNOON

Steel Castings

"Modern Developments and Trends in Steel Castings," by V. T. Malcolm, metallurgist, Chapman Valve Mfg. Co., Indian Orchard, Mass.

"Steel Foundry Practice," by W. J. Corbett, works manager, Atlas Steel Casting Co., Buffalo.

Malleable Iron

"Malleable Iron Castings," by J. B. Deisher, plant manager, Columbia Malleable Castings Corp., Columbus, Pa.

EVENING

Banquet. Speakers: Dr. E. E. Day, president, Cornell university; H. B. Hanley, foundry manager, American Laundry Machinery Co.; Cameron Beck, director, New York Stock Exchange institute.

Saturday, Nov. 27

MORNING

Nonferrous Castings

"The Role of Silicon in Nonferrous Castings," by H. W. Gillett, technical advisor, Battelle Memorial institute, Columbus, O.

Cupola Practice

"The Cupola Melting Process," by Donald J. Reese, foundry engineer, development and research division, International Nickel Co., New York.

NOON

Luncheon. Speaker: R. E. Kennedy, technical secretary, American Foundrymen's association, Chicago.

AFTERNOON

Laboratory demonstrations.

Exhibit Furnace Element

An electric furnace element capable of operating at 3000 degrees Fahr. went on exhibition under full operating conditions in Pittsburgh last week.

The element, developed by Dr. Paul Schwarzkopf in his laboratories at Reutte, Austria, after operating 4400 hours at a temperature of 3000 degrees Fahr. shows no evidence of deterioration, it is claimed. From tests made in Europe, the element appears to be resistant to hydrogen, oxygen, hydrocarbon, sulphur and its combinations.

Details of the exhibition are in charge of Prof. W. Trinks. M. H. Mawhinney, consulting furnace engineer, Salem, O., has been retained to work with furnace manufacturers in studying the new element in its application to industrial furnaces.

RECENT PUBLICATIONS OF MANUFACTURERS

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

Diesels — Caterpillar Tractor Co., Peoria, Ill., has compiled a pictorial folder illustrating many industrial applications of Caterpillar diesel engines and tractors.

Air Filters — Northern Blower Co., Cleveland, has issued bulletin 500-3 illustrating and describing Norblo, automatic, square-type, air filters designed for continuous service.

Presses—Niagara Machine & Tool Works, 637 Northland avenue, Buffalo, N. Y., has issued bulletin No. 60-C on the latest improvements and developments in Niagara horn presses.

Wrenches — J. H. Williams & Co., 75 Spring street, New York, has published a new booklet entitled "How to Select and Use Wrenches." Data on wrench types and their applications are well illustrated.

Magnets — Taylor-Wharton Iron & Steel Co., High Bridge, N. J., has issued a booklet describing Tisco Alnico permanent magnets and covering development, production, design, theory and properties.

Chucks — Cushman Chuck Co., Hartford, Conn., has compiled a large, plastic-bound catalog, No. 50-1937, covering its complete line of chucking equipment. Feature is the inclusion of large scale blueprints and full dimension data for all chucks and component parts.

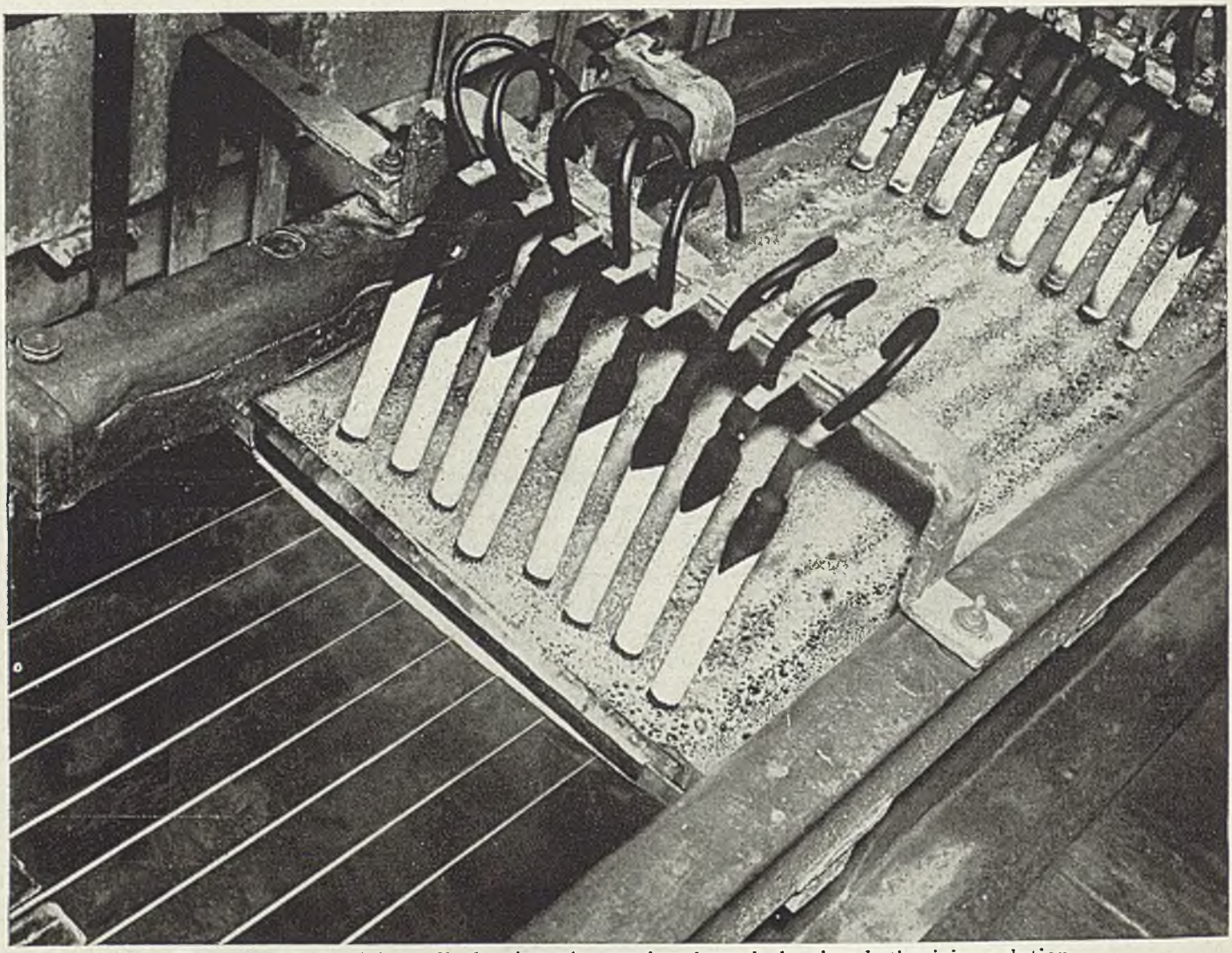
Unit Heaters — Trane Co., La Crosse, Wis., has published bulletin 284 on the new Trane projection heater, and bulletin 294 on the Trane multiple projection heater for factories, large buildings, and similar heating applications.

Flexible Couplings — Ajax Flexible Coupling Co., Westfield, N. Y., has bound a collection of data sheets covering the many types of Ajax flexible couplings. Several typical installations of flexible couplings are also illustrated.

Arc Welding — Harnischfeger Corp., Milwaukee, has published, as the second in a series of three booklets, a technical discussion of "The Inherent Requirements of the Arc Welding Generator," by F. J. Hirner, welder division, Harnischfeger Corp.

Materials Handling — Cleveland Tramrail division, Cleveland Crane & Engineering Co., Wickliffe, O., has published a folder on planned materials handling systems illustrating applications of its equipment in handling sheet metal, roll paper, rod, wire, and bags.

Bending Machines — Wallace Supplies Mfg. Co., 1310 Diversey parkway, Chicago, is distributing new catalogs illustrating and describing its new design of hand-operated bending machines together with automatic hydraulic equipment and a complete line of tubular steel furniture.



Close-up of bethanizing cell, showing wire passing through the clear bethanizing solution.

A bethanized zinc coating is *inevitably* of uniform thickness

THE LASTING qualities of zinc-coated wire depend on the uniformity of the coating as well as on the weather resistance of the zinc and the weight applied. If the coating is of uneven thickness, its effective life is no longer than that of the thin spots.

In the bethanizing process the zinc is put on the wire by the flow of electricity as the wire passes through a solution. Since the current flows equally into all points of the surface the amount of zinc deposited is the same all over the surface. The fact is, we couldn't put on an uneven bethanized coating if we wanted to.

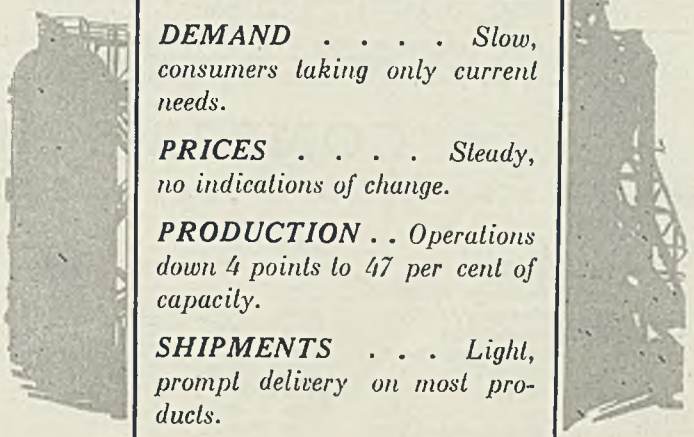
The inevitable uniformity of the coating is but one of the salient features of bethanized wire. This, plus the 99.99 per cent purity of the zinc coating and the fact that it endures virtually any fabricating operation, has enabled bethanized wire to stand up under conditions so severe that zinc-coated wire was never before even considered.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

Some Large Tonnages Come Into Market

Pig Iron Output Off; Prices Reaffirmed; Scrap Decline Slows



MARKET IN TABLOID

DEMAND . . . . *Slow, consumers taking only current needs.*

PRICES . . . . *Steady, no indications of change.*

PRODUCTION . . *Operations down 4 points to 47 per cent of capacity.*

SHIPMENTS . . . *Light, prompt delivery on most products.*

DESPITE a further decline in the steelmaking rate and in pig iron production, lighter volume of steel exports and hesitation among automotive builders, several developments appeared on the favorable side in the past week.

Placing of 45,000 tons of structurals and bearing piling by Ford Motor Co. for a new press shop, divided between mills in the Pittsburgh district, inquiry for 75,000 tons of steel rails by the Southern Pacific and taking of bids Dec. 10 for about 79,000 tons of steel for the extension of Coulee dam, bring an aggregate of about 200,000 tons before steel mills. It is likely this will be distributed widely as to producers. The order for steel piling by Ford is said to be the largest ever placed for that class of material.

Though mills continued curtailing production, the rate of decline is slower. Last week the national average was off 4 points to 47 per cent. At Pittsburgh the 41 per cent rate was maintained, Chicago lost 2 points to 42 per cent, Eastern Pennsylvania dropped 5 points to 38, Youngstown 3 points to 51, Wheeling 8 points to 54 and Cleveland 5 points to 54. In the smaller producing centers Buffalo lost 28 points to 23 per cent, Birmingham 10 points to 54, St. Louis 9.2 points to 42.4 and Cincinnati 26 points to 44. New England gained 5 points to 30 and Detroit held steady at 90 per cent.

Considerable inquiry is current for pig iron and steel for export but offered prices are so far below the market that producers are not interested.

Pig iron prices at Buffalo and Detroit have been reaffirmed for the first quarter.

It is understood the navy will reject all bids received Oct. 29 on a large tonnage of manganese ore and ferromanganese and readvertise on new specifications.

Pig iron production in October declined 18.1 per cent from the September average daily rate, to 93,259 tons. This is the lowest daily rate since September, 1936, when it was 90,942 tons. Total production dropped 15.4 per cent to 2,891,026 tons, also the lowest since September, 1936. Output for ten months this year totals 33,197,634 tons, a gain of 8,590,064 tons over the same period last year. In three months this year, since July, a total of 41 blast furnaces have been blown out, 30 being lost during October. This is the largest number of furnaces blown out in a single month since May, 1924, when 47 were withdrawn. Since Nov. 1 several more stacks have gone out.

Exports of steel during third quarter, 1,155,993 gross tons, excluding scrap, reaches the highest quarterly level since 1920. However, September exports were 29.7 per cent lower than those of August. For nine months steel exports were 205 per cent larger than during the corresponding portion of 1936. Scrap exports for nine months were the largest in the history of the industry, 3,335,194 tons, of which Japan took 1,806,943 tons, more than half. Pig iron export tonnage continued to lead in September, though with smaller tonnage than in August. Imports in September dropped sharply from the August total and were less than in September of last year. Total imports for nine months were also below those for the same period in 1936.

Freight car awards in October numbered 1355, bringing the total for the year to 51,061. This is the best record since 1929 and the ten months total exceeds the total for most years since that date.

Although scrap continues weak there are signs that the downward movement is becoming less precipitate and that a bottom is being reached. In the past week declines of 50 cents in steelmaking grades at Chicago and Philadelphia and 25 cents at Pittsburgh were considerably less than in preceding weeks. At present levels there is some tendency to hold stocks and it appears likely that a slight increase in steel production would bring an immediate rise in scrap prices.

STEEL'S composite price of steelmaking scrap declined 42 cents last week, the smallest recession in the past six weeks, reaching $14.04. Scrap weakness brought a drop of 16 cents in the iron and steel composite, to $39.17. The finished steel composite is unchanged at $61.70.

COMPOSITE MARKET AVERAGES

	Nov. 6	Oct. 30	Oct. 23	One Month Ago Oct., 1937	Three Months Ago Aug., 1937	One Year Ago Nov., 1936	Five Years Ago Nov., 1932
Iron and Steel	$39.17	$39.33	$39.47	$39.59	$40.34	$34.65	$28.79
Finished Steel	61.70	61.70	61.70	61.70	61.70	53.90	47.20
Steelworks Scrap ..	14.04	14.46	15.37	15.93	20.41	16.05	6.87

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.

COMPARISON OF PRICES

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

Finished Material

	Nov. 6, 1937	Oct. 1937	Aug. 1937	Nov. 1936
Steel bars, Pittsburgh	2.45c	2.45c	2.45c	2.05c
Steel bars, Chicago	2.50	2.50	2.50	2.10
Steel bars, Philadelphia	2.74	2.74	2.74	2.36
Iron bars, Terre Haute, Ind.	2.35	2.35	2.35	1.95
Shapes, Pittsburgh	2.25	2.25	2.25	1.90
Shapes, Philadelphia	2.45½	2.45½	2.45½	2.11½
Shapes, Chicago	2.30	2.30	2.30	1.95
Tank plates, Pittsburgh	2.25	2.25	2.25	1.90
Tank plates, Philadelphia	2.43½	2.43½	2.43½	2.09
Tank plates, Chicago	2.30	2.30	2.30	1.95
Sheets, No. 10, hot rolled, Pitts.	2.40	2.40	2.40	1.95
Sheets, No. 24, hot ann., Pitts.	3.15	3.15	3.15	2.60
Sheets, No. 24, galv., Pitts.	3.80	3.80	3.80	3.20
Sheets, No. 10, hot rolled, Gary	2.50	2.50	2.50	2.05
Sheets, No. 24, hot anneal., Gary	3.25	3.25	3.25	2.70
Sheets, No. 24, galvan., Gary	3.90	3.90	3.90	3.30
Plain wire, Pittsburgh	2.90	2.90	2.90	2.50
Tin plate, per base box, Pitts.	$5.35	$5.35	$5.35	$5.25
Wire nails, Pittsburgh	2.75	2.75	2.75	2.05

Semifinished Material

Sheet, bars, open-hearth, Youngs.	$37.00	$37.00	$37.00	$32.00
Sheet bars, open-hearth, Pitts.	37.00	37.00	37.00	32.00
Billets, open-hearth, Pittsburgh	37.00	37.00	37.00	32.00
Wire rods, No. 5 to 9/32-inch, Pitts.	47.00	47.00	47.00	40.00

Pig Iron

	Nov. 6, 1937	Oct. 1937	Aug. 1937	Nov. 1936
Bessemer, del. Pittsburgh	$25.26	$25.26	$25.26	$20.8132
Basic, Valley	23.50	23.50	23.50	19.00
Basic, eastern del. East. Pa.	25.26	25.26	25.26	21.81
No. 2 fdy., del. Pittsburgh	25.21	25.21	25.21	20.3132
No. 2 fdy., Chicago	24.00	24.00	24.00	19.75
Southern No. 2, Birmingham	20.38	20.38	20.38	15.75
Southern No. 2, del. Cincinnati	23.69	23.69	23.69	19.69
No. 2 X eastern, del. Phila.	26.135	26.135	26.135	22.68
Malleable, Valley	24.00	24.00	24.00	19.50
Malleable, Chicago	24.00	24.00	24.00	19.75
Lake Sup., charcoal, del. Chicago	30.04	30.04	30.04	25.87
Gray forge, del. Pittsburgh	24.17	24.17	24.17	19.6741
Ferromanganese, del. Pittsburgh	107.29	107.29	107.29	80.13

Scrap

Heavy melting steel, Pittsburgh	$14.75	$17.15	$21.85	$17.40
Hetvy melt. steel, No. 2, E. Pa.	12.25	14.01	18.00	13.75
Heavy melting steel, Chicago	13.50	13.95	19.75	16.50
Rails for rolling, Chicago	16.25	17.25	21.75	17.25
Railroad, steel specialties, Chicago	18.25	19.35	22.25	18.25

Coke

Connellsville, furnace, ovens	$4.37	$4.40	$4.50	$4.00
Connellsville, foundry, ovens	5.25	5.25	5.30	4.25
Chicago, by-product foundry, del.	11.00	11.00	11.00	9.75

STEEL, IRON, RAW MATERIAL, FUEL AND METALS PRICES

Except when otherwise designated, prices are base, f.o.b. cars.

Sheet Steel

Prices Subject to Quantity Extras and deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

Pittsburgh	2.40c
Gary	2.50c
Chicago, delivered	2.53c
Detroit, del.	2.60c
New York, del.	2.73c
Philadelphia, del.	2.69c
Birmingham	2.55c
St. Louis, del.	2.63c
Granite City, Ill.	2.60c
Pacific ports, f.o.b. dock	2.95c

Hot Rolled Annealed No. 24

Pittsburgh	3.15c
Gary	3.25c
Chicago, delivered	3.28c
Detroit, delivered	3.35c
New York, del.	3.48c
Philadelphia, del.	3.44c
Birmingham	3.30c
St. Louis, del.	3.38c
Granite City, Ill.	3.35c
Pacific ports, f.o.b. dock	3.80c

Galvanized No. 24

Pittsburgh	3.80c
Gary	3.90c
Chicago, delivered	3.93c
Philadelphia, del.	4.09c
New York, delivered	4.13c
Birmingham	3.95c
St. Louis, del.	4.03c
Granite City, Ill.	4.80c
Pacific ports, f.o.b. dock	4.40c

Tin Mill Black No. 28

Pittsburgh	3.30c
Gary	3.40c
St. Louis, delivered	3.53c
Granite City, Ill.	3.50c

Cold Rolled No. 10

Pittsburgh	3.10c
Gary	3.20c
Detroit, delivered	3.30c
Philadelphia, del.	3.39c
New York, del.	3.43c
St. Louis, del.	3.33c
Granite City, Ill.	3.30c
Pacific ports, f.o.b. dock	3.70c

Cold Rolled No. 20

Pittsburgh	3.55c
Gary	3.65c
Detroit, delivered	3.75c
Philadelphia, del.	3.84c
New York, del.	3.88c
St. Louis	3.78c
Granite City, Ill.	3.75c

Enameling Sheets

Pittsburgh, No. 10	2.90c
Pittsburgh, No. 20	3.50c
Gary, No. 10	3.00c
Gary, No. 20	3.60c
St. Louis, No. 10	3.13c
St. Louis, No. 20	3.73c

Tin and Terne Plate

Gary base, 10 cents higher

Tin plate, coke, (base box), Pittsburgh	$5.35
Waste-waste, 2.75c; strip	2.50c
Long ternes, No. 24, unassorted, Pitts.	4.10c

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

	No. 302	No. 304
Bars	24.00	25.00
Plates	27.00	29.00
Sheets	34.00	36.00
Hot strip	21.50	23.50
Cold strip	28.00	30.00

Straight Chromes

	No. 410	No. 430	No. 442	No. 446
Bars	18.50	19.00	22.50	27.50
Plates	21.50	22.00	25.50	30.50
Sheets	26.50	29.00	32.50	36.50
Hot strip	17.00	17.50	23.00	28.00
Cold stp.	22.00	22.50	28.50	36.50

Steel Plate

Pittsburgh	2.25c
New York, del.	2.53c
Philadelphia, del.	2.43½c
Boston, delivered	2.65c
Buffalo, delivered	2.50c
Chicago or Gary	2.30c
Cleveland, del.	2.44½c
Birmingham	2.40c
Coatesville, base	2.35c
Sparrows Pt., base	2.35c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, delivered	2.52c

Structural Shapes

Pittsburgh	2.25c
Philadelphia, del.	2.45½c
New York, del.	2.50¼c
Boston, delivered	2.63½c
Bethlehem	2.35c
Chicago	2.30c
Cleveland, del.	2.45c
Buffalo	2.35c
Gulf Ports	2.65c
Birmingham	2.40c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, del.	2.52c

Bars

Soft Steel

(Base, 3 to 25 tons)

Pittsburgh	2.45c
Chicago or Gary	2.50c
Duluth	2.60c
Birmingham	2.60c
Cleveland	2.50c
Buffalo	2.55c
Detroit, delivered	2.60c
Pacific ports, f.o.b. cars, dock	3.00c
Philadelphia, del.	2.74c
Boston, delivered	2.85c
New York, del.	2.78c
Pitts., forg. qual.	2.80c

Rail Steel

To Manufacturing Trade

Pittsburgh	2.30c
Chicago or Gary	2.35c
Cleveland	2.35c
Moline, Ill.	2.35c
Buffalo	2.40c
Birmingham	2.45c

Iron

Terre Haute, Ind.	2.35c
Chicago	2.40c
Philadelphia	2.64c
Pittsburgh, refined	3.50-8.00c

Reinforcing

New billet, straight lengths, quoted by distributors

Pittsburgh	2.55c
Chicago, Gary, Buffalo, Cleve., Birm., Young.	2.60c
Gulf ports	2.90c
Pacific coast ports, f.o.b. car docks	2.95c
Philadelphia, del.	2.84c

Rail steel, straight lengths, quoted by distributors

Pittsburgh	2.40c
Chicago, Buffalo, Cleveland, Birm., Young.	2.45c
Gulf ports	2.80c

Wire Products

Prices apply to mixed carloads, base; less carloads subject to quantity extras.

Base Pitts.-Cleve. 100 lb. keg.

Standard wire nails	$2.75
Cement coated nails	$2.75

(Per pound)

Polished staples	3.45c
Galv. fence staples	3.70c
Barbed wire, galv.	3.40c
Annealed fence wire	3.15c
Galv. fence wire	3.55c
Woven wire fencing (base C. L. column)	74
Single loop bale ties, (base C. L. column)	63

To Manufacturing Trade

Plain wire, 6-9 ga.	2.90c

Anderson, Ind. (merchant products only) and Chicago up $1; Duluth and Worcester up $2; Birmingham up $3.

Spring wire, Pitts. or Cleveland	3.50c

Do., Chicago up $1, Worc. $2.

Cold-Finished Carbon Bars and Shafting

Pittsburgh	2.90c
Chicago	2.95c
Gary, Ind.	2.95c
Detroit	2.95c
Cleveland	2.95c
Buffalo	3.00c

Subject to quantity deductions and extras. List dated Aug. 26, 1935; revised Oct. 1, 1936.

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons*)

Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem	3.00c

Alloy	Diff.	Alloy	Diff.
S.A.E.		S.A.E.	
2000	0.35	3100	0.70
2100	0.75	3200	1.35
2300	1.55	3300	3.80
2500	2.25	3400	3.20

4100 0.15 to 0.25 Mo.	0.55
4600 0.20 to 0.30 Mo. 1.50-2.00 Ni.	1.10
5100 0.80-1.10 Cr.	0.45
5100 Cr. spring	0.15
6100 bars	1.20
6100 spring	0.85
Cr. N., Van	1.50
Carbon Van.	0.85
9200 spring flats	0.15
9200 spring rounds, squares	0.40

Piling

Pittsburgh	2.60c
Chicago, Buffalo	2.70c

Strip and Hoops

(Base, hot rolled, 25-1ton)

(Base, cold-rolled, 25-3 tons)

Hot strip to 23½-in.	
Pittsburgh	2.40c
Chicago or Gary	2.50c
Birmingham base	2.55c
Detroit, del.	2.60c
Philadelphia, del.	2.69c
New York, del.	2.73c
Cooperage hoop,	
Pittsburgh	2.50c
Chicago	2.60c
Cold strip, 0.25 carbon and under, Pittsburgh, Cleveland	3.20c
Detroit, del.	3.40c
Worcester, Mass.	3.40c

Carbon	Cleve. Pitts.	Worcester, Mass.
0.26—0.50	3.20c	3.40c
0.51—0.75	4.45c	4.65c
0.76—1.00	6.30c	6.50c
Over 1.00	8.50c	8.70c

Rails, Track Material

(Gross Tons)

Standard rails, mill	$42.50
Relay rails, Pittsburgh. 20—100 lbs.	32.50-35.50
Light rails, billet qual., Pittsburgh, Chicago	$43.00
Do., rerolling quality	42.00
Angle bars, billet, Gary, Pittsburgh, So. Chicago	2.80c
Do., axle steel	3.35c
Spikes, R. R. base	3.15c
Track bolts, base	4.35c
Tie plates, base	$46.00

Base, light rails 25 to 60 lbs.; 20 lbs. up $2; 16 lbs. up $4; 12 lbs. up $8; 8 lbs. up $10. Base railroad spikes 200 kegs or more; base tie plates 20 tons.

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chicago. Discounts to legitimate trade as per Dec. 1, 1932, lists:

Carriage and Machine

½ x 6 and smaller	65-5 off
Do. larger, to 1-in.	60-10 off
Do. 1⅛ and 1¼-in.	60-5 off
Tire bolts	50 off

Plow Bolts

All sizes	65-5 off

Stove Bolts

In packages with nuts attached 70 off; in packages with nuts separate 70-10 off; in bulk 80 off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts	50-10-5 off
Elevator bolts	50-10-5 off

Nuts

S. A. E. semifinished hex.:	
½ to ⅞-inch	60-10 off
Do., 9/16 to 1-inch	60-5 off
Do., over 1-inch	60 off

Hexagon Cap Screws

Milled	50-10 off
Upset, 1-in., smaller	60 off

Square Head Set Screws

Upset, 1-in., smaller	75 off
Headless set screws	75 off

Rivets, Wrought Washers

Structural, Pittsburgh, Cleveland	3.60c
Structural, Chicago	3.70c
⅞-inch and smaller, Pitts., Chi., Cleve.	65-5 off
Wrought washers, Pitts., Chi., Phila. to jobbers and large nut, bolt mfrs. l.c.l. $5.40; c.l. $5.75 off	

Cut Nails

Cut nails, C. L., Pitts. (10% disc. on all extras)	$3.60
Do., less carloads, 5 kegs or more, no discount on any extras	$3.90
Do., under 5 kegs no disc. on any extras	$4.05

Welded Iron, Steel Pipe

Base discounts on steel pipe. Pitts., Lorain, O., to consumers in carloads. Gary, Ind., 2 points less. Chicago, del. 2½ less. Wrought pipe, Pittsburgh.

Butt Weld

Steel

In.	Blk.	Galv.
⅛	59½	49
¼	62½	53
1—3	64½	55½

Iron

¾	26	8
1—1¼	30	14
1½	34	16½
2	33½	16

Lap Weld

Steel

2	57	47½
2½—3	60	50½
3½—6	62	52½
7 and 8	61	50½
9 and 10	60½	50

Iron

2	26½	10
2½—3½	27½	12½
4	29½	16
4½—8	28½	15
9–12	24½	10

Line Pipe

Steel

1 to 3, butt weld	63½
2, lap weld	56
2½ to 3, lap weld	59
3½ to 6, lap weld	61
7 and 8, lap weld	60
10-inch, lap weld	59½
12-inch, lap weld	58½

Butt Weld

Iron

	Blk.	Galv.
¾	25	7
1 and 1¼	29	13
1½	33	15½
2	32½	15

Lap Weld

1½	23½	7
2	25½	9
2½ to 3½	26½	11½
4	28½	15
4½ to 8	27½	14
9 to 12	23½	9

Boiler Tubes

Carloads minimum wall seamless steel boiler tubes, cut lengths 4 to 24 feet, f.o.b. Pittsburgh, base price per 100 feet subject to usual extras.

Lap Weld

Sizes	Steel	Charcoal Iron
1½" OD x 13 Ga.	$10.45	$23.71
1¾" OD x 13 Ga.	11.89	22.93
2" OD x 13 Ga.	13.31	19.35
2" OD x 11 Ga.	15.49	23.36
2¼" OD x 13 Ga.	14.82	21.68
2¼" OD x 11 Ga.	17.38	26.02
2½" OD x 12 Ga.	17.82	26.57
2¾" OD x 12 Ga.	18.86	29.00
3" OD x 12 Ga.	19.73	31.36
3½" OD x 11 Ga.	24.89	39.81
4" OD x 10 Ga.	30.81	49.90
5" OD x 9 Ga.	47.57	73.93
6" OD x 7 Ga.	73.25	.....

Seamless

	Hot Rolled	Cold Drawn
1" OD x 13 Ga.	$ 8.41	$ 9.46
1¼" OD x 13 Ga.	9.96	11.21
1½" OD x 13 Ga.	11.00	12.38
1¾" OD x 13 Ga.	12.51	14.09
2" OD x 13 Ga.	14.02	15.78
2¼" OD x 13 Ga.	15.63	17.60
2¼" OD x 12 Ga.	17.21	19.37
2½" OD x 12 Ga.	18.85	21.22
2¾" OD x 12 Ga.	19.98	22.49
3" OD x 12 Ga.	20.97	23.60
4½" OD x 10 Ga.	40.15	45.19
3½" OD x 11 Ga.	26.47	29.79
4" OD x 10 Ga.	32.83	36.94
5" OD x 9 Ga.	50.38	56.71
6" OD x 7 Ga.	77.35	87.07

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$46.00-47.00
4-in., Birmingham	49.00-50.00
4-in., Chicago	57.00-58.00
6 to 24-in., Chicago	54.00-55.00
6-in. & over, east fdy.	50.00
Do., 4-in.	53.00

Class A Pipe $3 over Class B.

Stnd. fittgs., Birm., base	$100.00

Semifinished Steel

Billets and Blooms

4 x 4-*inch base; gross ton*

Pitts., Chi., Cleve., Buffalo, Young., Bham.	$37.00
Philadelphia	42.30
Duluth	39.00

Forging Billets

6 x 6 *to* 9 x 9-*in., base*

Pitts., Chicago, Buffalo	43.00
Forging, Duluth	45.00

Sheet Bars

Pitts., Cleve., Young., Sparrows Point	37.00

Slabs

Pitts., Chicago, Cleveland, Youngstown	37.00

Wire Rods

Pitts., Cleve., No. 5 to ⅜-inch incl.	47.00
Do., over ⅜ to ½-inch incl.	52.00

Chicago up $1; Worcester up $2.

Skelp

Pitts., Chi., Young., Buff., Coatesville, Sparrows Pt.	2.10c

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$4.25- 4.50
Connellsville, fdry.	5.00- 5.50
Connell. prem. fdry.	5.75- 6.25
New River fdry.	6.50- 6.75
Wise county fdry.	5.75- 6.00
Wise county fur.	4.75- 5.00

By-Product Foundry

Newark, N. J., del.	10.85-11.30
Chi., ov., outside del.	10.25
Chicago, del.	11.00
Milwaukee, ovens	11.00
New England, del.	12.50
St. Louis, del.	11.00-11.50
Birmingham, ovens	7.50
Indianapolis, del.	10.50
Cincinnati, del.	10.50
Cleveland, del.	11.00
Buffalo, del.	10.50
Detroit, del.	11.10
Philadelphia, del.	10.60

Coke By-Products

Spot, gal. Producers' Plants

Pure and 90% benzol	16.00c
Toluol	30.00c
Solvent naphtha	30.00c
Industrial xylol	30.00c

Per lb. f.o.b. Frankford and St. Louis

Phenol (200 lb. drums)	16.25c
do. (450 lbs.)	15.25c

Eastern Plants, per lb.

Naphthalene flakes and balls, in bbls. to jobbers	7.25c

Per ton, bulk, f.o.b. oven or port	
Sulphate of ammonia	$29.00

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. below 1.75 sil. Gross tons.

Basing Points:

	No. 2 Fdry.	Malleable	Basic	Bessemer
Bethlehem, Pa.	$25.00	$25.50	$23.50	$26.00
Birdsboro, Pa.	25.00	25.50	24.50	26.00
Birmingham, Ala.‡	20.38	.....	19.38	25.00
Buffalo	24.00	24.50	23.00	25.00
Chicago	24.00	24.00	23.50	24.50
Cleveland	24.00	24.00	23.50	24.50
Detroit	24.00	24.00	23.50	24.50
Duluth	24.50	24.50	.....	25.00
Erie, Pa.	24.00	24.50	23.50	25.00
Everett, Mass.	25.75	26.25	25.25	26.75
Hamilton, O.	24.00	24.00	23.50	.....
Neville Island, Pa.	24.00	24.00	23.50	24.50
Provo, Utah	22.00	.....	.....	.....
Sharpsville, Pa.	24.00	24.00	23.50	24.50
Sparrows Point, Md.	25.00	.....	24.50	.....
Swedeland, Pa.	25.00	25.50	24.50	26.00
Toledo, O.	24.00	24.00	23.50	24.50
Youngstown, O.	24.00	24.00	23.50	24.50

‡Subject to 38 cents deduction for 0.70 per cent phosphorus or higher.

Delivered from Basing Points:

Akron, O., from Cleveland	25.26	25.26	24.76	25.76
Baltimore from Birmingham	25.58	.....	24.46	.....
Boston from Birmingham	26.37	.....	25.87	.....
Boston from Everett, Mass.	26.25	26.75	25.75	27.25
Boston from Buffalo	26.25	26.75	25.75	27.25
Brooklyn, N. Y., from Bethlehem	27.27	27.77	.....	.....
Brooklyn, N. Y., from Bmghm.	27.05	.....	.....	.....
Canton, O., from Cleveland	25.26	25.26	25.76	25.76
Chicago from Birmingham	24.22	.....	24.10	.....
Cincinnati from Hamilton, O.	24.07	25.01	24.51	.....
Cincinnati from Birmingham	23.69	.....	22.69	.....
Cleveland from Birmingham	24.12	.....	23.62	.....
Mansfield, O., from Toledo, O.	25.76	25.76	25.26	25.26
Milwaukee from Chicago	25.00	25.00	24.50	25.00
Muskegon, Mich., from Chicago, Toledo or Detroit	26.90	26.90	26.40	27.40
Newark, N. J., from Birmingham	26.01	.....	.....	.....
Newark, N. J., from Bethlehem	26.39	26.89	.....	.....
Philadelphia from Birmingham	25.38	.....	25.26	.....
Philadelphia from Swedeland, Pa.	25.76	26.26	25.26	.....
Pittsburgh district from Neville Island	∫ Neville, base plus 63c, 76c, and $1.13 switch'g charges			
Saginaw, Mich., from Detroit	26.25	26.25	25.75	25.75
St. Louis, northern	24.50	24.50	24.00	.....
St. Louis from Birmingham	†24.12	.....	23.82	.....
St. Paul from Duluth	25.94	25.94	.....	26.44

†Over 0.70 phos.

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Standish, N. Y., $28.50, Phila. base, standard and copper bearing, $29.63.

Gray Forge		Charcoal	
Valley furnace	$23.50	Lake Superior fur.	$27.00
Pitts. dist. fur.	23.50	do., del. Chicago	30.04
		Lyles, Tenn.	26.50

Silvery†

Jackson county, O., base: 6-6.50 per cent $28.50; 6.51-7—$29.00; 7-7.50—$29.50; 7.51-8—$30.00; 8-8.50—$30.50; 8.51-9—$31.00; 9-9.50—$31.50; 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, Net Prices

Fire Clay Brick

Super Quality

Pa., Mo., Ky.	$64.60

First Quality

Pa., Ill., Md., Mo., Ky.	51.30
Alabama, Georgia	51.30
New Jersey	56.00

Second Quality

Pa., Ill., Ky., Md., Mo.	46.55
Georgia, Alabama	41.80
New Jersey	51.00

Ohio

First quality	43.70
Intermediate	39.90
Second quality	35.15

Malleable Bung Brick

All bases	$59.85

Silica Brick

Pennsylvania	$51.30
Joliet, E. Chicago	59.85
Birmingham, Ala.	51.30

Ladle Brick
(Pa., O., W. Va., Mo.)

Dry press	$30.00
Wire cut	$28.00

Magnesite

Imported dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags)	$45.00
Domestic dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags)	43.00

Base Brick

Net ton, f.o.b. Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick	$49.00
Chem. bonded chrome	49.00
Magnesite brick	69.00
Chem. bonded magnesite	59.00

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton	$24.00
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail	$20.00
Do., for barge	$22.00
No. 2 lump	22.00-23.00

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82%, tidewater, duty pd.	$102.50
Do., Baltimore, base	102.50
Do., del. Pittsburgh	107.29
Spiegeleisen, 19-21% dom. Palmerton, Pa., spot	33.00
Do., New Orleans	33.00
Do., 26-28%, Palmerton	39.00
Ferrosilicon, 50% freight allowed, c.l.	69.50
Do., less carload	77.00
Do., 75 per cent	126-130.00
Spot, $5 a ton higher.	
Silicoman., 2½ carbon	106.50
2% carbon 111.50; 1%,	121.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del.	10.50
Ferrotungsten, stand., lb. con. del. cars	2.95-3.00
Ferrovanadium, 35 to 40% lb., cont.	2.70-2.90
Ferrotitanium, c. l., prod. plant, frt. all., net ton	142.50
Spot, carlots	145.00
Spot, ton lots	150.00
Ferrophosphorous, per ton, c. l., 17-19% Rockdale, Tenn., basis, 18%, $3 unitage	63.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $3 unitage	80.00
Ferromolybdenum, stand. 55-65%, lb.	0.95
Molybdate, lb. cont.	0.80
†Carloads. Quan. diff.	apply

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper: Electro, del. Conn.	Copper: Lake, del. Midwest	Copper: Casting, refinery	Straits Tin, New York: Spot	Straits Tin, New York: Futures	Lead: N. Y.	Lead: East St. L.	Zinc: St. L.	Aluminum 99%	Antimony: American Spot, N. Y.	Nickel: Cathodes
Oct. 30	11.75	12.12½	11.27½	48.25	47.87½	5.50	5.35	5.75	20.00	17.25	35.00
Nov. 1	11.75	12.12½	11.27½	47.62½	47.12½	5.50	5.35	5.75	20.00	17.25	35.00
Nov. 2	11.75	12.12½	11.27½	46.25	45.75	5.50	5.35	5.75	20.00	17.25	35.00
Nov. 3	11.75	12.12½	11.27½	45.75	45.25	5.25	5.10	5.75	20.00	16.75	35.00
Nov. 4	11.50	12.12½	11.27½	45.12½	44.75	5.00	4.85	5.75	20.00	16.75	35.00
Nov. 5	11.00	12.12½	10.50	44.12½	43.87½	5.00	4.85	5.75	20.00	16.75	35.00

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 12.00c Conn. copper

Sheets

Yellow brass (high)	18.12½
Copper, hot rolled	20.12½
*Lead, cut to jobbers	8.50
Zinc, 100-lb. base	11.00

Tubes

High, yellow brass	20.87½
Seamless copper	20.87½

Rods

High yellow brass	14.62½
Copper, hot rolled	16.62½

Anodes

Copper, untrimmed	17.37½

Wire

Yellow brass (high)	18.37½

OLD METALS

Nom. Del. buying prices

No. 1 Composition Red Brass

*New York	5.87½-6.12½
*Cleveland	6.25-6.50
*Chicago	6.50-6.75
*St. Louis	6.25-6.50

Heavy Copper and Wire

*New York, No. 1	7.75-8.00
*Cleveland, No. 1	7.25-7.50
Chicago, No. 1	8.00-8.25
*St. Louis	7.75-8.00

Composition Brass Borings

*New York	5.50-5.75

Light Copper

*New York	5.75-6.00
*Cleveland	5.25-5.50
*Chicago	5.75-6.00
St. Louis	6.00-6.25

Light Brass

*Cleveland	2.75-3.00
Chicago	4.00-4.25
St. Louis	3.75-4.00

Lead

*New York	4.00-4.25
*Cleveland	3.75-4.00
Chicago	4.00-4.25
*St. Louis	3.75-4.00

Zinc

New York	3.00-3.25
Cleveland	3.00-3.25
*St. Louis	2.75-3.25

Aluminum

Borings, Cleveland	8.00-8.25
Mixed cast, Cleve.	10.75-11.00
Clips, soft, Cleve.	12.75-13.00
*Mixed cast, St. L.	11.50-12.00

SECONDARY METALS

Brass, ingot, 85-5-5-5, lcl.	12.25
Stand. No. 12 alum.	18.00-18.50

WAREHOUSE IRON AND STEEL PRICES

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

Baltimore	4.00c
Birmingham	3.85c
Boston††	4.05c
Buffalo	3.90c
Chattanooga	4.21c
Chicago (j)	3.85c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	3.93½c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.96c-4.11c
New Orleans	4.20c
New York‡ (d)	4.12c
Pitts. (h)	3.80c
Philadelphia	4.00c
Portland	4.50c
San Francisco	4.20c
Seattle	4.45c
St. Louis	4.09c
St. Paul	4.10c-4.25c
Tulsa	3.35c

IRON BARS

Portland	3.50c
Chattanooga	4.21c
Baltimore*	3.25c
Cincinnati	4.05c
New York‡ (d)	3.65c
Philadelphia	4.00c
St. Louis	4.09c

REINFORCING BARS

Buffalo	3.10c
Birmingham	3.85c
Chattanooga	4.21c
Cleveland (c)	2.55c
Cincinnati	3.75c
Houston	3.25c
Los Angeles, c.l.	2.975c
New Orleans*	3.24c
Pitts., plain (h)	2.55c
Pitts., twisted squares (h)	3.95c
San Francisco	2.97½c
Seattle	2.975c
St. Louis	3.99c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.90c
Birmingham	3.75c
Boston††	3.92c
Buffalo	3.80c
Chattanooga	4.11c
Chicago	3.75c
Cincinnati	3.95c
Cleveland	3.86c
Detroit	3.95c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	3.97c
Philadelphia	3.90c
Pittsburgh (h)	3.70c
Portland (l)	4.25c
San Francisco	4.05c
Seattle (l)	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

PLATES

Baltimore	3.90c
Birmingham	3.75c
Boston††	3.93c
Buffalo	3.80c
Chattanooga	4.11c
Chicago	3.75c
Cincinnati	3.95c
Cleve., ¼-in., o'r	3.86c
Detroit	3.95c
Detroit, ⅜-in.	4.15c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	4.00c
Philadelphia	3.90c
Phila. floor	5.25c
Pittsburgh (h)	3.70c
Portland	4.25c
San Francisco	4.05c
Seattle	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

NO. 10 BLUE

Baltimore	3.95c
Birmingham	3.80c
Boston (g)	4.00c
Buffalo, 8-10 ga.	3.97c
Chattanooga	4.16c
Chicago	3.85c
Cincinnati,	4.00c
Cleveland	3.91c
Det. 8-10 ga.	3.93½c
Houston	3.45c
Los Angeles	4.50c
Milwaukee	3.96c
New Orleans	4.35c
New York‡ (d)	4.07c
Portland	4.25c
Philadelphia	4.00c
Pittsburgh (h)	3.75c
San Francisco	4.30c
Seattle	4.50c
St. Louis	4.39c
St. Paul	4.10c
Tulsa	3.80c

NO. 24 BLACK

Baltimore*†	4.50c
Birmingham	4.40c
Boston (g)	4.75c
Buffalo	4.80c
Chattanooga*	4.06c
Chicago	4.45c-5.10c
Cincinnati	4.75c
Cleveland	4.66c
Detroit	4.68½c
Los Angeles	5.05c
Milwaukee	4.56c-5.21c
New York‡ (d)	4.82c
Philadelphia	4.65c
Pitts.** (h)	4.75c
Portland	5.15c
Seattle	5.35c
San Francisco	5.15c
St. Louis	4.84c
St. Paul	4.75c
Tulsa	4.85c

NO. 24 GALV. SHEETS

Baltimore*†	4.70c
Birmingham	5.05c
Buffalo	5.45c
Boston (g)	5.30c
Chattanooga*	4.76c
Chicago (h)	5.10c-5.75c
Cincinnati	5.40c
Cleveland	5.31c
Detroit	5.40c
Houston	4.50c
Los Angeles	5.75c
Milwaukee	5.21c-5.86c
New Orleans*	5.75c
New York‡ (d)	5.47c
Philadelphia	5.30c
Pitts.** (h)	5.40c
Portland	5.90c
San Francisco	5.85c
Seattle	5.90c
St. Louis	5.49c
St. Paul	5.40c
Tulsa	5.20c

BANDS

Baltimore	4.20c
Boston††	4.25c
Buffalo	4.22c
Chattanooga	4.41c
Cincinnati	4.25c
Cleveland	4.16c
Chicago	4.10c
Detroit, ⅜ & Und.	4.185c
Houston	3.35c
Los Angeles	4.80c
Milwaukee	4.21c
New Orleans	4.75c
New York‡ (d)	4.32c
Philadelphia	4.10c
Pittsburgh (h)	4.00c
Portland	5.00c
San Francisco	4.80c
Seattle	4.95c
St. Louis	4.34c
St. Paul	4.35c

HOOPS

Baltimore	4.45c
Boston††	5.25c
Buffalo	4.22c
Chicago	4.10c
Cincinnati	4.25c
Detroit, 14 & Und.	4.185c
Los Angeles	6.55c
Milwaukee	4.21c
New York‡ (d)	4.32c
Philadelphia	4.35c
Pittsburgh (h)	4.50c
Portland	6.50c
San Francisco	6.50c
Seattle	6.30c
St. Louis	4.34c
St. Paul	4.35c

COLD FIN. STEEL

Baltimore (c)	4.50c
Birmingham	4.91c
Boston*	4.65c
Buffalo (h)	4.35c
Chattanooga*	4.86c
Chicago (h)	4.30c
Cincinnati	4.50c
Cleveland (h)	4.30c
Detroit	4.30c
Los Ang. (f) (d)	6.85c
Milwaukee	4.41c
New Orleans	5.10c
New York‡ (d)	4.57c
Philadelphia	4.53c
Pittsburgh	4.15c
Portland (f) (d)	7.10c
San Fran. (f) (d)	6.80c
Seattle (f) (d)	7.10c
St. Louis	4.54c
St. Paul	4.77c
Tulsa	4.80c

COLD ROLLED STRIP

Boston	3.845c
Buffalo	3.79c
Chicago	3.87c
Cincinnati	3.82c
Cleveland (b)	3.60c
Detroit	3.43c
New York‡ (d)	3.92c
St. Louis	4.54c

TOOL STEELS

(Applying on or east of Mississippi river; west of Mississippi 1c up.)

	Base
High speed	69c
High carbon, Cr.	45c
Oil hardening	26c
Special tool	24c
Extra tool	20c
Regular tool	16c
Water hardening	12½c

Uniform extras apply.

BOLTS AND NUTS

(100 pounds or over)	Discount
Birmingham	50-10
Chicago (a)	55 to 60
Cleveland	60-5-5
Detroit	70-10
Milwaukee	60 to 65
New Orleans	60
Pittsburgh	65-5

(a) Under 100 lbs., 50 off.

(b) Plus straightening, cutting and quantity differentials; (c) Plus mill, size and quantity extras; (d) Quantity base; (e) New mill classif. (f) Rounds only; (g) 50 bundles or over; (h) Outside delivery, 10c less; (l) Under 3 in.; (j) Shapes other than rounds, flats, fillet angles, 0.15c higher.

On plates, shapes, bars, hot strip and blue annealed quantity extras and discounts as follows: Under 100 lbs., add $1.50; 100 to 399 lbs., add 50c; 400 to 3999 lbs., base; 4000 to 9999 lbs., deduct 10c; over 10,000 lbs., deduct 15c. At Cleveland, under 400 lbs., add 50c, with $1 minimum invoice.

‡Domestic steel; *Plus quantity extras; **One to 9 bundles; *† 50 or more bundles; †New extras apply; ††Base 10,000 lbs., extras on less.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Nov. 4

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

	British gross tons U. K. ports £ s d	Continental Channel or North Sea ports, metric tons Quoted in dollars at current value	Continental Channel or North Sea ports, metric tons **Quoted in gold pounds sterling £ s d
PIG IRON			
Foundry, 2.50-3.00 Silicon	$29.88 6 0 0	$20.95	2 12 0
Basic bessemer	.....	20.95	2 12 0
Hematite, Phos. .03-.05	36.10 7 5 0*	.....	.....
SEMIFINISHED STEEL			
Billets	$39.22 7 17 6	$43.20	5 7 6
Wire rods, No. 5 gage	53.91 10 16 6	49.22	6 2 6
FINISHED STEEL			
Standard rails	$50.42 10 2 6	$46.20	5 15 0
Merchant bars	2.44c 11 0 0	2.18c to 2.28c	6 0 0 to 6 5 0
Structural shapes	2.36c 10 12 6	1.96c	5 7 6
Plates, †¼ in. or 5 mm.	2.57c 11 11 3	2.59c	7 2 6
Sheets, black, 24 gage or 0.5 mm	3.33c 15 0 0	3.18c	8 15 0††
Sheets, gal., 24 gage, corr.	4.16c 18 15 0	4.01c	11 0 0
Bands and strips	3.05c 13 15 0	2.37c	6 10 0
Plain wire, base	4.33c 19 10 0	2.54c	7 0 0
Galvanized wire, base	5.16c 23 5 0	3.18c	8 15 0
Wire nails, base	4.11c 18 10 0	2.90c	8 0 0
Tin plate, box 108 lbs.	$5.98 1 4 0	.....	.....

British ferromanganese $102.50 delivered Atlantic seaboard, duty-paid.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	£5 1 0(a)	$18.78	554	$27.12	800	$25.37	63
Basic bessemer pig iron	5 0 0(a)	.....	.....	.....	.....	27.99 (b)	69.50
Furnace coke	1 17 6	6.41	189	7.29	215	7.65	19
Billets	7 17 6	25.68	757.50	32.54	960	38.86	96.50
Standard rails	10 2 6	1.62c	1,080	2.06c	1,375	2.38c	132
Merchant bars	11 9 0	1.49c	995	1.65c	1,100	1.98c	110
Structural shapes	11 0 6	1.46c	970	1.65c	1,100	1.93c	107
Plates, †¼-in. or 5 mm.	11 14 3	1.86c	1,240	2.06c	1,375	2.29c	127
Sheets, black	15 15 0§	2.25c	1,500‡	2.36c	1,575‡	2.59c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	19 10 0	3.38c	2,250	2.85c	1,900	6.66c	370
Plain wire	19 10 0	2.28c	1,520	2.48c	1,650	3.11c	173
Bands and strips	12 4 0	1.68c	1,120	2.33c	1,550	2.29c	127

*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 hemetite. ††Close annealed.
**Gold pound sterling carries a premium of 65.3 per cent over paper sterling.

IRON AND STEEL SCRAP PRICES

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

HEAVY MELTING STEEL

Birmingham,† No. 1	14.00
Birmingham,† No. 2	13.00
Bos. dock No. 1 exp.	13.00-13.50
N. Eng. del. No. 1..	13.50-14.00
Buffalo, No. 1	14.00-14.50
Buffalo, No. 2	12.00-12.50
Chicago, No. 1	13.25-13.75
Cleveland, No. 1 ...	13.50-14.00
Cleveland, No. 2 ...	12.50-13.00
Detroit, No. 1	10.50-11.00
Eastern Pa., No. 1..	14.00-14.50
Eastern Pa., No. 2..	12.00-12.50
Federal, Ill.	12.50-13.00
Granite City, R. R.	14.25-14.75
Granite City, No. 2.	12.50-13.00
New York, No. 1 ...	†13.00
N. Y. dock No. 1 exp	13.00-13.50
Pitts., No. 1 (R. R.)	15.50-16.00
Pitts., No. 1 (dlr.) ..	14.50-15.00
Pittsburgh, No. 2...	13.50-14.00
St. Louis, R. R. ...	14.25-14.75
St. Louis, No. 2....	12.50-13.00
Toronto, dlrs. No. 1.	12.00
Toronto, No. 2	11.00
Valleys, No. 1	14.50-15.00

COMPRESSED SHEETS

Buffalo, dealers ...	12.00-12.50
Chicago, factory ...	12.50-13.00
Chicago, dealer	12.00-12.50
Cleveland	13.00-13.50
Detroit	11.00-11.50
E. Pa., new mat. ...	14.00-14.50
E. Pa., old mat.	10.50-11.00
Pittsburgh	14.50-15.00
St. Louis	10.00-10.50
Valleys	14.00-14.50

BUNDLED SHEETS

Buffalo	9.50-10.00
Cincinnati, del.	11.50-12.00
Cleveland	10.00-10.50
Pittsburgh	14.00-14.50
St. Louis	9.00- 9.50
Toronto, dealers	8.00

SHEET CLIPPINGS, LOOSE

Chicago	9.50-10.00
Cincinnati	9.50-10.00
Detroit	8.00- 8.50
St. Louis	8.00- 8.50

STEEL RAILS, SHORT

Birmingham	15.00
Buffalo	19.00-19.50
Chicago (3 ft.)	17.00-17.50
Chicago (2 ft.)	18.00-18.50
Cincinnati, del.	18.50-19.00
Detroit	15.50-16.00
Pitts., 3 ft. and less	19.25-19.75
St. Louis, 2 ft. & less	17.00-17.50

STEEL RAILS, SCRAP

Boston district	†13.00-13.50
Buffalo	15.50-16.00
Chicago	13.25-13.75
Cleveland	17.50-18.00
Pittsburgh	15.50-16.00
St. Louis	14.00-14.50

STOVE PLATE

Birmingham	9.50-10.00
Boston district	†8.00
Buffalo	11.50-12.00
Chicago	9.50-10.00
Cincinnati, dealers..	8.50- 9.00
Detroit, net	9.00- 9.50
Eastern Pa.	12.50-13.00
New York, fdry. ...	†9.50-10.00
St. Louis	10.00-10.50
Toronto, deal'rs, net	10.00

SPRINGS

Buffalo	18.00-18.50
Chicago, coil	19.00-19.50
Chicago, leaf	17.50-18.00
Eastern Pa.	19.50-20.00
Pittsburgh	19.25-19.75
St. Louis	18.00-18.50

ANGLE BARS—STEEL

Chicago	15.50-16.00
St. Louis	16.00-16.50

RAILROAD SPECIALTIES

Chicago	18.00-18.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	18.50-19.00
Cleveland, billet, bloom crops	22.00-22.50
Eastern Pa., crops..	19.50-20.00
Pittsburgh, billet, bloom crops	19.75-20.25
Pittsburgh, sheet bar crops	19.25-19.75

FROGS, SWITCHES

Chicago	13.25-13.75
St. Louis, cut	14.75-15.25

SHOVELING STEEL

Federal, Ill.	12.50-13.00
Granite City, Ill....	12.50-13.00
Toronto, dealers....	10.00

RAILROAD WROUGHT

Birmingham ...	13.50-14.00
Boston district	†9.00- 9.50
Buffalo, No. 1	11.50-12.00
Buffalo, No. 2	14.00-14.50
Chicago, No. 1 net ..	12.00-12.50
Cincinnati, No. 2 ...	12.00-12.50
Eastern Pa., No. 1..	15.50-16.00
St. Louis, No. 1....	9.50-10.00
St. Louis, No. 2....	14.75-15.25
Toronto, No. 1 dlr...	16.00

SPECIFICATION PIPE

Eastern Pa.	15.50-16.00
New York	†11.50-12.00

BUSHELING

Buffalo, No. 1	12.00-12.50
Chicago, No. 1	12.50-13.00
Cincin., No. 1, deal..	12.00-12.50
Cincinnati, No. 2 ...	7.00- 7.50
Cleveland, No. 2 ...	10.00-10.50
Detroit, No. 1, new.	10.00-10.50
Valleys, new, No. 1	13.50-14.00
Toronto, dealers....	9.00

MACHINE TURNINGS

Birmingham	6.00- 7.00
Buffalo	9.00- 9.50
Chicago	8.00- 8.50
Cincinnati, dealers..	8.50- 9.00
Cleveland	8.50- 9.00
Detroit	5.75- 6.25
Eastern Pa.	10.00-10.50
New York	†8.00- 8.50
Pittsburgh	10.00-10.50
St. Louis	7.00- 7.50
Toronto, dealers ...	8.00- 8.50
Valleys	10.50-11.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†4.00- 4.50
Buffalo	9.00- 9.50
Cincinnati, dealers..	7.00- 7.50
Cleveland	10.50-11.00
Detroit	6.50- 7.00
Eastern Pa.	9.00- 9.50
New York	†5.50- 6.00
Pittsburgh	10.00-10.50
Toronto, dealers.	8.00- 8.50

CAST IRON BORINGS

Birmingham	8 00
Boston dist. chem...	†7.50- 8.00
Bos. dist. for mills	†7.00- 7.50
Buffalo	9.00- 9.50
Chicago	9.00- 9.50
Cincinnati, dealers..	7.00- 7.50
Cleveland	10.50-11.00
Detroit	6.50- 7.00
E. Pa., chemical....	14.00-14.50
New York	†6.00- 6.50
St. Louis	6.00- 6.50
Toronto, dealers....	9.00

PIPE AND FLUES

Cincinnati, dealers..	8.50- 9.00
Chicago, net	10.00-10.50

RAILROAD GRATE BARS

Buffalo	9.50-10.00
Chicago, net	9.50-10.00
Cincinnati	8.50- 9.00
Eastern Pa.	12.50-13.00
New York	†9.50-10.00
St. Louis	11.00-11.25

FORGE FLASHINGS

Boston district	†8.75
Buffalo	12.00-12.50
Cleveland	13.50-14.00
Detroit	9.50-10.00
Pittsburgh	14.00-14.50

FORGE SCRAP

Boston district	†8.00
Chicago, heavy	18.00-18.50

ARCH BARS, TRANSOMS

St. Louis	17.00-17.50

AXLE TURNINGS

Boston district	†8.50
Buffalo	13.00-13.50
Chicago, elec. fur...	13.50-14.00
Eastern Pa.	13.00-13.50
St. Louis	10.00-10.50
Toronto	9.50

STEEL CAR AXLES

Birmingham	19.00-20.00
Buffalo	19.00-20.00
Boston district	†17.50-18.00
Chicago, net	20.00-20.50
Eastern Pa.	22.00-22.50
St. Louis	19.50-20.00

SHAFTING

Boston district	†16.00
New York	†17.50-18.00
Eastern Pa.	20.50-21.00
St. Louis	15.00-15.50

CAR WHEELS

Birmingham	17.00-18.00
Boston dist., iron...	†12.50
Buffalo, steel	18.50-19.00
Chicago, iron	16.50-17.00
Chicago, rolled steel	16.50-17.00
Cincinnati, iron	16.50-17.00
Eastern Pa., iron ..	17.50-18.00
Eastern Pa., steel..	19.50-20.00
Pittsburgh, iron	16.00-16.50
Pittsburgh, steel....	19.25-19.75
St. Louis, iron	17.00-17.50
St. Louis, steel	18.00-18.50

NO. 1 CAST SCRAP

Birmingham	15.50-16.00
Boston, No. 1 mach.	†13.00
N. Eng. del. No. 2..	14.00-14.50
N. Eng. del. textile.	15.50-16.00
Buffalo, cupola	13.50-14.00
Buffalo, mach.	14.50-15.00
Chicago, agri. net..	11.50-12.00
Chicago, auto	12.50-13.00
Chicago, railr'd net	12.00-12.50
Chicago, mach. net	13.00-13.50
Cincin., mach. cup...	13.00-13.50
Cleveland, mach...	18.50-19.00
Eastern Pa., cupola	17.50-18.00
E. Pa., mixed yard.	14.00-14.50
Pittsburgh, cupola..	16.50-17.00
San Francisco, del..	13.50-14.00
Seattle	8.00- 9.00
St. Louis, No. 1....	12.75-13.25
St. L., No. 1, mach.	13.75-14.25
Toronto, No. 1, mach., net	14.00-15.00

HEAVY CAST

Boston dist. break..	†10.50
N. Eng. del.	14.75
Buffalo, break	11.50-12.00
Cleveland, break. ..	16.00-17.00
Detroit, break.	11.00-11.50
Detroit, auto net...	12.50-13.00
Eastern Pa.	15.00-15.50
New York, break ..	†11.50-12.00
Pittsburgh	13.50-14.00

MALLEABLE

Birmingham, R. R.	12.50-13.50
New England, del...	16.00
Buffalo	15.00-15.50
Chicago, R. R.	15.50-16.00
Cincin., agri. del....	13.00-13.50
Cleveland, rail	16.50-17.00
Detroit, auto	12.00-12.50
Eastern Pa., R. R. ..	16.50-17.50
Pittsburgh, rail ...	15.00-15.50
St. Louis, R. R.	14.00-14.50

RAILS FOR ROLLING

5 feet and over

Birmingham	17.00-18.00
Boston	†12.50
Chicago	16.00-16.50
Eastern Pa.	18.50-19.00
New York	†15.50-16.00
St. Louis	16.00-16.50

LOCOMOTIVE TIRES

Chicago (cut)	17.50-18.00
St. Louis, No. 1 ...	16.00-16.50

LOW PHOS. PUNCHINGS

Buffalo	17.50-18.00
Chicago	17.00-17.50
Eastern Pa.	19.50-20.00
Pittsburgh (heavy)	19.50-20.00
Pittsburgh (light)..	19.00-19.50

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer.....	$5.25
Mesabi nonbess.	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbess.	5.10

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56.63% con.	9.00-10.00
Cop.-free low phos. 58-60%	nominal

Foreign Ore

Cents per unit, f.a.s. Atlantic

Foreign manganiferous ore, 45.55% iron, 6-10% man. nom.	13.00-14.00
No. Afr. low phos. nom.	18.00-20.00
Swedish low phos.	nominal
Spanish No. Africa basic, 50 to 60% nom.	15.00
Tungsten, sh. ton, unit, duty pd.	nom. $30.00
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f...	$25.50-26.50

Manganese Ore

Prices not including duty, cents per unit cargo lots.

Caucasian, 50-52%..	non. 50.00
So. African, 50-52%	non. 50.00
Indian, 50-52%	Nominal

—The Market Week—

Sheets

Sheet Prices, Page 100

Pittsburgh — Sheet specifications have been improving irregularly, depending upon automotive buying, which in general has been mostly for comparatively short runs. However, the Michigan factories appear to be working down their accumulated stocks and it is considered possible that larger orders may be forthcoming. Other consumers for the most part are content to buy from hand-to-mouth at present, while jobbers are reducing their inventories. A fair amount of export inquiry is noted at prices considerably lower in many instances than could be obtained a few months ago. Operations of common and full finished mills on the national scale are now around 55 per cent; galvanized mills, around 60. Backlogs being low, deliveries are prompt.

Cleveland — Finishing mills have curtailed operations, some operating only when enough business has accumulated to warrant further production. Specifications from automotive producers have been particularly disappointing following the first buying spurt, while stocking dealers.

Chicago—While demand from the automotive industry shows no improvement, sheet buying is slightly more active. Orders from the general manufacturing trade show occasional gains as consumers reach bottom on inventories and require additional material. The farm implement industry is taking sheets at an active rate. Stove and barrel manufacturers, on the other hand, are almost entirely out of the market. Sheet mill operations are around 50 per cent but backlogs are scant and relatively prompt delivery is available on almost all grades.

Boston—Sheet buying is slack and uneven with little change in the aggregate volume of tonnage placed. A few manufacturing consumers are releasing specifications steadily. Until recently most stamping shops have been fairly active, working off inventories. Practically all business is for quick delivery.

Philadelphia—Sheet releases by the automotive trade have been somewhat disappointing. Demand in other directions also is well below expectations. Stovemakers, usually active until the end of the year, have slackened off. As a further example of current slowness, one maker of small tanks, which should be turning out about 100 units per day, actually is producing 15. Sheetmakers now are naming delivery dates averaging two to three weeks and less on hot-rolled and hot-rolled

annealed and four weeks on cold-rolled and galvanized. Tin plate backlogs are down to about seven weeks.

New York—With sheet buying at such low ebb it would appear as if actual consumption must be exceeding new orders, but there is no doubt, sellers declare, that operations at consuming plants are still shrinking rapidly. Deliveries on most hot-finished sheets are available within two weeks or less and while cold-rolled sheets are delayed a little further it appears to be due only to the extra processing operations involved. Galvanized sheets are being offered at three to four weeks.

Cincinnati — Demand for sheets continues disappointing and rolling schedules are only slightly better than 50 per cent of capacity with the steelmaking rate even lower, as one mill took steps to reduce ingot inventory.

St. Louis—The past several days have been marked by a moderate betterment in the sheet situation. Specifications have improved, and a fair tonnage of new orders has been booked. The new business has consisted chiefly of small lots for prompt shipment, but the demand is well diversified, and indicates broadening requirements.

Birmingham, Ala.—No appreciable recession in demand for sheets has been noted, with operations continuing at practically capacity.

Strip

Strip Prices, Page 101

Pittsburgh—Hot and cold-rolled strip steel specifications are spotty and confined to immediate needs. Fair demand from a few consumers has been insufficient to balance disappointing automotive buying. Where miscellaneous buyers have depleted stocks, replacement orders are generally below expectations. Slightly better demand is noted for wide strip. Operations on the national scale have dropped to around 45 per cent. With mills in need of business, deliveries are prompt.

Cleveland—Miscellaneous demand for hot and cold-rolled strip, both wide and narrow, is almost negligible. Consumers apparently still have ample stocks for current requirements and are in no hurry to purchase ahead. Present consumption is said to be well above shipments. This condition is expected to force in additional orders since present stocks of most consumers are being rapidly depleted.

Chicago—Strip business is fairly steady but light. Consumers still are attempting to curtail inventories and in instances where excess stocks have been reduced, some improvement in buying has resulted. Automotive demand is relatively quiet though shipments have improved over the rate of 30 to 60 days ago. Early delivery is available on both hot and cold-rolled strip.

Boston — Cold strip mills have adjusted operating schedules to incoming volume, which is light and spotty. Tonnage from the automotive industry is disappointing. While demand is well diversified as to consumers, it is difficult to schedule sustained runs on finishing units. Hot strip is also moving slowly. Prices are firm.

New York—Cold strip buying is barely maintained at the recent slow rate. Demand is for scattered replacements for prompt delivery. While there has been some recession in volume, consumption is still believed to be above current tonnage reaching the mills. Two strip inquiries included in the first steel to be bought for two battleships, delivery Brooklyn and Philadelphia, Nov. 16, include 500 tons of medium black and 150 tons of galvanized.

This material is in widths one-half to six inches and in thicknesses of one-sixteenth to one-quarter inch.

Philadelphia—Incoming strip tonnage shows no improvement, with most consumers comfortably covered until the end of the year. Prices are holding.

Birmingham, Ala. — Demand for cotton ties, while considerably off from previous weeks, continues to constitute the backbone of strip business. Production of strip, therefore, continues on a satisfactory basis.

Plates

Plate Prices, Page 100

Pittsburgh — Plate demand has gained moderately and sellers are hopeful that continued improvement will be shown, although definite indications are lacking. Good export inquiry has helped to improve sentiment recently. Quotations on foreign business are down from the rates prevailing a few months ago. Two derrick boats, requiring 200 tons of plates, have been awarded to St. Louis Shipbuilding & Steel Co. by U. S. engineers at New Orleans.

Cleveland—Plate sellers have experienced little improvement in miscellaneous requirements. However, some expect a moderate increase in demand from ship repair work later this year. Considerable tonnage from this source was placed earlier this fall, approximately 600 tons. Consumers have shown little inclination to purchase ahead.

Chicago — While plate demand shows occasional gains in some directions, absence of active buying for railroad use is restricting incoming tonnages. Tank fabricators still are fairly active and miscellaneous users are maintaining requirements in some instances. Plate mills have only small backlogs and delivery on most sizes is around one week.

Boston — Bids close Dec. 1 at Washington on two auxiliary navy ships, destroyer and seaplane tenders, taking approximately 6500 tons of hull and plate steel. Bethlehem Shipbuilding Corp., Quincy, Mass., has specifications and will bid for the work. For the long pull, the outlook for shipyard tonnage is good, but current buying of plates is light. Most orders are for small lots with prompt shipment requested.

New York—Domestic demand for plates continues low and while a fair amount of foreign inquiry is current it is resulting in little actual business. Domestic sellers are offering concessions in an effort to attract export buying but the concessions apparently are not big enough. For instance, England is holding out for concessions of at least $5 a ton more under the domestic market, and other foreign buyers, sensing the dullness in domestic demand, are disposed to await developments which may lead to lower offering prices.

With buying at a virtual standstill, and with mill backlogs well cleaned up, producers are able to offer prompt deliveries on virtually all specifications. Overnight shipments by truck are noted and where specifications have to be rolled (not being in stock) shipments average a week to 10 days.

The first sizable ship repair contract to be noted here in some time has just been announced as involving $291,000 and going to the Robins Dry Dock & Repair Co., of the Todd Shipyard Corp., for work on the Furness-Prince Line's motor ship SOUTHERN PRINCE, recently damaged in collision.

Some oil refinery work is active, involving one project in the district requiring 2700 tons of plates.

Philadelphia—Plates show further

contraction as reflected in reduced rolling schedules. Fabricators are occupied in working down inventories and are placing no orders except for current needs. Railroad purchasing agents indicate that present authorized freight rate increases are insufficient to permit much increase in spending but that the proposed 15 per cent boost would be beneficial. Incidentally, the Pennsylvania railroad's car building program, scheduled for early completion, may run into March or April.

Birmingham, Ala. — Some new plate business has been placed, unconfirmed as to specifications, but in sufficient volume to contribute materially to sustained ingot production for the remainder of the year.

Seattle — Orders are slack but fabricating plants expect activity in construction of steel barges. Present business is confined to small tank and boiler jobs. A steel tug and two steel barges are being built for General Construction Co., Seattle, for hauling supplies to the Diablo dam, Seattle's Skagit river project.

Plate Contracts Placed

210 tons, three storage tanks, General American Tank Storage terminal, Houston, Tex., to Wyatt Metal & Boiler Works, Houston, Tex.

200 tons, two derrick boats, U. S. engineers' office, New Orleans, to St. Louis Shipbuilding & Steel Co.

125 tons, two 10,000-barrel tanks, Arkansas Fuel Oil Co., Bossier City, La., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

120 tons, (including shapes), tug and two barges for General Construction Co., Seattle, jointly to Columbia Steel Co. and Bethlehem Steel Co.

Plate Contracts Pending

6500 tons, seaplane tender and destroyer tender, navy department; bids Nov. 17, Washington.

125 tons, 250,000-gallon tank, Vancouver, Wash.; bids opened.

Bars

Bar Prices, Page 100

Pittsburgh—Anticipation of automotive releases has provided some stimulation in the hot-rolled bar market, but no marked improvement is apparent. Demand from forgers and bolt and nut producers is quiet and railroad requirements are unusually dull. Jobbers apparently are in no hurry to make replacements. Agricultural implement and tool makers continue active, and in some cases are consuming more than shipments indicate. Export inquiry is fair.

Cleveland—Producers are generally disappointed with current specifications. In most instances customers are operating from inventories with no intention of coming into the market until absolutely necessary. Little holdup of shipments has been noted. Auto specifications to local forging concerns have receded somewhat over the past week.

Chicago—Steel bar shipments are steady but at a restricted rate despite recent expansion in automotive assemblies. While farm equipment manufacturers have shown some recession, bar shipments to the industry still are substantial and consumption is considerably ahead of the average for all bar users.

Boston — Alloy bar demand is steady in small lots but the total is not large. Nevertheless alloy material has been relatively more active with forging material steady. Some forging shops are still fairly busy. Carbon steel bars are dull.

New York—Bar tonnage remains light, with commercial bar deliveries averaging around a week and cold-drawn about two weeks. Tool builders are perhaps the most active among consuming groups, but their requirements are beginning to dip sharply. Little replacement buying

by jobbers is noted and with bolt and nut business declining, few releases are coming out in this direction. Most bolt and nut manufacturers, in fact, have about worked off their backlogs.

Lighthouse bureau, Staten Island, will open bids Nov. 15 on 390 tons of wrought iron link buoy chain.

Philadelphia—While some miscellaneous small-lot demand is reported, the bar market continues quiet. The delivery situation remains easy with material available in most directions within a week or less. Some pressure on prices is reported but no deviations are noted.

Birmingham, Ala. — Demand for bars is indicative, it is believed, of a renewal of buying. Buying is spotty and in small lots but somewhat improved over a week ago.

Pipe

Pipe Prices, Page 101

Pittsburgh — Slackened demand has enabled producers to replenish stocks. Demand for standard and line pipe and oil country goods is quiet but holding up fairly well, with October bookings comparable to September. Sellers believe that a small gain might be shown in November. The volume of business in seamless mechanical is somewhat lighter than expected. Prices on practically all tubular goods are reported holding up well in the primary market. Export inquiry is fair and well diversified.

Cleveland—Pipe jobbers, while disappointed in current miscellaneous requirements, have been encouraged by reports that total number of sales and aggregate volume shipped during October, in most instances, showed a moderate increase. Cast iron pipe foundries have curtailed operations. However, the city of Cleveland is planning on 500 tons in 28,000 feet of 4 to 16-inch, for various extensions. James B. Clow & Son Co., Cleveland, was awarded two jobs recently, aggregating close to 250 tons of cast pipe.

Chicago — Cast pipe inquiries are small and shipments gradually receding. Producers have light backlogs and anticipate extension of current quiet into next year.

Boston — Few tonnage inquiries for cast pipe are current and buying has declined to miscellaneous small lots. The flood control project near Waterbury, Vt., is taking a small tonnage of steel pipe, but in the main demand for the latter has been disappointing.

New York — Cast pipe buying is confined mostly to orders for lots under 100 tons each. New York city is taking bids on welded steel and wrought pipe for several departments this week, first quarter requirements, and is expected to issue an inquiry shortly for several thousand tons of cast pipe. Foundry backlogs are lower with some curtailment in operations as part of current tonnage is shipped from stock.

Birmingham, Ala.—Pipe plants are hard pressed to maintain operations on a two to four-day week basis. The current week, however, has brightened the picture somewhat with an increased number of inquiries but nothing outstanding in the way of business booked.

San Francisco—The largest cast iron pipe inquiry in two months has just come out for figures and bids will be opened Nov. 10 for 715 tons of 6 and 8-inch pipe for the East Bay municipal utility district, Oakland, Calif. Bookings for the week totaled 790 tons and brought the year's aggregate to 25,029 tons, compared with 41,718 tons for the same period a year ago.

Seattle — Only occasional awards

Behind the Scenes with STEEL

Reprints

■ In the mailbag this week was a letter from a Chicago firm. We quote:

"We have just published a catalog intended to be entirely instructive giving considerable up-to-date technical data on atmospheres for use in annealing of copper and nonferrous alloys."

We looked at the catalog, and fully agreed with the company that it had the latest and best dope on the given subject. We were sure of this, because the catalogue was a reprint from STEEL. Just another testimonial to the value of the material published in our pages to the metalworking and metal producing industries.

♦

Fish or Chix?

■ From Britain by way of the New York Engineering Societies *Journal* comes the below-quoted platitude. At least our advertising department thinks it is a platitude:

The codfish lays a thousand eggs,
The homely hen but one;
The codfish never cackles
To show what she has done.

And so we scorn the codfish,
The homely hen we prize;
Which demonstrates to you and me
It pays to advertise.

And so for today's candid zinc-line camera shot, we present an original and unretouched

shot of one of STEEL's super supers converting a codfish into a hen. The iron, steel and metalworking industries are full of both. Some day they will all be hens, if our space department can ever catch up with every last one.

♦

Reader Interest

■ Unusually high renewal rate on STEEL is a fine indication of the true reader interest of our book in the industry. Especially true is this when we get letters like the following accompanied by checks:

"I have talked to our Shop Superintendent and he tells me that out of all the various magazines of similar nature that we subscribe to, he has one even worse than STEEL. *Therefore, he has consented to scratch it off the list and tolerate* STEEL *for another two years. On account of this I am forced to o.k. your subscription. . . ."*

We think the lad is merely the victim of an unadulterated inferiority complex, or else he doesn't want to give us a swelled head by telling us what a swell magazine he thinks our child is. We weren't fooled, though, because that two-year item means a lot to us.

♦

Publicity

■ Free to all readers of STEEL if they so desire is a supply of route slips, all fixed up with the names of men in the organization who want to read America's Most Progressive Business Paper each week. Evidence that these are well received was had last week in the form of a request from one of the foremost steel mill equipment makers. Said our friend, "We should like a half-dozen extra pads of route slips so we can affix them to other papers we route around our offices." We foresee no end of small disappointments in this shop, for the slips are all printed with a big bold STEEL across the top, and great will be the disappointment of the gentleman who sees the slip and opens the book to find some other worthy paper within. They'll get the slips, though—our readers' service department is still carrying the torch, filling all requests they get from the readers.

—SHRDLU

in excess of 100 tons are reported. With government funds allotted for a number of Pacific Northwest projects, improvement is expected.

Cast Pipe Placed

2610 tons, 6, 8 and 12-inch pipe, Chicago, to Alabama Pipe Co., Anniston, Ala., Glamorgan Pipe & Foundry Co., Lynchburg, Va., and United States Pipe & Foundry Co., Burlington, N. J.

514 tons, 2 to 8-inch, Powel Valley water district, Portland, Oreg., allocated as follows: 500 tons of 4, 6 and 8-inch pipe to United States Pipe & Foundry Co., Burlington, N. J. and 14 tons of 2-inch pipe to Pacific States Cast Iron Pipe Co., Provo, Utah.

203 tons, fittings, Chicago, to James B. Clow & Sons Co., Chicago.

149 tons, 4, 6 and 8-inch, water system, Bethesda, O., to James B. Clow & Sons Co., Cleveland.

105 tons, small sizes, Middlebury, Vt., to United States Pipe & Foundry Co., Burlington, N. J.

100 tons, water mains, Lake county commissioners, Painesville, O., to James B. Clow & Sons Co., Cleveland.

Steel Pipe Placed

760 tons, 15,000 feet, 24-inch, city of Philadelphia, to Youngstown Sheet & Tube Co., Youngstown.

Cast Pipe Pending

715 tons, East Bay municipal utility district, Oakland, Calif., bids Nov. 10.

500 tons, 28,000 feet of 4 and 16-inch, for various extensions for City of Cleveland.

328 tons, 24-inch, Bellingham, Wash.; bids Nov. 12; alternate bids on welded steel pipe.

Steel Pipe Pending

950 tons, 24 and 48-inch, pipe line for main water in Harvard avenue, Cleveland, connecting with Warrensville, O., reservoir; to cost $250,000, plans are being prepared by City of Cleveland.

Wire

Wire Prices, Page 101

Cleveland — Production of merchant and manufacturers' wire has declined somewhat, reflecting recession in demand from bolt and nut manufacturers and auto partsmakers. Consumers continue operating from inventories. Agricultural requirements for merchant wire products has also receded somewhat, but this is considered seasonal.

Pittsburgh—Wire shipments are holding up somewhat better than expected and producers are more active than certain other divisions of the steel industry. Jobbers generally are under-stocked in numerous items, but are slow to buy. In some quarters it is reported dumping by the secondary market has been slowing down as overloaded conditions become more relieved. The new price plan has been gradually extended and now is operative in most instances. Fence market has been enlivened recently

by a large project near Los Angeles.

Chicago—Steel wire demand continues slow, restricted by the absence of improved operations among many leading consumers. With dealers and jobbers well stocked with merchant wire products, shipments of barbed wire, fencing, etc., are light despite fair demand from farmers. Practically all consumers are interested in curtailing inventories and many have reduced stocks.

New York — Wire buying has slipped further, manufacturing consumers releasing fill-in replacement specifications cautiously with their own operations tending to decline. While demand continues well diversified, there has been some drop in heavy products buying. On the other hand slight improvement in merchant wire goods in several sections, notably the upper south, is noted. The bulk of 4500 tons of cable wire, rope and cable for the Bronx-Whitestone suspension bridge, New York, will be drawn at the Trenton, N. J., works of the American Steel & Wire Co., although production will not start for some weeks. Demand for rods has declined, both domestic and export. There is some foreign buying of rods but in less volume than several weeks ago.

Boston — Wire mill operations average hardly 50 per cent, some producing units being under that rate. Demand has changed only slightly, although a few sellers note a decline in buying, which is mostly for replacements, well diversified, for prompt shipment. Consumption of wire is better than current incoming orders, indicating most consumers are still working off stocks. Inventories will be lowered to a greater extent than usual at the end of the year, according to present outlook.

Cold Finished

Cold Finished Prices, Page 101

Pittsburgh—Cold-finished specifications continue only fair, with overall volume slightly better proportionally than in some other steel divisions. Generally, automotive buying has fallen below expectations so far, while other consumers are hesitant, in line with conditions they encounter. A few miscellaneous lines are active and there has been some government inquiry recently. Machinery makers' schedules are maintained, but the quantity of material they are using appears to be greater than shipments of cold-finished bars would indicate. Jobbers appear in no hurry to buy. Prices are reported holding well.

Rails, Cars

Track Material Prices, Page 101

Southern Pacific is issuing an inquiry for 75,000 tons of steel rails for its 1938 maintenance of way program. This tonnage compares with purchasing of 55,162 tons in 1937, indicating considerable expansion in its operations.

Prospective freight car inquiries by western railroads are estimated at 10,000 to 14,000 units, but without assurance of release before further freight rate increases are granted.

The first freight car inquiry by an eastern railroad this fall involves 500 all-steel 50-ton hoppers for the Delaware, Lackawanna & Western, on which bids will be opened Nov. 23. This is the first inquiry for more than 40 freight cars by an eastern road since July when the Cambria & Indiana asked bids on 500 hoppers and later placed order for 800.

Domestic freight car awards in October involved 1355 freight cars, of

which 1250 were placed by the Chicago, Burlington & Quincy with its own shops, leaving only 105 to have been distributed among private car builders. This is an increase of 139 over the preceding month and brings the total for the first 10 months up to 51,061, against 39,523 in the corresponding period of 1936; 9158 for the same period of 1935 and 23,465 in the first 10 months in 1934. January, with 17,806 cars placed, is the outstanding month to date, with April next with a total of 9772 cars.

Following are further comparisons:

	1937	1936	1935	1934
Jan.	17,806	2,050	24	152
Feb.	4,972	6,900	806	19,725
March	8,155	632	0	30
April	9,772	4,427	350	800
May	4,732	8,900	2	717
June	548	5,200	5,151	1,835
July	1,030	7,229	500	19
Aug.	1,475	225	200	105
Sept.	1,216	1,750	875	7
Oct.	1,355	2,210	1,250	75
10 mos.	51,061	39,523	9,158	23,465
Nov.	.....	1,550	100	254
Dec.	.....	23,450	10,050	110
Total	.....	64,643	19,308	23,829

Car Orders Pending

Delaware, Lackawanna & Western, 500 allsteel 50-ton hoppers; bids asked for Nov. 23.

Rail Orders Pending

Southern Pacific, 75,000 tons; bids asked.

Shapes

Structural Shape Prices, Page 100

Pittsburgh—One of the largest orders in some time, the Ford Motor Co.'s award of 45,000 tons of bearing piles and structural shapes, will be produced largely in the Pittsburgh district at Ambridge and Homestead. The purchase of 23,000 tons of bearing piles for Ford's expansion is the largest order for this type of material ever received. Ford's decision to proceed with his large project is expected to have beneficial effect toward clearing away hesitation on the part of other companies which have considered expansion.

Cleveland — Structural inquiries are noticeably lacking with little chance of showing any improvement through November. Many expansion programs have been definitely shelved, awaiting clearing of present unfavorable market conditions. Most fabricators have ample stocks and those not so well supplied can obtain deliveries from mills generally within a week. Pending projects consist mostly of state work with a few isolated private jobs well under 100 tons.

Chicago — Public work heads fabricated structural inquiries, few industrial projects coming up for bids. Bridge inquiries in central and western states total about 3000 tons, including 1200 tons in Wisconsin. Shipments of plain material reflect the restricted rate of fabricated awards, and prompt shipment generally is available.

Boston — Award of 3080 tons for the Calvin Coolidge Memorial bridge, Northampton, Mass., has been made to T. Stuart & Son Co. Inc., Watertown, Mass. Delay in financing has again held up work on the Deer Isle, Me., suspension bridge, taking 1710 tons. Definite action is expected Nov. 15. New work is coming out slower.

New York—Several thousand tons of new structural work is included in three grade separations, Queens approach, Bronx-Whitestone bridge, and two New York city schools, No. 55 and 259, closing Nov. 9. Bids will be taken on the schools' steel work direct, fabricating and erecting. Close to 5000 tons is now pending for bridges. There has been a distinct slump in commercial and in dustrial building inquiry and private construction in general.

Philadelphia — Decision of the Armstrong Cork Co. to hold off on its expansion program is indicative of the current situation in private building construction. Chief interest is centered around the Pennsylvania state program. New Jersey department of highways will take bids shortly on several bridges for Route 25, new New York-Philadelphia express highway. Fabricating shops are operating at 50 per cent and less, which no doubt accounts for keener competition for available business.

San Francisco—The only two important awards went to Bethlehem Steel Co. and involved 450 tons. Detailed plans for the interstate bridge between Washington and

Shape Awards Compared

	Tons
Week ending Nov. 6	57,885
Week ended Oct. 30	8,061
Week ended Oct. 23	11,255
This week, 1936	22,497
Weekly average, 1936	16,332
Weekly average, 1937	24,801
Weekly average, October	15,654
Total to date, 1936	998,540
Total to date, 1937	1,114,064

Includes awards of 100 tons or more.

Idaho at Lewiston, Idaho, have been completed and bids are expected to be called for soon, requiring several thousand tons.

Buffalo—A limited number of projects are pending. Two more central schools at Lackawanna and Alexander, involving 125 tons each, will be up for bids near the end of the month.

Seattle—Projects pending indicate an active immediate future for fabricating shops. In addition to the Coulee dam project the following jobs are outstanding: 500 tons, fish gates and miscellaneous items, Bonneville dam, bids in; 450 tons, Washington state Skagit river bridge, bids opened; 428 tons, bureau of roads bridge, Mineral county, Montana, bids in, 1000 tons for Washington-Idaho span, bids in December.

Shape Contracts Placed

45,000 tons, press shop, Ford Motor Co., Detroit, divided as follows: 23,000 tons bearing piles to Carnegie-Illinois Steel Corp., Pittsburgh and 22,000 tons of structural shapes to American Bridge Co., Pittsburgh.

3080 tons, Calvin Coolidge Memorial steel deck truss bridge, Connecticut river, Northampton-Hadley, Mass., to Bethlehem Steel Corp., Bethlehem, Pa.; T. Stuart & Son Co., Inc., Watertown, Mass., general contractor, $1,193,230.95, bids Nov. 2, department of public works, Boston, G. H. Delano, chief engineer.

1100 tons, plant building, International Harvester Co., Springfield, O., to Gage Structural Steel Co., Chicago.

1035 tons, viaduct, East 135th street, Bronx, N. Y., to Bethlehem Steel Corp., Bethlehem, Pa.; through Ursciano & Sons, Bronx, N. Y.

1000 tons, state bridge over San Juan river, FAP-147-B, Farmington, N. Mex., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

765 tons, bridge, section 3F, Clinton county, Illinois, to Vincennes Bridge Corp., Vincennes, Ind.

500 tons, state highway bridges 82-22-30 and 49, Detroit, to R. C. Mahon Co., Detroit.

470 tons, structure and track changes, Steinway tunnel line, Queens Plaza, New York, to Harris Structural Steel Co., New York; through Centaur Construction Co. Inc., New York.

400 tons, bridge, contract 122-2-2, Navarro county, Texas, to Austin Bros., Dallas, Tex.

370 tons, bridge, Sloansville Schoharie county, New York, to Harris Structural Steel Co., New York; through Lane Construction Corp., Meriden, Conn.

370 tons, power house, Pittsburgh & Lake Erie railroad, Pittsburgh, to Bethlehem Steel Corp., Bethlehem, Pa.

350 tons, state bridge over Licking creek, Parkhead, Md., to Bethlehem Steel Corp., Bethlehem, Pa.

330 tons, reconstruction, Slades ferry bridge, Fall River-Somerset, Mass., to Phoenix Bridge Co., Philadelphia; through Coleman Bros. Corp., Boston.

325 tons, Kemper Lane viaduct, Cincinnati, to American Bridge Co., Pittsburgh.

320 tons, state tobacco warehouse, Baltimore, to Dietrich Bros., Baltimore.

320 tons, turbo generator supports Long Island Lighting Co., Glendale, N. Y., to Lehigh Structural Steel Co., Allentown, Pa.

285 tons, building, school for deaf, Greenburgh, N. Y., to Ingalls Iron Works, Birmingham, Ala.; Barr Irons & Lane, New York, general contractors.

272 tons, oil process building, Procter & Gamble, Long Beach, Calif., to Bethlehem Steel Corp., Los Angeles.

267 tons, addition, Englewood high school, Chicago, to Joseph T. Ryerson & Son Inc., Chicago.

175 tons, shapes and bars, underpass and approaches, Moore county, North Carolina, to Bethlehem Steel Corp., Bethlehem, Pa., and Virginia Steel Co., Richmond, Va.; Bowers construction Co., Whiteville, N. C., general contractor.

170 tons, sheet piling, United States engineer office, Los Angeles, proposal 76, to Bethlehem Steel Corp., Bethlehem, Pa.

165 tons, pawer plant, White Pigeon, Mich., to Jarvis Engineering Works, Lansing, Mich.

135 tons, galvanized, Norris switchyard extension, Tennessee Valley authority, to Bethlehem Steel Corp., Bethlehem, Pa.

130 tons, manufacturing building and boiler house, Arizona Chemical Co., Brownsfield, Texas, to Fortworth Structural Steel Co., Fort Worth, Tex.

125 tons, building, Frankford hospital, Philadelphia, to American Fabricated Steel Co., Philadelphia.

115 tons, warehouse, National Casket Co., White Plains, N. Y., to Grand Iron Works, New York, Frank Gable Co., White Plains, general contractor.

106 tons, highway work, Ouray county, Colorado, to unnamed interest.

105 tons, building, Sears-Roebuck Co., Binghamton, N. Y., to Bethlehem Construction Corp., Bethlehem, Pa.

100 tons, 75 glass conveying racks, Libbey-Owens-Ford Glass Co., Ottawa, Ill., to Lackawanna Steel Construction Co., Buffalo.

Shape Contracts Pending

1675 tons, public schools, 55 and 259, Queens and Brooklyn, N. Y. respectively; bids Nov. 9 board of education.

1000 tons, apartment, East 162 street, New York.

1000 tons, bridge, Everett, Wash.

1000 tons, Galileo school, Norwood Park, Chicago; Duffin Iron Co., Chicago, low.

1000 tons, interstate Washington-Idaho bridge; bids at Olympia probably in December.

900 tons, hospital, Torrance, Pa., Mathew Cummings Co., Boston, low on general contract.

757 tons, state bridge Columbia county, New York; Lane Construction Co., Meriden, Conn., general contractor, bids Oct. 26, Albany.

600 tons, three state bridges, in Knox, Adams and Richland counties, Ohio; bids Nov. 9.

600 tons, bridge, Rock county, Wisconsin; bids Nov. 9.

570 tons, bridge, Edgerton, Wis.

560 tons, bridge, Manitowoc, Wis.

550 tons, Missouri river bridge repairs, St. Charles, Mo.

500 tons, state bridge No. 5588, Minneapolis, Minn.

500 tons, fish gates and miscellaneous steel, Bonneville dam; bids in.

450 tons, including machinery, Washington state Skagit river bridge; bids in.

450 tons, bridge over Clark river, United States bureau of public roads, St. Regis, Mont.

428 tons, crossing over Clark Fork river, Mineral county, Montano; bids opened.

404 tons, bridge, Birmingham, Ala.

400 tons, Valentine boys' club, Chicago; bids Nov. 17; Childs & Smith, Chicago, architects.

300 tons, high school, Cuyahoga Heights, O., cost about $400,000.
300 tons, plant, National Gypsum Co., Mobile, Ala.; bids Nov. 11.
325 tons, state bridge, Monroe, N. H.
230 tons, bridge, Central Railroad of New Jersey, Lakehurst, N. J.; bids Nov. 15.
205 tons, highway bridge, Lakehurst, N. J., bids Nov. 15.
200 tons, store, Reading, Pa., new bids Nov. 5.
200 tons, angles, navy department delivery, Brooklyn and Philadelphia, schedule 2059; bids Nov. 16.
180 tons, highway bridge, Tonnele, N. J., bids Nov. 22.
175 tons, administration building, Buffalo sewage authority.
150 tons, stacks, tanks and supports, Ohio Public Service Co., Warren, O.
150 tons, High street bridge, St. Marys, O., for Auglaize county, Ohio.
125 tons, highway bridge, Kearney, N. J., bids Nov. 22.
125 tons, steel plate girder bridge over Boston & Maine railroad, Paradise road, Swampscott, Mass.; bids Nov. 16, department of public works, Boston, G. H. Delano, chief engineer.
125 tons, Central school, Wyoming, N. Y. Bids Nov. 8.
125 tons, Central school, Lackawanna, N. Y.
125 tons, Central school, Alexander, N. Y.
100 tons, crossing near Daly, Grand and Emery counties, Utah; bids Nov. 8.
Unstated, Hylebos waterway bridge, Tacoma, Wash.; bids at Olympia, Nov. 20.
Unstated, main gates, control shafts and equipment, Fort Peck project; bids to U. S. engineer, Kansas City, Dec. 3.

Reinforcing

Reinforcing Bar Prices, Page 101

New York—Reinforcing steel buying is slightly heavier, led by 1908 tons for a sewer section, Queens, and 500 tons, west side elevated highway, New York. Prices are also slightly stronger, but still below listed quotations. New work is coming out less actively. Low bid among several tenders on close to 1125 tons of reinforcing bars in place for the Weehawken, N. J. approach to the Lincoln tunnel was 6 cents a pound.

Pittsburgh—Concrete reinforcing bar sellers are encouraged over recent awards and inquiries. A large number of prospective projects are still hanging fire. Jones & Laughlin Steel Corp., Pittsburgh, has been awarded 2555 tons for a storm trunk sewer in Queens county, New York. Prices are holding firm.

Cleveland — Estimated tonnage of reinforcing bars in Northern Ohio from private sources during October totaled 520 tons. This represents an increase over September. Estimated tonnage of joists during October was 51 tons compared with 60 tons in September. Most of the recent increase in reinforcing bars is attributed to the 385 tons involved in the Pennsylvania railroad's expansion program at its Sandusky, O., unloading dock. Prices generally are firm although no real test has recently been offered.

Chicago—While new inquiries for reinforcing bars are light, awards are fairly heavy and the letdown in shipments is less drastic than many other steel products.

Boston—Identical bids were submitted by three lowest bidders on approximately 550 tons of reinforcing for the Huntington avenue subway which closed with the state procurement officer, Boston, Nov. 3. New tonnage is coming out less actively. Not much more than 1000 tons is unplaced. Prices continue soft.

Philadelphia—Some state work is current, including the hospital at Norristown, Pa., on which McCloskey & Co., Philadelphia, entered the low general contract bid. A few private jobs are coming out but these involve relatively insignificant tonnage. Prices on formed bars appear softer.

San Francisco—The reinforcing bar market was the most active one of the week, although new inquiries continue to come forth slowly. Truscon Steel Co. booked 344 tons for the Greenville crossing, Alameda county, California. New inquiries include 250 tons for a quarantine station at Honolulu, T. H.; bids Dec. 17.

Seattle—Allotment of PWA funds for a number of projects in the Pacific Northwest is expected to create some demand for reinforcing. Meanwhile the market continues dormant with only occasional small tonnages being placed. Mill operations are less than any time in the last 12 months. Prices are firm.

Concrete Bars Compared

	Tons
Week ended Nov. 6	12,137
Week ended Oct. 30	4,394
Week ended Oct. 23	2,796
This week, 1936	4,828
Weekly average, 1936	6,005
Weekly average, 1937	6,350
Weekly average, October	4,732
Total to date, 1936	301,093
Total to date, 1937	285,730

Includes awards of 100 tons or more.

Reinforcing Steel Awards

1908 tons, sewer, contract 3, project 1, Queens, N. Y., to Jones & Laughlin Corp., Long Island City, N. Y.; Elmhurst Contracting Co., Elmhurst, L. I., general contractor.
1000 tons, highway bridge, Wickliffe, Ky., to Noxville Iron Co., Knoxville, Tenn.
1000 tons, bureau of reclamation, invitation A-42382, Knob, Calif., to Bethlehem Steel Corp., Bethlehem, Pa.
900 tons, bureau of reclamation, invitation A-42382-A, Calexico, Calif., to Bethlehem Steel Corp., Bethlehem, Pa.
625 tons, Oklahoma state office building, Oklahoma City, Okla., to Sheffield Steel Corp., Kansas City, Mo., through Capitol Steel Co., Brooklyn, N. Y.
550 tons, Calvin Coolidge Memorial bridge, Connecticut river, Northampton-Hadley, Mass., to Bethlehem Steel Corp., Bethlehem, Pa.; T. Stuart & Son Co., Inc., Watertown, Mass., general contractor, bids Nov. 2, department of public works, Boston, G. H. Delano, chief engineer.
500 tons, Canal-Cedar street section, West side elevated highway, Manhattan, N. Y., to Concrete Steel Co., New York; James Stewart & Co., New York, general contractor.
430 tons, hospital, Selinsgrove, Pa., to Bethlehem Steel Corp., Bethlehem, Pa.;

John McShain Inc., Philadelphia, general contractor.
400 tons, elevator, Pabst Brewing Co., Milwaukee, to Inland Steel Co., Chicago, through Joseph T. Ryerson & Sons, Chicago.
350 tons, marine hospital, St. Louis, to Sheffield Steel Corp., Kansas City, Mo.
344 tons, crossing, Greenville, Alameda county, California, to Truscon Steel Co., San Francisco.
300 tons, mesh highway project RC 3913, Orange county, New York, to Igoe Bros., Newark, N. J.; through J. E. Burns, Dumont, N. J.
286 tons, fleet moorings, Pearl Harbor, T. H., to unnamed interest.
278 tons, Boise reclamation project Ida., to unstated interest.
275 tons, viaduct, East 135th street, Bronx, N. Y., to Bethlehem Steel Corp., Bethlehem, Pa.; through Rusciano & Sons, Bronx, N. Y.
260 tons, elevator, Kurth Malting Co., Milwaukee, to W. H. Pipkorn Co., Milwaukee.
250 tons, state highway bridge, Eastland, Tex., to Peden Iron & Steel Co., Houston, Tex.; Jensen Construction Co., Austin, Tex., general contractor.
225 tons, state highway, 159th street, Chicago, to Calumet Steel Co., Chicago.
200 tons, 261-foot overpass, Madison county, Idaho, to unstated interest; John Moser, Logan, Utah, general contractor.
200 tons, oil process building, Procter & Gamble, Long Beach, Calif., to unnamed interest.
197 tons, officer quarters, Government air depot, Sacramento, Calif., to Bethlehem Steel Corp., San Francisco.
180 tons, bridge, Mantoloking, N. J., to Taylor-Davis Inc., Philadelphia, Eastern Engineering Co., Atlantic City, N. J., general contractor.
160 tons, state bridge, Chautauqua county, New York, to Bethlehem Steel Corp., Bethlehem, Pa.; Bero Engineering & Contracting Co., North Tonawanda, N. Y., general contractor.
158 tons, bureau of reclamation, invitation A-22,118-A, Parco, Wyo., to Inland Steel Co., Chicago.
158 tons, dry creek bridge, Galt, Sacramento county, California, to Soule Steel Co., San Francisco.
156 tons, bureau of reclamation, invitation 44,227-A, Earp, Calif., to Bethlehem Steel Corp., Bethlehem, Pa.
155 tons, Manual Training high school, Brooklyn, N. Y., to Bethlehem Steel Corp., Bethlehem, Pa.
149 tons, crossing, Ozone and Natrona county, Wyoming, to unnamed interests.
142 tons, highway work, San Bernardino county, California; to unnamed interest.
141 tons, bureau of reclamation, invitation 24,590-A, Potholes, Calif., to Sheffield Steel Corp., Kansas City.
139 tons, bureau of reclamation, invitation 42766-A, Phoenix, Ariz., to Colorado Fuel & Iron Co., Denver.
121 tons, bureau of reclamation, invitation 42,380-A, Cantu, Calif., to Northwest Steel Rolling Mills, Seattle, Wash.,

Reinforcing Steel Pending

525 tons, state procurement officer, treasury department, Boston; bids in, two inquiries, C4-N1-298 and C4-N3-132.
350 tons, hospital buildings 13, 14, Norristown, Pa., McCloskey & Co., Philadelphia, low bidder general contract.
300 tons, Torrance state hospital, Torrance, Westmoreland county, Pennsylvania.
250 tons, quarantine station, Honolulu, T. H.; bids Dec. 17.
215 tons, Washington state bridge over Skagit river; bids in at Olympia.
207 tons, crossing San Luis Obispo county, California; bids Nov. 17.

Unit Steel Bids, New Jersey Approach, Lincoln Tunnel

Tenders to Port of New York Authority, Oct. 26, Contract MHT-24B

Material	Unit	A	B	C	D	Lowest Total
Structural steel (carbon) lbs.....	2,918,000	$0.07	$0.08	$0.0865	$0.09	$204,260
Structural steel (silicon), lbs.....	670,000	0.08	0.085	0.1006	0.10	$53,600
Forged rollers and cast steel bridge bearings, lbs.	142,400	0.13	0.20	0.1422	0.20	$18,512

A—Taylor-Fichter Steel Construction Co. Inc., New York, low, $276,372; B—The P. J. Carlin Construction Co., New York, second, $318,870; C—American Bridge Co., Pittsburgh, third, $340,058.28; D—Poirier & McLane Corp., fourth, $358,100. Garofano Construction Co., Mt. Vernon, N. Y., was fifth, $387,280, and George M. Brewster & Son Inc., Bogota, N. J., sixth, $387,934.

200 tons, food factory, La Sierra, Riverside county, California; bids opened.
164 tons, mesh highway project, 3918, Tioga county, New York, to Mohawk Paving Co. Inc., Buffalo, general contractor.
140 tons, bureau of reclamation, invitation 42773-A, Phoenix, Ariz.
140 tons, bureau of roads span, Mineral county, Montano; bids in at Missoula.
109 tons, crossing, Livingston, Merced county, California; bids opened.
106 tons, Jughandle Creek bridge, Mendocino county, California; bids Nov. 10.
100 tons, addition to Western Hills high school, Cincinnati.
100 tons, dormitory, Byrn Mawr college, Bryn Mawr, Pa.
100 tons, police station, West Allis, Wis.

Tin Plate

Tin Plate Prices, Page 100

Pittsburgh—Operations of tin plate mills show further contraction to around 70 per cent as producers complete shipments against previous bookings and find incoming business light. Attention now centers upon the probable price for 1938 contracts, announcement of which is expected any time from now until Dec. 1. As some producers in other districts were forced to overstep the Sept. 30 deadline on shipments of the low-priced tonnage, due to labor trouble last summer, and since an improvement in general business conditions is awaited, the 1938 price announcement may be delayed longer than usual. Generally, it is felt that from all present indications a lower price than $5.35 per base box, Pittsburgh, for 1938 would be unexpected.

New York—Despite the dull busi-

ness outlook for the next several weeks, tin plate producers when they open their books, probably in the latter part of this month, are expected to reaffirm the present $5.35, Pittsburgh, quotation. The long-term outlook is more encouraging than the immediate outlook, the trade believes. At present domestic specifications are light, with most consumers still working on tonnage booked at $4.85. Export inquiry also is less, especially from South America, where consumers have already become fairly well covered on requirements for their major canning season which begins next month and continues for at least a couple of months.

Pig Iron

Pig Iron Prices, Page 102

Pittsburgh—Single carload orders are reported from some pig iron consumers who have been out of the market for weeks. Meanwhile, export inquiry is good, although bookings are few despite low quotations. On domestic business, prices have been holding up, but no large tonnage has come out and it is considered doubtful if a cut would result in increased buying. Actually, producers have felt little pressure. Blast furnace operations are further curtailed, 31 stacks being active compared to 34 one week ago. Resumption of a radiator plant has helped bolster shipments.

Cleveland—Pig iron producers expect little new business through the remainder of the quarter, since most consumers are now under contract. Shipments during November are expected to run close to October. Most foundries have ample stocks and generally are not interested in building up inventories. Pig iron prices in Detroit have been reaffirmed for first quarter.

Chicago—Pig iron shipments are off further as foundries continue to eat into stocks. Consumption as measured by foundry operations is at a better rate than is indicated by pig iron shipments though schedules of a number of industries have failed to improve seasonally the past several weeks New business is dull since most consumers already have ordered for this quarter. A portion of this tonnage, however, is expected to be carried over into next year. The market continues firm.

New York—While pig iron buying has reached a low ebb, no merchant furnaces along the seaboard have yet announced intention of blowing out. One operator, who usually suspends operations in the winter to divert coke into other channels, declares he expects to keep his furnace in operation over the next several months. Eastern furnaces have had substantial foreign orders this year in addition to good tonnages for domestic account. While backlogs are being worked off they have not had time to build up stocks. In view of the rather slim outlook for the next two or three months, however, it should not take very long to build stocks.

Boston — Limited to scattered small-lot sales, pig iron demand is sluggish. Most shipments to domestic consumers are less than car lots. Some spotty inquiry for export continues, but foreign buyers are less anxious to place tonnage without concessions. Delivered prices under the new freight rates from Everett, Mass., will be a maximum of 20 cents a ton on the Boston & Main and Boston & Albany railroads, but on the New Haven railroad the rates will remain unchanged. A special rate established for that road to meet truck and water competition will be retained under an interstate commerce commission ruling.

Buffalo—Mild pickup in pig iron buying is believed due more to orders being placed to escape the higher freight rate than to any sustained improvement in the market. Majority of the business for November obviously will be completed in the first ten days. Producers report shipments for October, because of a month-end spurt, were definitely better than September. Foundry operations have tapered. Pig iron prices have been reaffirmed for first quarter.

Philadelphia—Pig iron buying continues on a hand-to-mouth basis. Most large buyers covered some time ago and now are reducing inventories. Melt is off somewhat but it is believed the decline has been less than that in the steel industry. Stovemakers are slackening off but tool builders still are fairly busy on orders booked earlier. Soil pipe business is about cleaned up for the year. Some foreign inquiry is reported but prices no longer are attractive. One district blast furnace is scheduled to go down Nov. 15.

Cincinnati—Specifications against pig iron contracts are improved but furnace interests consider this a move to anticipate freight rate increases rather than indication of heavier melt. Buying, except for spot shipment, has virtually disappeared.

St. Louis—Trend in the melt of pig iron continues downward, though the rate of decline at jobbing foundries and specialty plants is less acute than generally believed. A considerable volume of miscellaneous castings has been booked during the past two or three weeks and stove shops are still melting a fair aggregate tonnage of iron. There has been no appreciable letdown in activities at farm implement and tractor works.

Birmingham, Ala.—In the face of marked decline in ingot production, the pig iron market holds fairly steady but short one furnace from last week with banking of a furnace by Republic Steel Corp., leaving

one furnace in production here and one at Gadsden for Gulf Steel division.

Toronto, Ont.—Merchant pig iron sales continue in good volume in the Canadian markets with melters showing interest in spot needs and taking delivery of iron at frequent intervals. Daily melt holds at about 70 per cent and it is expected this rate will continue into 1938. Sales range from a car to 400 tons, totaling around 2500 tons weekly. While no forward delivery contracts were reported, those covered for last quarter are taking schedule delivery. Sales are running well ahead of those for last year. Prices are unchanged.

Scrap

Scrap Prices, Page 104

Pittsburgh—No. 1 heavy melting is off 25 cents to a range of $14.50 to $15 per ton, and railroad heavy melting is down to $15.50 to $16. Other grades are unchanged from last week. Sales into mill consumption continue scarce, and there are indications that dealers may begin piling up scrap since in some quarters it is believed that present prices are highly attractive if facilities are available for holding the material until a little later.

Cleveland—Scrap trading has settled to a minimum and prices are off 50 cents to $1 on various grades. Recent railroad lists brought prices giving some indication of the situation, some of the heavy melting steel being reported sold at slightly under $14.50 and some bringing about $16 for export to Canada. No. 1 heavy melting steel is scarce at prevailing levels.

Chicago—Scrap prices have declined further. Consumers' prices on some grades are nominal, with quotations based largely on broker and dealer transactions. Offerings are moderate but sellers are able to pick up occasional lots of heavy melting steel as low as $12.50. The consumers' market nominally is off 50 cents at $13.25 to $13.75.

Boston—Appearance of distress scrap has further depressed scrap prices. Borings and turnings have sold as low as $4, f.o.b., for domestic shipment while practically every grade is off $1 a ton or more for domestic shipment. Despite lower prices, buying has not been stimulated to any extent. The Worcester and other district steelworks have held up shipment.

What amounts to a practical embargo by railroads on scrap shipments has been declared by railroads at Portland, Me., where considerable tonnage has accumulated. No rail shipments to that port will be accepted unless a definite date of arrival of cargo bottom is specified and other assurances of quick loading are given.

New York—Current buying of scrap is practically all for barge loading to supply expected ship arrivals for export and such activity is not heavy. Demand for domestic consumption is at a standstill. Prices quoted on all grades for domestic shipment are appraisals rather than real values, in view of absolute lack of transactions. Although not considered serious accumulation of scrap on barges in New York harbor and vicinity is above normal, with an estimated 35,000 tons bought and awaiting ships, on nearly 60 barges. Two ships have just cleared, with several on the way to New York and Boston.

Philadelphia — The scrap market shows further decided weakness with the top for No. 1 steel now $14.50. Consumers show no interest in view of the decline in steelmaking activity although it is understood some No. 1 steel has been bought quietly at $14 and $14.50. Dealers are paying $12 against a few orders for No. 2 and are paying $12.50 for stove plate for orders by the Phoenixville, Pa., consumer. A vessel is now loading 7000 tons for export. The scrap was contracted last spring at about $20 and dealers are reported covering on the basis of $14.50 for No. 1 and $13.50 for No. 2, delivered, dock. Scrap is generally scarce and it is felt any upturn in business would result in an advance of several dollars a ton.

Buffalo—Scrap prices were marked down 50 to 75 cents more during the week. All markets are strictly nominal as leading consumers have withdrawn bids and placed an embargo on shipments. The entire list was hit by the downward readjustment in prices with No. 1 heavy melting steel quoted at $14 to $14.50. The customary $2 differential applies on No. 2 stock, compressed sheets, drop forge flashing and busheling.

Cincinnati—Heavy melting steel is off 50 cents on light dealings, with most items extremely weak and nominal. Year-end factors and curtailed steelworks operations have undermined dealer sentiment.

St. Louis—Lack of interest by all consuming groups, but more particularly steel mills, has resulted in a further decline in iron and steel scrap prices. The only sale of consequence was approximately 1200 tons to an east side mill of No. 2 heavy melting steel for delivery over the balance of this year.

The price was said to be $13 to $13.50 per ton, the lowest figure recorded since August, 1936, about which time, it will be recalled, the market started upward.

Birmingham, Ala.—Scrap continues inactive with buying for all deliveries the lightest of recent years. Prices continue to sag because of failure of demand.

Seattle — Dealers are marking time, sales being confined to occasional small lots for foundry use. Exports are entirely at a standstill. Business could be done with Japan

except for import regulations and unfavorable exchange. Local mills are out of the market. Tidewater stocks are somewhat above normal but receipts have ceased in view of the unfavorable conditions.

Warehouse

Warehouse Prices, Page 103

Pittsburgh — While October demand upon warehouses fell below September, some distributors report improvement in the last few days. Plates, sheets, structurals and specialties are in fair demand, but it is apparent consumers are hesitant to buy more steel than they require immediately. With the year near its end, warehouses are not particularly desirous of augmenting stocks and, as a result, some unbalance is apparent. Wire and wire products are moderately active Prices are well maintained.

Cleveland — Distributors report general conditions unchanged, with sales and aggregate tonnage shipped so far this month comparing favorably with October. Since mill deliveries on most steel products can be made within a week, it has affected total sales somewhat. Prices are firm and while no first quarter announcement has been made they are expected to remain unchanged.

New York—Demand for steel out of store continues slack on day-to-day orders. In general the lighter steel products and specialties are relatively more active than heavy material, including structurals. While some scattered shading is noted, the leading factors in the jobber field are holding prices firm.

Chicago—Sales continue slightly behind the rate a month ago and warehouses anticipate a declining trend until Jan. 1. Scarcity of sales the past six weeks is taken as an indication of quieter business next year.

Philadelphia—Warehouse business is quiet but early indications point to a November volume about equal to that for October. Prices, while not decidedly firm, are being well maintained by the larger interests. Stocks continue substantial.

Cincinnati—Warehouse sales this month are at the level of October volume. Inventory of most consumers is low with purchases keyed closely to immediate needs.

St. Louis—The recent cold snap has had a stimulating effect on sales of certain commodities from warehouses. Seasonal goods, such as tubular items, galvanized sheets and light finished material are moving in fair volume. October business was on the whole up to expectations, though slightly below September and October a year ago.

Seattle—October totals were behind last year. Business is variable, volume small and inquiry lacking. Depression in the lumber industry, with reduced production, is affecting the jobbing trade adversely while less government spending is noticeable. Notwithstanding, the price structure is firm and schedules are being generally maintained.

Ferroalloys

Ferroalloy Prices, Page 102

New York—Ferromanganese shipments continue to sag, with some consumers still going along on excess stocks laid in last June before the price rise that confronted most contract customers July 1. The movement this month will undoubtedly go down from October, leading trade interests predict. Prices are unchanged at $102.50, duty paid, Atlantic and Gulf ports.

Domestic spiegeleisen also reflects the downward trend in steel production, even more sharply than ferromanganese, as consumers, when they were confronted with an increase last July did not stock up to the extent that ferromanganese buyers did. Domestic spiegeleisen, 19 to 21 per cent, is unchanged at $33, Palmerton, Pa., and 26 to 28 per cent at $39.

While tungsten ore is nominally easier, ferrotungsten is still being quoted at around $2.95 to $3 per pound tungsten contained in car lots.

Metallurgical Coke

Coke Prices, Page 101

Demand for by-product and beehive coke continues relatively light without any extensive change from last week. By-product sellers are increasingly active. Prices are reported holding up fairly well since no large orders have come into the market to disturb conditions. The Pennsylvania public utility commission has approved the application of the P. & L. E. railroad to institute a reduced shipping rate of 60 cents per net ton on coal and coke by-products from Rankin, Bessemer and Wylie to Monessen, Pa. A few additional beehive ovens were closed in the Connellsville, Pa., region recently. High water on the Monongahela river in the last week of October hampered a number of mines, but a rapid recovery is being staged.

Bolts, Nuts, Rivets

Bolt, Nut, Rivet Prices, Page 101

Bolt, nut and rivet specifications continue slow from both consumers and jobbers. Demand from railroads is dull and is expected to continue quiet through the balance of the quarter. Needs of automotive partsmakers have increased only moderately and consumption by farm equipment manufacturers is off from the active summer rate though still fairly heavy for this period. Jobbers are attempting to hold down stocks and are ordering for only early needs.

Iron Ore

Iron Ore Prices, Page 104

New York—Reflecting the easier situation in ores in general, tungsten ore nominally is weaker, with Chinese wolframite $30, duty paid, per short ton unit, and domestic scheelite, $28 to $30, duty paid. There is little buying interest here, however, even at these prices and, further, insofar as Chinese wolframite is concerned, there are still no guarantees as to deliveries, generally speaking.

So sharp has been the downward trend in the metalworking industries of late that stocks in consumers' hands appear as adequate as they did a month or six weeks ago. It was thought early in the fall that by November domestic buyers of tungsten ore would have to begin replenishing stocks around this time; however, there are now few indications of any such tendency. Shipments leaving China are still relatively light, although more free than they were a few weeks ago.

Cleveland—Shipments of iron ore from upper lake ports during October amounted to 6,562,035 tons, compared with 9,173,991 tons in September, and 7,301,284 in October, 1936. This is the first time this season that the monthly total fell below the corresponding period last year. Shipments this year to Oct. 1 amounted to 61,174,157 tons, compared with 41,063,872 tons to Oct. 1, 1936 and well above the 44,822,023 tons for the entire season last year.

The Duluth, Mesabi & Iron Range, Soo Line, and Northern Pacific railroads were expected to finish handling iron ore for the 1937 season late last week. The Great Northern probably will ship until about Nov. 18.

Shipments of iron ore from the upper lake ports for the season to Oct. 1 in 1936 and 1937, as tabulated by the Lake Superior Iron Ore association, follow:

Port	To Nov. 1 1936	To Nov. 1 1937
Escanaba	2,052,211	2,942,402
Marquette	3,924,834	4,898,677
Ashland	4,286,997	5,447,641
Superior	14,987,083	21,696,396
Duluth	10,685,044	16,598,272
Two Harbors	5,127,703	9,590,269
Total	41,063,872	61,174,157

Semifinished

Semifinished Prices, Page 101

Demand for billets continues only moderate in the face of reduced operating schedules for finishing mills. Foreign inquiry for sheet bars is fair, with 3000 tons booked recently by one producer. Shipments of wire rods are maintained, while skelp is showing signs of improvement, particularly in regard to export inquiry.

Steel in Europe

Foreign Steel Prices, Page 103

London—(*By Radio*)—Output of Middlesbrough pig iron has been sold to the end of the year. There is a definite lull in iron and steel buying, mostly due to buyers' requirements being satisfied and price changes expected. The future outlook is becoming uncertain. Supplies of iron are much easier and freight rates for sea transport have been reduced. The tin plate market is dull.

The Continent reports export markets are inactive. Prices are weak and concessions are reported on the part of rerollers, especially of bars, sheets and galvanized sheets.

Nonferrous Metals

Nonferrous Metal Prices, Page 102

New York — Copper, lead and tin prices dropped further last week on continued lack of buying support and persistent weakness in the London market. Zinc held unchanged despite dull demand.

Copper — Custom smelters lowered prices $15 per ton to the basis of 11.00c, Connecticut. Casting metal eased to 10.50c and export to 10.20c. Primary mine producers held at 12.00c but are likely to revise prices in the near future unless an abrupt change ocurs in the volume of business. Offerings of resale electrolytic copper at 10.62½c were not absorbed. There were approximately 5000 tons available at that level at the close of the week.

Lead—Prices dropped $10 per ton to the basis of 5.00c, New York, and 4.85c, East St. Louis. St. Joseph Lead Co. practically withdrew from the 5-cent market on Friday and indicated that it is not interested in selling at the going market exclusively. This eliminates the possibility of any speculative buying from that source and may prove an important step toward stabilizing the market.

Zinc—Sales were light since buying incentives were lacking. Prime western held at 5.75c, East St. Louis.

Tin—Prices sank to new lows for the year to date with Straits spot closing at 44.12½c.

Equipment

Chicago — Machinery and equipment buyers are showing more caution in the matter of replacement and extension programs. While the decrease in sales has not been sharp, indications point to a downward trend in business during coming weeks. Large lists are lacking and there is little prospect of extensive buying by railroads such as occurred a year ago. Only a few inquiries have appeared from railroads [illegible] be used in the preparation of 1938 bud-

gets. Small tool demand, while maintained fairly well, is off from the rate of a few months ago.

Pittsburgh—Blast furnace and steel mill equipment manufacturers continue active, particularly in regard to the new Irvin works of Carnegie-Illinois Steel Corp., but also with a fair volume from other sources. Electrical equipment sales are reported holding up well, although there has been reflection of the hesitancy in general business. Demand for tools is lighter. Miscellaneous lines have shown some pick-up. Inactivity of the railroads, combined with seasonal influences, are among the recent factors which have contributed to the general easier tone.

Boston—Recession in domestic orders for machinery is more than balanced by a sustained heavy demand for export, substantial orders being placed in New England by Russia, Japan, China and Colombia. On some lines domestic deliveries are slightly improved, although backlogs with most plants are still large. Much of the current foreign volume will be shipped in March and April next year. Machine tool shop operations continue considerably higher than most manufacturing industries.

Seattle — While industrial plants are making some replacements, most buying is confined to state and county requirements. Electrical and pumping equipment continue in good demand but the general volume has receded from September's levels.

Construction and Enterprise

Ohio

LOCKLAND, O.—Joslin-Schmidt Corp. is considering making extensions to its power house and packing house by-products plant, with installation of new boiler unit, stoker and auxiliary equipment. Cost $40,000.

MIDDLETOWN, O.—American Rolling Mill Co. will install heavy duty motors and controls, regulators, conveyors, electric hoists and other equipment in connection with expansion and improvements in local mills. Expenditure totals $2,000,000.

NEWCOMERSTOWN, O. — Newcomerstown Produce Co., R. H. Brumbach, general manager, plans erection of cold storage and refrigerating plant, costing about $40,000.

SANDUSKY, O. — Pennsylvania railroad, W. D. Wiggins, chief engineer, Broad street station, Philadelphia, is taking bids for constructing channel and dock improvements and loading facilities here. G. W. Peterson, assistant to chief engineer, has established temporary offices at 2709 Monroe street, Sandusky. (Noted Sept. 6.)

SPRINGFIELD, O.—City has plans under consideration for erection of municipal power plant, cost of which will exceed $50,000. W. E. Lucas is city engineer.

Michigan

DEARBORN, MICH.—American Blower Co. is spending approximately $190,000 for construction of an addition to its plant here.

DETROIT—Superintendent of lighthouses, 3760 East Jefferson avenue, will take bids Nov. 15 for one diesel air compressor and one electric motor-driven air compressor, with spare parts.

DETROIT—National Cylinder Gas Co., 205 West Wacker drive, Chicago, manufacturer of industrial oxygen, will install power equipment in new plant near here. Project will cost close to $200,000.

DETROIT—Palm Holmberg Co., 9370 Roselawn avenue, has been organized with $15,000 capital to engage in ornamental iron and structural steel business, by C. D. Palm, Detroit.

GRAND RAPIDS, MICH.—State Refining Co., Ernest Wellman, president, plans boiler plant and pumping station at new 1500-barrel oil refinery. Cost over $100,000.

PONTIAC, MICH. — Motherwell Mfg. Co., recently formed with $100,000 capital to manufacture drop forgings, will begin operations about Dec. 15. The company has leased a factory building in Pontiac and is remodeling same at an estimated cost of from $10,000 to $15,000. Approximately $75,000 will be spent for purchase and installation of machinery and equipment. Incorporators are Alexander A. Motherwell and Earl Lowe, of Detroit, and A. E. R. Schneider, of Cleveland.

HILLSDALE, MICH. — Hamilton and Webber, Grand Rapids, Mich., consulting engineers, are preparing preliminary plans for the construction of a power house expansion at Baw Beese Lake, Hillsdale, for the city board of public works. Estimated cost $200,000.

SHELBY, MICH.—Village is considering the possibility of a diesel power and light plant.

Massachusetts

SOUTH BOSTON, MASS.—Dehydrating Process Co., 6 Mount Washington avenue, is considering making an addition to its boiler plant. Estimated cost $25,000. Thomas McSweeney, 77 Summer street, Boston, consulting engineer.

WEST SPRINGFIELD, MASS.—General Fibre Box Co. plans one-story steam power house at plant. Cost close to $30,000. McClintock & Craig, 458 Briggs street, Springfield, consulting engineers.

New York

BROOKLYN, N. Y.—American Safety Razor Corp., 315 Jay street, has plans maturing for extensions and improvements in boiler plant, installation of new equipment. William Higginson & Son, 101 Park avenue, New York, architects.

NIAGARA FALLS, N. Y.—Haeberle Lumber Co., Cedar avenue, plans erecting a machine shop to replace structure destroyed by fire. Cost $40,000.

POUGHKEEPSIE, N. Y. — Western Printing & Lithographing Co., 1220 Mound avenue, Racine, Wis., plans boiler house and installing coal and ash conveyors at plant here. Maturity soon. E. J. Kraus, 735 Water street, Milwaukee, engineer.

ROCHESTER, N. Y.—Eastman Kodak Co. has acquired a site and will erect an addition to its Hawkeye works. Cost $100,000.

ROCHESTER, N. Y.—Delco Appliance Corp., 391 Tyell avenue, plans steam power house at local plant on Mount Read boulevard. Cost close to $60,000.

TROY, N. Y.—Rensselaer Polytechnic Institute is considering erection of weld-

ing laboratory to cost approximately $40,000.

Pennsylvania

ALLENPORT, PA.—West Penn Power Co.. Pittsburgh, plans extensions in transmission lines here, including expansion in power substations, primarily for power service for local mills of Pittsburgh Steel Co.

COUDERSPORT, PA. — Brownhill & Kramer, A. Curry, local manager, plans erection of steel sash factory.

KANE, PA.—Holgate Bros. will spend approximately $40,000 in making alterations to toy factory, including equipment.

KNOX, PA.—United States Fibre Box Co. plans one or two-story plant addition. Cost $50,000.

MARTINSBURG, PA.—A. Forshey will purchase new transmission and conveying equipment, diesel engine and other machinery to replace equipment in feed and flour mill recently destroyed by fire.

WILLIAMSPORT, PA. — Williamsport Textile Corp., A. C. Markgraf, superintendent, plans installing new heating and ventilating system and lighting facilities in textile mill.

Indiana

FORT WAYNE, IND. — International Fork & Hoe Corp., East Berry street, nas been formed to manufacture hoes, forks and shovels, by I. W. Stillinger, Edith Paul and Hilda J. Riping.

WASHINGTON, IND. — Extensions to municipal power plant have been authorized, including equipment for combustion control, feedwater treatment, ash handling, etc. Bevington-Williams Inc., Indiana-Pythian building, Indianapolis, consulting engineer.

Alabama

JASPER, ALA.—R. H. Carr Lumber Co. plans new boiler plant in connection with rebuilding of planing mill and woodworking plant recently destroyed by fire.

Maryland

HAGERSTOWN, MD.—City, R. R. Daniels, light plant superintendent, has received report from consulting engineers recommending expansion at light plant, including emergency generating unit, to require expenditure of $201,000.

District of Columbia

WASHINGTON—Bureau of supplies and accounts, navy department, will take bids until Nov. 12, schedule 1939, diesel marine engines, main propelling sets, auxiliary, switchboard and spare parts; schedule 2037, one motor-driven universal milling machine, delivered Philadelphia; until Nov. 16, schedule 1975, chain hoists; schedule 2006, one motor-driven universal milling machine, delivered San Diego, Calif.; schedule 2014, electric drills; schedule 2021, steel sockets for morse taper shank tools; schedule 2030, 15,000 feet of steel wire rope, delivered Mare Island, Calif.; until Nov. 19, schedule 195i, motor-driven radial drills; until Nov. 23, schedule 2023, wire steel nails; schedule 2036, bilge, emergency feed and make-up feed pumps, delivered Brooklyn, N. Y., and Philadelphia; until Dec. 21, schedule 1993, abrasive wheels.

Georgia

BRUNSWICK, GA.—Hercules Power Co., care of A. S. Kloss, local manager, is making alterations and constructing an addition to its plant, and making improvements in dwellings, warehouse and other facilities. Estimated expenditure $150,000.

North Carolina

PLYMOUTH, N. C.—North Carolina Pulp Mill, L. J. Meumier, vice president, has plans under consideration for erection of a finishing plant at a cost of $300,000.

South Carolina

ROCK HILL, S. C.—Warwick Chemical Co., West Warwick, R. I., has purchased building at East White street, here, and will remodel and install machinery for manufacture of textile chemicals.

ORANGEBURG, S. C.—T. G. Strange, Rome and Columbus, Ga., has acquired the building and properties of the old Orangeburg Packing Co. here and will make alterations and install new machinery at an estimated cost of $200,000.

Tennessee

NEWBERN, TENN.—City voted $33,000 bonds for electrical distributing plant, and will use TVA power.

West Virginia

LUMBERPORT, W. VA. — Harrison County Rural Electric association, E. V. Richardson in charge, is considering building steam-electric power plant. Cost $100,000. L. T. Klauder, Lincoln Liberty building, Philadelphia, engineer.

WHEELING, W. VA.—Triangle Conduit & Cable Co., Dry Harbor road, Brooklyn, N. Y., will install electric power equipment in proposed new addition to wire and cable works at Glen Dale, Wheeling. Cost $100,000.

Virginia

NORFOLK, VA.—Col. Jacob Ruppert, 1639 Third avenue, New York, has acquired a two-story warehouse here and will spend approximately $70,000 for improvements for bottling plant; will operate as Jacob Ruppert Virginia Bottling Corp.

Oklahoma

FORT COBB, OKLA.—Plans have been prepared for erection of municipal light plant, costing $30,000.

TULSA, OKLA. — Stanolind Oil Co., Philcade building, has completed plans for erection of chemical manufacturing plant, costing $50,000.

TULSA, OKLA.—City, D. Randall, clerk, Blackwell, Okla., will soon take bids for 4000-kilowatt turbine and building for same. Black & Veatch, 4706 Broadway, Kansas City, Mo., engineers.

WAURIKA, OKLA.—Preliminary plans have been drawn for municipal light plant, costing approximately $75,000. Engineer not appointed.

Wisconsin

EDGERTON, WIS.—Highway Trailer Co. plans $45,000 addition to main factory here to accommodate operations now conducted in branch factory at Stoughton, Wis. J. W. Menhall is president.

MILWAUKEE — Local tractor and cream separator works of International Harvester Co. at 1714 West Bruce street will be enlarged by two wing additions to heat treating department, costing about $50,000 with equipment. E. J. Leiser is works manager.

MILWAUKEE—Screw Machine Products Co. Inc., 1305 North Fourth street, is starting work on a new one-story factory, 80 x 200 feet, on new site in town of Lake, Milwaukee county. Architect Mark Pfaller, 8525 Ravenswood avenue, is designer. Henry A. Mueller is president.

WISCONSIN RAPIDS, WIS. — Central Electric Co. is starting work on alterations and enlargements of factory estimated to cost $25,000. Work is under direction of Architects Hougen & Henderson, Wisconsin Rapids.

Minnesota

WESTBROOK, MINN.—A new munici-

pal power plant will be built by the city, for which a bond issue is being arranged. Cost about $70,000.

Texas

CORPUS CHRISTI, TEX.—Pontiac Refining Corp., Nixon building, plans steam-power house and pumping station at new oil refinery, costing about $100,000. Mid-Continent Engineering Co., First National Bank building, Dallas, Tex., in charge

CORPUS CHRISTI, TEX.—Sevier Hotel plans central heating plant for its new multi-story hotel. A cold storage and refrigerating plant and air conditioning system will also be installed. Estimated cost $1,500,000. Frank T. Drought, First National Bank building, San Antonio, Tex., mechanical engineer.

PECOS, TEX.—Red Bluff Water Power Control district, E. B. Barron, president, takes bids Nov. 30 for power plant improvements, including construction of 56 miles of 33 kilovolt transmission line extension, 1000-kilowatt, 33 kilovolt substation, 1000-kilowatt diesel generating plant extension of lines, etc. J. D. Shaw is engineer.

Kansas

TOPEKA, KANS.—University of Kansas Hospital has had plans prepared by R. A. Coolidge, Topeka, for power plant improvements, costing $75,000. Project and grant approved by PWA.

Iowa

EMMETSBURG, IOWA—City will spend approximately $80,000 for erection of municipal gas plant and distributing system.

NEW HAMPTON, IOWA—City has plans under way for extensions in central municipal heating system, including pipe lines, control equipment and accessories.

OSKALOOSA, IOWA — Iowa Light & Power Co., Des Moines, Iowa, has filed application with the Iowa State commerce commission for permission to construct electric transmission lines in Mahaska county.

WATERLOO, IOWA—State board of health has granted an extension of time for the submission of plans for approval of the construction of two sewage disposal plants, one for city and one for packing plant, to cost about $1,000,000. Knapp Mathews is city clerk and C. T. Wilson is city engineer. Extension granted to Feb. 1, 1938.

WEST BEND, IOWA—Farmers' Creamery Co. will build a one-story cold storage and refrigerating plant. Cost close to $30,000 with equipment.

Nebraska

BATTLE CREEK, NEBR.—City voted favorably on $68,000 bond issue either to construct a municipal power plant or purchase present private plant.

CRETE, NEBR.—Norris Rural Public Power district, Anton Vasak, president, Wilbur, Nebr., is taking bids to Nov. 18 on construction of 291 miles of rural transmission lines in Saline and Jefferson counties at a cost of about $322,000. H. A. Davis, Crete, is consulting engineer.

HARTINGTON, NEBR.—State Engineer A. C. Tilley has approved application of the Cedar-Knox Rural Electrification district, M. L. White, secretary, for the construction of 506 miles of rural transmission lines in Cedar and Knox counties. H. H. Henningsen Engineering Co., 326 Union State Bank building, Omaha, Nebr., is consulting engineer.

LINCOLN, NEBR.—Lancaster County Rural Public Power district, R. T. Abernathy, superintendent, is taking bids to Nov. 15 on construction of 130 additional miles of rural transmission lines in Lancaster county costing about $150,000. Total cost of project is $708,950. O. R. Toman, Lincoln, is engineer and general manager

Wyoming

AFTON, WYO.—Lower Valley Power & Light Co. Inc. will soon take bids for electric power plant and distribution system. Cost to exceed $40,000.

Arizona

WINSLOW, ARIZ.—Arizona Electric Power Co. has approved plans for expansion and improvements in local steam-electric generating station, including installation of diesel engine generator unit and auxiliary equipment. Work to proceed at once. Cost, $100,000 with equipment.

New Mexico

ARTESIA, N. MEX.—Central Valley Electric Corp., care of I. Resler, president, plans constructing new power plant and 80-mile distribution system, costing $255,000. Maturity soon. E. T. Archer & Co., New England building, Kansas City, Mo., engineer.

Pacific Coast

LOS ANGELES—A certificate to conduct business under the firm name of Alvo Nut & Bolt Co., 659 West Washington boulevard, has been issued to the owner, J. Norman Acoff, 10606 Ohio avenue, West Los Angeles.

LOS ANGELES—A certificate to conduct business under the firm name of Mahl Steel Co., 324 North San Pedro street, Los Angeles, has been issued to Thomas Mahl, 216 South Poinsetta place, Los Angeles.

LOS ANGELES — A one-story warehouse and factory building will be erected at 711 East Fifty-ninth street, Los Angeles, for the Eugene Extruded Metals Co., 351 South Clarence street, at a cost of $52,000.

LOS ANGELES—Olympic Die & Mfg. Co. has been incorporated in Los Angeles with capital stock of $15,000. The directors are Louis J. Smallen, Frank Kwasnik and Stanley Suratek, all of Los Angeles. The new corporation is represented by David Blonder, 403 West Eighth street, Los Angeles, attorney.

LOS ANGELES—Albatross Steel Products Co. has been incorporated with capital stock of $30,000, by Ivan C. McDaniel, Beverly Hills, Calif.; Arline Cronemiller, Lawrence T. Baker, John Dales Jr. and E. S. Fletcher of Los Angeles. Ivan G. McDaniel, attorney, 642 Title Insurance building, Los Angeles, represents the company.

SACRAMENTO, CALIF.—Western Pacific Railroad Co., J. W. Williams, chief engineer, Mills building, San Francisco, will spend approximately $350,000 for erection of 150 x 300-foot steel concrete shop extension, furnishing and installing two 125-ton traveling cranes and one 10-ton auxiliary crane, constructing steam power plant, extending power lines and installing transformers.

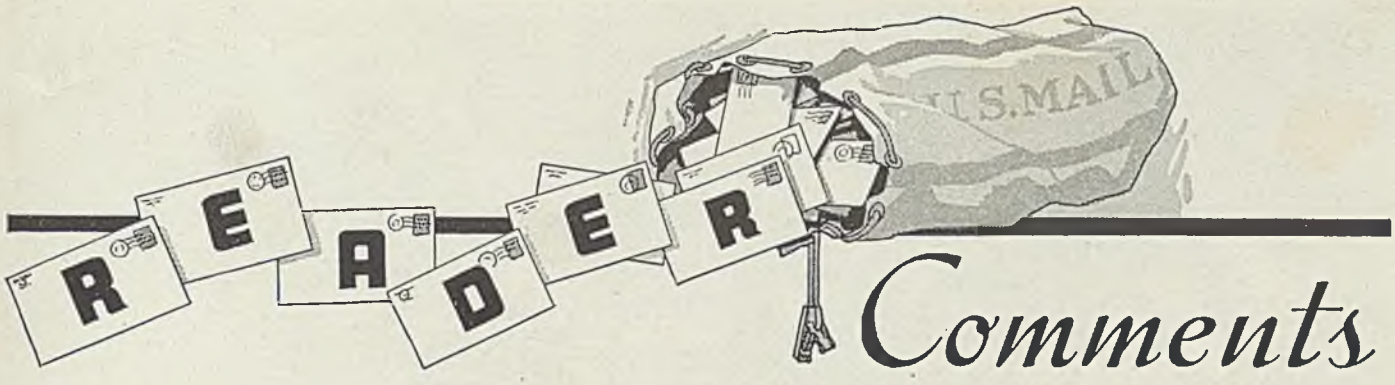
SAN DIEGO, CALIF.—San Diego plans a 500,000-gallon elevated steel tank and tower for water supply system in La Mesa district.

PORTLAND, OREG.—Northwest Box Co., North Portland street, is preparing plans for erection of plant. Cost $40,000 with equipment.

Canada

DAWSON CREEK, B. C.—Dominion Electric Power Co. Ltd. is preparing plans for erection of new plant, costing $75,000.

ST. BONIFACE, MAN.—Swift Canadian Co. Ltd., Market street, Toronto, Ont., will take bids in January for constructing machine shop, boiler and engine room. Cost $150,000.



Comments

Readers are invited to comment upon articles, editorials, reports, prices or other editorial material appearing in STEEL. The editors cannot publish unsigned communications, but at their discretion may permit a writer to use a pseudonym when a bona fide reason exists for withholding his identity. Letters should be brief—preferably not exceeding 250 words.

White Plague in Industry

To the Editor:

Factory management is concerned with any problem that deals with a definite, substantial source of loss within its own plant and personnel. Such a problem is the age-old, ever-present loss arising from tuberculosis.

By accurate and authentic computation the current net annual loss to the country is two billion dollars, largely borne by industry, through the continued existence of tuberculosis.

The most important factor is dealing successfully with this disease is prompt discovery of incipient cases, early diagnosis. In planning such an industrial campaign it is important to determine its relative importance to the individual plant, by physical examination of the workers as a whole, and in those occupations where a high rate of pulmonary diseases is shown, by selecting robust workers for such jobs, rotation of occupation and removal of the evident predisposing causes.

The appeal of the Christmas seals is one way in which everybody can help fight tuberculosis. Industry's money is greatly needed to provide the sinews of war to the fighters who are leading the attack. But more than financial support is necessary, the moral support and enthusiastic co-operation of industry.

A point for industrial management to remember is that the disabled workman, whether from illness or accident, is a liability expensive to the industry.

Four things can be done: Circularize employes monthly with information on tuberculosis; act as a clearing house for matters of industrial hygiene in co-operation with medical and welfare departments; make available to employes a low-cost diagnostic service where tuberculosis is suspected; assist tuberculous employes to obtain treatment and see that all available facilities are utilized.

WILBUR J. POWERS

Cleveland.

City Industry Wins

To the Editor:

The freight rate structure places a premium upon manufacture, not in the small wayside town, but in the large metropolitan market. To illustrate, let us suppose a certain non-weight losing material, originating in Chicago, takes the fourth class rate; the finished product, consumed in New York, takes the second class rate. If the material is sent direct to Paterson, N. J., and there fabricated, the rate per 100 pounds, fourth class is 76 cents.

Should the fabrication, however, take place at Elmira, N. Y., and then be shipped to New York, the rate on the material from Chicago to Elmira, fourth class, would be 63 cents, and on the finished product from Elmira to New York, second class, 70 cents, a total of $1.33 per 100 pounds. In other words, fabrication in Elmira results in increasing the freight charges 57 cents per 100 pounds over those of manufacturing in Paterson.

Materials which enter wholly into the finished product without loss of weight are, if manufactured a considerable distance from the point of consumption, in effect subject to a penalty of an amount equal to the difference in the cost of shipping the finished product as against that of shipping the raw material from which the product is made.

The tremendous quantity of goods consumed by the 12,000,000 inhabitants in the New York metropolitan area has made the local region a huge fabricating center for the raw materials produced over a great part of the continent. The numerous opportunities presented for exploiting this differential in class freight rates are by no means exhausted.

HERBERT S. SWAN

Consultant, Industrial Commission, Paterson, N. J.

Reforms Reading Habits

To the Editor:

Reading in STEEL, July 5, the article by Robert F. Heller on "What Can I Do To Make Them Think," brought to my attention the fact that I ought to check the reading of the various heads of departments and I promptly found that our method of distribution had been dislocated so that some of the periodicals never reached some of the heads of departments. I have taken steps to correct this and I am now insisting that all heads of departments read whatever may be of interest to them in all of the publications which we receive.

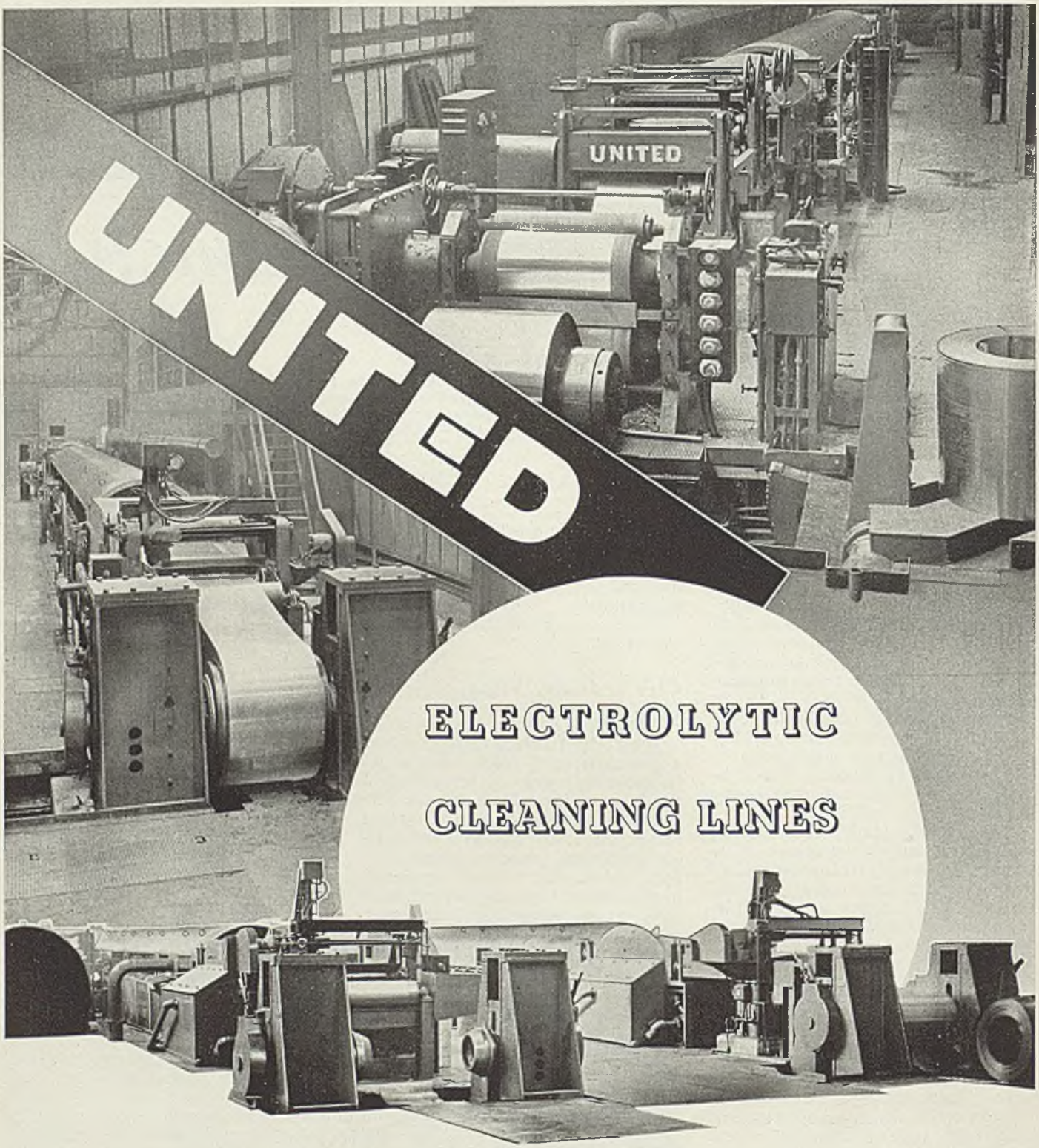
There is no doubt these periodicals do stimulate progressive thinking and very frequently some new wrinkle for lowering production costs is found and many times these ideas reflect themselves in better earnings.

In connection with the distribution of periodicals to our department heads, I am wondering if you furnish stickers which can be used for this purpose.

W. D. CREIDER

General Manager, The Oilgear Co., Milwaukee.

Stickers are gladly furnished to subscribers by the Reader Service department of STEEL.



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