STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

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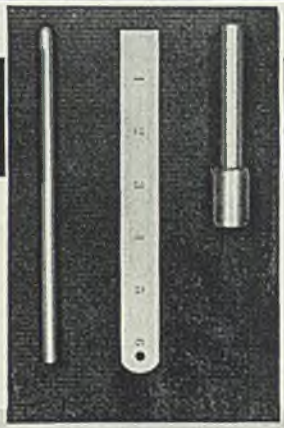
STRENGTH PLUS CORROSION RESISTANCE

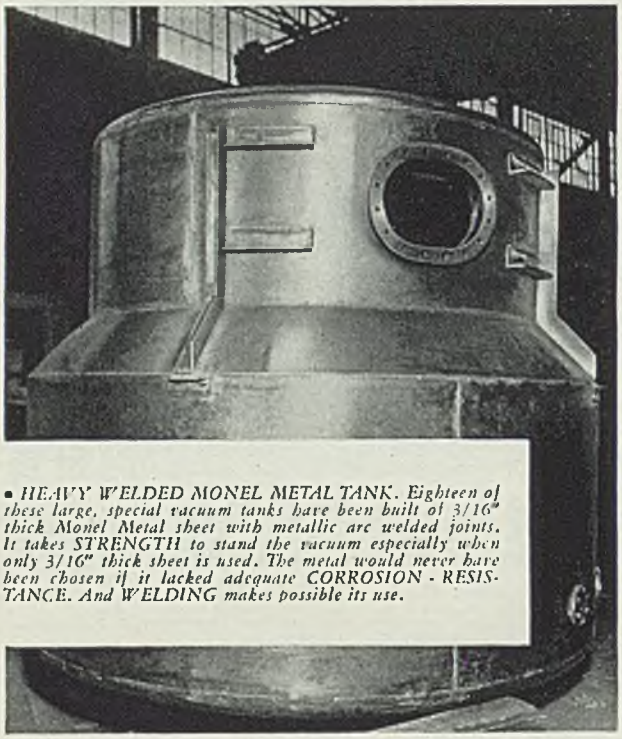
DOES NOT EXCLUDE

EASE of FABRICATION

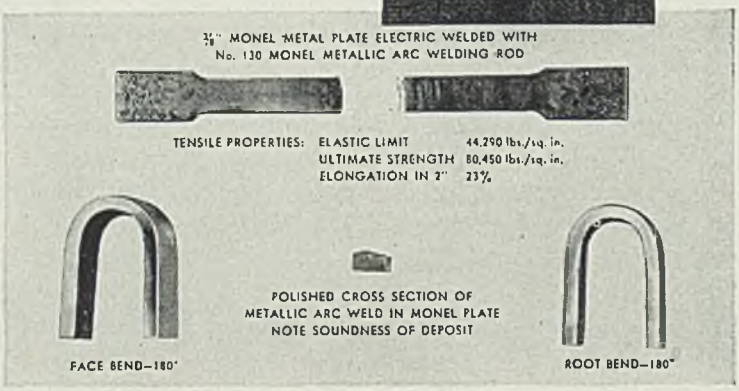


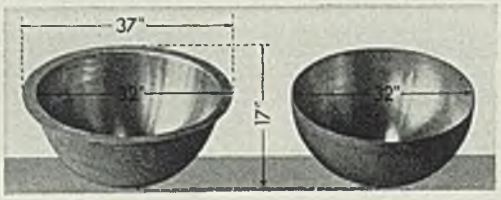
• *TINY THERMOMETER BULBS—Deep-drawn tubular parts of Monel Metal. Thermometer Bulb at right deep-drawn in seven operations with three anneals. Siphon tube at left required ten draws with four anneals.*

• *Below: Excellent mechanical properties in Monel Metal welds.*



• *HEAVY WELDED MONEL METAL TANK. Eighteen of these large, special vacuum tanks have been built of 3/16" thick Monel Metal sheet with metallic arc welded joints. It takes STRENGTH to stand the vacuum especially when only 3/16" thick sheet is used. The metal would never have been chosen if it lacked adequate CORROSION - RESISTANCE. And WELDING makes possible its use.*





• *BIG BOWLS—32" dia. Seamless Shells 17" deep. These Monel Metal shells for steam jacketed kettles were deep-drawn from .125" thick Monel Metal sheet.*

. . . MONEL METAL and NICKEL have ALL THREE!

Next time you walk through your own shops . . . just check up on all the ways steel is fabricated to form your equipment. You'll see some men machining, some stamping, others cold-forming and drawing, and some who are brazing and welding.

Remember, *every process you see can be applied to Monel Metal and Nickel.* And is being applied, every day of the year.

Take cold-forming and deep-drawing, for instance. The tubular thermometer parts and the large seamless shells illustrated on this page are typical of hundreds of pieces of equipment made by cold-forming and deep-drawing.

And as for welding, both Monel Metal and Nickel can be welded readily by any of the methods used for steel, including oxy-acetylene, metallic and carbon arc, flash, butt, spot and seam welding, silver soldering and brazing. There are slight differences in details from the procedure followed for welding steel, it is true. But your workmen pick these up readily.

For instance: in oxy-acetylene welding, it is best to use a tip one size larger than for steel. And in metallic arc welding, reversed polarity (work negative, electrode positive) is recommended.

One very definite advantage of welding these metals is that the welds require no heat treatment. And the welds, like the parent metal, are inherently resistant to corrosion; and this resistance is not affected by heat treatment.

Send for our booklet, "Welding of Monel Metal and Nickel," and for "Welding Shop Cards," for complete instructions. Ask the Inco welding service for advice on your specific problems.

INCO WELDING RODS and FLUXES

for PURE NICKEL

Oxy-Acetylene . . . No. 41 Nickel Gas Welding Wire.
Metallic Arc . . . No. 31 INCO Nickel Metallic Arc Welding Wire.
Carbon Arc . . . No. 21 INCO Nickel Carbon Arc Welding Wire.

for MONEL METAL

Oxy-Acetylene . . . No. 40 Monel Gas Welding Wire. For flux see * at right.
Oxy-Acetylene . . . No. 43 Silicon Monel Gas Welding Wire.
Metallic Arc . . . No. 30 INCO Monel Metal Arc Welding Wire.
Carbon Arc . . . No. 20 INCO Monel Carbon Arc Welding Wire.

for INCONEL

Oxy-Acetylene . . . No. 42 Inconel Gas Welding Wire. For flux see ** at right.
Metallic Arc . . . No. 32 Inconel Metallic Arc Welding Wire.

for NICKEL-CLAD STEEL (for welding of Nickel side)

Oxy-Acetylene . . . No. 41 Nickel Gas Welding Wire.
Metallic Arc . . . No. 31 INCO Nickel Metallic Arc Welding Wire.
Carbon Arc . . . No. 21 INCO Nickel Carbon Arc Welding Wire.

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FLUXES

* INCO Gas Welding and Brazing Flux for Monel Metal.
** "CROMALLOY" Gas Welding Flux is recommended for Inconel.
No flux is used for the gas welding of Pure Nickel or Nickel-Clad Steel.

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INCO welding materials as listed can most conveniently be obtained through regular INCO distributors.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N.Y.

As the Editor Views the News

BY NECESSITY a party platform is a compromise. The planks which the Republicans last week adopted unanimously represent the outcome of a give-and-take contest between westerners and easterners, youngsters and old-timers, agriculturists and industrialists, liberals and conservatives and other groups of similarly divergent beliefs or interests. Throughout the negotiations, the westerners, youngsters, agriculturists and liberals were very much in the forefront in the debate on every disputed point. The influence of these forces is reflected strongly in many parts of the 20-plank platform. The flavor of the states in the great plains region is noticeable throughout much of the text.

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Industry Scans G. O. P. Planks

In spite of the heavy emphasis on problems near to the heart of the agricultural west, the platform will be regarded favorably by the majority of industrial executives. Most of the principles set forth are in accord with the ideas which progressive industrialists have been expressing during the last four or five years. In the larger sense, industry will be attracted to the platform because it is built upon the firm foundation of the principle of abundance instead of that of scarcity. It accents (p. 15) private initiative, economical production, practical reemployment, adequately controlled relief, thrift instead of reckless spending, and pay-as-you-go security.

• • •

Would Broaden Ban on Coercion

Employers and employes in industry will view the labor plank with interest, because, while it provides for collective bargaining as did Section 7a of NIRA, it declares against "interference from any source." The interference clause of NIRA specified only coercion on the part of employers. In the approaching attempt of the professional labor unions to organize the steel industry, (p. 14), the present government labor policy provides for no restraint against coercive acts of labor unions or their agents. If the principles adopted by the Republican party were in force, the government would be in a position to restrain coercion of any kind. As it is, it will be interesting to watch the government attitude toward the unionization drive in the fall. Widespread or extended strikes at that time would be unfortunate from the standpoint of the Roosevelt campaign.

• • •

Alloy Floor for Tri-Borough

Steelmakers, fabricators, engineers, and others who have been watching the development of floors for buildings, bridges and other structures, will be interested in the flooring (p. 55) of the new Tri-Borough bridge in New York. It consists of ⅝-inch steel plates covered with a 1-inch wearing surface of asphalt plank. The plates, which are of silicon structural steel, are welded to the flanges of the longitudinal floor beams and are welded to one another by butt welds. This extensive installation of the socalled battledeck floor construction is the latest and perhaps the most impressive application of the principle evolved some years ago for applying steel plates for floors in building construction.

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Iron, Steel to Dominate Fairs

This summer the iron, steel and metalworking industries will spend considerable money to dramatize their products before the eyes of the public. Representative companies are maintaining exhibits at the Texas centennial exposition (p. 56), which opened recently in Dallas. The industries also will be heavily represented in the Great Lakes exposition which will open in Cleveland on June 27. The extent to which industrial companies are participating in affairs of this kind indicates a trend toward a more highly developed sense of merchandising in the minds of industrial executives. Displays which make a favorable impression upon the general public help the man in the street to understand the industry. Such understanding always is a worthwhile objective.

E. L. Shaner

Company Unions Winning; Amalgamated Plans Strikes

WHILE the Amalgamated-Lewis labor group advanced plans for organizing steelworks last week, within the plants employes nominated and elected their representatives on company unions.

Nominations were made early in the week, elections were held on the last few days of the week. At some plants the elections still are in progress.

First reports from the Pittsburgh district indicated an overwhelming victory for those candidates in favor of company representation plans.

Although the Amalgamated-Lewis committee for industrial organization—CIO, as it has come to be known—has not revealed its program further than "the organization of the steel industry", it is understood that it has already agreed upon certain details. Unlike the one-big-strike strategy that was used by the organizers in 1918, the plan is to inaugurate a series of strikes, starting with plants where the organization considers it has the best chances.

The Amalgamated is making strong claims concerning membership in some districts; as for example, at one large northern Ohio plant its organizers report 95 per cent of the employes. A strike call has been tentatively agreed upon for this plant July 4.

Tighe, Gaither on Committee

The Amalgamated officers met in Pittsburgh Monday, June 8, and selected Michael F. Tighe and Vice President Joseph G. Gaither as the union's two members on the central committee now being formed by John L. Lewis.

At the same time, 86,000 Carnegie-Illinois Steel Corp. employes began to go to the polls to nominate their representatives for collective bargaining in the 1936-1937 term.

One of the best showings for the company union was made at the corporation's Wood plant, McKeesport, Pa., where 99.6 of the eligibles cast ballots. This plant was one of those formerly operated by the American Sheet & Tin Plate Co.

Other percentages of the eligibles casting ballots were as follows: Isabella and Lucy furnace division, Pittsburgh, 99.07; American works, Elwood, Ind., 99.5; roll and machine works, Canton, O., 95.5; Guernsey works, Cambridge, O., 95.33; Laughlin works, Martins Ferry, O, 95; Duquesne works, Duquesne, Pa., 94.7; Farrell tin works, Farrell, Pa., 93.8; river transportation department, Pittsburgh, 88.3; Farrell and Central furnaces, 90.2; Mingo works, Mingo Junction, O., 93.9; Lorain works, Johnstown, Pa., 89; National works, Monessen, Pa., 91.8; Homestead works, Homestead, Pa., 84.7; Edgar Thomson works, Braddock, Pa., 83.7; Clairton works, Clairton, Pa., 83.3; Vandergrift works, Vandergrift, Pa., 81.9, and Youngstown district, 87.3.

Following these nominations, election days in the Carnegie-Illinois Steel corporation were set as follows: June 10-11-12, Mingo Junction; June 12, Duquesne, Farrell, Homestead, Gary tin works, National, New Castle, Shenango, Guernsey, Vandergrift, Wood, Laughlin, and roll and machine department; June 15, Clairton and Edgar Thomson; June 16, Gary sheet mill, and June 16-17, Youngstown.

Jones & Laughlin Steel Corp.'s 22,000 employes nominated their representatives at the Pittsburgh works June 8, and at the Aliquippa, Pa., division subsequently. Elections were set for June 12 and 17 respectively. Nominating and election days at other independent steel companies began last week and extend through this week.

Lewis Friday announced appointment of a partial list of the steelworkers organization committee. The chairman is Philip Murray, vice president, United Mine Workers. Headquarters will be in Grant building, Pittsburgh. First meeting of the organization committee will be held there June 17.

The labor relations board has ordered an election among employes at the Huntington, W. Va., plant of the International Nickel Co. Inc., to determine whether workers wish to be represented by the Amalgamated or by the employes' council.

Selling It to Employes

UNITED STATES STEEL CORP. last week displayed posters in plants and offices of subsidiaries, where employes might easily see them. Headlines on the posters:

Buying a New Automobile? Buying a New Kitchen Utensil? Buying a New Washing Machine?

Answers, printed below: Ask If It Is Made of United States Steel. Remember, More Steel Means More Work.

Steel Protests Healey Bill

STRONG protest against the Healey bill fixing hours and wages on government contracts was filed with the house judiciary committee last week by Walter S. Tower, executive secretary, American Iron and Steel institute.

"There is probably no steel mill in the country in which the furnishing of steel materials to departments or agencies of the United States is anything more than a minor part of the business done by such mill, and no such mill could afford to revise its wage scale or its maximum hours of labor in order to engage in furnishing steel materials for such departments or agencies," he said.

"The result under the bill would be that only those mills in which the prevailing wages were equal to, or in excess of the wages which might be determined by the secretary of labor, could take part in bidding. . . .

"Moreover, the provisions of the bill are such that a mill could not be sure that it would be free of the penalties prescribed in the bill, in respect of any materials which it might furnish to the government, unless its wage scales were materially higher than those which might be determined by the secretary of labor for the various classes of employment."

In concluding, Mr. Tower said:

"Another requirement of the bill which in practice would be difficult if not impossible to fulfill is the provision that no person employed in the manufacture or furnishing of materials shall be permitted to work in excess of eight hours in any one day or 40 hours in any one week. In a steel mill it is a practical impossibility to limit certain special types of labor precisely to eight hours in any one day.

"We wish to refer also to the provision in section six of the bill, under which, upon the joint recommendation of the government contracting agency and the contractor, the secretary of labor could modify the terms of an existing contract respecting minimum rates of pay and maximum hours of labor. This provision gives opportunity for discrimination and favoritism in connection with government contracts, which existing laws governing such contracts are designed to prevent."

Republican Planks Accent Initiative, Hit Monopoly

BUSINESS men who read the text of the platform adopted unanimously last Thursday night by the Republican national convention, find numerous references to policies directly affecting industry. In eight of the 20 planks of the platform, principles are outlined which will have an important bearing upon the conduct of business in case the candidate supporting this platform is elected.

Throughout the entire text, and specifically in the first plank, the party pledges itself to preserve free enterprise and private competition.

The plank on re-employment declares that the only permanent solution of this problem is the absorption of unemployed by industry and agriculture. The solution proposed is to remove restrictions on production, abandon all policies that raise production costs and thereby restrict buying, encourage instead of hinder legitimate business, withdraw government from competition with private payrolls and eliminate unnecessary and hampering regulations.

"Security" Proposals Outlined

In the third plank, which is headed "Security," the party proposes a system of old age security based on these principles:

A pay-as-you-go policy which requires of each generation the support of the aged. Supplementary payment for every American citizen over 65 of a minimum income sufficient to protect him or her from want, revenues for this purpose to be provided by a direct tax widely distributed.

The principal distinction between this policy and that now being pursued by the present administration is that the benefits of the system are open to all and the cost is distributed upon the shoulders of all persons. Moreover, the proposed plan eliminates the so-called reserve fund for old age insurance contemplated under the present act.

The labor plank is brief. Its essence is in one sentence: "Protect the right of labor to organize and to bargain collectively through representatives of its own choosing without interference from any source."

The pledge to protect the right of labor to organize and bargain collectively differs from the pledge of the present administration and from the text of the famous Section 7a in NIRA only in the last five words. "Without interference from any source" implies that the government would attempt to prevent interference from employer, labor union official or other agency. In practice, the present administration has pursued the policy of restricting activity of employers but of using no restraint against organized labor unions.

The longest plank in the platform is that devoted to agriculture. Much of the text covers matters that are directly or indirectly pertinent to industry. Of particular interest is the party's pledge to "promote the industrial use of farm products by applied science."

The tariff plank provides for repealing the present reciprocal trade agreement law, restoring the principle of the flexible tariff and adjusting tariffs with a view to "promoting international trade, stabilization of currencies and the attaining of a proper balance between agriculture and industry."

The convention dealt with the question of monopoly by writing a brief plank favoring the enforcement of laws against "monopolies, trusts and their officials" and demanding such additional legislation as is necessary to "make it impossible for private monopoly to exist in the United States."

The plank on "Regulation of Business" recognizes that governmental regulation in certain fields is "desirable and salutary." It states the authority to regulate should be vested in an independent tribunal acting under clear and specific laws establishing definite standards. The plank favors regulation within the constitution of the marketing of securities and of the interstate activities of public utilities.

In dealing with government finance the party pledged itself to stop uncontrolled spending, to balance the budget by cutting expenditures, to revise the federal tax system and to coordinate it with state and local tax systems, and to use the taxing power for revenue and not for punitive purposes.

The reservations insisted upon by the nominee, Governor Landon, do not materially change the platform insofar as it applies directly to industry. The point of undertaking to put through an amendment to the constitution in order to handle the problem of sweat shops and child labor does not apply in an important way to plants in the iron, steel and metalworking industries.

The difference of interpretation on the plank on "Money and Banking," while of considerable political significance, is considered safe from a business standpoint. The plank reads "We advocate a sound currency to be preserved at all hazards. The first requisite . . . . is a balanced budget." To this, Governor Landon adds "The second requisite is a currency expressed in terms of gold and convertible into gold. I recognize, however, that the second requisite must not be made until and unless it can be done without penalizing our democratic economy and without injury to our producers of agricultural products and other raw materials."

G. O. P. Broadens Interference Clause in Labor Plank

LABOR planks providing for collective bargaining will appear in the 1936 platforms of both major parties. However, the "interference" clauses may differ sharply. The Democratic plank—assuming it is patterned after Section 7a of NIRA—will provide against "interference, restraint or coercion" by employers. The Republicans, in last week's convention, used the words "without interference from any source," thus presumably broadening the clause to cover coercion by labor unions, their agents and others. The corresponding texts read as follows:

From Section 7a of NIRA

"Employes shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the *interference, restraint, or coercion of employers of labor, or their agents,* in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection."

From Republican Platform

"We pledge ourselves to protect the right of labor to organize and to bargain collectively through representatives of its own choosing *without interference from any source.*"

Steelmakers Recognizing Warehouses' Importance

SPEAKING at the twenty-seventh annual convention of the American Steel Warehouse association in Chicago last week, B. F. Fairless, president, Carnegie-Illinois Steel Corp., declared the steel industry's major problem today is merchandising.

The business in jobbing steel becomes more important as time passes, he said, emphasizing that with the increase in the number of grades of steel and the tendency on the part of users to become more critical with specifications, the possibilities for the distributor are increasing, though the difficulties for the producer are greater.

Mr. Fairless pointed out that during 1935 one-seventh of all the steel produced was distributed through warehouses.

Mechanization of the steel industry, the speaker said, increases the cost of producing small orders and in his opinion the future will see the development of a list of quantity extras to compensate for the differences in the cost of production.

Sees Smaller Inventories

Mr. Fairless said there has been a very definite trend on the part of the consumer of steel toward smaller inventories, which increases the burden of the suppliers of steel and the importance of the warehouse industry in the steel distribution picture. More than 3,000,000 tons of steel were distributed by jobbers in the United States last year, he said, and the warehouse facilities and the speedy delivery service which the industry afforded were of great service to consumers.

Mr. Fairless stated approximately 55 per cent of steel distributed by members of the jobbers' association was by independent jobbers, and 45 per cent by mill-controlled distributors. He said that from this it appeared to him that the management of corporations with mill-controlled warehouses had made no attempt to dominate the jobbing situation.

Speaking at the Thursday afternoon session, Walter S. Tower, executive secretary of the American Iron and Steel institute, commented on the steel importation situation.

He mentioned three ways in which relief can be obtained from the increasing flood of imported steel. One, through a basic change in the tariff which he believed was out of the question under the present administration; two, application of the antidumping act, which he said was too slow and cumbersome to afford early relief; three, resort to the use of the flexible tariff provisions.

In his formal address Mr. Tower said there are over 200,000 steel consumers who look to the warehouses as their source of supply. The steel industry's only contact with this large market is through the warehouses.

Speculation is less possible than formerly because of improvement in transportation, the increase in truck deliveries and the improved facilities for the production of steel in quantity. He advised the warehouse industry to recognize the new conditions and no longer depend on speculative buying for profits.

R. J. Stayman

General manager of warehouses, Jones & Laughlin Steel Corp., elected president of American Steel Warehouse association in Chicago last week

C. M. White, vice president, Republic Steel Corp., Cleveland, addressed the convention on "What Your Order Means to the Mill". This was illustrated with views to show the huge investment in equipment and facilities from ore mines to finishing mills.

Trade association activities and fostering of co-operative action within industries was urged by Edward L. Parker, president, Edgar T. Ward's Sons Co., Pittsburgh.

The iron and steel industry today is granting recognition as never before to the iron and steel jobbing trade, as a necessary unit in the efficient distribution for steel producers, Lester Brion, retiring president of the association, said. Competition from the mills is lessening.

An illustrated outline of the association's activities the past year was presented by Walter S. Doxsey, executive secretary. He stated that since last October the major efforts were expended in establishing local chapters and building the association's membership.

"The very strong trend toward the universal application of differentials to steel mill products is emphasized by the extras and deductions which were applied by the mills to virtually all grades of flat-rolled steel April 1," Mr. Doxsey said. Numerous committee reports also were submitted to the convention.

He reported the classification of hot-rolled alloy steel extras has been brought about to the mutual satisfaction of the mills and the warehouses with item extras replacing lump sum extras and with deductions for large quantities.

New Officers, Directors

Ralph J. Stayman, Jones & Laughlin Steel Corp., Pittsburgh, was elected president; J. Frederick Rogers, of Beals, McCarthy & Rogers, Buffalo, treasurer; the following vice presidents: E. L. Parker, Edgar T. Wards Sons Co., Pittsburgh; L. H. Jostes, Beck & Corbett Co., St. Louis; A. C. Castle, A. M. Castle & Co., Chicago; C. C. Dodge, George F. Blake Inc., Worcester, Mass.; E. D. Graff, Joseph T. Ryerson & Sons Co., Inc., Chicago; Charles Heggie, Scully Steel Products Co., Chicago. Mr. Doxsey was re-elected executive secretary.

Directors at large for a three-year term are as follows: Lester Brion, C. C. Dodge, Charles Heggie, Walter Kurtz, H. B. Ressler, J. Frederick Rogers, E. D. Graff, E. L. Parker and E. C. Ducommun.

Chapter directors were elected as follows: George J. Parke, Norfolk, Va., Baltimore chapter; George L. Stewart, Buffalo, Buffalo chapter; A. C. Castle, Chicago, central states chapter; J. A. Phiele, Cincinnati, Cincinnati chapter; R. B. Shearer, New Haven, Connecticut chapter; A. N. Koch, Detroit, Detroit chapter; Richmond Lewis, Springfield, Mass., New England chapter; W. S. Ganong, Newark, New York chapter; Howard M. Tayler, San Francisco, northern California chapter; Ray D. Love, Cleveland, northern Ohio chapter; L. B. Douglass, St. Paul, Northwest chapter; L. E. Edgecomb, Philadelphia, Philadelphia chapter; Ralph J. Stayman, Pittsburgh, Pittsburgh chapter; E. Jungquist, southern California chapter; Louis Jostes, St. Louis, St. Louis chapter, and L. R. Moise, Milwaukee, Wisconsin chapter.

Production

STEELMAKING rose 1 point last week to 68 per cent. Pittsburgh, eastern Pennsylvania, New England and Detroit advanced operating schedules, more than offsetting declines at Chicago and Youngstown, while other districts held steady. Further details follow:

Chicago—Declined 2 points at the opening of last week, but recovered ½ of the loss to close the week at 69 per cent. Heavy backlogs insure a rate equal to or in excess of this figure during at least the balance of June. Blast furnace schedules are steady, with 24 of 41 stacks active. A year ago 16 furnaces were in blast.

Cincinnati—Unchanged at 80 per cent, with evident stabilization at this level during the rush to fill second quarter deliveries on light, rolled stock. Nineteen of 24 open hearths are melting.

Pittsburgh—Up 3 points to 65 per cent last week, establishing a new 1936 high. Operations for Corporation subsidiaries averaged 63 per cent last week, with the independents running at an average of 67 per cent. Jones & Laughlin is considering lighting three bottom-poured open-hearth furnaces at the Soho, Pittsburgh works, for the first time since 1930. Tin plate production was at 100 per cent last week, sheets were up fractionally to 65-67 per cent, strip was off to 55 per cent, wire products were 60, and pipe at 50. Thirty-six out of 60 steelworks blast furnaces continue in operation.

New England—Up 8 points to 78 per cent, with a further rise to 87 per cent expected this week.

Wheeling—Steady at 68 per cent last week, as 25 open-hearth furnaces continue making steel. For the fourth week the Portsmouth, O., open hearths of Wheeling Steel Corp. continue closed due to strike.

Central eastern seaboard—Up approximately 1½ points to 44 to 45 per cent, with an increase at three producing points. A slightly higher rate may develop this week, although with sellers extending deadlines on shipments the peak for this month may not be as high as originally expected. This extension of deadlines should stimulate July production.

Buffalo—Held at their record peak of 84 per cent last week, and will be maintained this week, with 31 open hearths in production.

Birmingham, Ala.—Up to the end of last week the steelmaking rate was maintained at 69 per cent, with 15 open hearth furnaces in production. A few additional orders for rails for Oakland Bay bridge at San Francisco and for Georgia Power Co. warrants continuation of operations at Ensley works of Tennessee Coal Iron & Railroad Co.

Detroit—Up 12 points to 100 per cent, as all 17 open-hearth furnaces, aggregate for the two district works, were in operation through last week.

Cleveland—Steady at 82 per cent last week, Corrigan-McKinney division of Republic Steel Corp. continuing with 12 on, Otis Steel Co. with 8, and National Tube Co. at Lorain with 12.

Colorado—Held at 50 per cent last week, with eight furnaces melting.

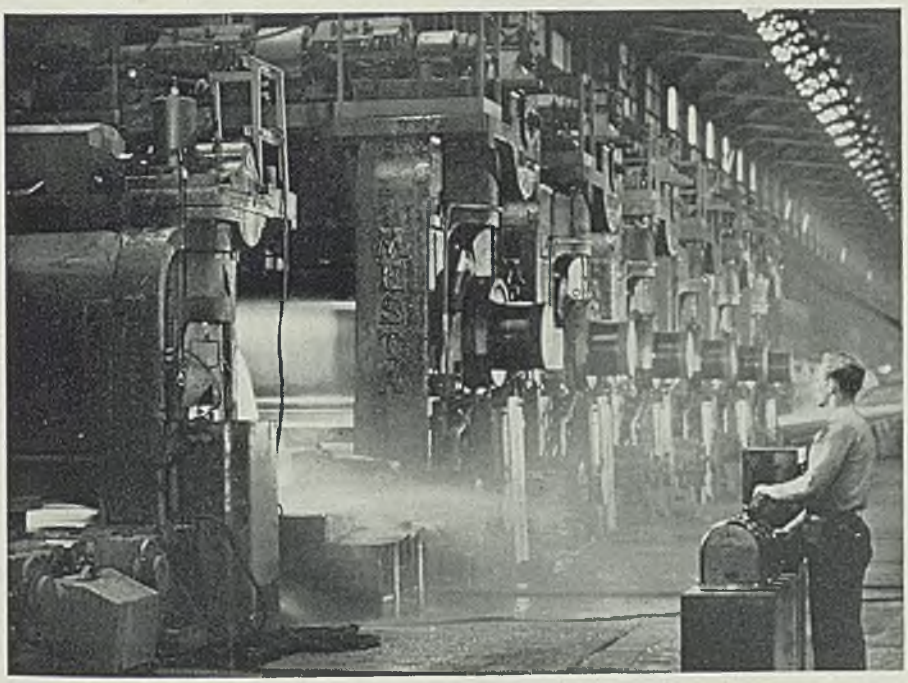
District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended June 13	Change	Same week 1935	Same week 1934
Pittsburgh	65	+ 3	32	56
Chicago	69	— 1	41	70
Eastern Pa.....	44½	+ 1½	30	46½
Youngstown....	76	— 1	42	66
Wheeling	68	None	48	81
Cleveland	82	None	51	77
Buffalo	84	None	35	58
Birmingham...	69	None	30½	55
New England	78	+ 8	60	70
Detroit	100	+12	94	82
Cincinnati	80	None	†	†
Colorado	50	None	†	†
Average.....	68	+ 1	39	62

†Not reported.

Great Lakes Starts Mill for Rolling 90-inch Hot Strip



REPUTED to be the world's largest, this continuous broad, hot-strip mill installed at the plant of the Great Lakes Steel Corp., Detroit, was started on production recently. The mill is equipped with 96-inch rolls capable of producing stripsheets 90 inches wide, widest in strip mill practice. It is intended to meet requirements of automobile body manufacturers for material for one-piece bodies. Also, as part of the corporation's general expansion program, four 250-ton basic open-hearth furnaces will be completed in October. Capacity for about 60,000 tons of flat rolled steel has been added by the new mill, which nearly doubles the company's former figure. Great Lakes is a unit of National Steel Corp.

U. S. STEEL CORP. SHIPMENTS

(Inter-company shipments not included)

(Tons)

	1936	1935	1934	1933
Jan.	721,414	534,055	331,777	285,138
Feb.	676,315	583,137	385,500	275,929
March	783,552	668,056	588,209	256,793
April	979,907	591,728	643,009	335,321
May	984,097	598,915	745,063	455,302
5 mo.	4,145,285	2,975,891	2,694,008	1,608,483
June		578,108	985,337	603,937
July		547,794	369,938	701,322
Aug.		624,497	378,023	668,155
Sept.		614,933	370,306	575,161
Oct.		686,741	343,962	572,897
Nov.		681,820	366,119	430,358
Dec.		661,515	418,630	600,639
Yearly adj.			19,907	44,283
Total		7,371,299	5,905,966	5,805,235

STEEL SHIPMENTS UP AGAIN

Shipments of finished steel by the United States Steel Corp. in May were 984,097 tons, an increase of 4190 tons over April, the third consecutive gain. Total shipments for five months were 4,145,285 tons, compared with 2,975,891 tons in the corresponding period of 1935.

Displaying all-steel bungalows in department stores is the method adopted by one housing company for reaching prospective buyers. A house of the type shown above, completely furnished, drew an average of 2500 visitors a day in a Cleveland store recently

Department Store Exhibits Selling Steel Houses

MERCHANDISING the steel house through the medium of the department store has been put to the test in Cleveland during the past two weeks. Strong public interest has been displayed in this type of house.

Liberally advertised, a five-room steel bungalow drew an average of 2500 visitors a day. Six contracts were made for immediate erection of similar houses at costs ranging from $5000 to $6000, while about 60 persons per day signed cards for more information.

A similar campaign in Pittsburgh preceded that at Cleveland. It was announced contracts were signed for erecting ten houses in Erie, Pa. In New York, a two-story demonstration house will be opened to the public at Park avenue and Thirty-ninth street, June 16.

Panels Form Frame

The houses are those sponsored by the National Houses Inc., New York, and distributed through local units, such as Cleveland National Houses, L. L. Hoffman, president.

National Houses, designed by William Van Alen, New York, are assembled from steel panels 2 or 4 feet wide and 9 feet high. Insulation between the outer and inner walls is expanded mica. Window openings are stamped directly into the wall panels. The panels are formed so that when fastened with structural clamps, any other frame is unnecessary.

Floor plans are not necessarily standardized. Any size house, with any number of rooms may be assembled, provided the length and width of the house are in multiples of 2 feet. Either one or two stories may be assembled. Basements may be provided. Flat or sloping roofs may be selected.

Complete with heating and air conditioning, the five-room house erected in the Wm. Taylor Son & Co. store in Cleveland costs $4500.

Other distinguishing features of the National houses include the paint, which consists of three coats of a du Pont preparation sprayed on the outside, giving the appearance of stucco, and an inward slope at the top of each outer panel. Corner units are rounded. Wall paper is applied directly to the inner steel panels. An average house can be erected in two weeks.

Attendants at the Cleveland exhibit were besieged with inquiries about the warmth and comfort of the houses, whether basements could be supplied and conventional roof designs obtained instead of flat roofs. Rust proofing precautions, heat loss and whether the metal would rattle were other questions frequently asked.

As in the case of the Pittsburgh display house, most of the materials were purchased in the city where the promotion work centered. Units for the Cleveland house were prefabricated by the Sanymetal Products Co. of Cleveland.

The plan of National Houses consists of establishing local dealers who will form their own staffs of salesmen and assemblers. The co-operation of local architects, builders and real estate men will be sought. After the architect has drawn up plans, using the standard units, the dealer will figure the cost, including local prices and wages factors, his profit and the profit of the company.

Standard parts will be shipped from eight manufacturing plants. The Cleveland representative plans to obtain foundation work, plumbing, heating, wiring, kitchen equipment, floor finishing, landscaping, glazing, doors and special equipment in Cleveland, according to Mr. Hoffman.

New Firm Enters Field

B. E. Moses, an attorney, who became interested in prefabrication in Kansas City, Mo., was active in forming National Houses Inc. In January, 1935, he and Mr. Van Alen, who designed the Chrysler building, worked out the type of house which the company is marketing. A one-room demonstration unit for dealers was erected in the Grand Central Palace, New York.

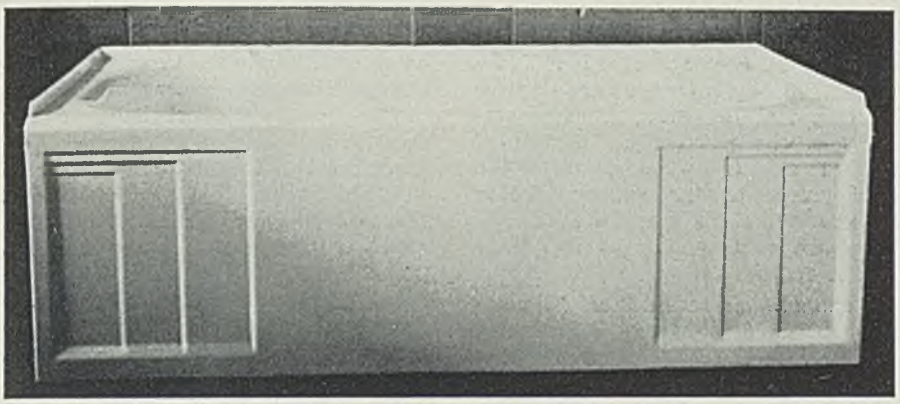
Formation of another firm, Cellular Steel Panel Co., was going forward in Cleveland last week. Mills G. Clark, former president of the Cleveland Real Estate board and former head of the Insulated Steel Construction Co., said the new firm would build modern steel homes in the price range of $3200 to $7500, exclusive of the lot. Steel panels will be manufactured by the Mills Co., East Cleveland.

In Milwaukee the "production line" of the Harnischfeger Corp., which has developed a $4000 factory-built home with the framework fabricated from steel sections bolted and welded together, started operating June 3.

The first house off the "line" was sold before it was fabricated. The company hopes to be producing about ten houses a week before the end of this summer.

At the Great Lakes exposition, which opens June 27 in Cleveland, a porcelain enamel building will be on display. This structure, nearing completion, is built of Haskelite which consists of pre-cut sections of plywood backed on one side by metal and on the other by porcelain enamel. The insulating values of wood are retained.

The building is being constructed by Ferro Enamel Corp., Cleveland, in co-operation with American Rolling Mill Co., Middletown, O., and seven other companies.



Not to be confused with the old "tin tub." This pressed steel bath tub, made by Alliance Porcelain Products Co., Alliance, O., is a thing of beauty—formed from three pieces of steel sheets and welded together

Steel Bath Tubs Splash for Favor

PRESSED steel vs. cast iron! The home is the latest front where competitive lines have been drawn by these two materials, and producers of plumbing fixtures are the contenders. Large interests are numbered among the ranks of both sides, millions of dollars have been spent experimentally the past few years in the development of formed metal ware, and a merry business battle is in prospect.

Since the passing of the stone washstand and the wood bathtub, with its sheet metal lining, cast iron as a material has dominated the plumbing fixtures field. Until a few years ago cast iron had an important advantage over pressed steel in the manufacture of this equipment, in that it could undergo the high temperature necessary for enameling, without buckling. Light steel sections would not stand up, and when the gage of the metal was increased sufficiently to eliminate distortion the weight-saving advantage was lost.

Keep Eye on Trend

This difficulty has been overcome. Manufacturers of pressed steel fixtures now point to various advantages inherent in their products. The president of one of the leading fabricators of pressed metal ware fixtures predicts that within the next ten years cast iron sanitary ware will be a thing of the past. Naturally, this view is not shared by producers of the latter.

Manufacturers of cast iron fixtures have not been idle the past few years. Some have experimented with pressed metal and would be in a position to enter the market with this type of product should they consider it necessary. Crane Co., Chicago, one of the largest of the cast iron interests, disclaims any intention of making such a move at this time, despite rumors to that effect. Standard Sanitary Mfg. Co., Pittsburgh, and Kohler Co., Kohler, Wis. —the two other, and largest, members of the Big Three of cast ware—have considered the idea of making pressed products, but still are staunch sponsors of the older type.

In the meantime, designs of cast iron fixtures have been improved, and from the standpoint of appearance neither type of product has any marked advantage. The old style of iron bathtub, with its chaise-longue effect, has given way to a more graceful and efficient article. The same is true of the lavatory. Smarter lines, more durable enamels, and a variety of colors have contributed eye-appeal, which even before pressed metal ware made its debut helped to transform the bathroom's appearance from that of a highly sanitary milk depot into a colorful and modern setting.

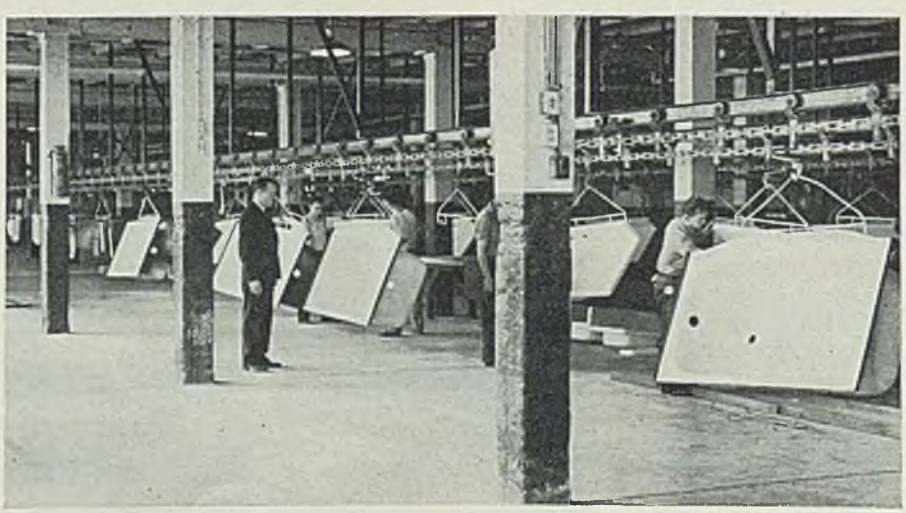
It is this factor of appearance which injects uncertainty into the outcome of competition between the two types of products. Some of the advantages offered by pressed metal ware, while impressive to the practical individual, frequently carry little weight with the woman who may have the last word in the choice of bathroom fixtures. Prices being competitive, the design and finish rather than strength and weight are likely to be the deciding points when the mistress of the home is making her decision.

Aim Appeal at Housewife

Pressed metal interests naturally have recognized this fact, as evidenced by the striking lines and variety of pastel colors incorporated in their products. Briggs Mfg. Co.'s use of the word "Beautyware" as the name of its plumbing fixtures is a nod to the feminine sex.

Steel fixtures weigh only about one-third as much as cast iron, consequently they are easier and cheaper to handle in production, in shipment, and when being installed. A steel bathtub weighs about 100 pounds, compared with approximately 300 pounds for the ordinary type of cast iron tub. Rolled steel provides a more even surface for enameling than cast metal. High tensile strength of steel permits the use of a relatively thin gage of metal. Prices are competitive with, or lower than, those of cast iron ware.

Among the leaders in the development of stamped metal fixtures are the Alliance Porcelain Products Co., Alliance, O.; Briggs Mfg. Co., Detroit autobody builder; and Youngstown Pressed Steel Co., Warren, O. The Alliance company, which recently introduced a new steel bathtub, has been experimenting in this field for the past two to three years at a



Like the production line of a large automobile factory, an ingenious overhead conveying system carries bath tubs, lavatories, kitchen sinks and other plumbing fixtures through various processes of production in the plumbing ware plant of a Detroit manufacturer

cost of more than $500,000. The bathtub made by this company is formed from three pieces of steel sheets which are welded together and then enameled.

Sets Up Mass Production

Briggs, largest of the group, has drawn upon its experience in the production of automobile bodies in perfecting its method of manufacturing plumbing fixtures. Starting its development work about three years ago, Briggs now fabricates a complete line of fixtures at its Hamtramck plant in Detroit's outskirts. Mass production practices, not unlike those employed in the automotive industry, have been adopted in a number of instances. Briggs now has more than 300 jobbers distributing its products, and recently announced it was raising production to a 24-hour daily schedule.

Fixtures are formed from No. 14 gage Armco ingot iron. Briggs says it has no misgivings about the strength of its products. If any family of four expects, or hopes, that each member will take a bath daily for 102 years, Briggs can assure it through test data that flexing of the tub when stepping in and out of it will cause no defect in the enamel or metal.

Briggs uses large presses in stamping its plumbing ware. One press, among the world's largest, can exert a pressure of 1500 tons. Its top is 40 feet above the floor; and base, 20 feet below, and it has a stamping capacity of 53 bathtubs an hour. After the articles are formed and ready for enameling they are sandblasted to provide a rough surface to increase adhesion of the ground coating for the enamel.

The ware then is pickled and moved by an overhead conveyor to the enameling department, where acid-resisting porcelain enamel is applied by spraying. The entire piece is coated, making it rustproof throughout. Large firing furnaces, operated at a temperature of more than 1300 degrees Fahr., are used to fuse enamel to metal. Briggs emphasizes the point that its use of formed metal makes possible the employment of the wet enameling process, which is not true of cast iron. Use of two-color combinations also is featured.

Youngstown Pressed Steel Co. completed its development of a steel sink late in 1932. What are said to be the first successful one-piece enameled steel sinks with splash back, sink bowl, and drainboards formed integrally were shipped in January, 1933. In 1934 a cabinet sink unit was placed on the market. The company is committed to an expansion in its list of plumbing ware products, and with its porcelain enameled steel wall tile is in a position to make the bathroom practically an all-steel unit.

Cast ware producers vigorously oppose some of the claims made for the pressed metal fixtures. They say that the thin gage of steel makes these products susceptible to denting. Further, the light product is said to have a "tinny" feeling that is not experienced with cast iron.

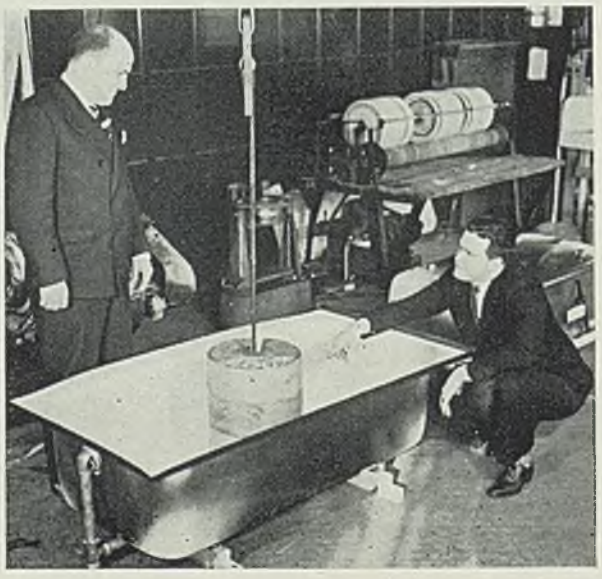
Vitreous china generally is used for making toilets. The latter material is claimed to be superior to enameled steel, from the standpoint of corrosion resistance.

Carnegie-Illinois Lists District Sales Managers

District sales offices of the Carnegie-Illinois Steel Corp. and the former American Sheet & Tin Plate Co. will be consolidated as soon as arrangements can be made. As the initial move to that end, appointments are announced of the managers of sales who will have charge of merchandising all products of the combined companies in each district, effective immediately, as follows:

Birmingham, Meryl H. Geisking; Boston, Wilbur Sargent Locke; Chicago, David F. Austin; Cincinnati, L. K. Slaback; Cleveland, Francis C. Hardie; Denver, Herbert E. Fryer; Detroit, P. M. Guba; Houston, E. E. Aldous; Milwaukee, John R. Johnston; New York, James R. Mills; Philadelphia, Edw. K. Bauer; Pittsburgh, Thos. J. Hilliard; St. Louis, Robert Korsan, Jr.; St. Paul, L. B. Worthington; Washington, H. F. Knapp.

A new sales district will be established in Indiana, with headquarters at Indianapolis, with W. E. Blackburn in charge as manager of sales.



FOUR baths daily for 102 years! That is the number this pressed steel tub can "stand," as determined in the plumbing ware division, Briggs Mfg. Co., Detroit. A weight of 480 pounds was dropped into the tub by a special machine, 23 times a minute. Each time the weight "flexed" the tub was more than equal to an average person stepping into the tub and bathing, the research men figured

Canton Tin Plate Bought by Republic

Subject to corporate approval, Republic Steel Corp. is purchasing the property of the Canton Tin Plate Corp., Canton, O., as of July 1, for a cash consideration.

The new property which will be operated as part of Republic, employs approximately 700 men. No. changes in the present personnel are anticipated.

Canton Tin Plate Corp. officers were: President, William H. Davey; vice president, Samuel Davey; secretary, treasurer and purchasing agent, W. R. Jenkins; general sales manager, W. H. Ungashick. It was incorporated in Ohio Sept. 9, 1930, with preferred stock $150,000 and common outstanding $250,000. It has six tinning pots, nine 2-high hot black plate mills, and four tandem 2-high 3-stand cold-finishing mills with capacity for producing 36,000 tons of black plate for tinning and 22,300 tons of coke tin plate annually.

Republic Buys 33 Acres

Canton Tin Plate Corp. took over the works from the Falcon Tin Plate Co. in March, 1929. The plant was built in 1901-2 by the Carnahan Tin Plate & Sheet Co. of which J. E. Carnahan was president and Ed A. Langenbach vice president. At one time William H. Davey was employed in the mill as a workman.

Reilly Tar & Chemical Co., Indianapolis, manufacturer of coal tar products, has bought ten acres alongside Republic's Corrigan, McKinney plant in Cleveland and will build a plant to cost ultimately $200,000. The Reilly company has a contract to take the entire output of coal tar

from Republic's Cleveland coke ovens for 20 years.

Republic also announced has bought 33 acres between the Corrigan, McKinney plant and the Reilly plant, for future expansion.

Meetings

BOARD of directors and technical advisory committee of the American Hot Dip Galvanizers association will meet in Pittsburgh, June 18. In addition to routine matters, the board will discuss and consider with the technical advisory committee and technical director of research the various comments and suggestions received in connection with the proposed standard specifications, so that as many as possible of these revised specifications may be tentatively adopted by the association. Stuart J. Swensson, 903 American Bank building, Pittsburgh, is secretary-treasurer of the association.

128 FIRMS SIGNED FOR ENGINEERS' EXPOSITION

Forty thousand square feet of space has been reserved by 128 manufacturers at the annual exposition sponsored by the Association of Iron and Steel Engineers, in Convention Hall, Detroit, Sept. 22-25. This number of firms is exactly 100 per cent over the total of 1935 exhibitors. Additional floor area is being reserved by the association.

WASHER ASSOCIATION TO MEET

A meeting of the Plain Washer Manufacturers' association will be held at the Hotel Warwick, Philadelphia on Monday, June 15, 1936.

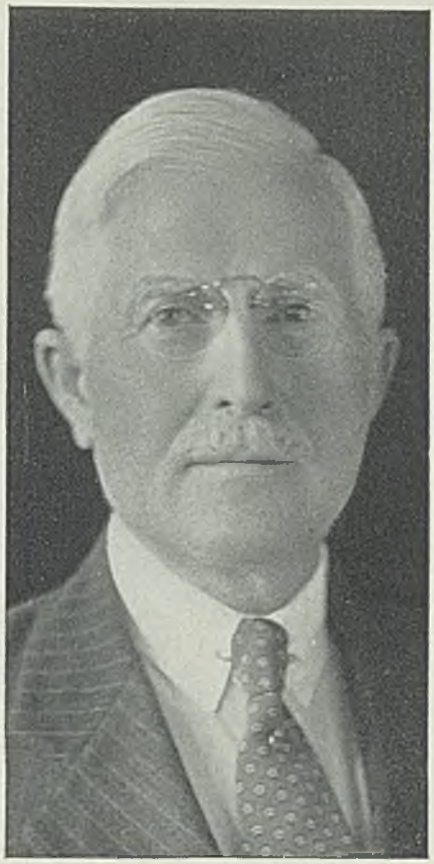
Annual meeting of the Connecticut Foundrymen's association will be held at the Edgewood country club, Cromwell, Conn., June 19. John Erler, metallurgist, Farrell-Birmingham Co., Ansonia, Conn., will speak on the subject of chilled iron, and also discuss an exchange paper that he will present at the International meeting to be held in Germany this fall. Election of officers will be held. Golf is scheduled for the afternoon.

SET MATERIALS EXHIBIT DATE

Fourth annual Industrial materials exhibit will be held Oct. 5-10 at the Hotel Roosevelt, New York. F. D. Bowman, advertising manager, Carborundum Co., Niagara Falls, N. Y., has been appointed chairman of the exhibit committee. Secretary is S. S. Kahn, of the Parker-Kalon Corp., New York.

FOUNDRYMEN TO CONVENE

New Jersey Foundrymen's association will hold its annual meeting, Wednesday evenng, June 17, at the Downtown club, 744 Broad street, Newark, N. J.



George M. Verity

Verity Day In Middletown

AT AN all-day celebration Saturday, June 1, citizens of Middletown, O., honored George M. Verity, chairman, American Rolling Mill Co., for his aggressiveness in promoting civic welfare.

Thousands who gathered in Sunset park during one phase of the program heard Mr. Verity, who is 71 years old, tell why a farming community had been selected as the site for his company at the beginning of this century.

Leaders of other steel companies sent congratulatory messages. Prominent persons in many other fields, employes and school children joined in the program, which included a parade of more than 3000.

Steel Leaders Send Messages

Messages were read from Charles M. Schwab, chairman, Bethlehem Steel Corp.; Myron C. Taylor, chairman, United States Steel Corp.; T. M. Girdler, chairman, Republic Steel Corp.; E. G. Grace, president of Bethlehem and of the American Iron & Steel institute; E. T. Weir, chairman, National Steel Corp.; L. E. Block, chairman, Inland Steel Co.; and F. A. Merrick, president, Westinghouse Electric & Mfg. Co.

A luncheon presided over by Charles R. Hook, president of the American Rolling Mill company and a formal dinner under the chairmanship of David E. Harlan were other features of the all-day program. Several gifts were presented to Mr. Verity.

"I came to Middletown some 36 years ago as quite a young man," he said in his speech in Sunset park. "I found a place where it seemed that industry might have every opportunity for peaceful and successful operation, and its workers a life well worth living.

"Having up to that time been engaged in a sheet metal fabricating business, we had no previous experience in anything so complex as the steel industry. It was, however, our contention that even in this peaceful and beautiful location, to succeed in our difficult undertaking we must have the good will and co-operation of the community as well as that of our working forces.

Industrial Peace Prevails

"We felt that the community and industry must go hand in hand in the attainment of the best possible standards of living. * * * If you will study the history of the industrial communities of America you will be unable to find any place in all this broad land where industrial peace, good will and co-operation, have been more thoroughly established or more practically applied than they have been by all the commercial and industrial institutions in our home city of Middletown."

James M. Cox, former governor of Ohio, and J. H. Van Deventer, editor, *The Iron Age*, were among the principal speakers. Mr. Cox who was born in Middletown, told of the growth and prosperity of the steel company under the direction of Mr. Verity.

"This is the most meaningful day in the history of Middletown and the Miami valley," he said.

Mr. Van Deventer paid tribute to Mr. Verity's friendly interest in people.

"George M. Verity is a man who makes men," he said. "That is the great and most essential quality of leadership."

When the American company came to Middletown it was a community of about 4000 persons, while today the population is 35,000 to 40,000.

Mr. Verity was chosen president of American Rolling Mill at the first board meeting Jan. 5, 1900. For a few years prior he had been associated with a small iron roofing company in Cincinnati.

With the United States Steel Corp. growing at that time, Mr. Verity realized that his company's chance for success lay in specializing and not being considered a competitor of the corporation. His insight and guidance resulted in the growth of American Rolling Mill into a corporation with a capitalization of about $109.000,000.

"In 20 years we grew 1750 per cent," Mr. Verity once remarked. "We have never had a serious dispute of any kind with our workmen, nor even the suggestion of a strike."

Men of Industry

C. R. McDONALD has been elected vice president in charge of manufacturing, International Harvester Co., Chicago, succeeding A. A. Jones, who has retired. He formerly was manager of manufacturing. James M. Ballentine, works manager in charge of the implement group of factories, has been named manager of manufacturing, and C. H. Smart, works manager in charge of the automotive group, has been made assistant to Mr. McDonald.

♦ ♦ ♦

William J. Sullivan has been elected vice president and a director of Harvester Metal Inc., New York.

Charles P. Knupfer

Appointed general sales manager, Carborundum Co., Niagara Falls, N. Y. He formerly represented Carborundum as continental sales manager in Europe for many years. He assumed his new duties June 1

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F. S. McNicholas has been made assistant general superintendent of the Climax Molybdenum Co., Climax, Colo.

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Albert R. Kenney, formerly sales manager of Egan, Webster & Co. Inc., Pittsburgh, has been elected vice president in charge of sales.

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Charles K. Olson has been appointed purchasing agent of the Whitcomb Locomotive Co., Rochelle, Ill. He has been associated with the company's purchasing department for some time.

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Arthur Barrette Parsons, New York, secretary of the American Institute of Mining and Metallurgical Engineers, has been awarded the honorary degree of doctor of engineering from the South Dakota School of Mines, Rapid City, S. Dak., in recognition of "his contributions as editor, journalist and author to the literature of the mining industry and his work for the advancement of the profession of engineering."

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Paul F. Brophy, for the past 20 years identified with the automobile industry in wholesale and retail capacities, has been appointed general sales manager of the new trailer division of the Mullins Mfg. Corp., Salem, O.

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Julian L. Schueler, superintendent of the steel and wire division of Continental Steel Corp., Kokomo, Ind., sailed for England, last Friday, to attend the Chemical Engineering congress in London. While in Europe, Mr. Schueler will study steelmaking processes as practiced in England, Sweden and France.

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Dr. Vergil D. Reed has been appointed assistant director of the bureau of the census, Washington, succeeding Dr. Stuart A. Rice, who has resigned to become chairman of the central statistical board. Since September, 1935, Dr. Reed, who is 39 years old, has been chief of the retail and wholesale trade division of the census business.

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Robert E. Allen has joined the staff of the A. O. Smith Corp., Milwaukee, as a consultant. After graduation from the University of West Virginia he entered the oil industry in California. He also did exploration work in Australia and Mexico as well as in New Mexico. Mr. Allen for the past seven years had been assistant oil umpire for California.

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H. O. Hem, consulting engineer, Toledo Scale Co., Toledo, O., received the honorary degree of doctor of science at the recent commencement of the University of Toledo. He is a member of the American Society of Civil Engineers, American Society of Mechanical Engineers, American Railway Engineering association, and National Scale Men's association.

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W. S. Wilson has been appointed chief engineer of the Dominion Steel & Coal Corp. Ltd., Sydney, N. S., succeeding the late Karl H. March. Mr. Wilson has been connected with this firm in various capacities for 25 years, and until lately held the position of chief engineer of the steel division. He has been succeeded by J. A. McLeod, who until recently held the position of chief draftsman. These changes became effective June 1.

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Greer McIlvain was elected president of the National Fireproofing Corp., Pittsburgh, at the organization meeting of the board of directors June 9. Other officers elected at this meeting were: Vice president in charge of sales, L. M. Christie; vice president in charge of operations, R. A. Shipley; secretary and treasurer, J. U. Anderson; assistant treasurer, G. E. Moore, and assistant secretary, Mabel Monheim. These are the same officials as before reorganization.

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William McMakin, formerly of the New York office of the Metallizing Engineering Co., has been made sales manager at Baltimore, with headquarters at 5444 Frederick avenue. W. B. Meyer, formerly of the Chicago office of the company, has been made sales manager at St. Louis, with offices at 3640 Shaw boulevard.

Julius E. Graf

Named assistant chief engineer of Carnegie-Illinois Steel Corp. He formerly was chief engineer of American Sheet & Tin Plate Co., which recently was merged with Carnegie-Illinois

L. R. Berkeley, formerly with the Una Welding Co., has been named sales representative at Cleveland, and E. R. Hauser, formerly of the Electro Plate Co., Montgomery, Ala., has been named sales representative in Alabama north of Montgomery.

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Earl M. Richards, assistant to vice president in charge of operations of Republic Steel Corp. and subsidiaries, has been elected vice president of the American Management association in charge of the production division. Mr. Richards was graduated from Bucknell University in 1913 with the degree of bachelor of science in electrical engineering. In 1919 the same institution gave him the honorary degree of electrical engineer in recognition of his war services, and in 1934 he was elected to the board of trustees. Prior to joining Republic in 1930, he was associated with Westinghouse Air Brake Co. and with Jones & Laughlin Steel Corp.

He is also a member of the American

Iron and Steel institute, American Society of Mechanical Engineers, American Institute of Electrical Engineers, Iron and Steel Electrical Engineers, Engineering Society of Western Pennsylvania.

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T. B. Fitzpatrick, freight traffic manager of the Pittsburgh & Lake Erie railroad, has been elected president of the Traffic Club of Pittsburgh.

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M. M. Anderson, personnel manager, Aluminum Co. of America, has been elected president of the Pittsburgh Personnel association to succeed E. F. Harris, personnel director of Mesta Machine Co.

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John Bowditch, formerly in the Youngstown office of the Truscon Steel Co., has been placed in charge of the Philadelphia office of the company, succeeding H. B. Miller who has been transferred to the Chicago office.

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Leon C. Bibber, senior welding engineer in the bureau of construction repair for the navy department, Washington, has been appointed welding engineer of Carnegie-Illinois Steel Corp., with headquarters at Pittsburgh. He assumed his new duties June 1.

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Oscar N. Lindahl, auditor and assistant secretary of the Universal Atlas Cement Co., Chicago, a subsidiary of the United States Steel Corp., has been elected a director. He has been connected with the Steel corporation for nearly 30 years, being with the Illinois Steel Co., four years and with Universal Atlas since 1911. Other directors are: William A. Irvin, president of the Steel corporation, B. F. Affleck, president of Universal Atlas, K. K. Knapp, attorney, and J. H. Kempster, superintendent of the company's plant at Buffington, Indiana.

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Frank W. Tufts has been appointed sales promotion and advertising manager for Continental Steel Corp., Kokomo, Ind. A graduate of the University of Michigan, he has had extensive advertising experience with the Detroit Steel Products Co. He served as assistant to the managing director, in charge of market analysis, sales and advertising, for General Motors New Zealand Ltd., Wellington, New Zealand; was with Erwin Wasey & Co., advertising agency, in Philco radio field sales promotion, and did retail sales development work for Nash Motors Co.

J. A. DeLo, graduate of the University of Indiana school of commerce and former newspaper advertising man, has been named assistant advertising manager.

George E. Totten

Appointed manager of sales of the newly created tin plate department of Carnegie-Illinois Steel Corp., Pittsburgh, as noted in STEEL June 8

Pig Iron, Ore Surcharges Cut

Freight surcharge rates were extended by the interstate commerce commission late last week for six months from June 30.

The commission reduced the upper lake iron ore rate from 10 to 8 cents per net ton, and the pig iron rate from 2 cents per hundred pounds to 25 cents per ton.

The emergency rates went into effect Jan. 1, 1935. They were scheduled to expire June 30, but class one railroads petitioned last January for an extension, asserting the charges were necessary to meet increased operating costs. The Lake Superior Iron Ore association attacked the rates on the ground that ore freight costs had been increased $3,000,000 last year.

Avery C. Adams

Who has been made manager of sales of the steel sheet division of Carnegie-Illinois Steel Corp., Pittsburgh., as reported in STEEL June 8

Died:

JOHN HAYS HAMMOND SR., 81, mining expert, at his home, Gloucester, Mass., June 8. Born in San Francisco, he was graduated from the Sheffield Scientific School of Yale in 1876, studied at the Royal School of Mines, Frieburg, Saxony, and became an expert in the United States geological survey to examine gold mines in California. He also served as consulting engineer for the Union Iron Works, now part of the Bethlehem Steel Co., and for the Southern Pacific and the Central Pacific railroads.

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John N. Derschug, president, Easy Washing Machine Corp., Syracuse, N. Y., in that city, June 2.

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John C. Hood, 64, vice president of the Manufacturers' Lubricating Oil Co., Pittsburgh, at Pittsburgh, June 6.

♦ ♦ ♦

William B. N. Hawk, 72, formerly chief chemist, National Tube Co., Lorain, O., for 35 years, at his home in Elyria, O., June 5.

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Marshall R. Scott, 50, president of Barlow & Seelig, Ripon, Wis., washing machine manufacturer, in Chicago, June 11.

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Robert E. Belknap, 61, formerly identified with the sales department of the Bethlehem Steel Co. at Chicago, at his home in Boston, June 4.

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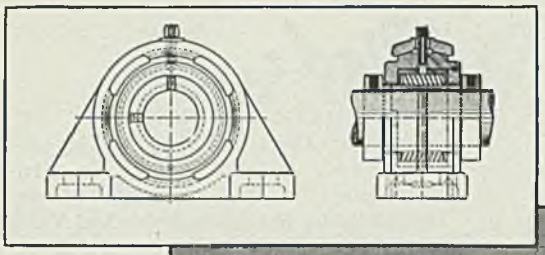
Peter F. Kenny, 43, assistant manager of sales at Albany, N. Y., for the Carnegie-Illinois Steel Corp. in that city, June 8. He had held the Albany position since March, this year, and previously was identified with the New York sales office. He had been affiliated with the organization since 1909.

♦ ♦ ♦

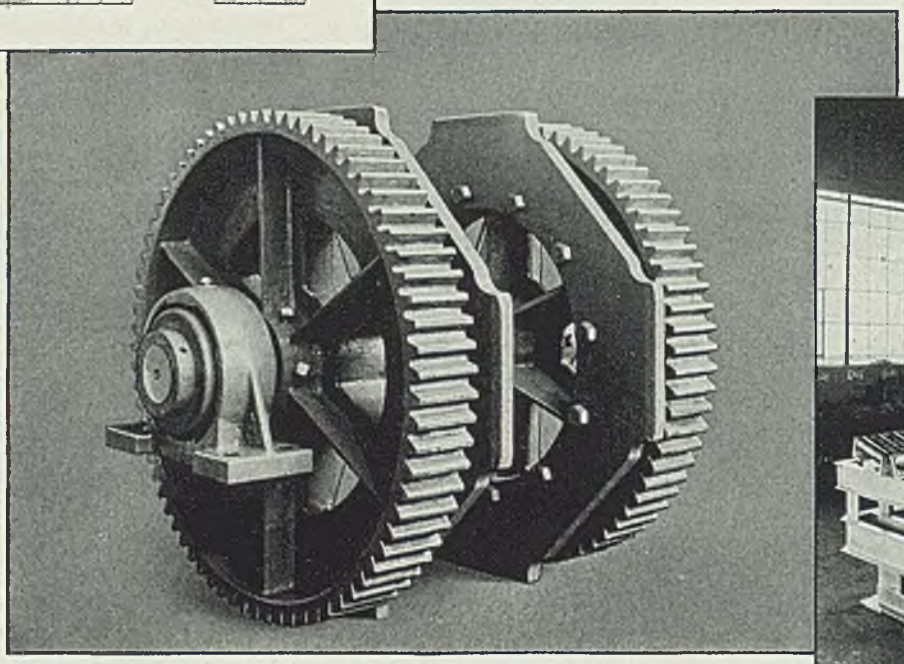
Frank Merricks, 70, British consulting mining engineer, in London, June 9. Mr. Merricks was educated privately and at the Royal School of Mines. He held many important positions in mining and geological organizations. He served as president of the Institute of Mining and Metallurgy in 1920.

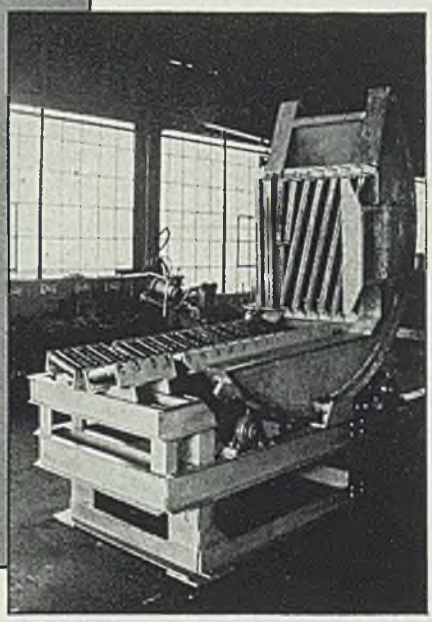
♦ ♦ ♦

John F. Price, 74, executive vice president and secretary, Trundle Engineering Co., Cleveland, in Cleveland, June 7. He was nationally known for his work in solving management problems of many industries. Mr. Price started work with the Keystone Furnace Co., Reading, Pa., when 18 years old. He went to Cleveland in 1906 as controller for the Brown Hoisting Machinery Corp., now Industrial Brownhoist Corp., remaining with that firm until 1922 when he became connected with Trundle Engineering.



PALMER-BEE COMPANY, DETROIT, MICHIGAN build a complete line of Hyatt Equipped Pillow Blocks for all applications. Installation below, at left, is a strip mill coil conveyor head shaft. The photograph at right shows a strip mill coil up-ender with Palmer-Bee Hyattized Pillow Blocks.





JUDGE THEIR MERIT *by their Performance!*

You'll make no mistake if you judge Hyatt Roller Bearings by the Companies that use them. Many of these Companies, over a long period of years, have found that the correct design, precision manufacture, and sound application engineering behind Hyatts mean smoother operation, longer life, and more dependable performance of Hyattized equipment.

If you have any bearing problem, in the machines you manufacture or in your own operating equipment, Hyatt plant and field forces are at your disposal. Hyatt Roller Bearing Company, Newark, Detroit, Chicago, Pittsburgh, San Francisco.

H Y A T T

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

MIRRORS OF MOTORDOM

DETROIT

NOT in six years has Detroit seen so much stir as at present in the market for tools, dies, fixtures, and machine tools and other equipment necessary to automobile production.

With the plans of motor car manufacturers to go in for dressier models for 1937, and new streamline "interpretations", the need for new dies became more important.

Fortunately, earnings of the automobile industry in 1935 and so far in 1936 have been high, and a large slice of the profits has been plowed back into new dies, tools, machinery and other forms of plant equipment.

Today diemakers and the tool shops in Detroit have order backlogs for at least three months or more. Some of the medium-size die foundries have as much as $1,000,000 worth of unfilled orders on their books, a record high for them. On special die work many are sold out until Oct. 1 delivery.

If you see factory lights burning these spring nights in Detroit, they probably indicate a die or toolmaking plant in action, for most are scheduling three-shift days, six days of the week, and wishing the week were longer. The minimum operating schedule is two 10½-hour shifts daily. Scarcity of experienced help is acute.

Tool, Die Orders Are Heavy

Consequently with this jam on die deliveries, it's just too bad for the automobile manufacturer who hasn't placed his orders for 1937. If he hasn't, there is a strong chance that he won't get delivery on production dies until late this year.

Ordinarily, the tool and die trade, as it is known here, leans heavily on the independent motormakers, that is those outside of General Motors, Ford and Chrysler. Usually, the integration of each of these three makes is self-sufficient on this type of work.

This year, General Motors, especially through Fisher Body, Ternstedt Manufacturing, and Chevrolet, is spreading work on the outside. Ford, too, has been an open-market factor, despite the newly-installed die shop at Murray Body. Chrysler's work has been generously spread around, not only in Detroit but elsewhere.

Of course, the independents have been placing their business with usual sources, but, as in one recent case here, orders from bigger fellows like General Motors have crowded this independent into a corner.

Indication of conditions, a certain tool shop had been bidding unsuccessfully for a share of Ford's business for a number of years. An unfavorable geographical location and its close tie-in with Ford competitors chiefly ruled out this shop's bid. But, imagine its surprise this year to be solicited by Ford purchasing agents and given the go-ahead on some attractive tool business, all at its original price!

Little Haggling Over Price

Most tool and die work this year shows evidence that the screws aren't being put on by purchasers. So insistent have buyers been on deliveries that there has been little if any haggling over bids. The tool and die group appears confident of a fair profit margin in 1936.

In order not to identify supplying sources, yet to give a fair cross section of a few of the outstanding die jobs being worked up in Detroit shops last week were such recent individual items as the Buick and Hudson hoods, two radiator shells each for Cadillac and LaSalle, the LaSalle fenders, Fisher Body's small stamping work, Ternstedt's door moulding and instrument panels, a full range of DeSoto and Chrysler panel work, and a thousand and one smaller dies for body and chassis stampings for every well-known name in motordom.

It is these latter items that make up a vast volume of business important to the die people, individual jobs that run from several up to $10,000, but will in aggregate run into millions.

The machine tool business is just about as choked up with business, for the automobile industry has been both a buyer this year of obsolete machines for replacements and those for making entirely new parts.

Dodge can well testify to the scarcity of gear-cutting machines as its $740,000 order for this type of machine tool got in just under the wire. Placed early this year, the order will be filled in time for production on 1937 models and their hypoid gears in rear axles.

Following the Dodge business there was a grand splurge to buy gear cutters, due to the fact that the industry seems wholeheartedly in favor of hypoids for 1937, with the result that the earliest delivery one can get today on this type of gear cutter is two years. Even on such items as standard tool room lathes rush signs are hanging out. Important makers can now promise nothing under Jan. 1, 1937 delivery.

Of course, this wave of machinery buying has not overlooked used equipment, and it is said, for example, that there is only known to be one used big-boring machine available today in this market, and that is nine years old. This particular machine tool is in great demand from the tool shops.

Some idea of the way used machinery is being scooped up was the recent disposal by Cadillac and Buick of 46 gear grinders, only four years old. These motor builders, who have gone to lapping, had no trouble selling the 46 machines in lots to Spicer at Toledo, White Motor at Cleveland, for export and elsewhere.

Increase Summer Estimates

Heating ovens, conveyor systems and a large number of other plant equipment items have about the same story to relate as the die people or the machinery makers.

Most of the previously mentioned die work carries with it the stipulation that delivery be made to the automobile manufacturers' plant by the first week of August. A few, such as Chevrolet, are withholding delivery until Aug. 25, but it is safe to say that Aug. 15 will see most of the motor industry trying out its presses on new work.

That would leave some two months to intervene before the New York shows, certainly a long enough time for production to be humming smoothly on 1937 models.

A marked stamina to demand for new cars has made producers revise their summer schedules upward. Along in April some thought that

May and June assemblies would be slowing and that July would be practically flat.

May was virtually as good as April and June so far is showing surprising strength. Such as Chevrolet are scheduling as many assemblies this month as last. There is even the possibility that more steel will be bought against 1936 model assemblies, even though Ford and Chevrolet, for example, last week completed what they called their last steel purchases for present lines.

Some of the steel for 1937 cars is cropping up in the market. A few inquiries are being sent out and on some specially rolled material, orders have been placed. Chrysler is credited with having some of its new sheet sizes advanced to the inquiry stage and has just bought some 25,000 tons of material for axles, both being for 1937 lines.

Buying When-As-Needed

Buick, as before reported, has some steel orders placed, but neither Ford, Chevrolet, nor Fisher Body last week had progressed to the stage where they were changing sizes or specifications for material. In this respect, it is evident that Chrysler is slightly ahead of the procession. It indicates that within the next two weeks it will place steel for 150,000 jobs—or around 200,000 tons—a move to beat the gun on the $2 a ton price advance July 1.

By and large, Chrysler is taking a lone stand on this steel price advance, for its competitors in motordom are accepting the step-up calmly. In brief, their attitude is to accept the higher steel cost only on a when-as-needed basis and not to speculate.

There is less complaint over this price increase than that which some of the steel buyers in the industry still are making concerning the quantity differential price system which went into effect April 1.

Many still feel what they call inequalities, and remark their perpetual entanglement in figuring parts' costs, because the price of steel on a standard parts item varies to them with the size of their order.

The veterans' bonus, that is largely to be translated into cash beginning June 15, has many a motor executive puzzled. Knowing how inaccurate advance guesses are as to how the money will be spent, it is an uncertain factor what effect the windfall will have in the automobile market.

Studebaker came out in newspaper ads last week with an appeal, "Veterans, Hold Onto Your Bonds", though they wound up by saying, in effect, "but if you must spend it, buy a Studebaker."

The automobile people, knowing they were competing with debts and vacations, were bent on getting as many new car sales as possible out of the several billions let loose, and if not, to peddle as many used cars. Conservative estimates say that when the smoke blows over there will have been 100,000 new cars paid for in bonus funds, yet you can get others in Detroit today to guess the total will be two or three times that much.

On the strength of it, plus the fact that the rest of America seems to be philosophizing that unless you own a 1936 model you're a backwoodsman, assembly schedules for June and July are relatively high, considering the season.

This month Chevrolet, for example, will make as many as the 139,000-odd models it turned from the assembly line in May, and July will account for no more than a 15 per cent drop. In order to make this quota, Chevrolet plants will be working several Saturdays in July.

Ford, which made some 24,000 jobs last week, has June set down for a 90,000-car month. July at Dearborn is appraised as good for 80,000 assemblies.

Plymouth went down to 11,000 jobs last week compared with 12,000 the week before and shapes up for around 35,000 to 40,000 assemblies next month. Buick finished buying last week for around 22,000 more jobs, enough to carry it to 162,000 assemblies on the 1936 lines, and which incidentally is the end of the run. Buick's 162,000-mark will be its best since 1929.

Old's output has begun to taper and was near the 5000-unit mark for last week. Olds is scheduling around 12,000 more assemblies in June. Pontiac made 3800 cars last week and is one maker which has a definitely lower July schedule made up at this writing.

Incidentally, Pontiac will soon start making its own axles, which will be a burden from Chevrolet Gear & Axle's shoulders. Running as Chevrolet has, it has been a problem to fit Pontiac's axle assemblies into the picture. In fact, Chevrolet Gear & Axle met the situation solely through making Pontiac take a couple of months' supply last December and stock them. Since, Pontiac axle production has been desultory and only when Chevrolet could sandwich them in.

"Red Cap" Is Trailer Name

Mullins has hit on the name "Red Cap" for its new all-steel passenger car trailer and will so emblazon the two hubcaps . . . . . Buick's use of stainless next year will be a highlight . . . . . The International Truck frame contract has not been placed yet . . . . . Murray's designing work on coming Chrysler convertibles is said to have greatly pleased the Chrysler people . . . . . Buick last week was in the midst of buying a large list of machine tools, mainly for the manufacture of transmissions . . . . . Dodge has delayed the date for accepting shipments on a number of new heating furnaces due to continuation of present brisk rate of assemblies . . . . . The new door moulding that Ternstedt will make for the General Motors 1937 lines has a sharp notch vertically placed directly half way up each side. Set on end it is heart-shaped . . . . . Reo is consolidating all of its truck-making facilities in the main plant, turning over the former Duplex plant it bought several years ago for storage purposes. Moving will have been completed in about 90 days . . . . . Hudson reports its sales in the week ended May 30 broke records for 312 previous weeks . . . . . General Motors' total May sales were 78 per cent better than May of 1935, but this is partly explained by the Chevrolet strike just a year ago . . . . . One order accounted for a large part of DeSoto's 1000 assemblies last week, many of the jobs going for taxicabs.

Automobile Production

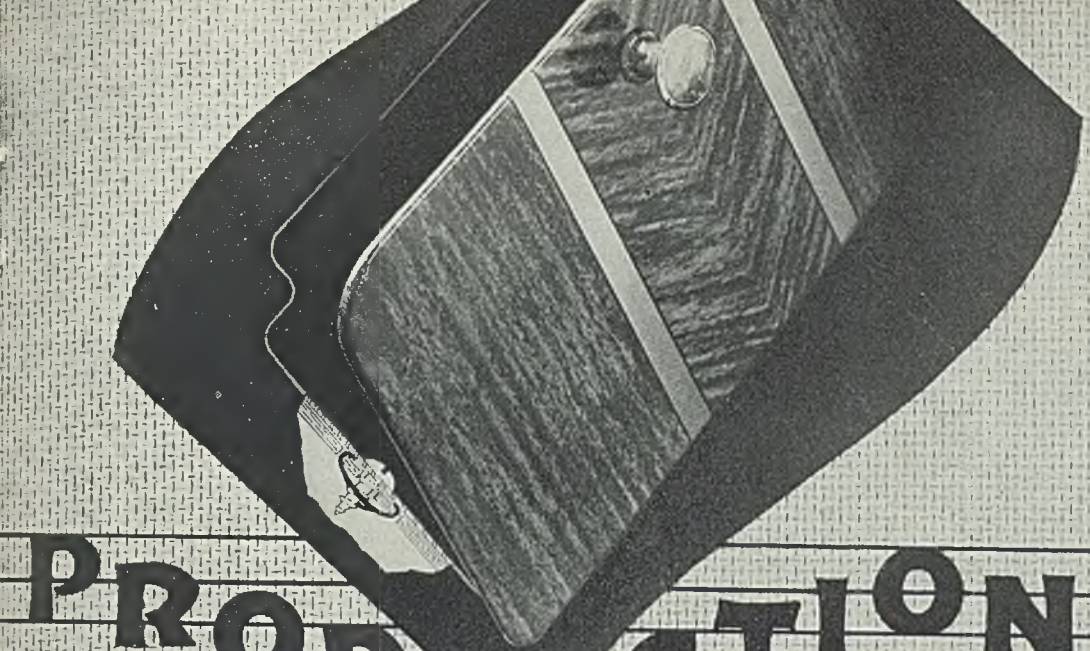
Passenger Cars and Trucks—U. S. Only
By Department of Commerce

	1934	1935	1936
Jan.	155,666	289,728	364,004
Feb.	230,256	332,231	287,606
Mar.	338,434	425,913	420,971
Apr.	352,975	452,936	502,775
May	330,455	361,107	*493,651
5 mo.	1,407,786	1,861,915	2,069,007
June	306,477	356,340	.....
July	264,933	332,109	.....
Aug.	234,811	237,400	.....
Sept.	170,007	87,540	.....
Oct.	131,991	272,043	.....
Nov.	83,482	395,059	.....
Dec.	153,624	404,528	.....
Year	2,753,111	3,946,934	.....

*Estimated.
1935 and 1936 figures revised.

Estimated by *Cram's Reports*

Week ended:	
May 2	118,764
May 9	118,786
May 16	117,156
May 23	109,821
May 29	108,300



PRODUCTION NOTE

THE glove box compartment and its do
board assembly on the modern auto
bile, calls for simplicity, convenience
speed in installation . . . *all* . . . accomplish
with SPEED NUTS.

Cut-away sketch illustrates No. 180 SPE
NUT snapped into self retaining positi
Final installation effected with a sheet me
screw which being pointed offers ra
assembly with SPEED NUT in blind locat
. . . Machine screws, wood screws, sheet me
screws or rivets may be used with SPE
NUTS . . . Write for card of assorted samp
and list of their many established us

Speed Nuts PATENTED

TINNERMAN STOVE & RANGE CO. • *SPEED-NUT DIVISION* • CLEVELAND, O

Activities of Steel Users and Makers

GREENFIELD TAP & DIE Corp., Greenfield, Mass., maker of screw cutting tools, has taken over the plant, facilities, experience and good will of the J. M. Carpenter Tap & Die Co., Detroit, and will operate it as a branch plant.

The new plant will be under the management of Alfred Lapierre, who, for a number of years, has been superintendent of the gage department at Greenfield's main plant. He will be assisted by the following: Versil Annis, who will be office and merchandise manager; Glenn Stimson, who will have charge of engineering, and Roy Peterson, metallurgist, in addition to the Carpenter office and factory employes who have been absorbed by Greenfield. A. Kiehne, who worked for Greenfield a number of years and who has more recently been employed by the Carpenter organization, will continue as chief inspector. John Penny, who has been in charge of Greenfield's sales in the Detroit area, will be district sales manager. These changes became effective June 1.

♦ ♦ ♦

Hill Chase & Co., Philadelphia, has been appointed distributor for Bethlehem tool steel in the Philadelphia district by Bethlehem Steel Co., Bethlehem, Pa.

♦ ♦ ♦

Singer Steel Co., sheet and strip jobber, Cleveland, has moved from 5200 Harvard avenue, to larger and better equipped quarters at 6316 Kinsman road, on the Nickel Plate railroad.

♦ ♦ ♦

V. & O. Press Co., manufacturer of power presses, automatic feeds and special equipment, Hudson, N. Y., has appointed William K. Stamets, Rockefeller building, Cleveland, to represent it in northern Ohio.

♦ ♦ ♦

Chicago Pneumatic Tool Co., New York, has opened a branch sales and service office at 2415 Commerce street, Dallas, Tex. D. G. Reeder is district manager. The company also has moved its Pittsburgh office to 810 Chamber of Commerce building.

♦ ♦ ♦

Union Switch & Signal Co., Swissvale, Pa., subsidiary of Westinghouse Air Brake Co., bidding $681,370, has been awarded a contract to furnish block signals and interlocking equipment for Fulton-Nassau streets New York City Independent Subway Line.

♦ ♦ ♦

Timken Roller Bearing Co., Canton, O., has booked an order from the Chicago, Milwaukee, St. Paul & Pacific railroad for bearings and boxes to be used on the 37 new passenger equipment cars which it is building in its own shops at Milwaukee.

♦ ♦ ♦

Deliveries of "Cone" worm gears in dollar volume during the first quarter of 1936 were approximately four times deliveries in the corresponding quarter of 1935, according to the Cone Worm Gear Corp., Detroit. The demand for the new gearing is reported to be coming from all types of industries.

♦ ♦ ♦

Beeman Combustion Supply Co., 2970 West Grand boulevard, Detroit, will serve in the Detroit territory as engineering-sales representatives of the industrial furnace division of the Philadelphia Drying Machinery Co., Philadelphia, manufacturer of furnaces, ovens, dryers and industrial burners.

♦ ♦ ♦

Republic Steel Corp., Cleveland, has leased the Indianola, Pa., soft coal mine in Western Pennsylvania from the Inland Collieries Co., subsidiary of Inland Steel Co., Chicago. Republic for many years has been a large producer in the Freeport seam coal field, with operations centered at Russelton.

♦ ♦ ♦

Pittsburgh Steel Co., Pittsburgh, has taken over the operation of all the floating equipment of the Monessen Coal & Coke Co., which includes the Ohio river steamers ALICIA and COLLIER, a 1000-ton self-unloading coke barge, and a number of coal barges. A. R. Kennedy, traffic manager of Pittsburgh Steel, will be in charge of these floating properties.

♦ ♦ ♦

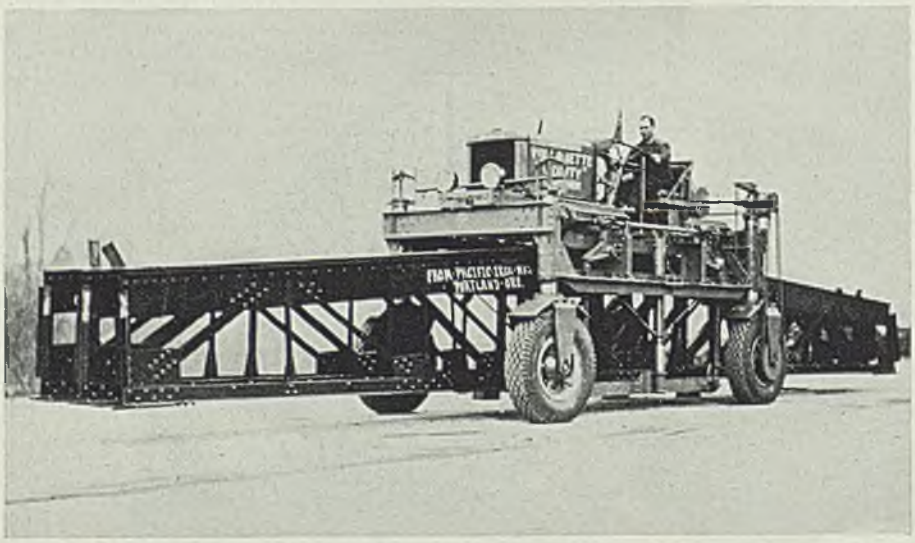
Westco Pump Corp., Davenport, Iowa, has completed negotiations for merging with the Micro Corp., Bettendorf, Iowa. This action was recently agreed upon by the stockholders of both firms, which long have been affiliates of the Bettendorf Co.

The new company will be known as Micro-Westco Inc., with offices in the Bettendorf office building, Bettendorf, Iowa. Work will soon begin to move the Westco manufacturing equipment and stocks to the Micro factory in Bettendorf, where a plant addition is already under construction.

♦ ♦ ♦

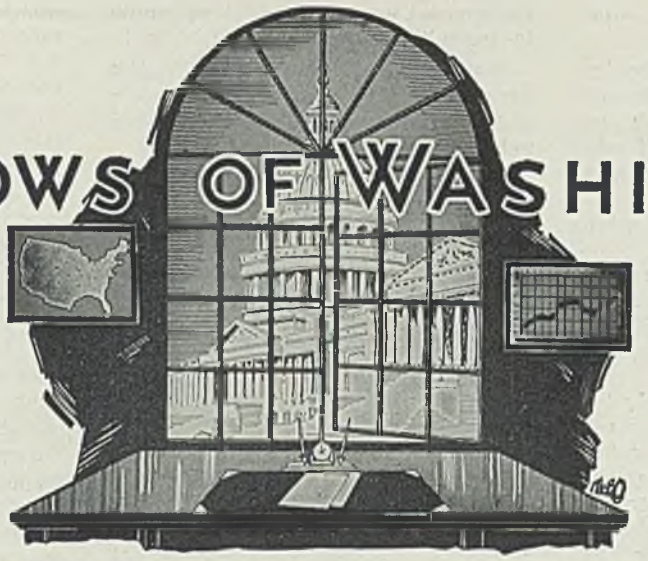
Interests of the Charles Horewitz estate in the Butler Iron & Steel Co., Butler, Pa., have been acquired by Harry N. and Louis S. Cohn, which will continue operations at its yard and offices, Negley avenue, Butler, Pa., with the following officers and directors: Harry N. Cohn, president; Edward B. Davis, vice president, and Louis S. Cohn, secretary-treasurer. Charles H. Horewitz Sons, 334 East Cunningham street, Butler, Pa., will continue to operate a yard business, dealing in iron and steel scrap and metals.

Truck on Stilts



THIS strange-looking vehicle is known as a utility carrier, sometimes called a straddle truck. Designed primarily as a lumber carrier around sawmills, its use has been extended into many fields, notably the handling of steel bars, reinforcing steel, heavy steel beams and the like. Here three structural steel bridge members are shown being transported at one load. Body of the truck is carried above the four wheels on four spiral steel springs, working in cylinders against four pistons above the wheels. It can straddle a load up to 72 inches in height, has capacity up to 15 tons. On each side, depending from the upper structure, are the load lifters, positive screw lifts which raise and lower horizontal steel grappling bars. They swing out to clear the bolsters and load while straddling. The carriers themselves require no small amount of steel in their construction, weighing up to approximately 12,000 pounds. They can travel up to 50 miles per hour. Builder is Willamette-Hyster Co., Portland, Oreg.

WINDOWS OF WASHINGTON



WASHINGTON

THOSE who have gone through many sessions of congress predict adjournment will be impossible this week, although congressional leaders say the real work may be completed in a few days.

The tax bill is the big problem. What becomes of several other important bills now pending depends entirely on whether it can be adjusted and passed during the present week.

Every effort is being made to dispose of the tax measure speedily, but in view of the conference held last week between the President and democratic leaders in charge of the bill in both the house and senate, the probable date of completion is anybody's guess.

Mr. Roosevelt is reported to have told the leaders that he would insist on high corporation taxes with a bill conforming more closely to that passed by the house than the senate. On the other hand there are some Democratic senators who state they are not prepared to accept a bill similar to that passed by the house. Everything now depends on who holds out the longest.

Provisions of Senate Bill

Briefly, the bill as it passed the senate provides a 1 per cent increase in individual surtax rates on incomes of from $6000 to $50,000; a 15½ to 18 per cent corporate income tax, representing a 3 per cent increase over present rates; a 7 per cent additional tax on undivided profits of corporations; imposition of the 4 per cent normal income tax on corporate dividends received by stockholders; continuance of the capital stock and excess profits taxes in full force, despite the administration recommendations for their repeal; strengthening of administrative provisions of the present law; the imposition of penalties on "unreasonable" retention of corporate earnings and other provisions.

As the bill passed the senate, the provision was left in it for a tax of 3 cents per pound on palm oil used in the manufacture of tin plate.

Senators Davis and Guffey had prepared an amendment which would have killed that tax but neither of them insisted on its passage. Their amendment provided that "the tax imposed by this section shall not apply to the first domestic processing of the first 8000 pounds of palm oil which the commissioner of internal revenue is satisfied is used in the manufacturing of tin plate in each fiscal year beginning with the fiscal year 1937."

If congress is not able to complete its work by June 20, before the Democratic convention, there is absolutely no telling when it will get away from the capital.

HEALEY BILL AS REPORTED TO HOUSE STILL OBJECTIONABLE

The Healey government contract bill has been favorably reported to the house from the committee on the judiciary. It differs in many respects from the bill as it passed the senate but it still contains provisions just as obnoxious to industry. This is one of the proposed laws which may be given consideration if there is time after passage of the tax legislation. There is much speculation as to whether the Healey bill will pass.

Several features of the senate measure which brought serious objections are omitted. No attempt has been made to regulate conditions with respect to loans or grants by agencies of the United States or by federal reserve banks, as in the senate bill, and it is not proposed to lay down conditions for persons furnishing supplies to public contractors.

The object of the bill is to require persons having contracts with the government to conform to certain labor conditions in the performance of the contracts and thus eliminate the practice under which the government "is compelled to deal with sweatshops."

The house judiciary committee in its report states that "an investigation conducted at the request of the committee has shown that in recent months the requirement of the government that contracts must go to the lowest bidder, regardless of his labor practices, has tended to depress the advance in wages and purchasing power achieved during the first two years of the administration. Passage of this bill will end the present paradoxical and unfair situation in which the government on the one hand urges employers to maintain and uphold fair labor standards, and on the other hand gives vast orders for supplies and construction to the lowest bidder, often a contractor or manufacturer whose own labor policies offend all decent social standards."

Provides For Prevailing Wages

Section 1 of the bill as reported is the basic section. It provides that public contracts in excess of $10,000 shall include stipulations requiring the contractor to be a manufacturer or regular dealer in the materials for which he is contracting, that he pay not less than the prevailing wages for persons employed in the industry or similar industries operating in the locality, that he permit no person to work in excess of 8 hours in any one day or 40 hours in any one week, and that he employ no persons under 18 years of age nor any convict labor. It also provides that the contract is not to be performed in a plant or under working conditions which are insanitary or unduly hazardous.

In connection with the favorable reporting out of this bill, it was reported in STEEL last week that William Green, president of the A. F. of L., had attempted to use pressure on

members of the house judiciary committee.

Senator Hastings of Delaware inserted in the *Congressional Record* the following telegram, which he stated was sent to all of the members of the house committee before the meeting:

"Chairman Sumners advises that a meeting of the house judiciary committee will be held tomorrow morning at 10 o'clock for the purpose of taking action upon Healey-Walsh bill. Lack of quorum at today's meeting prevented action upon this measure. Labor is tremendously interested in this bill and firmly expects it to be enacted into law before congress adjourns. For this reason I respectfully urge you to be present at meeting of the judiciary committee tomorrow morning as herein stated. Your absence from this meeting will be construed as opposition to the measure and as being unfriendly to labor. Our representative will be present at tomorrow morning's meeting. Do not fail us. Be present."

The meeting was held and Mr. Green's representatives were standing outside the committee door. It is interesting to note that the bill was favorably reported out of the committee.

HIGHER RATE SOUGHT ON RUSSIAN MANGANESE ORE

With the Russian commercial treaty expiring July 13, domestic manganese producers are contacting the state department on the possibilities of having the manganese ore rate increased. They also seek to have promulgation of the treaty delayed.

Last July 13 the United States entered into a commercial treaty with Russia for a period of one year. Terms called for the Russian government to spend not less than $30,000,000 in the United States for machinery and other goods, while in return Russia would be granted any of the privileges of the favored nations with whom we made trade agreements and any import rates entered into with these other countries.

The rate on Russian manganese ore was reduced from 1 cent per pound metallic content to one-half cent per pound when the United States made an agreement with Brazil much against the protests of the domestic manganese producers.

Extension Being Considered

Negotiations for the extension of this agreement are now going forward under a special provision of the agreement stating that "both parties agree that not less than 30 days prior to the expiration of the aforesaid period of 12 months they shall start negotiations regarding the extension of the period during which the present agreement shall continue in force."

During the 12 months before the agreement was signed about $12,000,000 had been spent in the United States by Russia.

Government officials now indicate that the Soviet has spent much more than the $30,000,000 stipulated in the one-year pact.

Unofficial figures show that Russia bought about $10,300,000 worth of machine tools in this country during the past year. Other estimated purchases include: $3,500,000 rolling mill equipment; $2,067,000 dies; $1,300,000 forging machinery; $787,000 tin plate; $711,000 steel sheets; $689,000 railroad car wheels and axles; $622,000 ferrotungsten; $445,000 bolt, nut and rivet machinery; $334,000 strip steel; $308,000 steel tubes and pipes; $264,000 molding machinery; $266,000 automobiles; $246,000 textile machinery.

Of course, state department officials will not discuss pending negotiations, yet there seems to be a feeling here that the agreement will be extended at least for another year. It is said Russia's financial and economic position in reference to future purchases is very good and the government officials do not want to overlook this chance to increase foreign trade. Government figures indicate that from July of last year to April of this year Russia shipped a total of $42,600,000 into the United States including $21,000,000 worth of goods, $20,000,000 of gold and $1,600,000 of silver.

GREEN-LEWIS WARFARE IN LETTER WRITING STAGE

The breach between William Green and John L. Lewis over the proposal to organize workers in the steel industry has become about as wide as possible through the exchange of greetings between the two men last week. Mr. Green issued a statement after leaders of the Amalgamated Association of Iron, Steel and Tin Workers had announced they would join the Lewis outfit. Then Mr. Lewis wrote Mr. Green a letter, also made public.

The A. F. of L. head said that "because the executive council of the A. F. of L. fully appreciated the tremendous difficulties which would be encountered and the powerful opposition which would be met when a campaign of organization in the steel industry was launched, it sought to unite and solidify the entire organized labor movement of the country behind it. * * * * This plan of the executive council has now been thwarted through the acceptance of the proposal made by the committee for industrial organization."

President Green pointed out that "the organizing campaign proposed will be carried on by the C.I.O. separate and apart from the A. F. of L. * * * * All will await with interest the final outcome of this new organization drive of the C.I.O. in the steel manufacturing industry."

Mr. Lewis came right back with the statement that "I overlook the inane ineptitude of your statement published today. Perchance, you were agitated and distraught. The momentary satisfaction accruing to the employers in the steel industry as they perused your statement is also of little consequence.

"It is inconceivable that you intend doing what your statement implies, that is, to sit with the women, under an awning on the hilltop, while the steel workers in the valley struggle in the dust and agony of industrial warfare.

"Press accounts detail, without reserve, the intent of the executives of the A. F. of L. to suspend on July 8, the national and international unions who plan to extend aid to the workers in America's unorganized industries. You have uttered no disclaimer. Even so, I cannot yet believe that you would be a party to such a Brutus blow. In addition, you would destroy yourself."

RICHBERG RISES TO FLAY SUPREME COURT DECISIONS

Contending that the United States Supreme Court has been indulging in "unconstitutional exercise of judicial power," Donald R. Richberg, erstwhile administrator of the Blue Eagle, has called upon both political parties to condemn the Court's recent decisions.

Mr. Richberg, who is still close to the President and being spoken of as successor to Secretary of Commerce Roper if the latter resigns, says that "the American people are being rapidly forced to answer the question as to whether they can preserve self government in the face of an unprecedented exercise of the power of the Supreme Court."

Some interest attaches to the Richberg statement in view of the fact it came almost immediately after the President had declared that a "no man's land" had been created by the court in its decisions relative to both federal and state control of hours and wages. However, Mr. Richberg says he has not discussed this matter with the President.

DRAWBACK ALLOWANCE

Drawback allowance has been granted by the treasury department on copperweld wire, rods, strand cables, and similar articles of steel cores plated with copper, manufactured by the Copperweld Steel Co., Glassport, Pa., with the use of steel manufactured under drawback regulations, in combination with copper.

Editorial

Industry Is Overlooking a Good Chance for Promotion

IN LAST week's issue, STEEL presented an authoritative article discussing recent noteworthy advances in the manufacture of steel rails. It explained how controlled cooling has gone a long way toward ending the difficult problem of transverse fissures. It touched upon the manner in which carefully supervised heat treatment is enabling railmakers to meet the requirements of their customers for rails of higher physical characteristics. It also summarized several methods by which makers and users of rails are attempting to minimize the difficulties arising from endbatter.

These improvements in manufacture constitute the latest chapter in a long period of development. It is a far cry from the first primitive strap rails to the current highly standardized product. Each advance in the technique of production or application has paved the way for progress in rail transportation.

The significance of this point has been demonstrated time and time again in the past half century, during which the conditions confronted by rails in normal service have become constantly more exacting and severe. Static wheel loads have doubled in that period, which increase, combined with higher train speeds, has raised dynamic loads considerably.

Improvement in Rails a Necessary Prelude to Current Progress in Railroad Transportation

Of course the increase in the weight of rails has helped in part to meet the more difficult conditions of service, but much more than mere mass in metal has been required to keep pace with the requirements of modern train operation. It was necessary that quality be uniform, that physical characteristics be improved and that numerous other refinements be introduced. Had manufacturers failed to make these advances, railroad development during the past five decades would have been seriously retarded.

Right now the great value of these improvements is accentuated by the current renaissance in American railroading. In the minds of many persons, the high point of achievement reflected in the crack fleets of fine passenger trains lies in the motive power or rolling stock. Streamlining, diesel powered locomotives, articulated coaches, and other visible signs of change seem to have caught the public fancy. Few indeed are the persons who appreciate the fact that the splendid performance records of the heavily publicized "name" trains would be impossible if it were not for the fact that railmakers have perfected a highway of steel that will carry these trains safely and economically.

The achievement of manufacturers of rails is typical of what is being accomplished quietly by the producers of numerous iron, steel and nonferrous metal products. In spite of the fact that someone always rises to the defense of the quality of tin plate, galvanized sheets, pipe or other product of the good old days of the gay nineties, a cold appraisal of values will prove that many claims for products of the past are tinctured by tradition and sentiment.

Improvements, Accepted as Matter of Course, Often Are Overlooked By Critics

By and large, industry seldom receives full credit for the improvements it makes in the quality of its materials or products. Likewise, it is accorded only scant appreciation of the extent to which the advantages of progress in this respect are passed on to customers.

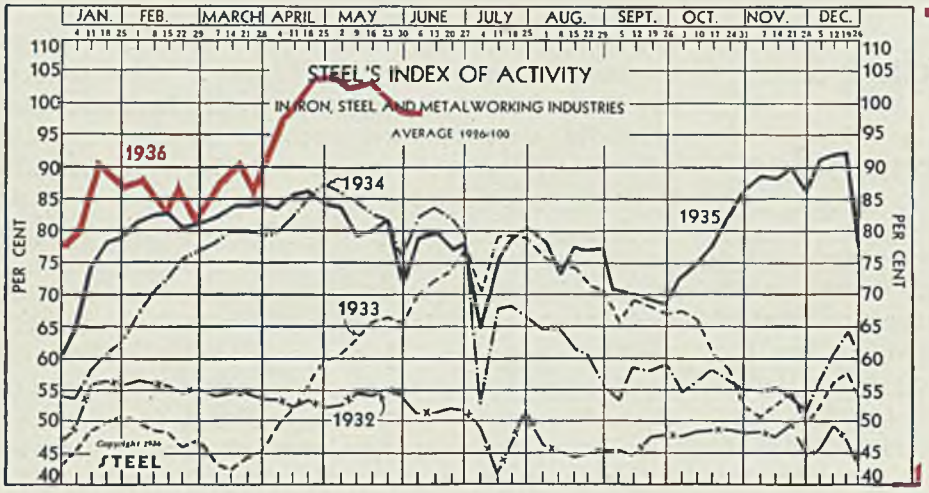
Every now and then one hears a cynic assert that steel bars, wire fence, structural shapes, or some similar product are the same today as they were 20 years ago. Moreover, the critic usually puts in a word or two about the price being just as high, all factors considered.

Experience in ferreting out the real facts regarding some of these changes shows that in most cases the self-appointed appraiser has overlooked numerous developments which have an important bearing upon quality and price. Investigation shows that the history of an established product follows a definite pattern.

When a marked improvement is first introduced, the price usually goes up to cover the added costs of the innovation. In the course of time, the quality of the new product is accepted as standard for the trade. By this time the price usually has dropped back gradually to that which prevailed before the improved product was introduced. In other words, the benefits usually go to the consumer and eventually the added cost is absorbed either in greater volume or in more efficient operations.

Industry has been backward in dramatizing and in otherwise capitalizing upon its liberal contributions to progress. This is a phase of promotion which merits more attention than it has received thus far.

THE BUSINESS TREND



STEEL'S *index of activity in the iron, steel and metalworking industries remains unchanged at* 98.6 *in the week ending June* 6:

Week ending	1936	1935	1934	1933
Mar. 28	91.2	84.3	79.3	45.3
Apr. 4	96.8	83.4	79.6	49.1
Apr. 11	99.6	85.4	82.2	52.6
Apr. 18	103.1	86.3	85.0	55.8
Apr. 25	103.6	84.9	87.5	59.5
May 2	103.2	84.6	86.0	60.3
May 9	103.0	79.3	84.4	62.6
May 16	103.1	80.5	82.4	65.2
May 23	100.4	82.8	81.9	66.1
May 30	98.6†	71.9	75.7	65.3
June 6	98.6*	79.3	82.3	69.9

†Revised. *Preliminary.

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

Surge of New Strength Buoys Rate of Industrial Activity

INDUSTRY's record of activity in the first week of June affords abundant evidence that the resistance of business to seasonal trends not only is much stronger than had been expected but also is likely to extend further into the summer period than had been predicted by many observers.

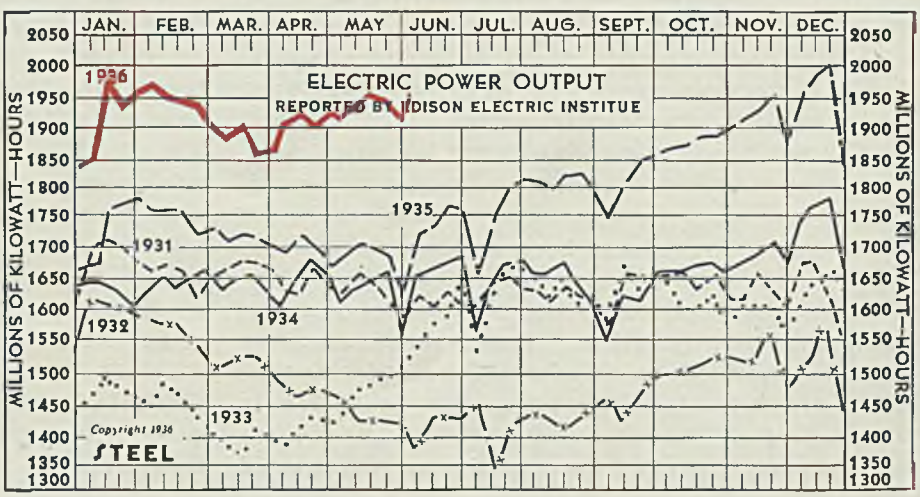
In the week ending June 6 the gains in the steelworks operating rate, in revenue railroad freight traffic and in electric power output were sufficient to offset a moderate drop in automobile output. The net result is that STEEL'S index remains unchanged at 98.6.

The most impressive signs of strength are found in the current records of freight car loadings and steelworks operations. Based upon preliminary reports, freight traffic in the week ending June 6 seems likely to touch 685,000 cars. If this prediction is realized, it will represent the heaviest freight traffic reported in any week since that ending Nov. 14, 1931.

Demand for steel has reversed the downward trend in steelmaking activity. From a peak of 70.5 per cent in the week ending April 18, the rate of steelworks operations in relation to capacity had dropped gradually to 66 per cent in the last week in May. It regained one point in the first week of June and is pointing definitely upward, with indications that it may touch the 70 per cent mark before the end of the month.

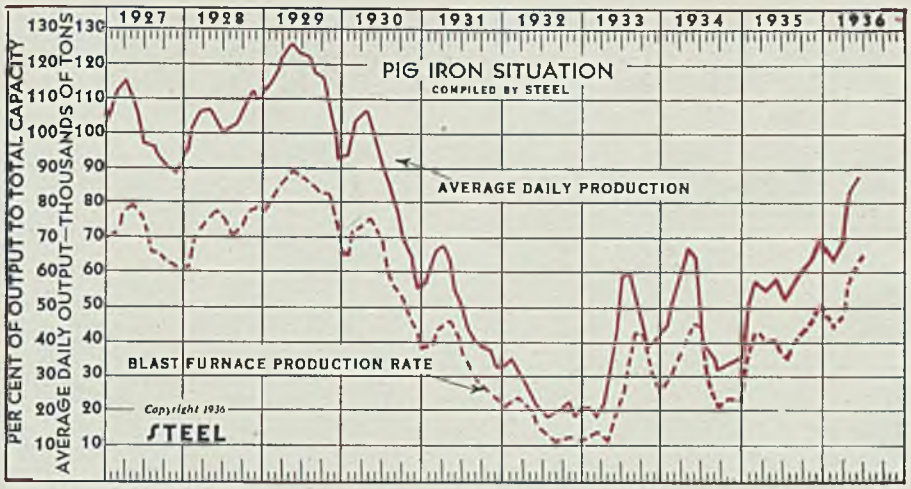
Everything now points to a strong finish for the second quarter. The question arises as to what extent buying in anticipation of higher prices may cause an abrupt decline of activity in early July. In some quarters the belief is growing that a marked slackening of the pace will not occur until late in the summer — possibly not until August.

Millions Kw.-Hrs.	1936	1935	1934	1933
June 6	1945	1724	1654	1541
May 30	1922	1628	1575	1461
May 23	1954	1696	1654	1493
May 16	1961	1700	1649	1483
May 9	1947	1701	1643	1468
May 2	1928	1998	1632	1436
April 25	1932	1673	1669	1428
April 18	1914	1701	1673	1431
April 11	1933	1725	1642	1409
April 4	1916	1700	1616	1399
March 28	1867	1712	1665	1402
March 21	1862	1724	1658	1409
March 14	1900	1728	1650	1375
March 7	1893	1724	1647	1390



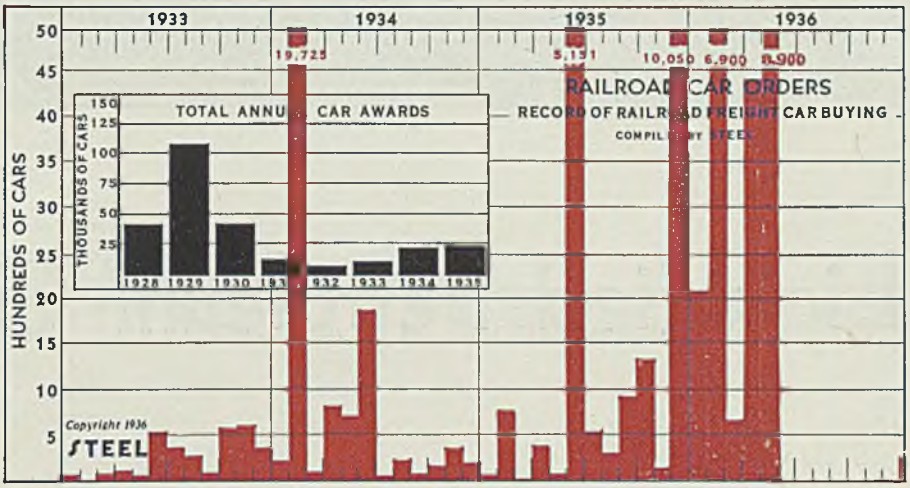
May Iron Production Up 6.8 Per Cent

	Daily Average, Tons		Blast Furnace Rate, Per Cent	
	1936	1935	1936	1935
Jan.	65,461	47,692	48.2	34.2
Feb.	63,411	57,675	46.6	41.4
Mar.	66,004	57,120	48.5	41.0
Apr.	80,316	55,719	59.1	40.0
May	85,795	55,986	63.1	40.2
June		51,949		37.2
July		49,043		35.2
Aug.		56,767		40.7
Sept.		59,009		42.5
Oct.		63,818		45.8
Nov.		68,876		49.5
Dec.		68,242		49.0



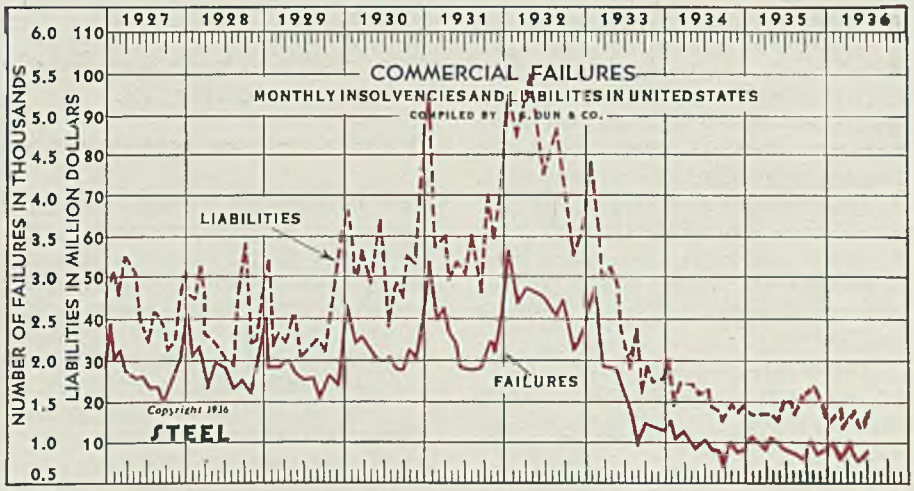
Freight Car Awards Hit 1936 Peak

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



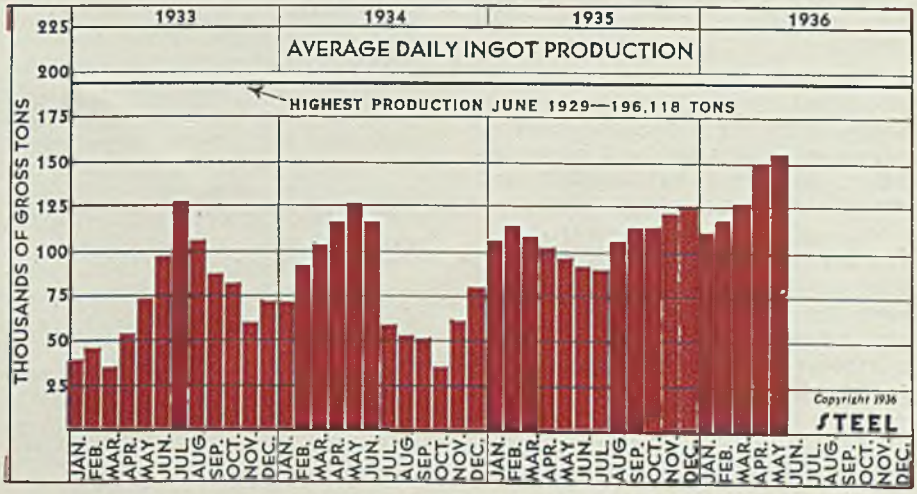
Business Failures Remain Steady; Liabilities Up

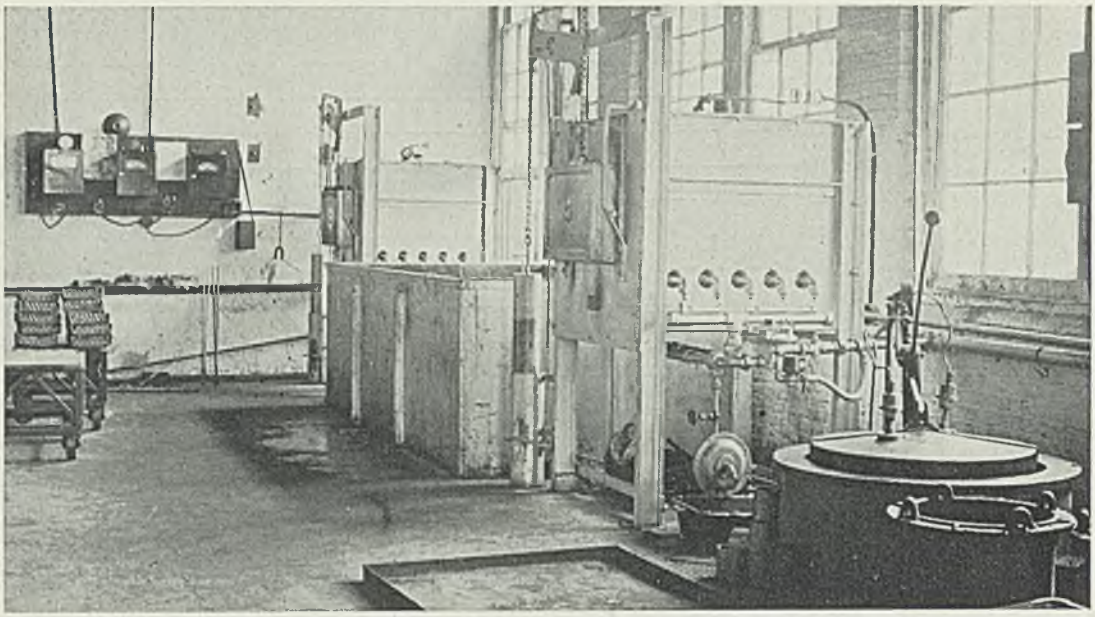
	Failures, Number		Liabilities, Dollars (000 omitted)	
	1936	1935	1936	1935
Jan.	1,077	1,184	$18,104	$18,823
Feb.	856	1,005	14,089	18,737
Mar.	946	976	16,271	18,522
Apr.	830	1,115	14,543	18,063
May	832	1,004	15,375	14,339
June		961		20,463
July		931		20,446
Aug.		910		17,845
Sept.		806		21,837
Oct.		1,097		22,243
Nov.		927		20,023
Dec.		940		17,442



May Ingot Rate Highest Since April, 1930

	Gross Tons		
	1936	1935	1934
Jan.	112,813	106,302	73,968
Feb.	118,577	115,595	92,164
March	128,576	110,204	103,646
April	151,625	101,562	117,443
May	155,625	97,543	125,907
June		90,347	117,672
July		87,224	59,578
Aug.		107,997	51,161
Sept.		113,000	50,759
Oct.		116,398	54,885
Nov.		121,170	61,947
Dec.		122,936	78,570





HEAT treating department of roller bearing plant showing propane-fired furnaces

Liquefied Petroleum Gases Finding

BY MARTIN J. CONWAY*
Fuel Engineer, Lukens Steel Co.,
Coatesville, Pa.

IT WAS not until the Penn Fuel Co. piped gas into Pittsburgh from the Murraysville gas field in 1878 that the real foundation of the natural gas industry was laid, although natural gas was used for lighting and heating in Fredonia as early as 1825.

After nearly 40 years of service, natural gas still holds a strong place in public and industrial use and is an important source of supply of the heavier hydrocarbon gases, propane and butane.

The saturated hydrocarbons which are gaseous at normal temperatures and pressures are methane, ethane, propane and butane. The first two are well known as fuels; the last two are the subject of this discussion and their principal properties are shown in Table I (p. 36).

Liquefied petroleum gases have all the advantages of the older gaseous fuels—efficiency, cleanliness, simplicity of utilization and controllability, and may be handled and stored similarly to oil.

One of the most important operations in the development of the liquefied petroleum gas industry is transportation between the source of supply and the consumer. Until recently, the producer and consumer have been separated by considerable distance, since the chief producing plants are located principally in the active oil fields while the potential markets extend to those sections far removed from these points. This means that large quantities of liquid must be transported over long distances by safe and economical means.

Prior to 1927, nearly all of these liquid gases were transported in metal cylinders, so that only those consumers within reasonable distance of the source of supply could use the fuels economically. Since then the development of special tank cars, motor trucks, and boat and pipe line facilities, plus the more widespread production by refineries, have helped to account for the tremendous increase in annual consumption up to a total of 63,000,000 gallons in the year 1935.

The greatest increase in the utilization of these gases is taking place in the industrial and domestic fields as shown in Table II.

Liquefied gas produced from natural sources is almost unlimited in quantity. Its distribution from these sources has been, up to recently, somewhat limited by their geographical location with reference to the consuming areas.

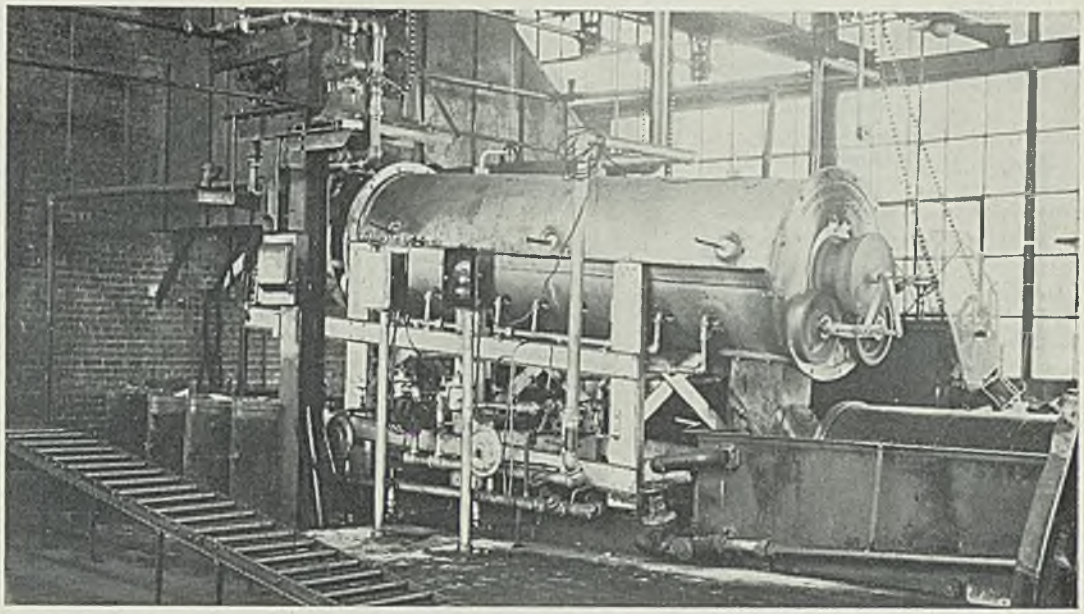
Now that the minor difficulties in manufacture have been overcome by refineries, this source of supply for liquefied gas products is becoming increasingly important, and propane is the gas that is increasing in proportion to the total marketed production of liquefied petroleum gas, as it is not possible to utilize this material in gasoline as we know it today.

In the case of butane, commercial operations have been started during the past year on the conversion of butane into gasoline and it is safe to assume that it will become more widely used as an ingredient of motor fuel, so that its amount and availability for other uses in large quantities is problematical.

The production of propane from refinery gases will tend to eliminate the problem of distribution which has been a great factor in the industry.

The distribution of liquefied petroleum gases for industrial uses has in the past been limited largely to shipment in tank cars of approximately 10,000 gallons capacity. The development of high-tensile steels has however, given impetus to the use of the tank truck and it is now becoming common practice to haul relatively small quantities over a considerable distance in this manner. On the Pacific Coast, truck

*Abstracted from a paper presented recently before the National Association of Power Engineers, Philadelphia.



PROPANE - heated rotary hardening furnace for small washers

New Uses in Metal Treating Plants

and trailer units are hauling both propane and butane approximately 300 miles from the source of supply.

The following specifications are those used by one of the largest producers and marketers of liquefied petroleum gases, for a number of its products:

SPECIFICATIONS OF INDUSTRIAL PROPANE

The composition shall be at least 70 per cent propane and/or propylene by liquid volume.

The vapor pressure at 105 degrees Fahr. as determined by the liquefied petroleum gas vapor pressure method shall not be in excess of 225 pounds per square inch gage pressure.

Not less than 50 per cent by volume shall evaporate below a temperature of —25 degrees Fahr. as determined by the open cylinder weathering test.

The product shall be free of hydrogen sulphide.

The flash vaporized product shall not contain total sulphur in excess of 15 grains per hundred cubic feet of vapor, as determined by the test for total sulphur in liquefied petroleum gases.

The product shall be free of entrained water.

(G-3A propane is same as commercial propane except for water content and need not be included.)

SPECIFICATIONS OF COMMERCIAL PROPANE

The composition shall be at least 95 per cent propane and/or propylene by liquid volume.

The vapor pressure at 105 degrees Fahr. as determined by the liquefied petroleum gas vapor pressure method shall not be in excess of 225 pounds per square inch gage pressure.

The residue as determined by means of the mercury freezing test shall not be more than 2 per cent by volume.

The product shall be free from hydrogen sulphide.

The flash vaporized product shall not contain total sulphur in excess of 15 grains per hundred cubic feet of vapor, as determined by the test for total sulphur in liquefied petroleum gases.

The degree of dehydration shall be such that the product will pass the standard cobalt bromide test.

SPECIFICATIONS OF COMMERCIAL BUTANE

The product shall be composed predominantly of butanes and/or butylenes.

The vapor pressure at 105 degrees Fahr. as determined by the liquefied petroleum gas vapor pressure method shall not be in excess of 75 pounds per square inch gage pressure. Not less than 95 per cent by volume shall evaporate below a temperature of 34 degrees Fahr. as determined by the open cylinder weathering test.

The product shall be free of hydrogen sulphide.

The flash vaporized product shall not contain total sulphur in excess of 15 grains per hundred cubic feet of vapor as determined by the test for total sulphur in liquefied petroleum gases.

The product shall be free of entrained water.

Only an indication can be given of the various domestic and industrial uses to which these liquefied petroleum gases can be adapted. They may be used to form a community service to domestic consumers by transportation in bulk from the place where they are produced and then vaporized at a central plant for distribution. In this service, the gas can be distributed in the undiluted form or diluted with air.

For small communities where the higher capital cost of a gas manufacturing plant cannot be justified, this process has great economic possibilities. Both butane and propane can also be used in place of oil gas to enrich water gas where this is normally made to meet fluctuating loads, and in this sense their constant heat value and easy operation make them very convenient to use.

Although the flame temperature of liquefied petroleum gas is lower than that of acetylene, this does not preclude its use for cutting of steel and brazing metals and alloys of low melting point such as brass and bronze, the welding of aluminum and lead burning. It is extensively used in foundries for cutting risers from castings and is used in some steel plants for scarfing, and the cutting of slabs of various thickness up to 26 inches. In fact, the lower flame temperature is in some ways a positive advantage as it serves to prevent the burning of the work in unskilled hands and produces sharper edges. Combustion data are shown in Table III.

Those industrial applications which

Table I

Constants of Liquefied Petroleum Gases

(All Values Not Otherwise Designated Are at 60 degrees Fahr. and 30 inches of Mercury)

Characteristics	Ethane C_2H_6	Propane C_3H_8	N-Butane C_4H_{10}	Isobutane C_4H_{10}
Chemical formula				
Molecular weight	30.0468	44.0624	58.078	58.078
Percentage composition	H-20.1246 C-79.8754	H-18.2977 C-81.7023	H-17.3525 C-82.6475	H-17.3525 C-82.6475
Normal state at 60 degrees Fahr. and 30 inches Mercury	Gas	Gas	Gas	Gas
Specific gravity gas (air = 1)	1.037	1.5206	2.0042	2.0042
Specific gravity liquid at 60 degrees Fahr./60 degrees Fahr.	0.3738	0.5089	0.5824	0.5665
A.P.I. gravity liquid at 60 degrees Fahr.	247	147.1	111.5	118.3
Boiling point liquid—				
Degrees, Cent.	—88.71	—44.5	0.5	—10.2
Degrees, Fahr.	—127.7	—48.1	32.9	13.64
Melting point solid—				
Degrees Cent.	—183.65	—189.9	—135	—145
Degrees Fahr.	—298.57	—309.8	—211	—229
Critical Data—				
(a) Temperature degrees Cent.	32.1	97.0	150.8	133.7
degrees Fahr.	89.78	206.6	303.4	272.66
(b) Pressure—pounds per square inch	739.5	648.1	552.4	538.23
Van der Waals Constants—				
a x 10^5	1074	1727	2885	2562
b x 10^6	2848	3770	5470	5096
Specific Heat Gas—				
Constant pressure	0.413	0.473	0.459	0.462
Constant volume	0.338	0.411	0.414	0.415
Ratio of specific heats	1.22	1.15	1.108	1.110
Heat of formation at constant pressure—				
B.t.u. per pound	1713.6	1436.3	1317.3	
B.t.u. per cubic foot	136	167.2	202.2	
Latent heat of vaporization at normal boiling point—				
B.t.u. per pound	232.2	192.6	173.52	169.92
B.t.u. per gallon	722.95	816.3	841.64	801.68
Viscosity in c.g.s. units (N.10^7 at 20 degrees Cent.)	929	806	739	744
Cubic feet of vapor per pound of liquid—				
At 60 degrees Fahr. and 30 inches Mercury	12.594	8.588	6.5154	6.5154
Cubic feet of vapor per gallon of liquid—				
At 60 degrees Fahr. and 30 inches Mercury	39.211	36.398	31.602	30.739
Pounds per gallon of liquid—at 60 degrees Fahr.	3.1135	4.2383	4.8544	4.718
B.t.u. per cubic foot of vapor—				
At 60 degrees Fahr. and 30 inches Mercury—dry	1,764	2,519	3,274	3,274
B.t.u. per pound	22,216	21,633	21,331	21,331
B.t.u. per gallon	69,170	91,686	103,465	100,639
Limits of inflammability—				
Lower limit	3.2	2.3	1.9	1.9
Upper limit	12.5	9.5	8.4	8.4
Maximum rate of flame propagation—				
Feet per second	2.8	2.69	2.71	2.71
Per cent of gas	6.53	4.71	3.66	3.66

show a noticeable increase are direct fired air heating for plant space heating, metal cutting, atmospheric control, particularly in bright and clean annealing and in gas carburizing. Heating and heat treating furnaces of practically every general kind known are being fired with this fuel; in fact, it can be applied to practically any service where conventional city or natural gas is used.

These advantages make liquefied petroleum gas an ideal fuel for industrial uses where artificial or natural gas is not available or where the supply is limited or of high cost. The low cost of liquefied petroleum gas places this fuel on economic equality with low priced gaseous fuels. The fact that the same equipment can be used for both artificial or natural gases and liquefied petroleum gas makes this fuel ideal for standby.

Other uses, such as the production of hydrogen by catalysis of butane, the enrichment of blast furnace gas with liquid petroleum gases are subjects for separate discussions in themselves.

Liquefied petroleum gas is competitive with all other types of fuel and still has all of the inherent advantages of gas without sacrificing the principal advantage of other fuels, which is chiefly one of availability. Liquefied petroleum gas is now being sold for approximately 5 cents to 10 cents per gallon, f.o.b. the source of supply. These prices vary somewhat with the volume, quantity and quality desired. Little fluctuation in the price is expected as every refinery is a potential manufacturer and supplier of liquefied petroleum gases. This situation, coupled with the competitive position of liquefied petroleum gas in relation to other fuels, will prevent the price from seeking much higher levels than those now in effect.

Table II

Marketed Production of Liquefied Petroleum Gas

Year	Bottled Gas	Industrial and Miscellaneous	Gas Manufacturing	Total Gallons Per Year
1922				222,641
1923				276,863
1924				376,488
1925				403,674
1926				465,085
1927				1,091,005
1928	2,600,000	400,000	1,500,000	4,522,899
1929	5,900,000	1,500,000	2,500,000	9,930,964
1930	11,800,000	2,200,000	4,000,000	18,017,347
1931	15,294,648	7,171,686	6,303,242	28,769,576
1932	16,244,103	8,167,194	9,703,470	34,114,767
1933	16,625,588	13,987,095	8,318,325	38,931,008
1934	17,681,000	24,202,000	6,290,000	48,173,000
1935*	20,700,000	36,000,000	6,300,000	63,000,000

*Year estimated.

Pouring Iron Too Hot Produces Weak Castings

An automobile manufacturer has found that pouring iron too hot causes thin sections of the casting surrounded by cores to self-anneal, holding the iron liquid so long above the critical range that graphite separates out and thus forming a ferritic structure. This structure is weak, open, and decidedly detrimental to castings required to withstand pressure and wear.

Table III

Combustion Data

	Cubic feet required per cubic foot of gas or vapor for combustion		Products of combustion in cubic feet formed by burning one cubic foot			Pounds required for combustion one pound of gas or vapor		Products of combustion in pounds from burning one pound gas or vapor			Flame temperature degrees Fahr
	Air	Oxygen	Carbon dioxide	Water	Nitrogen	Air	Oxygen	Carbon dioxide	Water	Nitrogen	
Ethane	16.738	3.5	2.0	3.0	13.238	16.132	3.728	2.929	1.799	12.404	3670
Propane	23.912	5.0	3.0	4.0	18.912	15.712	3.631	2.996	1.635	12.081	3710
Butane	31.086	6.5	4.0	5.0	24.586	15.495	3.581	3.030	1.551	11.914	3735
Isobutane	31.086	6.5	4.0	5.0	24.586	15.495	3.581	3.030	1.551	11.914	3735

Simplify Proposed Color Code for Marking Steel Bars

FORMAL approval of a revised and simplified color code for marking steel bars was given by the National Association of Purchasing Agents at its recent convention in New Orleans. The code was reported out of committee by W. W. Macmillen, director of purchases, National Malleable & Steel Castings Co., Cleveland, chairman of the association's iron and steel committee.

First work on this color code was done early in 1929 when the association's iron and steel committee was informed of the desirability of such a code as an aid in distinguishing various grades of steel and in expediting inventory taking and reducing shop errors. Work was started after many members of the association indicated a favorable attitude toward the project. First report was heard in 1930 at a Chicago meeting.

First Code Adopted in 1931

Later, certain branches of the government became interested in the undertaking, including the division of simplified practice of the national bureau of standards. In the original color code, solid colors were assigned to straight carbon steels, two-color combinations to certain alloy steels. In the latter the series was identified by the background color, the carbon range by stripe, except in three instances where dots were used. While the code was intended primarily for marking bars in various shapes and sections, it was also possible to use it in marking blooms, billets, slabs and the like. This code was adopted by the national convention of purchasing agents in Toronto in 1931.

Efforts then were made to interest the Society of Automotive Engineers in adopting the code, but these were not particularly successful. Furthermore, events of the past three or four years more or less forced this work into the background. Last spring, however, details of the original code were presented to the American Steel Warehouse association in convention at Chicago. No action on the project was taken.

During the summer of 1935 the department of commerce submitted the proposed color code to 775 producers and distributors and consumers of steel. From replies received it was deemed advisable to proceed with the work, and a conference was called in Cleveland on Nov. 22, 1935, at which a committee representing the various interests concerned met and considered the question.

Objections raised by producers and distributors were analyzed and disclosed certain deficiencies such as the impracticability of stripping bars, the limited number of colors available and the necessity of narrowing somewhat the carbon gradation. The group agreed that for all practical purposes ten-point gradation of carbon would be practical instead of five as formerly used.

Further consideration developed constructive criticism from many sources which crystallized into definite suggestions for simplification and improvement. For instance, it was agreed that the application of the color code to 60 or 70 varieties of steel would blanket all general and popular requirements and would satisfy those consumers who do not insist on codes of their own.

The committee which set about to revise the code included Mr. Macmillen as chairman, A. J. Copeland, Industrial Brownhoist Corp., Bay City, Mich., who has been active in the work for some years; E. C. Smith, Republic Steel Corp.; J. J. Schuman, Association of American Steel Manufacturers' technical committee; George Schuster, national bureau of standards; A. Y. Sawyer and W. S. Doxsey of the American Steel Warehouse association.

P. S. Doran, Joseph T. Ryerson & Son Inc.; J. E. Kessler, Carnegie-Illinois Steel Corp.; I. E. Walton, Heppenstall Co.; and F. W. Krebs, Super-Steels Inc., Cleveland, also were active in committee work during final revisions of the code.

Four Major Changes

Salient features of the revised code were as follows: (1) Solid colors were applied to production steels; (2) striping was eliminated; (3) as far as possible the series number was designated by one color of a combination; (4) ten-point carbon gradation was used instead of five. This arrangement provided for 85 individual designations by color while the present list of S. A. E. steels covers some 140 chemical specifications.

Following presentation of the revised code early this year, and after checking on the various color combinations, it was the general opinion that all practical purposes would be served by still further condensing the various marking arrangements, basing them on the popularity of the steels represented by the S. A. E. numbers rather than on individual number identifications. Following this suggestion, A. J. Copeland worked out the revisions and again submitted the condensed code for final approval of the committee. Two or three minor changes were incorporated before the final draft of the approved code was made.

Last week the revised code, as approved by the National Association of Purchasing Agents, was again presented to the American Steel Warehouse association in Chicago where the association's annual convention was being held.

In the meantime, copies of the newly revised code are being sent to the division of simplified practice of the national bureau of standards so that this organization may make copies to send to those acceptors of the original program for their reactions.

The following tabulation shows colors and color combinations which have been decided upon to identify the various S. A. E. steels listed. Where two colors are shown, the second represents a small spot or dab of that color on the background represented by the first color. Figures showing percentages of production, by groups, were supplied to the committee by Republic Steel Corp.

S.A.E. CARBON STEELS

S.A.E. Number	Number of warehouses carrying in stock	Color marking	Per cent of total production, by groups
1010	10	White	
1015	7	White	
x1015	7	White	
1020	54	Brown	
x1020	32	Brown	
1025	11	Red	
x1025	3	Red	
			33
1030	9	Blue	
1035	17	Blue	
1040	19	Green	
x1040	3	Green	
1045	29	Orange	
x1045	3	Orange	
1050	5	Bronze	
1095	21	Aluminum	

FREE-CUTTING STEELS

1112	56	Yellow	
x1112	0	Yellow	
1120	33	Yellow-Brown	
x1314	21	Yellow-Blue	20
x1315	29	Yellow-Red	
x1335	0	Yellow-Black	
x1340	6	Yellow-Black	

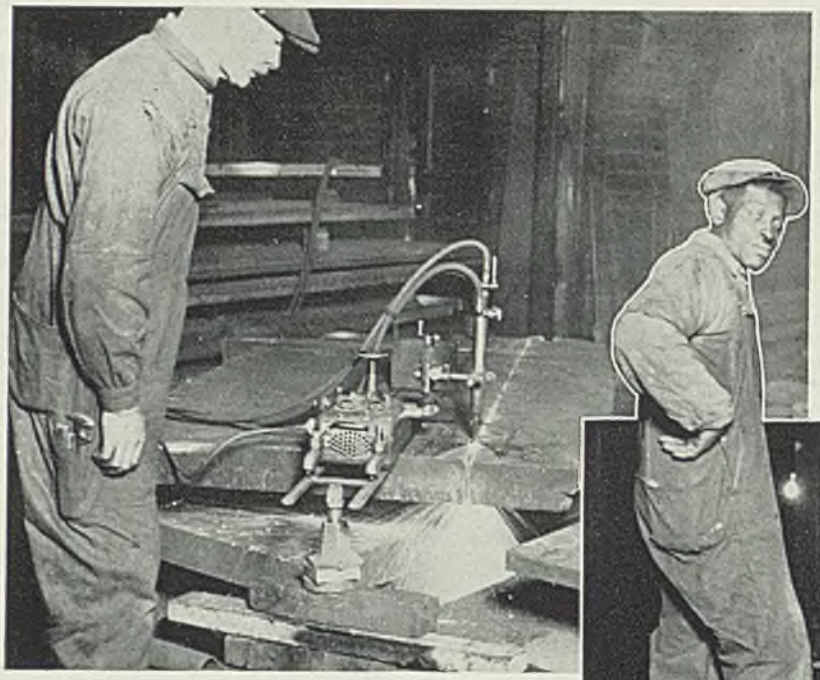
MANGANESE STEELS

T1330	0	Orange-Green	
T1335	1	Orange-Green	
T1340	1	Orange-Green	2
T1345	0		
T1350	0		

NICKEL STEELS

2015	1	Red-Brown	
2115	1	Red-Bronze	
2315	20	Red-Blue	
2320	26	Red-Blue	
2330	22	Red-White	
2335	11	Red-White	10
2340	9	Red-Green	
2345	10	Red-Green	
2350	9	Red-Aluminum	
2515	3	Red-Black	

(*Please turn to Page* 40)



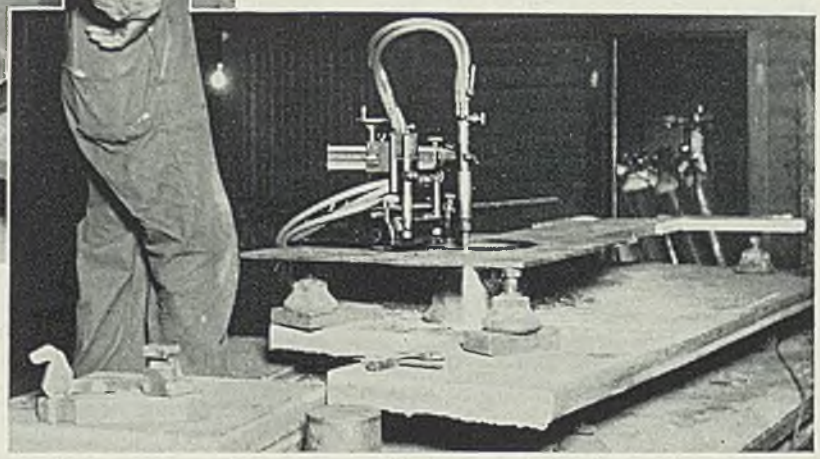


FIG. 1 (left)—Straight-line flame cutting through a steel slab 4½ inches thick. Apparatus travels on a track laid on the work. Fig. 2 (below)—Cutting an 8-inch circle from a machine steel plate ¾-inch thick. Operation is entirely automatic

Supplies Flame-Cut Steel Shapes

Machine Mounted Natural Gas Torches Produce Wide Range of Sections Rapidly

BY FRED B. JACOBS

CUTTING of metals with a gas torch is not an innovation by any means as it has been used for over a quarter of a century. Flame cutting of metals within close limits of accuracy wherein width of the kerf and the accuracy of the outline are controlled within close limits is distinctly a later-day development made possible through the use of precision flame cutting appliances.

Advantages claimed for the modern flame cutting process are that it conserves expensive stock, reduces the cost of preparing shapes for subsequent machining operations, and leaves surfaces on either side of the kerf which are readily machined. In this article are illustrated and briefly described a few flame cutting operations performed at the plant of the Reliable Steel Plate Co., Cleveland, which furnishes square, rectangular, radial, circular and irregular steel shapes in all thicknesses from 3/16 to 12 inches.

A simple straight-line cutting operation is shown in Fig. 1 wherein the work consists of cutting a piece 74 inches long from a steel slab 4½ inches thick. The equipment used consists of a Gaso Machine Product Co. cutting machine fitted with a Harris Calorific Co. torch. Oxygen and natural gas are burned in combination, the natural gas taking the place of the acetylene gas generally used for this purpose. While it is true that acetylene gas makes a hotter flame, it is claimed for natural gas that the flame action does not case harden the stock at the kerf sides and thus impede subsequent machining operations.

Referring to Fig. 1, it is shown that the apparatus travels on a track laid on the work and as the machine travels over the truck under its own power, the flame is bound to cut a straight kerf. Care, of course, should be exercised in setting up the job to see that the torch stands square and that the work is properly supported by jacks.

In an operation of this kind, the width of kerf is controlled by the nozzle size. In the present instance it is 3/16-inch. The cutting speed on an operation of the kind in question using 4½ inch thickness stock is 9½ inches per minute; on stock 6 inches thick, 8 inches per minute is a good average. The cutting process under discussion possesses the advantage of being rapid and at the same time odd sizes are cut as readily as standard dimensions. Thus waste stock to be removed in subsequent machining operations is reduced to a minimum.

The operation shown in Fig. 2 consists of cutting an 8-inch circular piece from ¾-inch machine steel stock. This machine is an Air Reduction Sales Co. unit fitted with a Harris Calorific torch. The operation is automatic once the job is set up as the machine travels in a circle under its own power. Cutting time is practically the same as for straight cutting.

Advantages of the circle cutting process are readily apparent. Assume a machine steel ring 12 inches in

diameter, 8 inches bore and 4 inches thick is wanted. To make the base from the steel casting would necessitate a delay for making a pattern and getting a casting. If the ring were forged to shape a delay would be encountered also. With the flame cutting process it is possible to start preparing the stock a few moments after the order is received and in many instances the piece cut to specified dimension is on its way to the consumer in an hour after the order is received for cutting. By that method, valuable time is conserved, especially on repair parts where every minute counts. These advantages are apparent. Rings, circles and disks of all kinds from ¼ to 12 inches thick and in all practical sizes are readily flame cut.

Irregular Shapes Handled

The foregoing description pertains to regular straight or circular cuts. Irregular shapes such as shown in Fig. 3, however, are just as readily gotten out. The unit shown in Fig. 3 is a stripper plate for a metal cutting die and the section which was cut out forms the stock for the die knockout. The piece shown is 18 inches square, ¾-inch thick machine steel. Flame cutting of the outline is done on a Vulcan Engineering Corp. flame cutter which machine, set up for operation, is shown in Fig. 6. The apparatus sometimes is spoken of as a pantographic appliance but the term is erroneous as the pantographic principle of transferring an outline is not employed in this case. Referring to Fig. 6, the heavy arm projecting over the work table is provided with an automatic feed. Below the arm, under the table, is another arm carrying the cutting torch. This torch is positioned directly under the center of a tracing wheel which the operator guides over a drawing which is fastened to the machine table. Thus, as the torch and tracing wheel move simultaneously, it is obvious that the action of the former must conform to that of the latter.

Referring again to Fig. 6, it is shown that the stock to be cut is set up on jacks. The stock is aligned by means of cross lines drawn with chalk. Thus, it is a simple matter to set the stock so that the outline will be cut correctly as regards the outer dimensions of the piece. With all in readiness, the torch is lighted and the cut started and the holes drilled for the purpose. Then the operator guides the tracing wheel over the drawing and that leaves the desired outline.

Of course, it is apparent that the outline could be generated from a thin sheet metal templet provided for the purpose but it is the experience of engineers at the plant of the Reliable Steel Plate Co. that such a procedure would be a waste of time generally.

Referring again to Fig. 3, bearing in mind that the piece is 18 inches square, any toolroom foreman would realize that to get out a stripper and knockout of this size by the time-honored process of drilling, cutting out the stock and filling to shape would be a long procedure, representing at least two-days' work when the knockout is considered. With the flame cutting processes, the material can be cut at the rate of about 8 inches per minute. Speed, of course, depends on the shape of the part and the skill of the operator.

The gear shown in Fig. 4, is of more than usual interest. It is machine steel 7½ inches in diameter and 3 inches thick. The entire outline including teeth, bore and keyway was flame cut. It is necessary to finish the bore and keyway by ma-

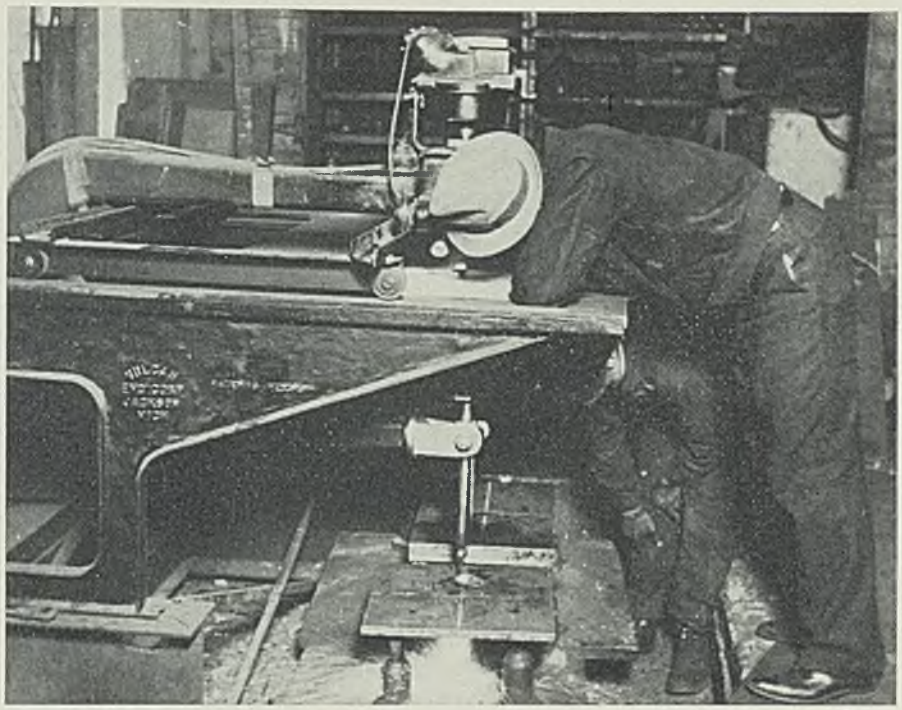
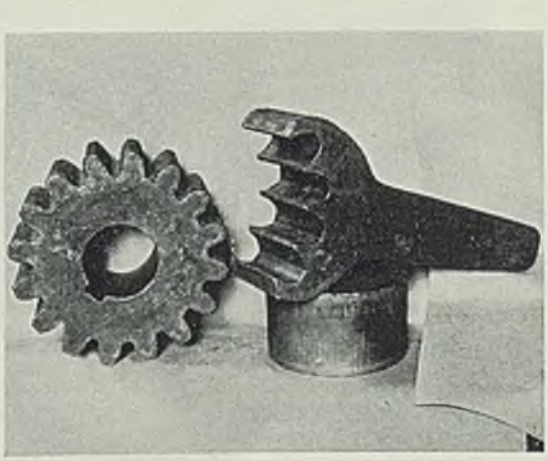


Fig. 6—Flame cutting machine, with torch below main table on which operator traces pattern to be cut, this movement being translated to the torch in direct proportion



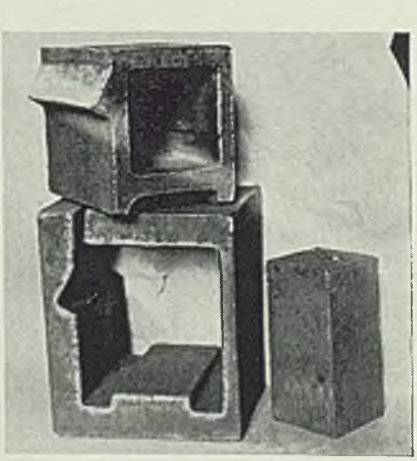


Fig. 3 (left)—Stripper plate for metal cutting die, 18 inches square and ¾-inch thick, flame cut to shape. Fig. 4 (center)—Torch cut gear 7½ inches in diameter and 3 inches thick. Adjacent is a rough gage for testing contour of the gear. Fig. 5 (right)—Examples of parts flame cut from 6-inch stock for exhibition

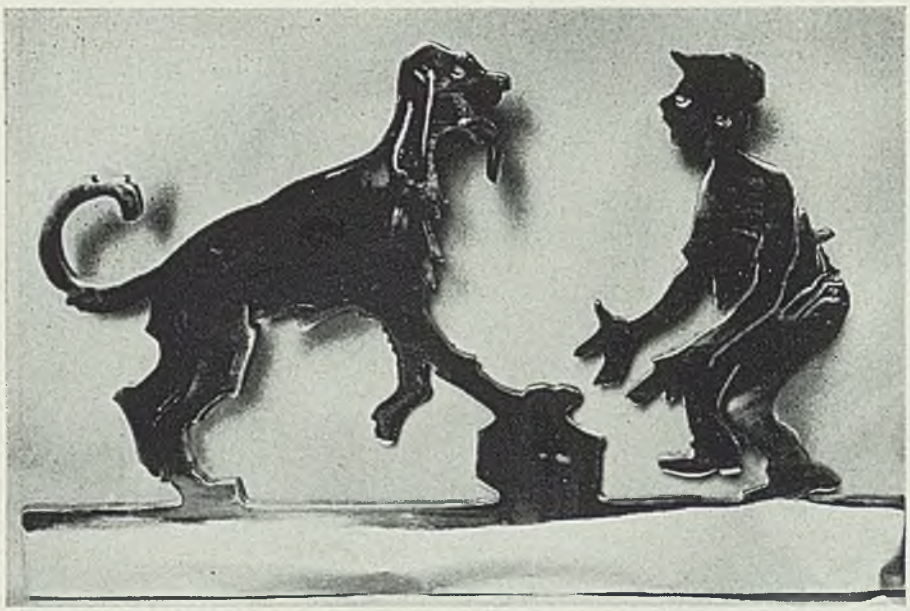


Fig. 7—Decorative novelty flame cut from ¼-inch steel and later chrome plated for exhibition purposes. It well illustrates adaptability of the process to intricate designs

chining, but the teeth as they are left by the flame are accurate enough for many purposes. By making a suitable allowance for cutting they could be finished on a gear cutter or gear hobbing machine at a normal expense. The part at the right is a rough gage for testing the contours. This rests on a steel circle 5 inches in diameter and 3 inches thick cut from solid stock by the flame process.

Parts shown in Fig. 5 were cut from 6-inch stock for exhibition purposes to illustrate the possibilities of the process. The display in Fig. 7 also was cut for exhibition purposes from ¼-inch machine steel. This piece is about 18 inches long and is chromium plated.

Simplify Proposed Color Code for Marking Steel Bars

(*Concluded from Page* 37)

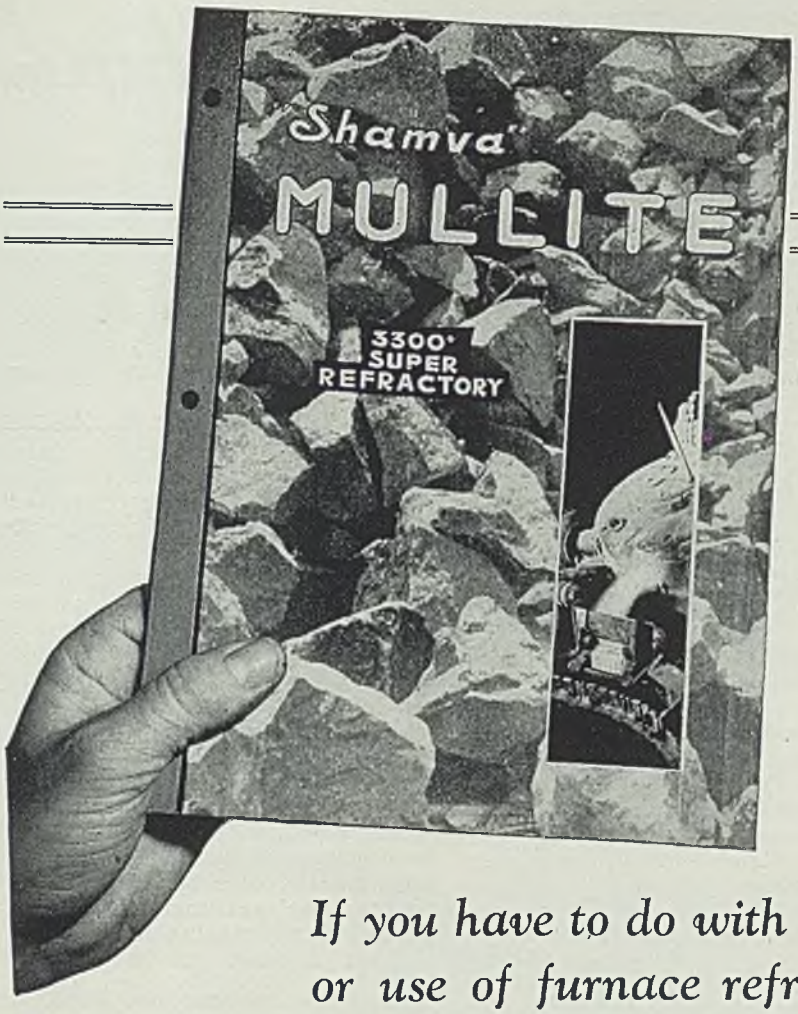
S.A.E. Number	Number of warehouses carrying in stock	Color marking	Per cent of total production, by groups
	NICKEL-CHROMIUM STEELS		
3115	14	Blue-Black	
3120	24	Blue-Black	
3125	3	Pink	
3130	17	Blue-Green	
3135	27	Blue-Green	
3140	21	Blue-White	
x3140	3	Blue-White	
3145	5	Blue-White	
3150	5	Blue-Brown	
3215	0	Blue-Purple	
3220	0	Blue-Purple	
3230	0	Blue-Purple	
3240	3	Blue-Aluminum	12
3245	4	Blue-Aluminum	
3250	12	Blue-Bronze	
3312	2	Orange-Black	
3325	0	Orange-Black	
3335	1	Blue-Orange	
3340	3	Blue-Orange	
3415	1	Blue-Pink	
3435	1	Orange-Aluminum	
3450	0	Black-Bronze	
	MOLYBDENUM STEELS		
4130	3	Green-White	
x4130	0	Green-Bronze	
4135	3	Green-Yellow	
4140	14	Green-Brown	
4150	8	Green-Brown	7
4340	0	Green-Aluminum	
4345	0	Green-Aluminum	
4615	14	Green-Black	
4620	2	Green-Black	
4640	1	Green-Pink	
4815	0	Green-Purple	
4820	0	Green-Purple	
	CHROMIUM STEELS		
5120	0	Black	
5140	1	Black-White	6
5150	4	Black-White	
52100	5	Black-Brown	
	CHROME-VANADIUM STEELS		
6115	0	White-Brown	
6120	2	White-Brown	
6125	1	White-Aluminum	
6130	2	White-Yellow	
6135	1	White-Yellow	
6140	6	White-Bronze	5
6145	15	White-Orange	
6150	6	White-Orange	
6195	1	White-Purple	
	TUNGSTEN STEELS		
71360	1	Brown-Orange	
71660	3	Brown-Bronze	3
7260	0	Brown-Aluminum	
	SILICON MANGANESE STEELS		
9255	6	Bronze-Aluminum	2
9260	4	Bronze-Aluminum	

Furnace Lining Protected In Superheating Gray Iron

In melting gray cast iron in the electric furnace, one experimenter reports the introduction of a mixture of barium oxide and barium carbonate into the melt in the ratio of about 1 pound per ton of metal immediately preceding the superheating temperature. The thin surface glaze, in the apparent form of barium silicate, which is formed on the lining face, is said to stabilize the silica present and to aid in reducing metal penetration.

All-Welded Stern Wheeler

SLIDING off the Neville Island ways of its builders, Dravo Corp., Pittsburgh, the RANGER *became the newest addition to the fleet of the Pittsburgh Coal Co., Pittsburgh. The steamer, illustrated here, is the first all-welded-steel stern wheeler built for river service, and it was designed by the two companies jointly. The boat has a 145-foot hull, 32-foot beam, and a depth of 6 feet 4 inches at the lowest point. A sister ship, the* CRUISER, *is now under construction. Both boats are all steel, up to and including the boiler deck, and are of the usual flat bottom construction with scow bow and stern. The hull is divided into 13 water-tight compartments by transverse and longitudinal bulkheads*



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Surface Treatment and Finishing

Paint Films of Controlled Thickness Produced for Testing Purposes

BY H. G. ARLT*

IN THE preparation of paint films for test purposes control of the thickness and uniformity of the coatings applied to the test panels is of extreme importance since the value of the results of exposure, corrosion, and physical property tests depends so largely on the duplicability of the films and their relation to the coatings applied in actual use.

Studies in the Bell Telephone Laboratories show that coatings prepared by brushing may vary in thickness several hundred per cent under the same conditions and as much as one hundred per cent over a single surface even when applied by an experienced operator. Hand spraying gives somewhat more uniform results but still shows objectionable variations in thickness and uniformity. To obtain improved control Bell Laboratories has recently developed an automatic spraying device which may be used to apply organic coatings.

*Abstracted from *Bell Record*, published by Bell Telephone Laboratories Inc., New York, with which Mr. Arlt is associated.

Spinning Has Limitations

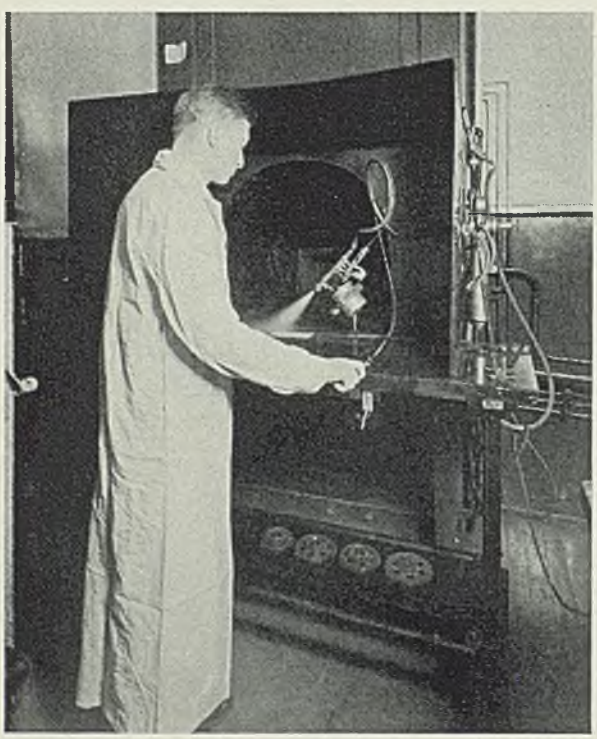
It has been the custom in the past to prepare panels intended for exposure to other tests largely by brushing and spraying. More recently such test panels have been made by spinning. The procedure in this case is to pour the coating material on a panel which is rotated rapidly in a horizontal plane. By controlling the speed and time of rotation, and the consistency of the finishing material, coatings which are uniform within 0.0001-inch over the entire area except within perhaps 0.25-inch of the edge of the panel can be obtained. This method of application is limited to single coats except for materials in which the solvent action of the second coat does not soften the first coat, and cause a secondary flow. Also, it is not possible by this procedure to produce uniform coatings of finishing materials which contain heavy pigments since radial striations usually occur in the film as a result of the centrifugal forces that are exerted by spinning on the heavy pigment particles.

Spraying Machine Developed

The automatic spraying machine developed by Bell Laboratories overcomes these limitations. It employs a spray gun of standard type which is mounted so that it moves at a uniform rate past the panel to be finished. The panel lies on a leveled horizontal surface and the spray gun travels back and forth above it on a reciprocating carriage which is motor driven. The width of spray emanating from the gun is set at about 5 inches at the panel level by adjusting the vertical arm on which the gun is mounted, but only the central 3-inch portion of this spray fan is ordinarily used. The speed of travel of the gun can be changed easily and quickly by changing gears. The entire arrangement is mounted on a portable table so that it may be located in front of a spray hood to remove objectionable fumes.

There is a straight line relation between film thickness and the speed of travel of the spray gun with given spray conditions and consistency of material. The usual procedure is to depend on changes of gun speed to control the thickness of the film. The selection of the speed of travel required to give the film thickness desired within 0.0001 or 0.0002-inch can be found by making a single preliminary trial to determine the thickness of deposit obtained at a known speed.

The automatic spraying machine is



AS THE spray gun reaches the correct position in its travel, the trigger is operated by remote control. By means of this arrangement, the spray is operated only while passing the panels being coated. The enclosed mercury switch controlling the gun travel is directly below the operator's right hand

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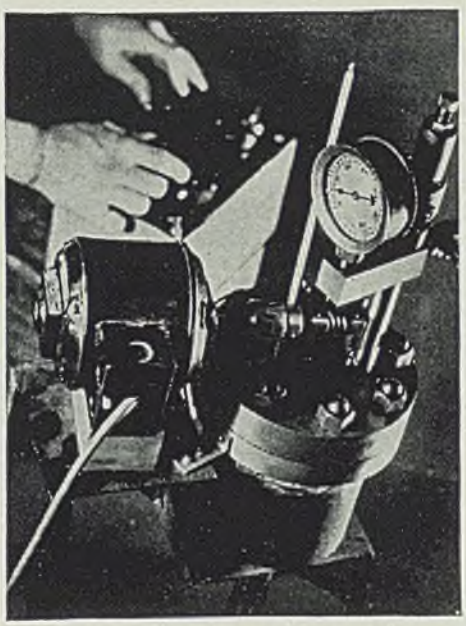

In Gulf's modern research laboratory the equipment shown above is used to determine the static and dynamic coefficients of friction of oils between metals in the presence of saturated or super-heated steam under high pressures. Thus, the most efficient steam cylinder lubricants can be selected for use under a wide variety of operating conditions and better lubricants developed to meet special conditions.

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constructed so that a number of panels can be sprayed at the same time. This is of particular advantage in cases where it is desired to prepare a series of panels with coatings of different thicknesses of the same finishing material. In such cases it is customary to spray a row of panels and remove one after each pass of the gun.

The development of the automatic spray device for preparing uniform organic films for test purposes has not only been of value in facilitating studies of finishes with respect thickness but has decreased the expense of preparing test films by approximately 75 per cent.

Platers Advocate Chemical Control

GROWING place in industry for electrogalvanizing was brought to the attention of the American Electroplaters' society during its annual meeting in Cleveland, June 1-4, by Dr. George B. Hogaboom of the Hanson-Van Winkle-Munning Co., Matawan, N. J. Dr. Hagaboom, who has been responsible for much of the progress made in the electrodeposition of zinc, pointed out that rapid strides have been made through chemical research and drove home his remarks with an urgent plea for complete chemical control in electroplating plants. The quality of the coating, its adherence, ductility, corrosion resistance, economy of application and many other factors all depend on exact chemical control. Its importance cannot be overemphasized.

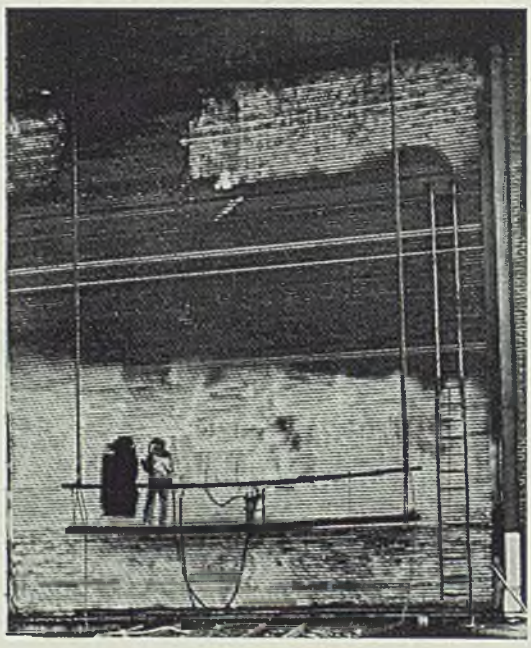
Effect of "dragout" on the stability of electroplating solutions and the large losses which result when "dragout" is high was the subject of a paper presented by Dr. Gustaf Soderberg, technica director, Udylite Co., Detroit. He reported experiments indicated a reduction in these losses when flat test pieces were racked at an angle and that there was an optimum time for the period of withdrawal of the work from the bath. His observation that viscosity and surface tension seemed to have no bearing on dragout losses was confirmed by the experience of others during the discussion which followed the paper. Dr. Soderberg illustrated that the metal content of a plating bath could be maintained at a constant value without additions of metal salts only when a definite mathematical relationship between dragout losses and cathode and anode efficiencies was maintained. This would not, however, compensate for losses in the anion constituents.

The effect of polishing on corrosion resistance was reported by the research committee of the society. In their experiments they found that buffed materials withstood corrosion better than polished specimens. It was also reported that articles polished with fine grit withstood corrosion better than those polished with coarse grit.

At the closing session gold medals were awarded to D. A. Cotton, research director, Delco-Remy Corp., Anderson, Ind., and to Walter R. Meyer, electrochemist, General Electric Co., Bridgeport, Conn., for outstanding technical papers presented to the society during the year.

One of the features of the convention was an eight-column, single sheet daily newspaper which reported the activities of the visitors both socially and technically. This newspaper, published by the Hanson-Van Winkle-Munning Co., Matawan, N. J., was distributed three days of the meeting to those in attendance.

Paint Sprayed "Off" This Door



STRIPPING the old paint from this large steel door and preparing the surface for repainting was accomplished simply and quickly using the spray process of the American Chemical Paint Co., Ambler, Pa. The stripping solution was applied and allowed to remain on the surface until the paint was loosened, which usually requires from 2 to 24 hours. The door was then washed thoroughly with water and when dry was ready for the new coat of paint

New Resin for High-Gloss Cellulose Lacquers

A new type of bakelite resin developed especially for use in cellulose ester lacquers of the modern high gloss, high solid content type has been announced by the Bakelite Corp., New York.

Solutions of this resin in common lacquer solvents are said to be low in viscosity, permitting the formulation of high solid content lacquers having excellent film building properties. The refractive index and pigment wetting qualities are said to be such that attractive depth and luster are obtained. In addition to these properties high resistance to moisture, oxidation, strong soaps, acids, oils and greases are claimed for the resin.

Suggested fields of application are: Automobile finishing, refrigerators, kitchen furniture, bathroom fixtures, imitation tile, hospital furniture, textile and paper coatings, and metal lacquers for hardware and instruments.

Cleaning and Degreasing Fluid Is Announced

Curran Corp., Malden, Mass., is introducing a new cleaning and degreasing fluid known as "Gunk." Mineral oils and greases treated with Gunk form stable emulsions with cold water, and it is on this principle rather than the formation of a mechanical mixture of oil and water that the cleaning action of this new fluid is based. The product is claimed to be harmless to paint and is rated as a safety solvent with respect to fire hazard. The grease to be removed is treated with a solution of the new material in kerosene or other solvent and then rinsed off with a stream of cold water.

Simplified Plating Solution Analysis Handbook Ready

The 1936 edition of *Simple Methods of Analyzing Plating Solutions*, published by the Hanson-Van Winkle Munning Co., Matawan, N. J., is now available upon request. This booklet gives the procedures for analyzing all standard plating baths using proprietary standard solutions for the analysis. It is expressed in nontechnical terms so that platers with no chemical training can perform the necessary analysis mechanically without fear of becoming confused.

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SIZE		NUMBER
10,000 #	5 TON	26
15,000 #	7½ TON	5
25,000 #	12½ TON	29
35,000 #	17½ TON	2
50,000 #	25 TON	129
75,000 #	37½ TON	7
100,000 #	50 TON	60
150,000 #	75 TON	12
300,000 #	150 TON	1
	TOTAL	271

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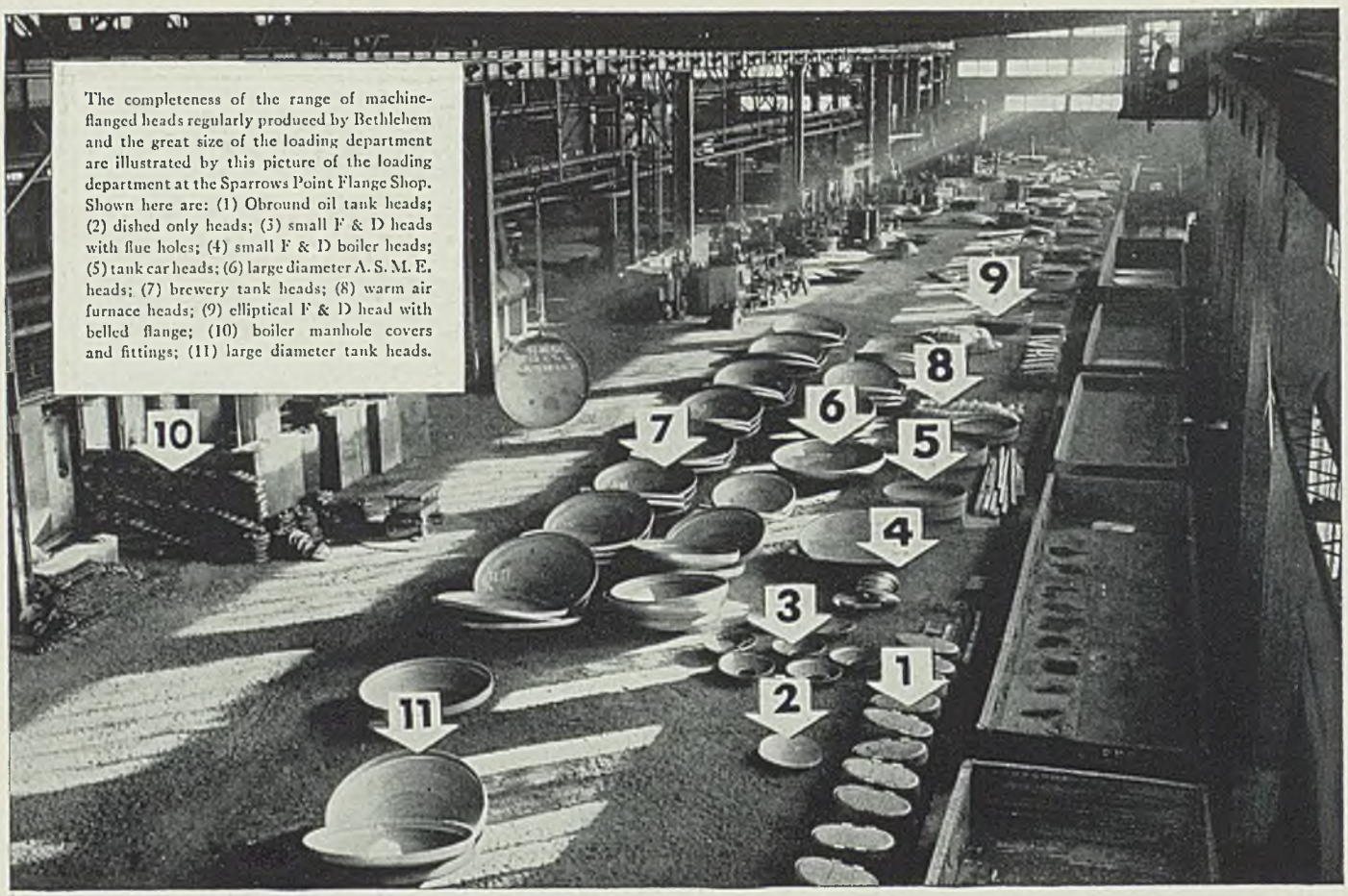
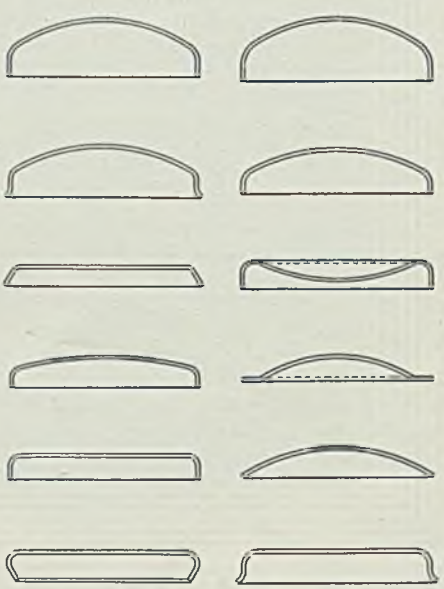


Are you aware of the range of products made in Bethlehem's Flanging Shop?

PRACTICALLY any style or size of machine-flanged steel tank or boiler head can be made by Bethlehem. The machines in the Bethlehem flanging shop are remarkably flexible, permitting the handling of work calling for many different forms and combinations of flanging and dishing.

An integral part of a large steel plant, the shop is located right next door to the plate mill and open-hearth furnaces, making it possible to fill orders for heads in any desired grade of steel promptly.

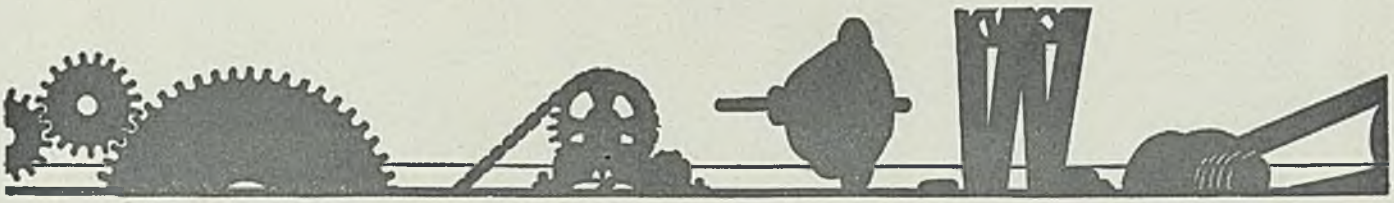
Adjustable working parts permit variation of outside diameter, knuckle radius and straight flange dimensions without need for special dies and costly machine set-up charges. Heads are finished with smooth, regular contours and require no centering holes. In addition, mechanical and hydraulic presses are available to produce a wide range of hot and cold pressed heads.



BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

Power Drives



Across-the-Line Starting

THE fallacy that a 10-horsepower motor requires only 10 horsepower of belt capacity is one of the common causes of unreliable operation of belted drives. Of course many drives operate underloaded so that the normal load is only 60 to 80 per cent of the rated capacity of the motor. On such drives rating the motor and belt loads equally usually gives reliable operation as it is equivalent to placing a 10-horsepower belt on a 7½-horsepower motor. The error in such cases lies in providing an oversized motor with the consequent higher first cost, annual fixed charges and efficiency losses.

That the heaviest load determines the belted capacity required cannot be over emphasized. Usually this heaviest load is at starting; the most common exception is where a load is liable to jam and be stopped suddenly.

Belt Takes Overload

Most common types of motors are designed to absorb short overloads, as at starting, of from 150 to 300 per cent of the normal rated full load. Special motors taking much higher percentage of full load are seldom belted. Some of this excessive overload is absorbed by the inertia of the motor rotor but allowance for that still leaves 50 to 150 per cent, or more, additional load thrown on the belt.

Across-the line starting loads are considerably more severe than where starting equipment is used. One method of making allowance for across-the-line starting is a flat additional allowance of 25 per cent after all severe load allowances are included. Thus on a heavy continuous load where the normal full load and compensator starting allowances are rated by a factor of 1.2, representing a normal probable occasional overload of 50 per cent, the belt should be increased by 20 per cent above the rating of the motor for the overload plus an additional factor of 25 per cent for across-the-line starting. This belt, therefore, should have a capacity rating of about 150 per cent of the motor rating or 15 horsepower of belt on a 10-horsepower motor on such a load. Some transmission engineers advocate even greater allowances, sufficient to stall the motor and relying on overload relays to shut off the current before burning out the motor.

Overloads cause damage to belt drives and unless provision is made for such loads excessive maintenance, slippage and burning may be expected.

Similar allowaifces should also be included in designing other types of drives.

♦ ♦ ♦

Small Diameter Pulleys

ONE common error in power drives is to use stiff belts on small pulleys. Each weight of oak-leather, fabric base, or V-belt has recommended minimum pulley diameters over which it can be bent without damage and still transmit full power. Belts too stiff for the small diameter pulleys do not cling or grip even on the full arc of contact. This promotes excessive slippage and burning and ultimate cracking and failure of the belt.

A good example of this is shown in the experience of a plant in which a 5-horsepower motor with a 4½-inch cast iron pulley drove a press having a 12-inch pulley, center distance 28 inches. A heavy-double leather belt was used under high tension but slipped excessively and wove from side to side under the fluctuating load. Belt life was short.

Under these circumstances a light double leather belt would have given better service and probably as long life, although it might have required more frequent take-ups. At least it would have gripped the pulley in better fashion. A 4½-inch motor pulley is about the smallest diameter recommended for a 5-horsepower motor and calls for a light-double leather belt.

The solution adopted was to install a paper pulley on the motor and a special tannage leather belt which had greater flexibility and so gripped the pulley on the full arc of contact. If the diameter of both pulleys could have been increased the drive would have been more satisfactory but it would have required special diameter pulleys to have given the same speed reduction ratio.

In any case it is extremely difficult to maintain proper belt tension on such short, fixed centers under the fluctuating load of a press drive except by the use of a pivoted motor base or some other special device for maintaining tension.

♦ ♦ ♦

Air Power Losses

WITH compressed air so widely used for power and many miscellaneous shop services the compressor required for its production is often the largest single power consuming unit in the plant. Because of the heavy, steady load the motor usually operates at high efficiency and by the use of a synchronous motor may aid in correcting low power factor caused by inefficient operation in other parts of the plant. Unless provided with an idler, pivoted motor base, or other means of maintaining tension, there is likely to be some loss in belted transmission from the motor to the compressor.

The main power losses, however, are due to improper operation of the valves and in leakage losses in the air lines. Leakage in air lines is not easily measurable. One method of judging such losses is to note the rate of drop in pressure in the compressed air tank after the plant is shut down. A rapid loss indicates leakage, the amount of which can only be roughly computed because the storage capacity of the pipelines is an unknown quantity in most cases. In many plants it would be an economy to replace or reinstall the entire pipeline distributing to the shop.

When the compressor cannot supply enough air at the proper pressure it is well to look into the operation of the valves on the compressor. Improperly operating valves decrease the capacity of the compressor but increase the power required, sometimes to a point which seriously overheats the motor.

♦ ♦ ♦

No plant is too small to require periodic inspections and servicing to drive equipment. Snch responsibility cannot be placed altogether on the operators, except possibly with high class tool and die makers who take great pride in their machines.

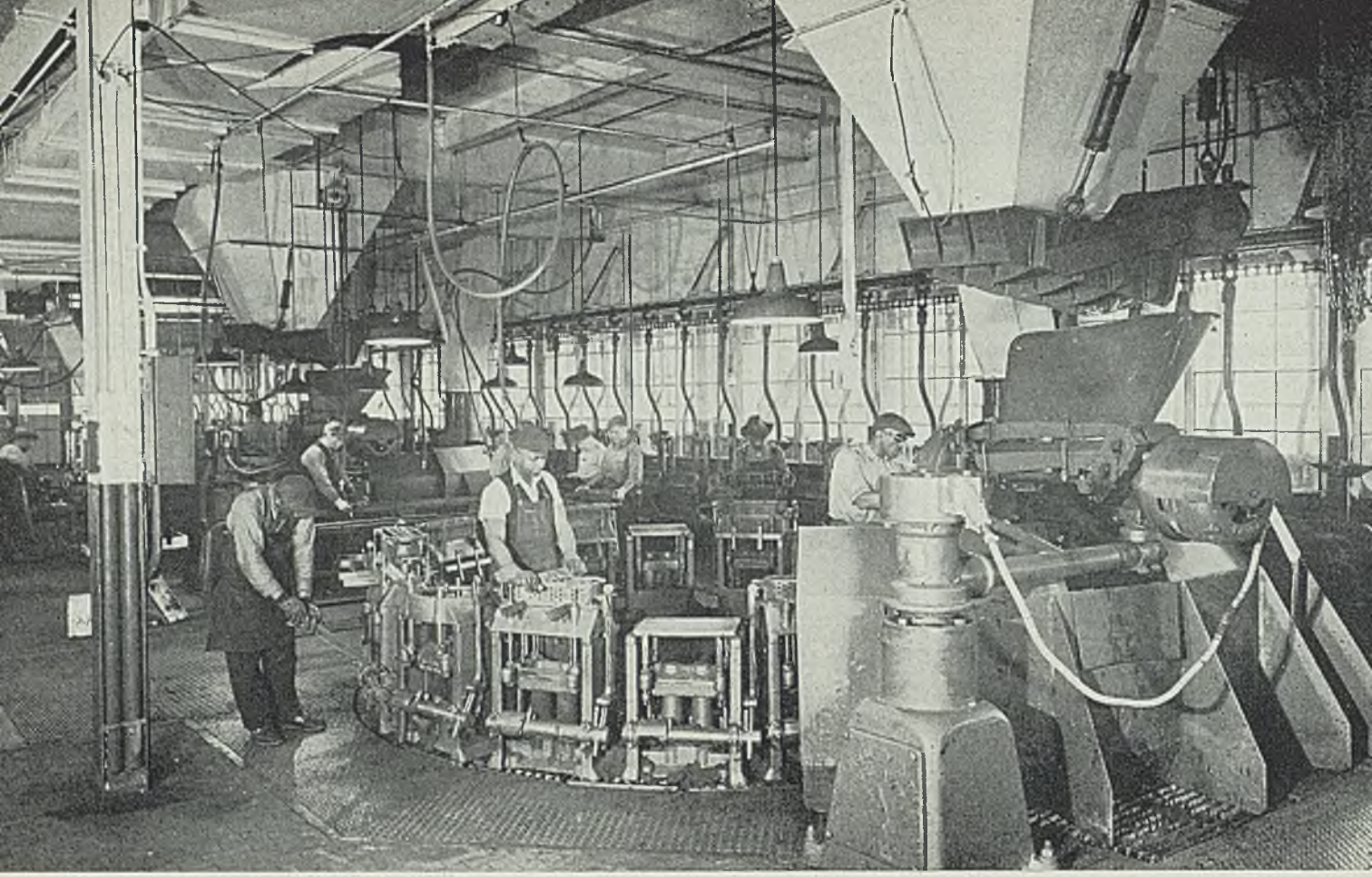


Fig. 1—General view of piston molding unit with cope machines in the foreground and pendant conveyor line at the back

Automobile Pistons Cast from Alloy Steel

BY PAT DWYER

UNDER the merciless spur of competition, standards of every phase of human activity, including all manufacturing enterprise, gradually have been raised nearer to the seemingly impossible goal of perfection. The foundry industry is no exception. Standards of excellence in castings, unknown a few years ago, now are demanded in routine production. Voluntarily or involuntarily, heads of manufacturing establishments have no option but to meet demands developed by existing conditions. Under the same conditions their engineering, laboratory and foundry staffs are spurred to meet these demands.

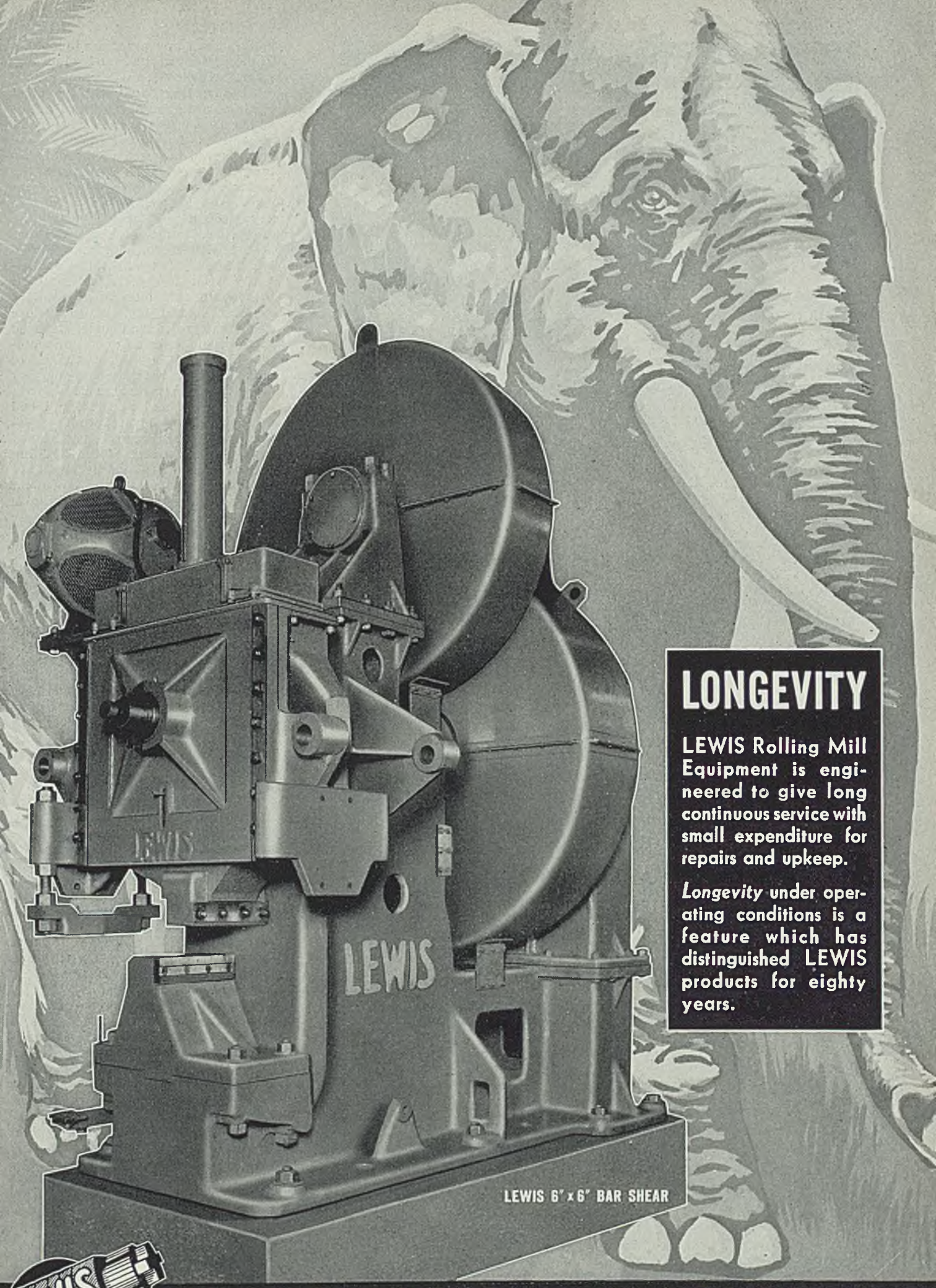
Typical of progress achieved through the pressure of competition and the constant demand for superior products, is a recent accomplishment of the Ford Motor Co., Dearborn, Mich. Following an extended period of experimentation this manufacturer of automobiles has developed and installed at the River Rouge foundry a unique and highly successful method for producing light-weight alloy steel, pistons for the Lincoln-Zephyr car.

Explore New Procedures

As with many former methods developed in this remarkable foundry, tradition and custom were viewed with proper respect, but the investigators did not alloy these factors to limit their explorations. If the desired result could not be obtained by following the broad highway, beaten down by generation after generation of foundrymen, Ford foundry experts cheerfully hopped the fences on either side of the old highway and pursued their investigations down hitherto dim and slightly explored trails and by-paths.

In many instances, to pursue the same simile, they totally ignored all the usual highway signs and warnings and plunged valiantly into an unknown wilderness. Occasionally, the detour eventually brought them back to the main road. In relatively few instances the expedition was abandoned as hopeless. In other instances, and they constitute the majority, an entirely new, shorter and highly improved road was established between two given points.

More than two years ago, the company developed a process for casting crankshafts in a vertical position in a mold made up of a number of flat sectional cores (STEEL, March 19, 1934). Casting of the V-8 cylinder block, a highly intricate casting, was simplified to a point where the entire core assembly could be placed in the green sand mold as a unit. A special alloy metal was developed for the crankshaft. Method of melting iron and pouring it into cylinder blocks more nearly approaches perpetual



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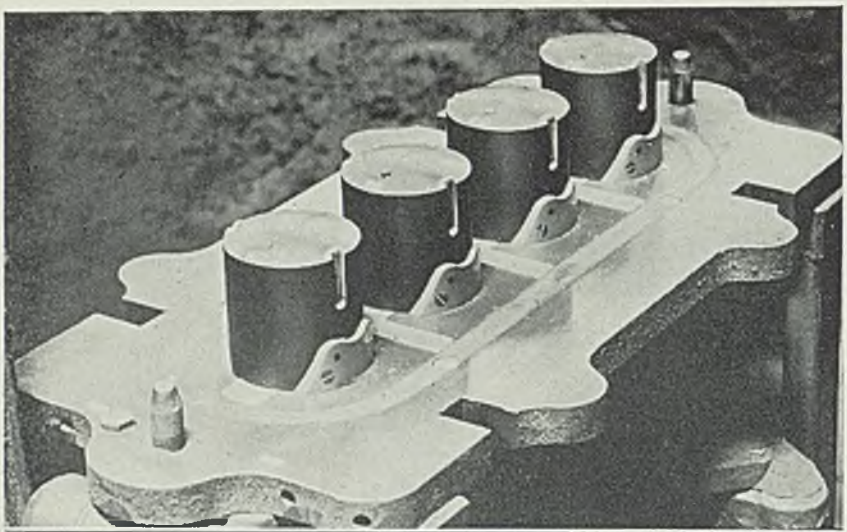
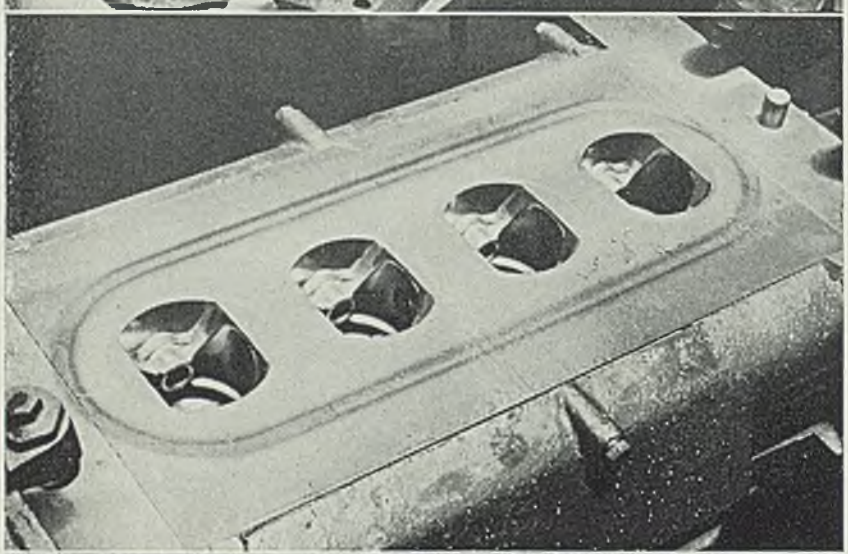
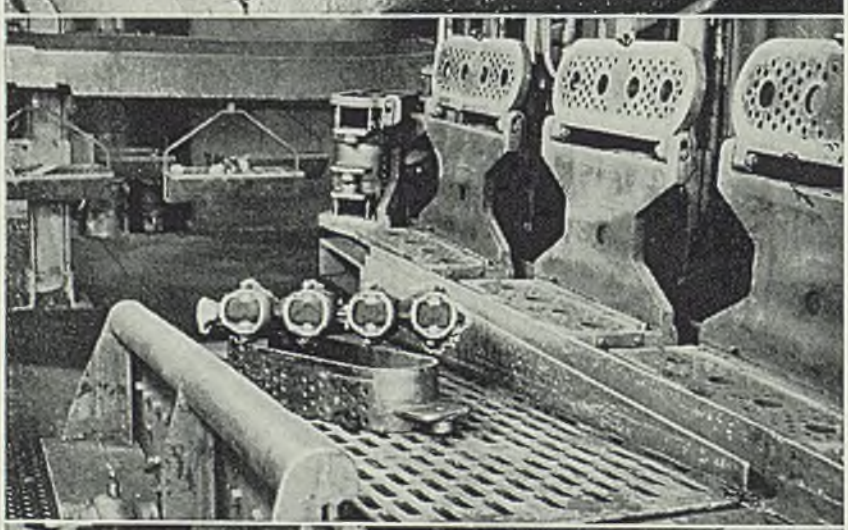
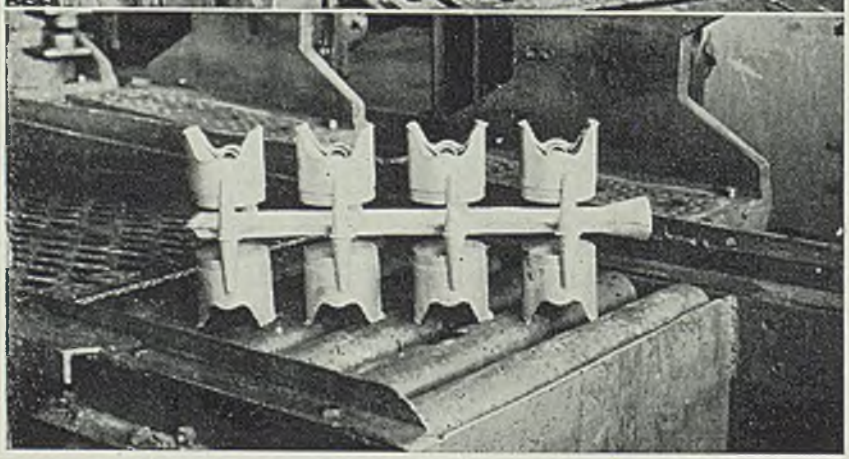








motion than any process adopted up to the present in the foundry industry (STEEL, April 13).

Pistons, light weight alloy steel castings, are poured in all green sand molds, that is the core is green sand as well as thet mold. Pistons have been poured in green sand molds before, but—and this constitutes the remarkable feature of the present process—these pistons are poured in a horizontal position, thus violating all theory, tradition and custom connected with castings of this character. Foundrymen who have not actually seen the performance, even those with only elementary foundry experience, find it hard to believe that these green sand cores, attached to the mold only at one end, maintain their position without the aid of nails, spikes, rods, arbors or any other type of reinforcement.

The department at the north end of the foundry devoted to the production of the pistons, is partitioned from the remainder of the building and is air conditioned to maintain a constant temperature. A pendent type of conveyor carries the molds outside the chamber where they are poured and shaken out. In this manner any dust or smoke incident to the latter part of the process is excluded from the room in which the molds are made.

Unit Completely Mechanized

The conveyor carries the empty flasks back to the molding stations. Sand falls through a grating on to a belt which carries it to the sand reconditioning apparatus on the second floor. The castings also are taken aloft to the second floor where they are heat treated and cleaned.

Molds for the pistons are made on two adjacent units, one for the drags and the other for the copes. Each unit is equipped with a sand slinging machine. Patterns on machines are mounted on a turntable in a manner that has become familiar in a wide variety of instances in recent years. On the molding machines the drag machines are of the rollover type, where the drags with green sand cores standing in place are lowered away from the pattern. On the cope machines the copes are lifted away from the pattern plate.

The pattern for making the combined drag and green sand cores is shown in Fig. 3. Six of these duplicate pieces of pattern equipment pass in rotation under the nozzle of the sandslinger and through the other

READING from top to bottom: Fig. 2—Cope pattern equipment; Fig. 3—Pattern for combination drag and cores; Fig. 4—Molds are assembled on the fixtures at the right and turned on end; Fig. 5—Group of castings from one mold with runner and gates in place

Methods and Materials

New York's New Tri-Borough Bridge Has Silicon Steel Battledeck Floor

WELDED battledeck floor construction is being used for the lift span units of New York's new Tri-Borough bridge spanning the Harlem river between Randall's island and Manhattan and also crossing Ward's island and Hell Gate to Queens. This new structure, being erected to speed up traffic movement between three boroughs, is said to represent the largest use of welded silicon structural steel ever recorded in bridge construction.

The flooring of the lift units, shown in the accompanying illustration, is composed entirely of ⅝-inch silicon structural steel plates covered with a 1-inch wearing surface of asphalt plank. The plates are welded together by ⅝-inch butt welds and by ¼-inch fillet welds to each flange of the longitudinal floor beams.

Nearly Mile of Welding

Approximately 3000 feet of butt welds and 1500 feet of fillet welds were required for laying the 350 feet of flooring for the Bronx lift unit, the Manhattan unit requiring somewhat less. The welding was done with high-tensile steel electrodes made by the Lincoln Electric Co., Cleveland. Many gasoline-engine driven welding machines manufactured by the same company also were used.

Specifications and procedures for the welding were worked out by the consulting engineers, Ash, Howard, Needles & Tammen, New York, in conjunction with arc welding engineers of the Lincoln company.

Welding operators were required to pass a qualifying test by producing welds having a tensile strength of 76,000 pounds per square inch and ductility of 20 per cent elongation in 2 inches in outside fibers. These requirements were exceeded; actual figures showed tensile strength of approximately 90,000 pounds per square inch and 35 per cent elongation in 2 inches.

The project comes under the Tri-Borough bridge authority of New York. The two main welding contracts, for the Bronx and Manhattan approaches, are being carried out by the Bethlehem Steel Co., Bethlehem, Pa., and Taylor-Fichter Steel Construction Co. Inc., New York. Working schedules call for opening the bridge to traffic July 1.

$ $ $

Scrap Breaking Made Safe By Simple Steel Guard

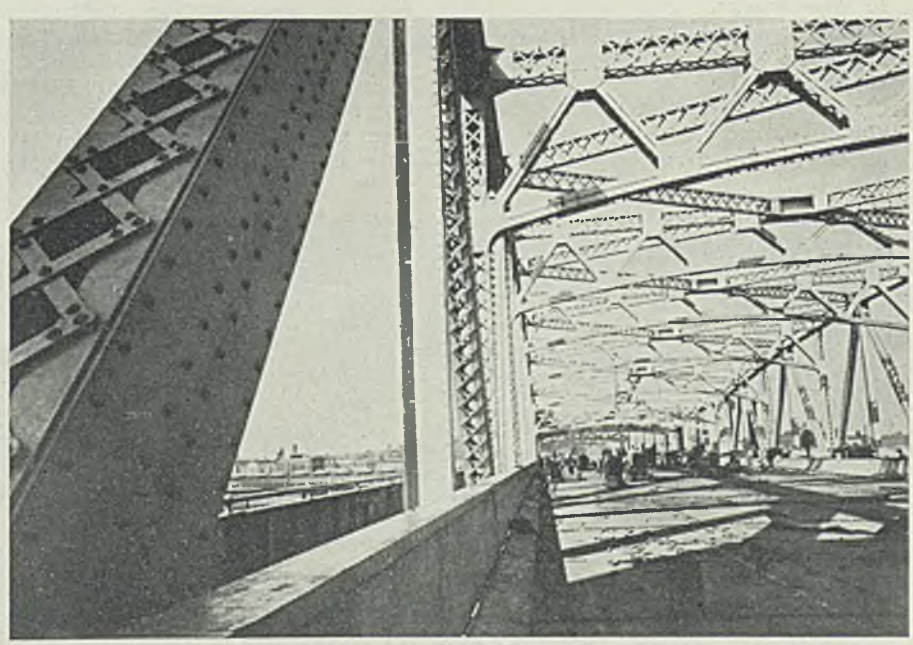
To prevent scrap from flying indiscriminately from under the drop ball, a west coast foundryman erected a light steel circular chamber approximately 10 feet in diameter, 10 feet high with a stack 2 feet in diameter extending another 10 feet above the center of the roof. Large pieces of scrap, 300 to 400 pounds, are lifted by a boom derrick and placed at the door to the chamber and then pushed to the center. The cable from which the drop ball is suspended moves through the stack under pushbutton control. At the lowest point the operator attaches the hook to the ball. At the upper limit the catch is released automatically.

$ $ $

Electric Iron Sole Plates Are Cast Horizontally

One type of sole plate for the domestic electric iron is molded horizontally and cast in a vertical position, point down. Molds are made two at a time on a squeeze-type pattern stripper machine. Each mold is rammed in a shallow metal container in such a manner that the cope face of one mold forms the drag face of another.

The molds are set up in groups of 15 on a long rack equipped with a simple locking device for each group.



Silicon structural steel plates are welded together in battledeck construction constitute the flooring for the lift span units of New York's Tri-Borough bridge now nearing completion

The pattern plate forms a long basin extending over the short vertical gates through which the metal enters the molds. The heating element tube is held in place by a small piece of cast iron bedded in the sand at the time the mold is rammed.

$ $ $

Predicts Study of Steels For Low-Temperature Use

Low temperature characteristics of plain carbon and alloy steels, have not yet received the attention that is warranted, in the opinion of one authority. Many operations such as those involved in gas separation and many chemical processes are facilitated by the use of extremely low temperatures. This authority predicts that the same thought and study which now is being given to the field of high temperatures and high pressures eventually will be given to the field of extremely low temperatures.

$ $ $

Register Weight by Wire

Remote registration of weight was transmitted a limited distance over electric wires for the first time recently and scale engineers now foresee that it is only a step to increase the distance merely by using radio as a means of transmission. Applications of the new development are expected to be numerous in operations where actual work is remote from main offices, such as in many chemical, mining, blast furnace, coke oven and steelworks operations.

Steel Plays Important Part in Construction of Texas Exposition

SIX trainloads of steel—more than 4800 tons of it—are being used in the construction of the Texas centennial exposition, which opened June 6 in Dallas, Tex. Some of the buildings are of structural steel, while others are built-up fabrications over which is thrown a shell of stucco or concrete. The travel and transportation group is the largest, containing 862 tons of structural steel.

Principal fabricators of the exposition building steel are Mosher Steel Co. and Austin Bros. Co., both of Dallas. Construction of the buildings has been rapid; the Hall of Petroleum, for example, having been built in three weeks.

Steel towers to support the antennas of two radio stations are being constructed on the exposition grounds. In the livestock buildings steel feeding troughs, stalls and other equipment are being installed. Stainless steel is used extensively in the individual exhibits as well as for interior decoration of the buildings.

Special exhibits of bearing steel are being planned by automotive manufacturers in co-operation with bearing makers. Steel from mine to motor car will be shown in the exhibit of the Ford Motor Co. Steel companies plan exhibits showing production of steel in its various stages.

Among the industrial exhibitors in the Texas centennial are: American Stove Co., Cleveland; American Telephone & Telegraph Co., New York; Bethlehem Steel Co., Bethlehem, Pa.; Champion Spark Plug Co., Toledo, O.; Chrysler Corp., Detroit; De Laval Separator Co., Chicago; Essex Wire Corp., Detroit; Ford Motor Co., Dearborn, Mich.; General Electric Co., Schenectady, N. Y.; General Motors Co., Detroit; Ingersoll-Waterbury Co., Waterbury, Conn.; International Business Machines, New York; International Harvester Co., Chicago; National Cash Register Co., Dayton, O.; Shaffer Tool Works, Broa, Calif.; Singer Sewing Machine Co., New York; Texas Co., New York; Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; and Winchester Repeating Arms Co., New Haven, Conn.

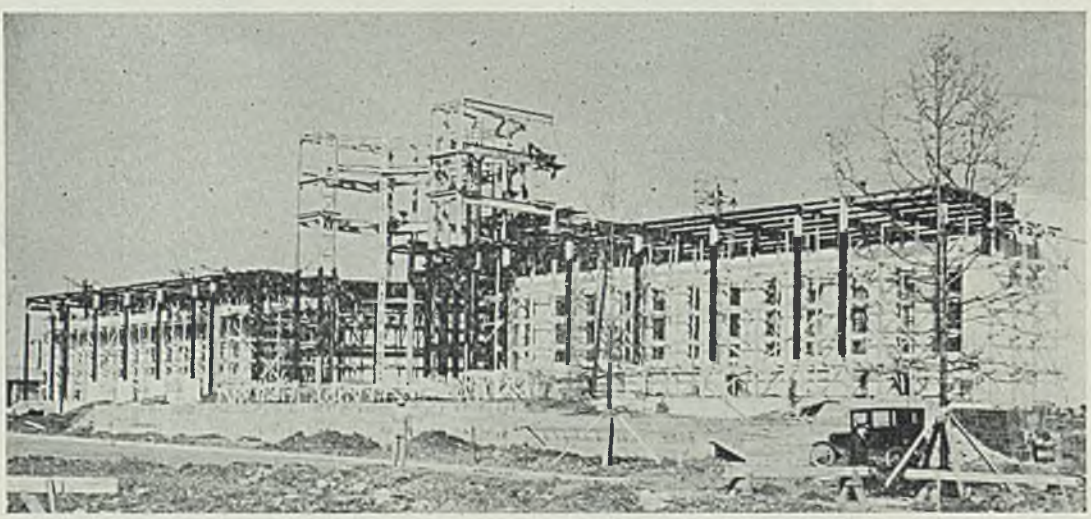
Self-Closing Fire Door Built for Large Opening

Cornell Iron Works, Long Island City, N. Y., has recently developed for large openings a self-closing vertical-lift fire door in which the operating speed is under control at all times and which can be instantly reset after an emergency closing. This door was designed for the navy department for an airplane plant, but is adapted to hangars, motion picture studios, car building shops, or any location where self-closing doors are used. It has been built to a size of 60 x 20 feet and can be built to any dimensions.

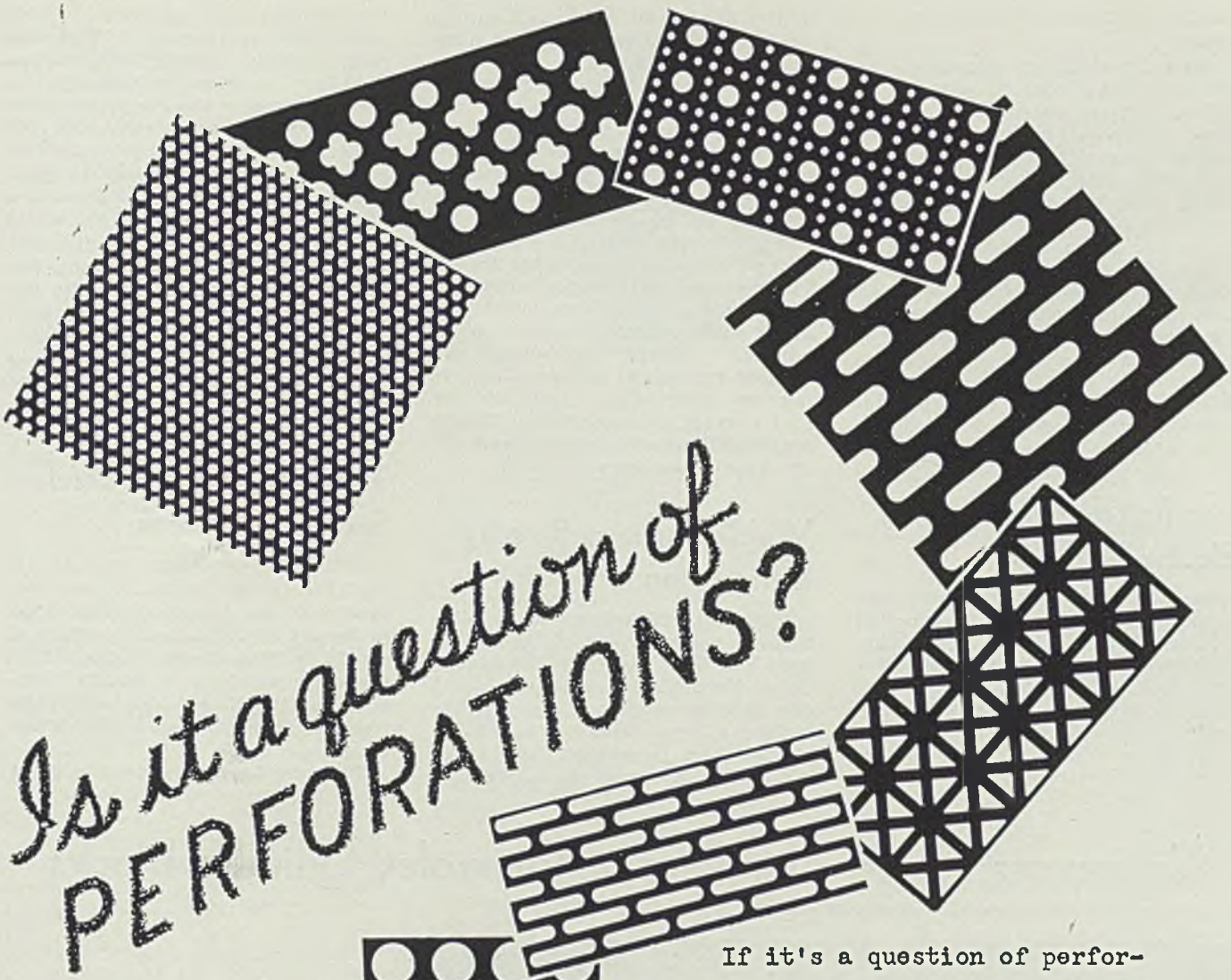
The door section may be of tin-clad wood, structural steel covered with asbestos, or any standard fireproof construction. The door is balanced by a counterweight and the guides are designed to eliminate sticking. Operator consists of oil cylinders powered by a motor driven pump with a hand pump for emergencies. A fusible link controls the emergency operation, opening the release valve when melted.

Brush Charts Simplify Motor Maintenance Service

In order to simplify the correct selection of replacement brushes for generators and motors in industrial plants, mills and commercial buildings, the Ohio Carbon Co., 12508 Berea road, Lakewood, O., has worked out a brush charting service



CONSTRUCTION view of $1,200,000 Texas Hall of State at the Texas centennial exposition. Framework is structural steel; exterior is native Texas building stone; foundations, basement floor and partitions are concrete



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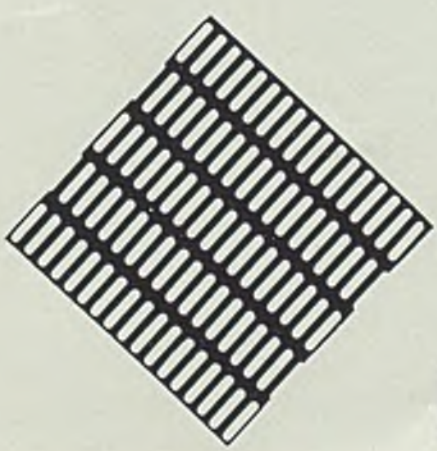

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which is available without charge on request.

On an analysis of past sales, the company found that 91 per cent of all replacement orders could be covered by about one-quarter of the grades generally considered necessary, the remaining three quarters being used for special and unusual applications. They therefore prepared a set of charts showing the wide range of uses to which these few grades were suited with the result that an ample stock of replacements can now be carried at a fraction of the former expense. The charts are so made that they can be used either in a ring binder or as separate folders in a letter-size filing drawer.

Can Rejects Minimized by Electric Solder Bath

In a continuous seam-soldering process, a practical elimination of rejects and a reduction in fuel costs have resulted from the recent electrification of one of the solder pots used by the Phillips Can Co., Cambridge, Md. The electrification consisted of a General Electric midget thermostat controlling four 3-kilowatt Calrod heating units. The pot, 60 inches long, was especially insulated for the purpose.

The uniform temperature distribution obtainable with electric heat allows a reduction of operating temperature to between 600 and 620 degrees Fahr. from the former temperature of 650 degrees Fahr., contributing to the longer life of the crucible, reduction of sludge and dross, and a reduction in radiation losses. The uniform heat distribution has almost eliminated rejects, which formerly amounted to several cans a minute. Electric heat has further reduced the cost of side-seam soldering by substantially reducing the fuel charges, it is claimed. Working conditions are improved and the fire hazard has been removed.

Welding Flanges Simplify Refrigeration Installation

Popularity of welding in installation of refrigeration piping mains has led the York Ice Machinery Corp., York, Pa., to introduce a full line of steel welding flanges. Elimination of one objection to welded piping, the necessity for using threaded connections on valves and flanged couplings, is said to result from this development. The new flanges, made entirely from forged steel, are capable of withstanding a pressure greater than any ever used in a refrigeration plant, says the maker. They are of the tongue and groove type, and are made in oval, square, or round shape in pipe sizes from ¾ to 10 inches.

The company has also designed pipe welding plugs for use as a fixture to hold flanges in line with the pipe during the welding operation. These are of copper alloy which readily diffuses the heat of the weld and does not adhere to the molten metal.

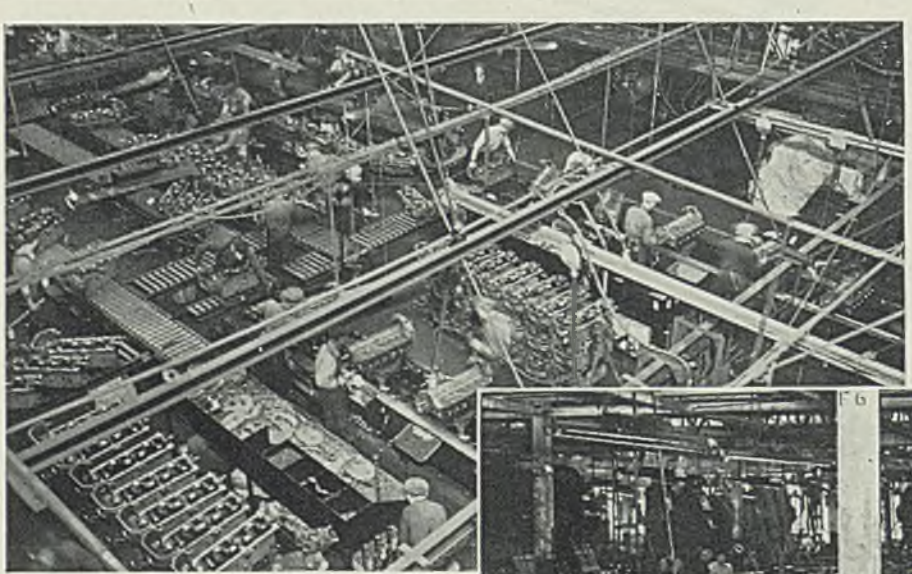
Temper Coloring of Steel Studied by Bureau

Although prevalent opinion is that the temper colors of steel depend only on the temperature, experiments at the national bureau of standards, Washington, indicate that the color obtained is greatly influenced by the time during which the material is maintained at the given temperature.

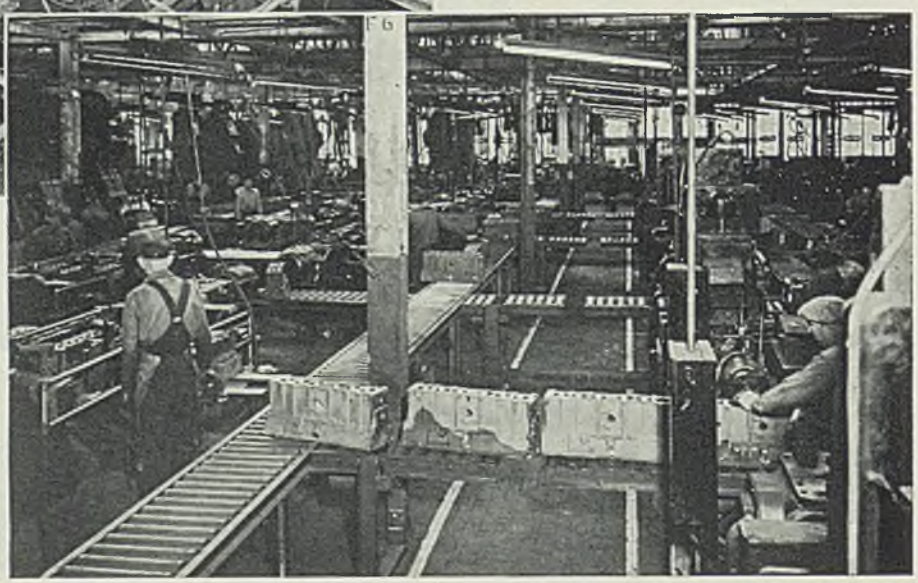
This coloring is produced by light

Conveyors Speed Handling of Chevrolet Cylinder Blocks

—Illustrations courtesy Mathews Conveyer Co., Ellwood City, Pa.



SHOWN in the illustration at the left are the subassembly conveyors and the main assembly conveyors for handling cylinder block castings in the plant of Chevrolet Motor Co., Detroit. As is clearly indicated, the conveyors are set at working height and used as work tables



THE operation of drilling galley holes in cylinder block castings is shown at the right. Conveyors are arranged to receive and deliver castings from one department to another. The sections of roller conveyor shown across the aisleway are counterbalanced and hinged so that the aisle can be cleared quickly

passing through thin films of oxides of iron formed on the surface of the steel. Yellow color is due to interference and extinction of light of relatively short wave length, and blue to interference and extinction of light of longer wave length. Blue is the color most frequently desired, and the one that requires the highest temperature.

This tempering treatment frequently has as its chief object the securing of suitable physical properties. Often, however, coloring is the chief object, not only for ornamentatior but for securing some protection against corrosion.

The relationship between time and temperature in the production of these colors is now being investi gated, and it has been found that the time and temperature required vary with the composition of the steel.

Many at Chicago Welding Meeting

WITH a registered attendance of about 1500 and with considerable interest shown in exhibits, welding demonstrations and technical sessions, the Midwest Welding conference held in Chicago, June 4-6, was acclaimed by its participants as highly successful.

The conference was sponsored by the Hollup Corp., Chicago, in co-operation with American Brass Co., American Manganese Steel Co., American Steel & Wire Co., Burdett Oxygen & Hydrogen Co., International Nickel Co., Westinghouse Electric & Mfg. Co. and *The Welding Engineer*.

About 90 per cent of the attendance consisted of practical welders, with a liberal sprinkling of engineers and executives also present. Most of the registration was drawn from the Chicago district, through such cities as Milwaukee, Minneapolis, St. Louis, Cincinnati, Cleveland and New York also were well represented. Distinction of being the attendant from the farthest point went to Henry Plass, metallurgist from Essen, Germany.

Exhibits were designed to show the latest of both equipment and practice in the welding art. Demonstrations were given each afternoon and evening at the various booths of gas, arc and thermit welding, as well as flame cutting, brazing, hard surfacing and metal spraying. A box was located in the exhibit hall for visitors to deposit written questions on welding subjects. These were answered over a public address system twice daily.

Five technical sessions included talks and discussions covering welding, cutting and brazing operations performed with various metals.

Welding, etc. . . .

by Robert E. Kinkead

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

Hard, Porous Welds

THE material blacksmiths used to call "Swede's iron" was fine metal to weld on an anvil. Arc welding electrodes 25 years ago of Swedish iron often were specified for the highest grade work, but the idea was a carryover from the blacksmith days of welding, since there was no particular merit in starting with such a high-grade metal and finishing with oxidized weld metal of low quality.

There are two properties of metal which are of great significance in considering the welding properties. There are many others of importance, but these two can never be safely overlooked. The first property has to do with the evolution of gas from the metal during the application of the welding heat cycle. If the welding heat cycle is of such short duration that such gas as is evolved cannot escape from the metal before it cools, the weld metal will be porous. The second characteristic has to do with hardening in the welding operation. If the metal, during the welding operation, is carried from cold to molten to cold in a fraction of a second, it will be hard, depending on its chemical content.

The situation is complicated by the difference in heat cycle of the various welding processes. Thus, electropercussive welding may take place in a micro-second, spot welding in 0.05-second, arc welding in 3 seconds, forge welding in 10 minutes. Determination of welding quality is reasonable and, in some cases, predictable even though it is usually complicated.

New Steel Tonnage

A NEW industry is in process of formation based on a new use for steel plate of sizes and weights many producers are already equipped to make. Large tonnages of steel are being consumed now and ten times as much will be consumed in the near future. The field is in the manufacture of machinery and equipment of welded steel plate.

When a ton of welded steel machinery is built, the welding people sell 30 to 40 pounds of welding wire and the mills 2000 pounds of steel plate. Until recently more profit was earned on the welding wire than the mill earned on the steel plate. The only way the mills can earn profits is to get enough tonnage to run at 60 to 80 per cent of capacity. The desirability of the mills getting this increased tonnage from welded steel machinery seems self evident.

* * *

AS THIS IS WRITTEN, the Republicans in Cleveland are trying to decide what to do about a Constitutional amendment to cover establishment of minimum wage rates. It has occurred to us that both parties should establish a jointly appointed committee to bring in recommendations. This would save embarrassment for all the politicians. The same committee might also bring in recommendations covering the law of gravity which has been causing a good deal of trouble in the air transportation business around Chicago and Pittsburgh recently.

* * *

A STEEL PLATE FABRICATOR in Chicago converted his business from what most plate fabricating businesses are to a very successful going concern by merely picking out about a dozen jobs and doing those jobs better than anyone else. He picked his dozen jobs in a dozen different fields so that they would not all flop on him at once.

Each one of these jobs is engineered to the point at which the fabricator does the customer a real service. The fabricator pays no attention to competitive prices; he does the job the way it ought to be done and the customers pay the right price for it. There is no patent on this way of building a successful business.

TRUE BREED

TOUGHNESS

FORGINGS *manifest it!*

Forging hammers toughness into millions of steel fibers—fibers formed and compacted by rolling and hammering (directional working) the steel.

TRUE BREED characteristics underlie toughness in forgings. Forging kneads millions of fibers of steel into tough sinews and creates many exclusive characteristics. Toughness is that quality embodied in forgings which yields but sustains unfaltering performance. Bulwarked by a generous measure of strength inherited from the forging process, forged parts never flinch but incessantly absorb shocks and endure unrelenting strains and pressures. Toughness, strength, stamina, flexibility—these qualities, imparted to your products through forgings, translate into safety and dependability. Invite the counsel of competent forging engineers.

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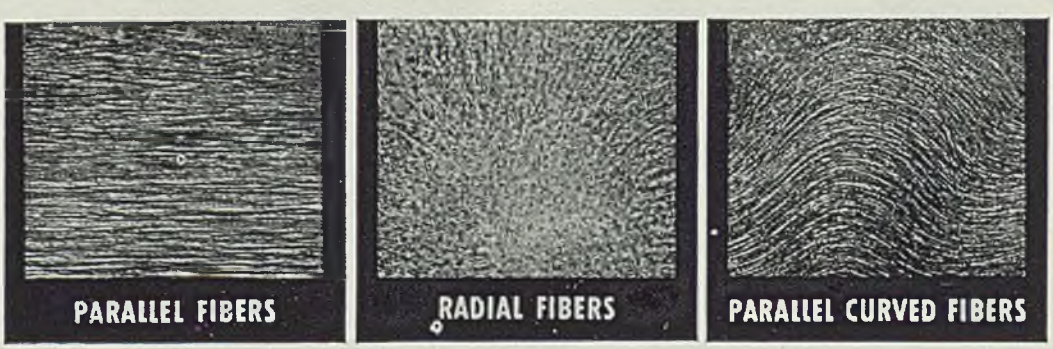
SYMBOLIC EMBLEM OF THE DROP FORGING ASSOCIATION

This identifies members of the Association



DROP FORGINGS ARE THE SINEWS OF COUNTLESS USEFUL THINGS

Progress in Steelmaking

New Switch Gaining Favor

Pistol grip master switches instead of the large master switches are gaining favor in rolling mills for operating the auxiliaries. At a strip mill in the Great Lakes district this type switch was chosen for all units and main controls of large motors with the exception of the controls serving the blooming mill. Where it was necessary to install the control stations on the mill floor, small bench board units were installed. These afford a neat appearance for the mounting of the control handles and necessary meters.

♦ ♦ ♦

Prolongs Life of Lance

Oxygen lance pipe used for opening the iron notch of a blast furnace or the tap hole of an open-hearth furnace has been found to last longer if it is protected by a hardwood tip. The tip that appears to give the best protection is 1½ inches diameter and ranges from 12 to 18 inches long. It should extend over the lance pipe for a distance of 4 to 6 inches. Contrary to expectations, the hardwood tip does not burn away rapidly but chars down to a tapered point. The charred section protects the tip from rapid combustion and the lance pipe can be used for several tappings.

♦ ♦ ♦

Provides Fine Adjustment

Many new features are combined in a recently developed microflow oil cup particularly adapted to bearings which require a continuous flow of oil in small, adjustable quantities. A resistant unit provides a fine adjustment of oil flow and assures positive operation by preventing clogging. A large opening in the discharge valve assures an unhampered flow of oil, which has been strained of foreign material through an 80-mesh screen. A grooved cylindrical plug, through which the oil must pass to reach the valve, can be adjusted to such a degree that the flow of oil can be made extremely small, yet constant.

♦ ♦ ♦

Increases Ladle Capacity

Welded steelworks ladles afford an increase in ladle capacity ranging from 5 to 10 per cent without necessitating any changes in the crane runway or cranes, according to a steelworks official, provided 2 inches of insulating concrete is used between the shell and the lining.

♦ ♦ ♦

Repairs Coated Surfaces

Tin or galvanized surfaces that have been worn, damaged or burned away by welding can be replaced by the application of a recently developed metallic coating. After the powder has been applied to the metal surface the resulting coating is claimed to be equal to that applied by the hot dipping process and to withstand all the tests to which such coatings are subjected. The product is particularly adaptable to the repair of damaged surfaces on large equipment, or wherever a repaired coating is required that either is too cumbersome or expensive to be shipped to a plant to be hot dipped, or where a galvanized pipe or railing is welded at the point of construction. The material requires no special equipment to apply and will penetrate through rust, grease or paint.

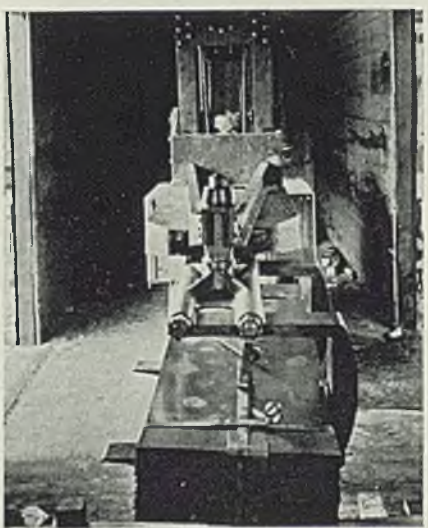
♦ ♦ ♦

Withstands Heavy Loading

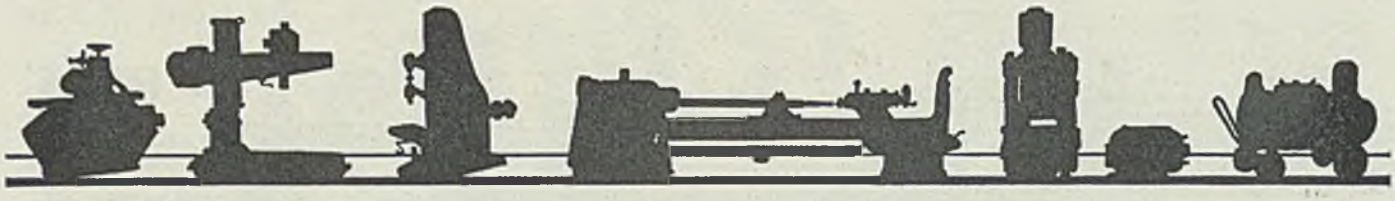
High heat conductivity is one of the characteristics of a newly marketed super-refractory of the silicon carbide type. The product is suitable for piers subject to heavy loading in high-temperature furnaces; sidewalls and arches for kiln-fired boxes; and for linings, baffles and hearth plates in small oil or gas-fired furnaces. The material is of the non-growing type.

Lift Truck Attachment Facilitates Unloading Cars of Sheets

UNLOADING bundled sheets from box cars with a reduction in the cost per ton of metal handled is greatly facilitated by the use of a recently developed swivel fork attachment. When applied to the standard 55-inch long platform of the 5-ton lift truck, this attachment can handle sheets 30 inches wide and 96 inches long in 3-ton lifts. With packs of sheets loaded crosswise in the car, the forks are slipped beneath the pack. The platform is elevated a sufficient distance to allow the pack to swing over the trailing axles and the underframe of the truck. The forks and load then are swung 90 degrees so that the bundle of sheets lies lengthwise of the truck along the centerline as shown in the accompanying illustration. In this position the bundle of sheets is carried out of the box car and into the storage room where it can be tiered to any height desired, being limited only by the lift of the truck. The swivel fork attachment is made by the Baker Industrial Truck division, Baker-Raulang Co., Cleveland.

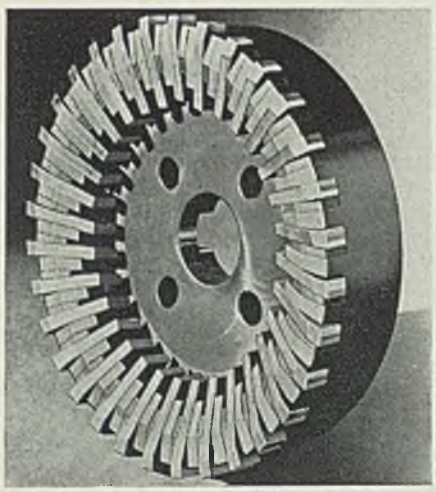


New Equipment



Face Mill Cutter Blade—

Ingersoll Milling Machine Co., Rockford, Ill., has brought out a new face milling cutter blade, known as the Ray-Blade. It is made to lay along the radial face of roughing cutters or



Ingersoll face milling cutter blade

along the conical diameter of finishing cutters. It is radially adjusted to compensate for the diametrical wear in roughing cutters, and axially adjusted in finishing cutters to take care of the wear on the face of the blade. It can be reset or renewed any amount. The blade is double tapered, locked in the housing with a compensating serrated wedge. The cutter blade is tapered along its length so that it will not push down or back from the thrust of the cut. It is further dovetail tapered along its width to prevent it from pulling out of its locating slot. Furnished in either high speed steel or stellite, the same blade may be used in either right or left hand cutters. It is designed for light cuts up to ¼-inch.

♦ ♦ ♦

De-Ion Linestarter—

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced a new series of linestarters embodying the de-ion principle of arc interruption. Designed for across-the-line starting for single phase and polyphase squirrel cage induction motors and as primary switches for wound rotor induction motors, they are especially applicable where pushbutton control is desired with complete protection to the operator, the motor and the machine. All parts are accessible from the front and are self-insulated and mounted on a steel base. Motor protection is provided by a thermostat disk overload relay. Heaters for operating the disk are interchangeable, and the relay can be arranged for either manual or automatic operation.

♦ ♦ ♦

Unit Blower—

Autovent Fan & Blower Co., 1805-1827 North Kostner avenue, Chicago, has recently brought out a new unit blower with a V-belt drive. Divorcing the motor from the blower makes for reduced cost and simplified construction, according to the maker, because with a direct-connected blower it is necessary to provide a motor wound for low speed operation. Such motors are generally not available as stock items. The new unit blowers can be equipped in all cases with standard motors operating at 1750 revolutions per minute.

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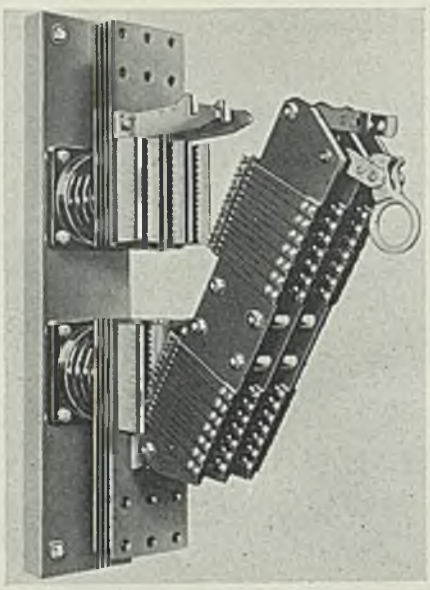
Disconnect Switch—

Schweitzer & Conrad Inc., 4435 Ravenswood avenue, Chicago, has placed on the market a new multi-contact disconnect switch of 3000 to



Schweitzer & Conrad heavy-duty disconnect switch

6000 amperes and 5000 to 23,000 volts capacities. It is intended for use in power generating stations, substations and industrial plants. Current flow is distributed over a large number of contact positions. The stationary clip members are of bus-bar copper bent in deep channels and carrying rows of silver insert contacts. Matching these silver inserts are rows of copper fingers, riveted to the switch blade and carrying silver inserts which contact those on the stationary clip members. Stainless steel compression springs between each pair of members provide high unit pressure on contact areas. The spread of the fingers when out of contact is limited to 1/32-inch. The switch is easy to operate because of this pre-load spring pressure, the small angular movement required to clear contact clips, and the pry-out mechanism, which has a ratio of 2½ to 1.

♦ ♦ ♦

Adjustable Sling Grip—

Smith Devices, 2245 North Twelfth street, Philadelphia, is marketing an

Smith adjustable sling grip operating on two different shapes

adjustable sling grip shown in the accompanying illustration for use in lifting odd shapes such as barrels, drums, large bars, heavy castings, stone and granite columns, and similar objects difficult to hook to or grip. The chain provides a quick and easy method of fastening to varying shapes, but a band can be used if definite-sized pieces are to be raised where the surface might be damaged. Yale & Towne hoists are furnished with the sling grip if desired.

♦ ♦ ♦

Diaphragm Valve Motor—

Taylor Instrument Cos., Rochester, N. Y., announce a redesigning of their entire line of diaphragm valve motors. In the new products, all-steel

"CENTRAL-IZED"

—A Good Thing To Remember When

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Are Needed

This is no idle catch-word selected because it happens to tie in with the name of this company. On the contrary "CENTRAL-IZED" means a lot to the user of Sheared and Universal Plates.

It means first of all that quality is assured through over 80 years of specialized experience. But more than that it is used to emphasize the fact that in this organization there is centralized executive control of every step from melting to delivery.

Concentrated responsibility of this sort all along the line is a big factor in customer satisfaction.

May we have the opportunity to prove this to you?

CENTRAL
Quality
PRODUCTS

SHEARED AND UNIVERSAL PLATES
FORGING BILLETS SLABS
BLUE ANNEALED SHEETS
FLANGED AND DISHED HEADS
STEEL STAMPINGS

"CENTRALLOY"
A High Tensile Alloy Steel

ROLLED STEEL FLOOR PLATES
"KNOBBY" "ALL-WAY-GRIP"

CENTRAL IRON & STEEL CO.

HARRISBURG, PA.

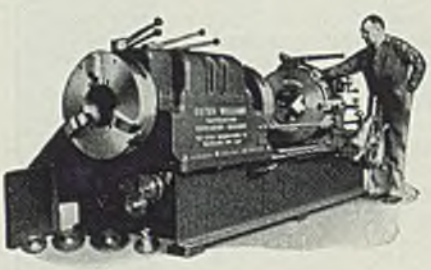
welded construction is used, resulting in greater resistance to shock and strains. A larger molded diaphragm of advanced design gives a smoother and more powerful valve motor. Formed impressions in the top plate provide freer access of air pressure to the diaphragm in starting thus insuring a greater effective initial force. All moving parts are fully enclosed yet are readily accessible through the removable side plate. All parts are specially treated to resist corrosion.

Taylor Motosteel diaphragm valve motor

• • •

Pipe Threading Machine—

Oster Mfg. Co., 2057 East Sixty-first place, Cleveland, has announced a new high-production machine, shown in an illustration herewith, for threading and bucking up work on all sizes of pipe from 2½-inch to 8⅝-inch. All shafts are oversize and are made of high-carbon heat treated steel, mounted on roller bearings. The chucks are steel body and the rear chuck is equipped with flange jaws. The clutch is of the double-action type, friction disk construction with an overload capacity of twice the 15-horsepower motor used to power the machine. The regular transmission and the two-speed clutch combine to give a variable range of speeds from 3 to 87 revolutions per minute. The spindle is of forged steel mounted on 9-inch bearings with gravity lubrication.



Oster Rapiduction pipe threading and bucking machine

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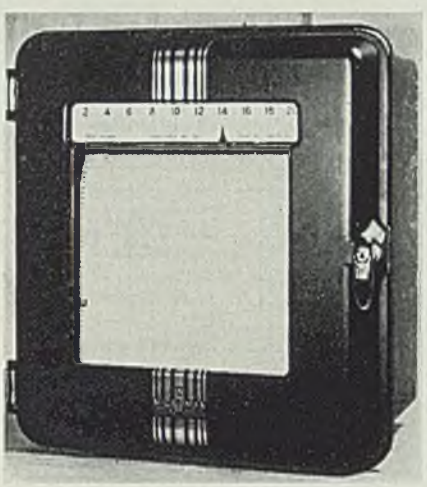
Air-Cooled Hammer—

Chicago Pneumatic Tool Co., 6 East Forty-fourth street, New York, has introduced a new line of Boyer riveting hammers which are air-cooled. These new hammers are constructed with four ducts down the sides of the cylinder through a hardened steel renewable bushing. These vents conduct the exhaust air through the cylinder with a marked cooling effect. It is claimed by the company that this cooling prevents the rivet set from losing its temper so easily, resulting in economies of time and material. The removable bushing eliminates wear on the cylinder itself and thus prolongs cylinder life.

• • •

Controller—

Leeds & Northrup Co., 4934 Stanton avenue, Philadelphia, has recently announced a new model Micromax recorder, combining in one instrument operations of recording, indicating, signaling and controlling. A scale shows the condition at the moment, while a recording scale shows the past several hours. A secondary pointer shows control setting on the controllers. Control and signal contacts operate undisturbed by air currents when the door is opened to change the chart or refill the pen, which holds a seven weeks' ink supply.



Micromax indicating, recording, and controlling instrument

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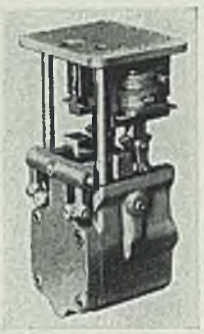
Remote Controller for Fluid Power Feeds—

Oilgear Co., 1319 West Bruce street, Milwaukee, is announcing a remote controller for fluid power feeds which consists of a combination of hydraulic and electrical mechanisms. The device may be applied to new or rebuilt machines. It responds to remote manual control or simple limit switch automatic control. Feed pump can be mounted to suit power source without additional control mechanism. The electrical mechanism may be easily concealed, and conventional controls can be used on all applications. Positive movement of control valve plunger is provided by dual solenoid operated pilot valves and a four-station control cylinder built into one unit and flanged to pump manifold. The combination controller piston and control valve plunger are fully enclosed, positions are accurately machined and the piston acts directly on control valve plunger.



Oilgear remote controller for fluid power feeds

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Hand-Chain Hoist—

Conco Engineering Works, 837 Jefferson street, Mendota, Ill., is introducing a new spur-geared hand-chain hoist. Precision ball bearings are used to minimize friction in these devices, which are built in capacities ranging from ¼-ton to 6 tons. To lift its rated capacity 1 foot, the 1½-ton hoist requires a chain overhaul of 35 feet and a pull of 100 pounds; the 3-ton hoist a 70-foot overhaul and a 101-pound pull; and the 6-ton hoist a 135.5-foot overhaul and a 117-pound pull. Each hoist is tested at 150 per cent capacity, and a guide is provided to prevent the chain from leaving the pulley as safety measures.

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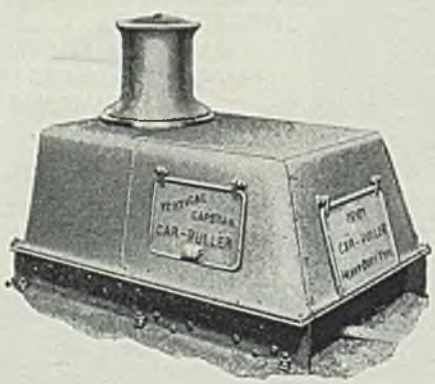
Car Puller—

Fridy Hoist & Machinery Co., Mountville, Pa., has developed a vertical capstan car puller by means of which one man can spot freight cars with a resulting saving in time and



Fridy vertical capstan car puller

labor. The four sizes of 7½, 10, 15 and 20 horsepower permit moving of cars weighing from 150 to 500 tons. Pullers are equipped with large size capstans which minimize rope slippage. All operating parts are protected from the weather and for safety by means of a cast iron housing. The units are built on a steel base which permits mounting on a concrete foundation.

♦ ♦ ♦

Pallet Lift Truck—

Yale & Towne Mfg. Co., Philadelphia division, 4530 Tacony street, Philadelphia, has recently produced a new

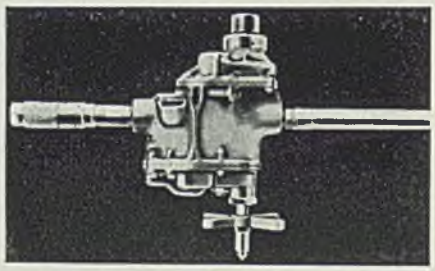
Yale pallet-type lift truck

pallet-type hand operated lift truck. Shown in the accompanying illustration, the truck has a capacity of 3500 pounds. It has been designed for use in handling loaded pallets of tinplate or similar materials. The Pul-Lift, as the truck is known, will raise the loaded pallet high enough to place it on a skid, permitting the use of conventional types of trucks in conjunction with the new type.

♦ ♦ ♦

Pneumatic Drill—

Rotor Air Tool Co., 5704 Carnegie avenue, Cleveland, has recently introduced a new rotary air drill. It is made in two models, one at 450 revo-



Rotor Air Tool pneumatic rotary drill

lutions for 29/32-inch drilling and 13/16-inch reaming, and another at 300 revolutions per minute for 1¼-inch drilling and 1-inch reaming. The motor is of the single rotor type, permitting elimination of many small parts and cutting down the weight to 22 pounds. The cylinder and gear

case are of heat treated aluminum alloy, but the gear case may be furnished in malleable iron if desired. Free speed is controlled by a multiport automatic governor, reducing the air consumption. The spindle is equipped with roller bearing, but all others are ball bearings. All gears are spur type with teeth of heavy pitch, with the exception of the final drive, which employs a helical gear.

♦ ♦ ♦

Roller Conveyor—

Eastern Corp., 420 Lexington avenue, New York, has developed a simplified type of roller conveyor, which has as an important feature the fact that it is shipped in knock-down form and can be assembled by ordinary labor. The roller axles are the only braces, and they hold the frame rigid and correctly spaced. Locking pins hold the tubular axles securely in position. The accompanying illustration shows the construction of a

Eastern roller conveyor showing knock-down construction

section of the conveyor before assembly. Spacing of the rollers depends on the product to be moved and is built to conform to the purchasers' specifications.

♦ ♦ ♦

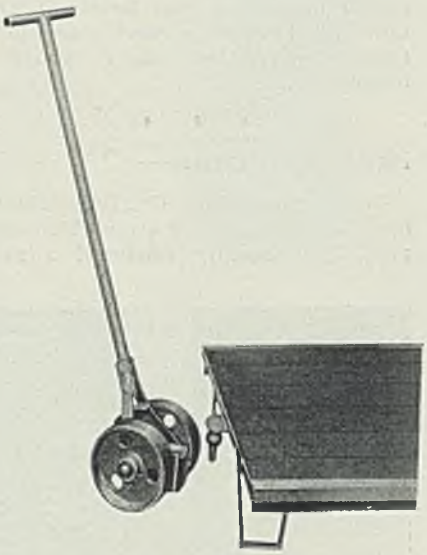
Rheostat—

Cooley Electric Furnace Co., 433 North Capitol avenue, Indianapolis, announces a new type of industrial rheostat. Frame of the new item is made of cast iron into which is mounted an annular block of refractory material. A closely wound resistance coil is embedded in this material, which is characterized by a combination of two qualities, high dielectric strength and high thermal conductivity. A metal graphite button makes contact with the coil under spring pressure, and affords virtually stepless control of the current within approximately 0.5 per cent. The rheostat is simple and rugged and has high ability to withstand overloads.

♦ ♦ ♦

Lift-Jack—

All Steel Welded Truck Corp., Rockford, Ill., is introducing a new line of equipment for handling materials, known as the Clark lift-jack and platform equipment. It differs from the ordinary truck and skid installations in that the rear wheels are attached to the skid and the front unit, known as the lift-jack, is a small unit which



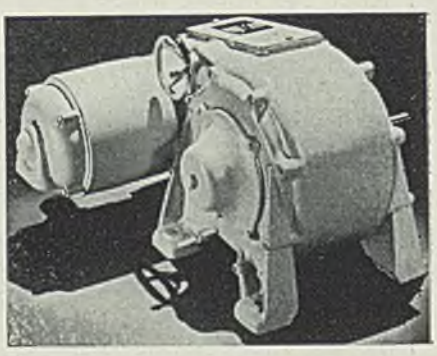
Clark lift-jack and platform

is easily handled. As shown in the illustration, the jack connects to a pivot in the front of the skid and raises the load, locking it in position. The truck weighs 42 pounds, and is equipped with two wide-face semisteel wheels on roller bearings. The handle is of tubular steel, and exerts a lifting force of 6000 pounds with a 76-pound pressure of the operator. Platforms are of welded steel construction, either of combination steel and wood or all steel.

♦ ♦ ♦

Controlled Speed Motor—

Sterling Electric Motors, Telegraph road at Atlantic boulevard, Los Angeles, is announcing the new Speed-Trol motors. Available in ratings from



Sterling controlled-speed motor

¼ to 15 horsepower, these units provide infinite variable speed from 2:1 to 6:1. Illustrated here is a 5-horsepower unit. The new motors have been redesigned for compactness and simplification, according to the makers, and are composed of fewer parts.

All parts are fully enclosed, and are so arranged that by means of universal mounting features they may be assembled in any one of several positions best suited to the application. All mountings are on ball bearings, shafts are of heat treated alloy steel and pulleys of nickel iron. Indicators are plainly visible, and handwheel controls may be mounted at any one of four convenient positions. Units are available equipped with all types of remote or automatic control.

Automobile Pistons Are Cast from Alloy Steel

(*Concluded from Page* 53)

average molder unhesitatingly would declare it outside the scope of practical accomplishment. A daring, experimentally minded molder cautiously might admit that the feat was remotely possible, but he would not care to be quoted in such a radical view.

In the Ford foundry thousands of pistons are molded and cast in this manner every day and it is claimed that the casting loss from all causes does not exceed 2 per cent.

A short distance from the assembling point the molds enter the pouring zone. Metal is melted in a battery of four electric furnaces. The metal is conveyed to the vicinity of the pouring zone in 1000-pound capacity ladles suspended from a monorail. Here it is transferred to hand ladles and poured into the molds each containing eight pistons.

The metal is a special alloy steel conforming to the following analysis: Carbon, 1.35-1.70; silicon, 0.90-1.30; sulphur, 0.08 maximum; phosphorus, 0.10 maximum; manganese, 0.60-1.00; copper, 2.50-3.00; chromium, 0.15-0.20 per cent. In the as-cast condition the castings are hard and brittle. After a suitable heat treatment the castings are readily machinable and show a brinell hardness number of 207 to 241.

Castings are heat treated in a gas-fired furnace 81 feet 5 inches in length outside, 65 feet ¾-inch inside and the moving mechanism is geared to carry the castings through from elevator to elevator in a period of 5½ hours. In the first hour they are raised to a temperature of 1650 degrees Fahr., and held at that temperature for ½ hour. In the succeeding half hour they are lowered to a temperature of 1100 degrees Fahr. and during the following hour are raised again to 1400 degrees. They are held at this temperature for 1 hour and during the following 1½ hours are lowered to 1000 degrees. They are removed from the furnace at a temperature between 700 and 800 degrees.

For heat treatment the castings are loaded on double-deck trays 31 x 34 inches with 200 castings on each tray. The furnace has a capacity of 28 trays, or a total of 5600 castings, approximately 1000 castings per hour.

New Trade Publications

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

Grinder—Chicago Wheel & Mfg. Co., 1101 West Monroe street, Chicago. Catalog F-830 on Handee grinding tools, with illustrations of varied uses.

Motors—Reliance Electric & Engineering Co., Ivanhoe road, Cleveland. Bulletins 215 and 216 on heavy duty motors for direct current.

Vises—Hollands Mfg. Co., Erie, Pa. Catalog No. 36, on its line of vises and tools, with illustrations and price lists.

Furnaces — Surface Combustion Corp., Toledo, O. Bulletin S C No. 73 on controlled atmosphere furnaces for bright annealing; illustrations and description of operation.

Thread Cutting—Landis Machine Co., Waynesboro, Pa. A bulletin on

its thread cutting equipment, containing data on actual results obtained by some of its customers.

Valve—Hancock Valve division, Consolidated Ashcroft Hancock Co. Inc., Bridgeport, Conn. A bulletin on its forged steel valves for steam pressures up to 1500 pounds, with distinctive features described.

Valve—W. H. Nicholson & Co., Wilkes-Barre, Pa. Bulletin No. 236 on its 2, 3 and 4-way types of balanced flat disc design valves for oil or water service up to 5000 pound pressure.

Flanged Spindle—Monarch Machine Tool Co., Sidney, O. A catalog insert on its cam-lock flanged spindle nose as optional equipment for engine and toolroom lathes from 12 to 18 inches; illustrated.

Dust Collection—Claude B. Schneible Co., Chicago. Catalog No. 10 illustrating and describing the wet system of dust and fume collection, showing recent installations in a variety of industrial plants.

Welding and Cutting—Linde Air Products Co., 205 East Forty-second street, New York. A booklet on the welding and cutting of high chromium steels, with relation to the use of Linde equipment for fabrication.

Iron Pipe—Republic Steel Corp., Cleveland. Fourth edition of "Toncan Iron Pipe for Permanence," 64 pages, illustrated with test charts and tables; new sections deal with threading, air conditioning, industrial maintenance and process uses.

Refractories—Babcock & Wilcox Co., 85 Liberty street, New York. A bulletin, No. R-1-D, on refractory mortars and plastics, with illustrations and a reference table to indicate proper mortar or plastic for various classes of work.

Conveyors—Stephens-Adamson Mfg. Co., Aurora, Ill. A catalog describing the Redler conveyor-elevator for handling coal, dry chemicals and similar bulk materials; drawings and diagrams illustrate the unique principle on which this mechanism works.

Boilers—Babcock & Wilcox Co., 85 Liberty street, New York. Bulletin G-17-A on its integral-furnace boiler, a completely co-ordinated steam-boiler unit adaptable to power plants of moderate capacity; illustrated to show construction and operation.

Magnetic Separators—Dings Magnetic Separator Co., Milwaukee. Catalog No. 25 on its line of magnetic pulleys and pulley type separators, with data and details; additional descriptions of magnetic separators of other designs; illustrated.

Standard Steel Buildings—Truscon Steel Co., Youngstown, O. A leaflet describing methods of FHA financing through the equipment acceptance corporation; this company has made its complete line of standard steel buildings available for this plan of financing.

Pumps—Worthington Pump & Machinery Corp., Harrison, N. J. Bulletin W-320-B2, two-stage volute centrifugal fire pumps, underwriter approved; W-321-B6A, monobloc condensate return units with centrifugal pumps; W-323-B3A, self-priming centrifugal monobloc pumping units.

Drop Forgings—J. H. Williams & Co., 420 Vulcan street, Buffalo. A standard lettersize filing folder containing a table of weights of metals, die draft equivalents and practical data and explanation of accepted drop-forging practice; of value to draughtsmen and designers.

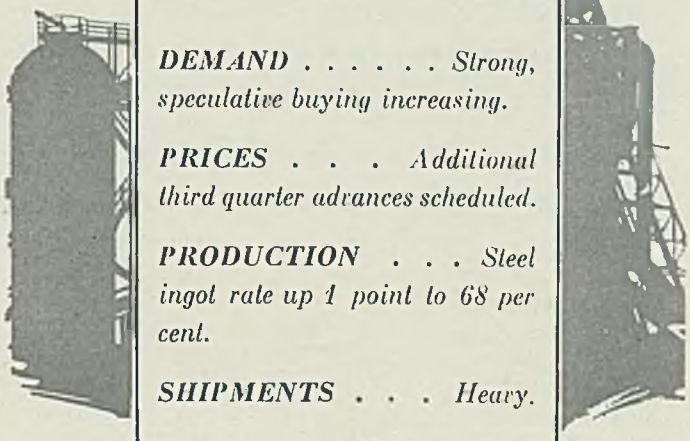
Electric Input Control—Leeds & Northrup Co., 4934 Stenton avenue, Philadelphia. Catalog N-00 A, describing a new control system for regulating input in proportion to demand; of three integral parts, Micromax control instrument, relay detector and valve mechanism.

Welded Tubing—Steel & Tubes Inc., 224 East 131st street, Cleveland. A handbook of weld tubing, containing information to give users thorough knowledge of applications of welded steel tubing, its physical, chemical and metallurgical properties, commercial tolerance limitations and also extensive engineering data.

Absorptiometer—Adam Hilger Ltd., 98 Kings road, Camden road, London, N.W.1., England. A booklet, No. 244, describing the Spekker photoelectric absorptiometer, an objective "colorimeter" for use in chemical analysis; has no batteries, readings are independent of fluctuations in the main supply and can be taken with as little as 7 cubic centimeters of liquid.

Diversity In Demand Buoys Steel Market

Current Needs Are Strongest Factor; Rate Climbs to 68



MARKET IN TABLOID

DEMAND . . . . . *Strong, speculative buying increasing.*

PRICES . . . *Additional third quarter advances scheduled.*

PRODUCTION . . . *Steel ingot rate up 1 point to 68 per cent.*

SHIPMENTS . . . *Heavy.*

STRONG demand for steel for immediate consumption, combined with an increasing amount of speculative buying against third quarter price increases, raised steelworks operations last week 1 point to 68 per cent.

While new prices become generally effective July 1, it is indicated some orders now being taken will require an extension of shipments beyond July 1. An inclination on the part of some producers to book orders at current prices to the end of June, has become apparent. This would result in shipments being made at second quarter prices for some time in July. On tonnages for specific construction jobs, price protections are being extended for only 30 days instead of the 60 days formerly granted.

Price increases of $2 a ton in railroad tie plates and $3 a ton on track spikes and bolts were announced last week, effective Aug. 1.

Automobile production in the week declined only about 1400 units to 100,415. Some of the manufacturers continue to place moderate size orders for current models. Chrysler is reported to have purchased 25,000 tons of material for axles for its 1937 series and indicates that it will buy 200,000 tons before July 1. Apparently this is one of the few large automobile orders being placed in advance of price increases.

In preparation for the new models, many orders are being booked for machine tools, hand tools and dies, and Detroit reports the greatest activity in this market in six years.

Structural shape awards were up slightly to 18,215 tons. Unusual activity is noted in the demand for plain structural material. Four pipe line projects are up for figures, requiring 25,000 tons of plates. Los Angeles will open bids June 17 on 13,000 tons of cast iron pipe and has awarded pipe contracts requiring 9280 tons of plates. Seven thousand tons of cast pipe has been booked for Cicero, Ill. Bids on 2000 to 3000 tons of shapes for the Port Huron, Mich.-Sarnia, Ont., bridge will be taken soon.

Socony-Vacuum Oil Co., through its subsidiary White Eagle Oil Co., is understood to have placed an order for 8000 tons of pipe with a Pittsburgh fabricator.

American Car & Foundry Co. is preparing to build 2000 tank cars, requiring about 40,000 tons of steel, for rental purposes. Wheeling & Lake Erie is expected to be in the market soon for 250 to 1000 hopper cars. In all, orders for about 5000 freight cars may be placed over the remainder of this month to obtain protection on current prices of materials.

Tin plate producers experienced their fifth consecutive week at 100 per cent operation, with deliveries from some mills deferred six weeks to two months. The tonnage of merchant and manufacturing wire products continues steady even though no price increases in this line are scheduled for July 1.

Pig iron shipments so far this month have held nearly equal to those in the comparable period in May, with producers confident of continued improvement. Contracting for the third quarter so far is more than twice as heavy as in the corresponding period approaching the second quarter.

Ingot production in the Pittsburgh district set a new 1936 high last week, rising 3 points to 65 per cent. Detroit was up 12 to 100; New England 8 to 78; eastern Pennsylvania 1½ to 44½; while Chicago dropped 1 to 69, and Youngstown 1 to 76. Others were unchanged.

Scrap prices continued to decline, falling 33 cents and reducing STEEL's scrap composite to $12.47, lowest since the early part of September, 1935. This forced the iron and steel composite down 4 cents to $32.77. The finished price index remains at $52.20.

COMPOSITE MARKET AVERAGES

	June 13	June 6	May 30	One Month Ago May, 1936	Three Months Ago March, 1936	One Year Ago June, 1935	Five Years Ago June, 1931
Iron and Steel	$32.77	$32.81	$32.83	$32.92	$33.20	$32.42	$30.82
Finished Steel	52.20	52.20	52.20	52.20	52.32	54.00	48.60
Steelworks Scrap	12.47	12.79	13.04	13.40	14.48	10.45	8.84

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

A COMPARISON OF PRICES

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

Finished Material

	June 13, 1936	May 1936	March 1936	June 1935
Steel bars, Pittsburgh	1.85c	1.85c	1.85c	1.80c
Steel bars, Chicago	1.90	1.90	1.90	1.85
Steel bars, Philadelphia	2.16	2.16	2.16	2.11
Iron bars, Terre Haute, Ind.	1.75	1.75	1.75	1.75
Shapes, Pittsburgh	1.80	1.80	1.80	1.80
Shapes, Philadelphia	2.01½	2.01½	2.01½	2.01½
Shapes, Chicago	1.85	1.85	1.85	1.85
Tank plates, Pittsburgh	1.80	1.80	1.80	1.80
Tank plates, Philadelphia	2.00	1.99	1.99	1.99
Tank plates, Chicago	1.85	1.85	1.85	1.85
Sheets, No. 10, hot rolled, Pitts.	1.85	1.85	1.85	1.85
Sheets, No. 24, hot ann., Pitts.	2.40	2.40	2.40	2.40
Sheets, No. 24, galv., Pitts.	3.10	3.10	3.10	3.10
Sheets, No. 10, hot rolled, Gary	1.95	1.95	1.95	1.95
Sheets, No. 24, hot anneal., Gary	2.50	2.50	2.50	2.50
Sheets, No. 24, galvan., Gary	3.20	3.20	3.20	3.20
Plain wire, Pittsburgh	2.40	2.40	2.30	2.30
Tin plate, per base box, Pitts.	5.25	5.25	5.25	5.25
Wire nails, Pitts.	2.10	2.10	2.15	2.60

Semifinished Material

Sheet bars, open-hearth, Youngs.	$28.00	$28.00	$28.50	$28.00
Sheet bars, open-hearth, Pitts.	28.00	28.00	28.50	28.00
Billets, open-hearth, Pittsburgh	28.00	28.00	28.40	27.00
Wire rods, Pittsburgh	38.00	40.00	40.00	38.00

Pig Iron

	June 13, 1936	May 1936	March 1936	June 1935
Bessemer, del. Pittsburgh	$20.8132	20.8132	20.8132	19.81
Basic, Valley	19.00	19.00	19.00	18.00
Basic, eastern del. East. Pa.	20.8132	20.8132	20.8132	19.81
No. 2 fdy., del. Pittsburgh	20.3132	20.3132	20.3132	19.31
No. 2 fdy., Chicago	19.50	19.50	19.50	18.50
Southern No. 2, Birmingham	15.50	15.50	15.50	14.50
Southern No. 2, del. Cincinnati	20.2007	20.2007	20.2007	19.38
No. 2X eastern, del. Phila.	21.6882	21.6882	21.6882	20.68
Malleable, Valley	19.50	19.50	19.50	18.50
Malleable, Chicago	19.50	19.50	19.50	18.50
Lake Sup., charcoal, del. Chicago	25.2528	25.2528	25.2528	24.25
Ferromanganese, del. Pitts.	80.13	80.13	80.13	90.13
Gray forge, del. Pittsburgh	19.6741	19.6741	19.6741	18.67

Scrap

Heavy melting steel, Pittsburgh	$13.50	$14.75	$15.75	$12.25
Heavy melt. steel, No. 2, east Pa.	10.75	11.71	12.55	9.30
Heavy melting steel, Chicago	12.75	13.05	14.75	10.25
Rail for rolling, Chicago	14.00	14.65	15.75	11.25
Railroad steel specialties, Chicago	14.25	14.65	16.25	11.75

Coke

Connellsville, furnace, ovens	$3.50	$3.50	$3.50	$3.50
Connellsville, foundry, ovens	4.25	4.25	4.10	4.60
Chicago, by-product foundry, del.	9.75	9.75	9.75	9.25

Steel, Iron, Raw Material, Fuel and Metals Prices

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

Sheet Steel

Prices Subject to Quantity Extras and Deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

Pittsburgh	1.85c
Gary	1.95c
Chicago, delivered	1.98c
Detroit, del.	2.05c
New York, del.	2.20c
Philadelphia, del.	2.16c
Birmingham	2.00c
St. Louis, del.	2.18c
Pacific ports, f.o.b. cars, dock	2.40c

Hot Rolled Annealed No. 24

Pittsburgh	2.40c
Gary	2.50c
Chicago, delivered	2.53c
Detroit, delivered	2.60c
New York, del.	2.75c
Philadelphia, del.	2.71c
Birmingham	2.55c
St. Louis, del.	2.72c
Pacific ports, f.o.b. cars, dock	3.05c

Galvanized No. 24

Pittsburgh	3.10c
Gary	3.20c
Chicago, delivered	3.23c
Philadelphia, del.	3.41c
New York, del.	3.45c
Birmingham	3.25c
St. Louis, del.	3.43c
Pacific ports, f.o.b. cars, dock	3.70c

Tin Mill Black No. 28

Pittsburgh	2.75c
Gary	2.85c
St. Louis, delivered	3.08c

Cold Rolled No. 10

Pittsburgh	2.50c
Gary	2.60c
Detroit, delivered	2.70c
Philadelphia, del.	2.81c
New York, del.	2.85c
Pacific ports, f.o.b. cars, dock	3.10c

Cold Rolled No. 20

Pittsburgh	2.95c
Gary	3.05c
Detroit, delivered	3.15c
Philadelphia, del.	3.26c
New York, del.	3.30c

Enameling Sheets

Pittsburgh, No. 10	2.35c
Pittsburgh, No. 20	2.95c
Gary, No. 10	2.45c
Gary, No. 20	3.05c

Tin and Terne Plate

Gary base, 10 cents higher.

Tin plate, coke base (box) Pittsburgh	$5.25
Do., waste-waste	2.75c
Do., strips	2.50c
Long ternes, No. 24 unassorted, Pitts.	3.40c
Do., Gary	3.50c

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

	No. 302	No. 304
Bars	23.00	24.00
Plates	26.00	28.00
Sheets	33.00	35.00
Hot strip	20.75	22.75
Cold strip	27.00	29.00

Straight Chromes

	No. 410	No. 430	No. 442	No. 446
Bars	17.00	18.50	21.00	26.00
Plates	20.00	21.50	24.00	29.00
Sheets	25.00	28.00	31.00	35.00
Hot strip	15.75	16.75	21.75	26.75
Cold stp	20.50	22.00	27.00	35.00

Steel Plates

Pittsburgh	1.80c
New York, del.	2.09c
Philadelphia, del.	1.99c
Boston, delivered	2.22c
Buffalo, delivered	2.05c
Chicago or Gary	1.85c
Cleveland, del.	1.99½c
Birmingham	1.95c
Coatesville, base	1.90c
Sparrows Pt., base	1.90c
Pacific ports, f.o.b. cars, dock	2.35c
St. Louis, delivered	2.08c

Structural Shapes

Pittsburgh	1.80c
Philadelphia, del.	2.01½c
New York, del.	2.06½
Boston, delivered	2.20½c
Bethlehem	1.90c
Chicago	1.85c
Cleveland, del.	2.00c
Buffalo	1.90c
Gulf Ports	2.20c
Birmingham	1.95c
Pacific ports, f.o.b. cars, dock	2.35c

Bars

Soft Steel

(Base, 3 to 25 tons)

Pittsburgh	1.85c
Chicago or Gary	1.90c
Duluth	2.00c
Birmingham	2.00c
Cleveland	1.90c
Buffalo	1.95c
Detroit, delivered	2.00c
Pacific ports, f.o.b. cars, dock	2.40c
Philadelphia, del.	2.16c
Boston, delivered	2.27c
New York, del.	2.20c
Pitts., forg. qual.	2.10c

Rail Steel

To Manufacturing Trade

Pittsburgh	1.70c
Chicago or Gary	1.75c
Moline, Ill.	1.75c
Cleveland	1.75c
Buffalo	1.80c

Iron

Troy, N. Y.	1.70c
Terre Haute, Ind.	1.75c
Chicago	1.80c
Philadelphia	2.06c
Pittsburgh, refined	2.75-7.50c

Reinforcing

New billet, straight lengths, quoted by distributors.

Pittsburgh	1.95c-2.05c
Chicago, Gary, Buffalo, Cleve., Birm., Young.	2.10c
Gulf ports	2.45c
Pacific coast ports f.o.b. car docks	2.45c
Philadelphia, del.	2.26c-2.36c

Rail steel, straight lengths, quoted by distributors

Pittsburgh	1.90c
Chicago, Buffalo, Cleveland, Birm., Young.	1.95c
Gulf ports	2.30c

Wire Products

(Prices apply to straight or mixed carloads; less carloads $1 higher; less carloads fencing $5 over base column.)

Base Pitts.-Cleve. 100 lb. keg.

Stand. wire nails	2.10c
Cement c't'd nails	2.10c
Galv. nails, 15 gage and finer	4.10c
16. finer than 15 ga.	4.60c

(Per pound)

Polished staples	2.80c
Galv. fence staples	3.05c
Barbed wire, galv.	2.60c
Annealed fence wire	2.65c
Galv. fence wire	3.00c
Woven wire fencing (base column, c.l.)	$58.00

To Manufacturing Trade

Plain wire, 6-9 ga. 2.40c

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

Spring wire, Pitts. or Cleveland 3.05c

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

Cold-Finished Carbon Bars and Shafting

Base, Pitts., one size, shape, grade, shipment at one time to one destination

10,000 to 19,999 lbs.	2.10c
20,000 to 59,999 lbs.	2.05c
60,000 to 99,999 lbs.	2.00c
100,000 lbs. and over	1.97½c

Gary, Ind., Cleve., Chi., up 5c Buffalo, up 10c; Detroit, up 20c; eastern Michigan, up 25c

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons.*)

Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem 2.45c

Alloy	Diff.	Alloy	Diff.
S.A.E.		S.A.E.	
2000	0.25	3100	0.55
2100	0.55	3200	1.35
2300	1.50	3300	3.80
2500	2.25	3400	3.20

4100 0.15 to 0.25 Mo. 0.50
4600 0.20 to 0.30 Mo. 1.25-1.75 Ni 1.05
5100 0.80-1.10 Cr 0.45
5100 Cr. spring base
6100 bars 1.20
6100 spring 0.70
Cr., Ni., Van. 1.50
Carbon Van. 0.95
9200 spring flats base
9200 spring rounds, squares 0.25

Piling

Pittsburgh	2.15c
Chicago, Buffalo	2.25c

Strip and Hoops

(Base, hot rolled, 25-1 ton)
(Base, cold-rolled, 25-3 tons)

Hot strip to 23/8-in. Pittsburgh	1.85c
Chicago or Gary	1.95c
Birmingham base	2.00c
Detroit, del.	2.05c
Philadelphia, del.	2.16c
New York, del.	2.20c
Cooperage hoop, Pittsburgh	1.95c
Chicago	2.05c
Cold strip, 0.50 carbon and under, Pitts., Cleveland	2.60c
Detroit, del.	2.81c
Worcester, Mass.	2.80c

Carbon	Cleve.-Pitts.	Worcester, Mass.
0.25—0.50	2.60c	2.80c
0.51—0.75	3.45c	3.65c
0.76—1.00	4.95c	5.15c
Over 1.00	6.50c	6.70c

Rails, Track Material

(Gross Tons)

Standard rails, mill	$36.37½
Relay rails, Pitts. 20—100 lbs.	25.50-28.00
Light rails, billet qual. Pitts., Chi.	$35.00
Do., reroll, qual.	34.00
Angle bars, billet, Gary, Ind., So. Chi.	2.55c
Do., axle steel	2.10c
Spikes, R. R. base	2.60c
Track bolts, base	3.60c
Tie plates, base	1.90c

Base, light rails 25 to 40 lbs.; 50 to 60 lbs. inclusive up $2; 16 and 20 lbs., up $1; 12 lbs. up $2; 8 and 10 lbs., up $5. 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	70-10-5 off
Do. larger	70-10 off
Tire bolts	55 off

Plow Bolts

All sizes	70-10 off

Stove Bolts

In packages with nuts attached 75 off; in packages with nuts separate 75-5 off; in bulk 82½ off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts	65-5 off
Elevator bolts	65-5 off

Nuts

S. A. E. semifinished hex.; ½ to 7/8-inch	60-20-15 off
Do., ½ to 1-inch	60-20-15 off
Do., over 1-inch	60-20-15 off

Hexagon Cap Screws

Milled	80-10-10 off
Upset, 1-in., smaller	85 off

Square Head Set Screws

Upset, 1-in., smaller	75-10 off
Headless set screws	75 off

Rivets, Wrought Washers

Struc., c. l., Pittsburgh, Cleveland	2.90c
Struc., c. l., Chicago	3.00c
7/8-in. and smaller, Pitts., Chi., Cleve.	70 and 5 off
Wrought washers, Pitts., Chi., Phila. to jobbers & large nut, bolt mfrs.	$6.25 off

Cut Nails

Cut nails, Pitts.; (10% discount on size extras)	$2.75
Do. less carloads, 5 kegs or more, no discount on size extras	$3.05
Do., under 5 kegs; no disc. on size extras	$3.20

Pipe and Tubing

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

Welded Iron, Steel Pipe

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

Butt Weld

In.	Blk.	Galv.
Steel		
¼ and ⅜	60	44½
½	64½	55
¾	67½	59
1—3	69½	61½
Iron		
½	31½	15
¾	36½	20½
1—1¼	39½	25½
2	41½	26

Lap Weld

Steel		
2	62	53½
2½—3	65	56½
3½—6	67	58½
7 and 8	66	56½
9 and 10	65½	56
Iron		
2	37	22½
2½—3½	38	25
4—8	40	28½

Line Pipe

Steel	
⅛, butt weld	56
¼ and ⅜, butt weld	59
½, butt weld	63½
¾, butt weld	66½
1 to 3, butt weld	68½
2, lap weld	61
2½ to 3, lap weld	64
3½ to 6, lap weld	66
7 and 8, lap weld	65
Iron	

⅛—1½ inch, black and galv. take 4 pts. over; 2½—6 inch 2 pts. over discounts for same sizes, standard pipe lists, 8—12-inch, no extra.

Boiler Tubes

O. L. Discounts, f.o.b. Pitts.

Lap Weld Steel		*Charcoal Iron*	
2—2¼	33	1¾	8
2½—2¾	40	2—2¼	13
3	47	2½—2¾	16
3¼—3½	50	3	17
4	52	3¼—3½	18
4½—5	42	4	20
		4½	21

In lots of a carload or more, above discounts subject to preferential of two 5% and one 7½% discount on steel and 10% on charcoal iron.

Lapwelded steel: 200 to 9999 pounds, ten points under base, one 5% and one 7½%. Under 2000 pounds 15 points under base, one 5% and one 7½%. Charcoal iron: 10,000 pounds to carloads, base less 5%; under 10,000 lbs., 2 points under base.

Seamless Boiler Tubes

Under date of May 15 in lots of 40,000 pounds or more for cold-drawn boiler tubes and in lots of 40,000 pounds or feet or more for hot-finished boiler tubes, revised prices are quoted for 55 cold-drawn boiler tube sizes ranging from ¼ to 6-inch outside diameter in 30 wall thicknesses, decimal equivalent from 0.035 to 1.000, on a dollars and cents basis per 100 feet and per pound. Less-carloads revised as of July 1, 1935, card

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

Seamless Tubing

Cold drawn; f.o.b. mill disc.

100 ft. or 150 lbs.	32%
15,000 ft. or 22,500 lbs.	70%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$39.00-40.00
4-in., Birmingham	42.00-43.00
4-in., Chicago	50.40-51.40
6 to 24-in. Chicago	47.40-48.40
6-in. & over, east. fdy.	43.00
Do., 4 in.	46.00

Class A pipe $3 over Class B Stnd. fitgs., Birm. base. $100.00

Semifinished Steel

Billets and Blooms

4 x 4-inch base; gross ton

Pitts., Chi., Cleve., Buffalo & Youngstown	$28.00
Philadelphia	34.67
Duluth	30.00

Forging Billets

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

Pitts., Chi., Buff.	35.00
Forging, Duluth	37.00

Sheet Bars

Pitts., Cleve., Young., Chi., Buff., Canton, Sparrows Pt.	28.00

Slabs

Pitts., Chi., Cleve., Young.	28.00

Wire Rods

Pitts., Cleve., No. 4 to 5	$38.00
Do., No. 5 to 15/32-inch	40.00
Do., over 15/32 to 47/64-inch	42.00

Chicago up $1; Worcester up $2

Skelp

Pitts., Chi., Young., Buff., Coatesville, Sparrows Point	1.80c

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$3.50- 3.65
Connellsville, fdry.	4.25- 4.35
Connel. prem. fdry.	5.35- 5.50
New River fdry.	6.00
Wise county fdry.	4.45- 5.00
Wise county fur.	4.00- 4.50

By-Product Foundry

Newark, N. J., del.	9.70-10.15
Chi., ov., outside del.	9.00
Chicago, del.	9.75
New England, del.	11.50
St. Louis, del.	10.00-10.50
Birmingham, ovens	6.50
Indianapolis, del.	9.40
Cincinnati, del.	9.50
Cleveland, del.	9.75
Buffalo, ovens	7.50- 8.00
Detroit, ov., out. del	9.00
Philadelphia, del.	9.38

Coke By-Products

Per gallon, producers' plants.

	Tank lots	Spot
Pure and 90% benzol		18.00c
Toluol		30.00c
Solvent naphtha		30.00c
Industrial xylol		30.00c

Per lb. f.o.b. New York.

Phenol (200 lb. drums)	16.30c
Do. (100 lbs.)	17.30c

Eastern Plants, per lb.

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

Per 100 lb. Atlantic seaboard

Sulphate of ammonia	$1.38

†Western prices, ½-cent up.

Pig Iron

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

Basing Points:	No. 2 Fdry	Malle-able	Basic	Besse-mer
Bethlehem, Pa.	$20.50	$21.00	$20.00	$21.50
Birdsboro, Pa.	20.50	21.00	20.00	21.50
Birmingham, Ala., southern del.	15.50	15.50	14.50	21.00
Buffalo	19.50	20.00	18.50	20.50
Chicago	19.50	19.50	19.00	20.00
Cleveland	19.50	19.50	19.00	20.00
Detroit	19.50	19.50	19.00	20.00
Duluth	20.00	20.00	.....	20.50
Erie, Pa.	19.50	20.00	19.00	20.50
Everett, Mass.	20.50	21.00	20.00	21.50
Hamilton, O.	19.50	19.50	19.00	.....
Jackson, O.	20.25	20.25	19.75	.....
Neville Island, Pa.	19.50	19.50	19.00	20.00
Provo, Utah	17.50	.....	17.00	.....
Sharpsville, Pa.	19.50	19.50	19.00	20.00
Sparrows Point, Md.	20.50	.....	20.00	.....
Swedeland, Pa.	20.50	21.00	20.00	21.50
Toledo, O.	19.50	19.50	19.00	20.00
Youngstown, O.	19.50	19.50	19.00	20.00
Delivered from Basing Points:				
Akron, O., from Cleveland	20.76	20.76	26.26	21.26
Baltimore from Birmingham	21.08	.....	19.96	.....
Boston from Birmingham	20.62	.....	20.50	.....
Boston from Everett, Mass.	21.00	21.50	20.50	22.00
Boston from Buffalo	21.00	21.50	20.50	22.00
Brooklyn, N. Y., from Bethlehem	22.93	23.43	.....	.....
Brooklyn, N. Y., from Bmghm.	22.50	.....	.....	.....
Canton, O., from Cleveland	20.76	20.76	20.26	21.26
Chicago from Birmingham	†19.72	.....	19.60	.....
Cincinnati from Hamilton, O.	20.58	20.58	20.08	.....
Cincinnati from Birmingham	20.20	.....	19.20	.....
Cleveland from Birmingham	19.62	.....	19.12	.....
Indianapolis from Hamilton, O.	21.93	21.93	21.43	22.43
Mansfield, O., from Toledo, O.	21.26	21.26	20.76	21.76
Milwaukee from Chicago	20.57	20.57	20.07	21.07
Muskegon, Mich., from Chicago Toledo or Detroit	22.60	22.60	22.10	23.10
Newark, N. J., from Birmingham	21.61	.....	.....	.....
Newark, N. J., from Bethlehem	21.99	22.49	.....	.....
Philadelphia from Birmingham	20.93	.....	20.81	.....
Philadelphia from Swedeland, Pa.	21.31	21.81	20.81	.....
Pittsburgh district from Neville Island	Neville base plus 67c, 81c and $1.21 switching charges			
Saginaw, Mich., from Detroit	21.75	21.75	21.25	21.25

Delivered from Basing Points:	No. 2 Fdry	Malle-able	Basic	Besse-mer
St. Louis, northern	20.00	20.00	19.50	.....
St. Louis from Birmingham	†19.68	.....	19.50	.....
St. Paul from Duluth	21.94	21.94	.....	22.44

†Over 0.70 phos.

Low Phos.

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

Gray Forge		Charcoal	
Valley furnace	19.00	Lake Superior fur.	$22.00
Pitts. dist. fur.	19.00	Do., del. Chicago	25.25
		Lylees, Tenn.	22.50

Silvery†

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

Bessemer Ferrosilicon†

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

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

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

Refractories

Per 1000 f.o.b. Works

Fire Clay Brick

Super Quality

Pa., Mo., Ky.	$55.00

First Quality

Pa., Ill., Md., Mo., Ky.	$45.00
Alabama, Ga.,	$38.00-45.00

Second Quality

Pa., Ill., Ky., Md., Mo.	40.00
Ga., Ala.	35.00

Ohio

First quality	$40.00
Intermediary	37.00
Second quality	28.00

Malleable Bung Brick

All bases	50.00

Silica Brick

Pennsylvania	$45.00
Joliet, E. Chicago	54.00
Birmingham, Ala.	48.00

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)	40.00
Domestic dead-burned gr. net ton f.o.b. Chewelah, Wash. (bulk)	22.00

Basic Brick

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

Chrome brick	$45.00
Chemically bonded chrome brick	45.00
Magnesite brick	65.00
Chemically bonded magnesite brick	55.00

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton	$20.50
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all-rail	$18.00
Do., for barge	$19.00

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82% tidewater, duty paid	75.00
Do., Balti., base	75.00
Do., del. Pittsb'gh	80.13
Spiegeleisen, 19-20% dom. Palmerton, Pa., spot†	26.00
Do., New Orleans	26.00
Ferrosilicon, 50% freight all., cl.	69.50
Do., less carload	77.00
Do., 75 per cent	126-130.00
Spot, $5 a ton higher.	
Silicoman., 2½ carb. 2% carbon, 90.00; 1%,	85.00 100.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del.	10.00
Ferrotungsten, stand., lb. con. del.	1.30- 1.40
Ferrovanadium, 35 to 40% lb., cont.	2.70- 2.90
Ferrotitanium, c. l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt. allow., lb.	7.00
Do., under 1 ton	7.50
Ferrophosphorus, per ton, c. l., 17-19% Rockdale, Tenn., basis, 18%, $3 unitage	58.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $3 unitage	75.00
Ferromolybdenum, stand. 55-65%, lb.	0.95
Molybdate, lb. cont.	0.80

†Carloads. Quan. diff. apply.

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: New York	Lead: East St. L.	Zinc: St. L.	Alumi-num 99%	Antimony: Chinese Spot, N. Y.	Nickel Cath-odes
June 6	9.50	9.62½	9.12½	43.50	42.80	4.60	4.45	4.90	*19.00	13.50	35.00
June 8	9.50	9.62½	9.12½	43.00	42.37½	4.60	4.45	4.90	*19.00	13.50	35.00
June 9	9.50	9.62½	9.12½	42.12½	41.62½	4.60	4.45	4.90	*19.00	13.50	35.00
June 10	9.50	9.62½	9.12½	42.12½	41.60	4.60	4.45	4.90	*19.00	13.50	35.00
June 11	9.50	9.62½	9.12½	42.62½	42.00	4.60	4.45	4.90	*19.00	13.50	35.00
June 12	9.50	9.62½	9.12½	42.37½	41.75	4.60	4.45	4.90	*19.00	13.00	35.00

*Nominal range 19.00 to 21.00c.

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 9.00c Conn. copper.

Sheets	
Yellow brass (high)	15.12½
Copper, hot rolled	17.00
Lead cut to jobers	8.25
Zinc, 100-lb. base	9.50
Tubes	
High yellow brass	17.37½
Seamless copper	17.50
Rods	
High yellow brass	13.12½
Copper, hot rolled	13.75
Anodes	
Copper, untrimmed	14.50
Wire	
Yellow brass (high)	15.37½

OLD METALS

Deal. buying prices, cents lb.

No. 1 Composition Red Brass	
New York	6.00- 6.25
*Cleveland	6.25- 6.50
Chicago	5.75- 6.00
St. Louis	6.00- 6.25
Heavy Copper and Wire	
New York, No. 1	7.50- 7.75
Chicago, No. 1	7.00- 7.25
Cleveland	6.75- 7.00
St. Louis, No. 1	7.00- 7.50
Composition Brass Borings	
New York	5.75- 6.00
Light Copper	
New York	6.12½- 6.25
Chicago	5.50- 5.75
Cleveland	5.75- 6.00
St. Louis	5.50- 6.00
Light Brass	
Chicago	3.50- 3.62½
Cleveland	3.25- 3.50
St. Louis	3.25- 3.75
Lead	
New York	3.50- 3.75
Cleveland	3.50- 3.75
Chicago	3.25- 3.50
St. Louis	3.25- 3.75
Zinc	
*New York	2.50- 2.75
Cleveland	2.25- 2.50
St. Louis	2.25- 2.75
Aluminum	
*Borings, Cleveland	8.00- 8.50
*Mixed, cast, Cleve.	11.50-11.75
*Mixed, cast, St. L.	12.25-12.75
*Clips, soft, Cleve.	13.75-14.00
SECONDARY METALS	
Brass ingot, 85-5-5-5	9.50
Stand. No. 12 alum.	16.50-17.00

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	9.00- 9.50
Bos. d'ck, exp. brok.	10.50
N. Eng. del. No. 1..	9.50
Buffalo, No. 1	12.50-13.00
Buffalo, No. 2	11.00-11.50
Chicago, No. 1	12.50-13.00
Cleveland, No. 1	13.00-13.50
Cleveland, No. 2	12.00-12.50
Detroit, No. 1	10.00-10.50
Detroit, No. 2	9.00- 9.50
Eastern Pa., No. 1..	11.75-12.00
Eastern Pa., No. 2..	10.75-11.00
Federal, Ill.	10.50-11.00
Granite City, R. R...	11.75-12.25
Granite City, No. 2..	9.50-10.00
N. Y., brokers, No. 2	7.25- 7.75
N. Y., brokers, docks (No. 1 for export)	9.50
Pitts., No. 1 (R. R.)	13.75-14.25
Pitts., No. 1 (dlr.)..	13.25-13.75
Pittsburgh, No. 2....	12.25-12.75
St. Louis	11.00-11.50
Toronto, dealers	7.50
Valleys, No. 1	13.50-14.00

COMPRESSED SHEETS

Buffalo, dealers	11.00-11.50
Chicago, factory	11.50-12.00
Chicago, dealer	11.00-11.50
Cleveland	12.75-13.25
Detroit	10.50-11.00
E. Pa., new mat.	11.50
Pittsburgh	13.25-13.75
St. Louis	7.75- 8.25
Valleys, No. 1	13.75-14.00

BUNDLED SHEETS

Buffalo	10.00-10.50
Cincinnati, del	7.75- 8.25
Cleveland	9.00- 9.50
Pittsburgh	12.25-12.75
St. Louis	6.25- 6.75
Toronto, dealers	4.50

SHEET CLIPPINGS, LOOSE

Chicago	8.00- 8.50
Cincinnati	5.75- 6.25
Detroit	7.00- 7.50
St. Louis	5.50- 6.00

STEEL RAILS, SHORT

Birmingham	12.00-12.50
Buffalo	15.50-16.00
Chicago (3 ft.)	14.50-15.00
Chicago (2 ft.)	15.00-15.50
Cincinnati, del.	14.00-14.50
Detroit	14.50-15.00
Pitts., open-hearth, 3 ft. and less	14.75-15.25
St. Louis, 2 ft. & less	14.00-14.50

STEEL RAILS, SCRAP

Boston, brokers	7.50- 7.75
Chicago	12.50-13.00
Pittsburgh	13.75-14.25
St. Louis	12.50-13.00
Buffalo	12.50-13.00
Toronto, dealers	8.50

STOVE PLATE

Birmingham	7.00- 7.50
Boston, brokers	5.00- 5.25
Buffalo	10.75-11.00
Chicago	7.50- 8.00
Cincinnati, dealers..	7.75- 8.50
Detroit, net	9.00- 9.50
Eastern Pa.	10.00-10.50
N. Y., brokers, fdry.	6.00- 6.25
St. Louis	7.50- 8.00
Toronto, dealers, net	5.50

COUPLERS, SPRINGS

Buffalo	14.75-15.25
Chicago, springs	14.00-14.50
Eastern Pa.	16.00-16.50
Pittsburgh	16.50-17.00
St. Louis	12.75-13.25

ANGLE BARS—STEEL

Chicago	14.00-14.50
St. Louis	12.75-13.25
Buffalo	14.50-15.00

RAILROAD SPECIALTIES

Chicago	14.00-14.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	14.75-15.25
Cleveland, billet, bloom crops	17.50-18.00
Eastern Pa., crops..	16.00
Pittsburgh, billet, bloom crops	15.50-16.00
Pittsburgh, sheet bar crops	15.00-15.50

FROGS, SWITCHES

Chicago	12.50-13.00
St. Louis, cut	12.50-13.00

SHOVELING STEEL

Chicago	12.50-13.00
Federal, Ill.	10.50-11.00
Granite City, Ill.	10.00-10.50
Toronto, dealers	6.50

RAILROAD WROUGHT

Birmingham	7.50- 8.00
Boston, brokers	7.25- 7.50
Buffalo, No. 1	11.00-11.50
Buffalo, No. 2	12.50-13.00
Chicago, No. 1, net..	12.50-13.00
Chicago, No. 2	12.50-13.00
Cincinnati, No. 2....	10.00-10.50
Eastern Pa.	13.00
St. Louis, No. 1	10.25-10.75
St. Louis, No. 2	11.75-12.25
Toronto, No. 1, dlr.	7.00

SPECIFICATION PIPE

Eastern Pa.	12.00
New York	7.40- 7.75

BUSHELING

Buffalo, No. 1	11.00-11.50
Chicago, No. 1	11.50-12.00
Cinci., No. 1, deal....	8.50- 9.00
Cincinnati, No. 2.....	4.50- 5.00
Cleveland, No. 2	8.25- 8.75
Detroit No. 1, new..	9.50-10.00
Valleys, new, No. 1	13.00-13.50
Toronto, dealers	6.00

MACHINE TURNINGS

Birmingham	5.50- 6.50
Boston, brokers	3.00- 3.25
Buffalo	7.00- 7.25
Chicago	6.00- 6.50
Cincinnati, dealers..	5.75- 6.25
Cleveland	7.50- 8.00
Detroit	5.75- 6.25
Eastern Pa.	8.00- 8.50
New York, brokers..	3.00- 3.50
Pittsburgh	9.50-10.00
St. Louis	4.00- 4.50
Toronto, dealers	4.00
Valleys	9.50-10.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, brokers	2.00
Buffalo	8.50- 9.00
Cincinnati, dealers..	5.25- 5.75
Cleveland	8.25- 8.75
Detroit	6.50- 7.00
Eastern Pa.	5.75- 6.50
New York, brokers..	2.25- 2.50
Pittsburgh	8.00- 8.50
Toronto, dealers	4.00

CAST IRON BORINGS

Birmingham, plain..	4.50- 5.50
Boston, chem. brok.	6.00- 6.25
Boston, brokers	3.50- 4.00
Buffalo	8.00- 8.50
Chicago, dealers	6.00
Cincinnati, dealers..	5.00- 5.50
Cleveland	8.25- 8.75
Detroit	6.50- 7.00
E. Pa., chemical.....	10.00-13.00
New York, brokers..	4.00- 4.25
St. Louis	4.00- 4.50
Toronto, dealers.....	5.00

PIPE AND FLUES

Cincinnati, dealers..	7.75- 8.25
Chicago, net	7.50- 8.00

RAILROAD GRATE BARS

Buffalo	10.50-11.00
Chicago, net	8.25- 8.75
Cincinnati	7.00- 7.50
Eastern Pa.	10.00-10.50
New York, brokers..	6.00- 6.25
St. Louis	7.50- 8.00

FORGE FLASHINGS

Boston, brokers	6.50- 6.75
Buffalo	11.00-11.50
Cleveland	11.75-12.25
Detroit	9.00- 9.50
Pittsburgh	12.25-12.75

FORGE SCRAP

Boston, brokers	5.50- 6.00
Chicago, heavy	14.00-14.50
Eastern Pa.	12.00-12.50

ARCH BARS, TRANSOMS

St. Louis	13.50-14.00

AXLE TURNINGS

Boston, brokers	5.75- 6.00
Buffalo	11.00-11.50
Chicago, elec. fur....	12.75-13.25
Eastern Pa.	11.00-12.00
St. Louis	9.00- 9.50
Toronto	4.50

STEEL CAR AXLES

Birmingham	11.50-12.50
Boston, brokers	11.00-11.25
Buffalo	15.50-16.00
Chicago, net	14.25-14.75
Eastern Pa.	17.00
St. Louis	13.00-13.50
Toronto	8.50

SHAFTING

Boston, brokers	13.25-13.50
Eastern Pa.	18.50-18.75
New York, brokers..	13.50-14.00
St. Louis	13.50-14.00

CAR WHEELS

Birmingham	11.00-11.50
Boston, iron, brok...	7.50- 7.75
Buffalo, iron	13.50-14.00
Buffalo, steel	15.50-16.00
Chicago, iron	13.25-13.75
Chicago, rolled steel	14.00-14.50
Cincinnati, iron	10.50-11.00
Eastern Pa., iron	13.50-14.00
Eastern Pa., steel....	16.00-16.50
Pittsburgh, iron	14.00-14.50
Pittsburgh, steel	16.50-17.00
St. Louis, iron	11.50-12.00
St. Louis, steel	13.00-13.50
Toronto, net	8.50

NO. 1 CAST SCRAP

Birmingham	10.50-11.50
Boston, No. 1 mach. brokers	8.75- 9.00
N. Eng., del. No. 2..	9.50-10.00
N. Eng. del. textile..	11.00-11.50
Buffalo, cupola	11.50-12.00
Buffalo, mach.	12.25-12.75
Chicago, agri. net....	10.00-10.50
Chicago, auto	11.00-11.50
Chicago, mach. net..	12.00-12.50
Chicago, railr'd net..	11.00-11.50
Cinci., mach. cup....	10.75-11.25
Cleveland, mach.	15.25-15.75
Eastern Pa., cupola	13.50-14.00
E. Pa., mixed yard..	11.00-11.50
Pittsburgh, cupola..	15.00-15.50
San Francisco, del..	13.50-14.00
Seattle	10.00-11.00
St. Louis, No. 1	11.00-11.50
St. L., No. 1 mach.	11.50-12.00
Toronto, No. 1, mach., net	9.00

HEAVY CAST

New England del....	9.50-10.00
Buffalo, break.	10.25-10.75
Cleveland, break	12.50-13.00
Detroit, No. 1 mach. net	13.00-13.50
Detroit, break.	11.00-11.50
Detroit, auto net....	11.00-11.50
Eastern Pa.	12.50-13.00
New York, break. brokers	8.50- 8.75
Pittsburgh	13.00-13.50

MALLEABLE

Birmingham, R. R...	11.50-12.50
New England del....	15.00-16.00
Buffalo	15.50-16.00
Chicago, R. R.	15.50-16.00
Cincinnati, agri. del.	12.50-13.00
Cleveland, rail	16.25-16.75
Detroit, auto, net....	14.50-15.00
Eastern Pa., R. R...	16.00-16.50
Pittsburgh, rail.....	17.00-17.50
St. Louis, R. R.....	13.50-14.00
Toronto, net	7.00

RAILS FOR ROLLING

5 feet and over

Birmingham	11.50-12.50
Boston, brokers	9.00- 9.50
Buffalo	12.50-13.00
Chicago	13.75-14.25
Eastern Pa.	15.00-15.50
New York, brokers..	9.50-10.00
St. Louis	13.75-14.25

LOCOMOTIVE TIRES

Chicago (cut)	14.00-14.50
St. Louis, No. 1	12.00-12.50

LOW PHOS. PUNCHINGS

Buffalo	14.75-15.25
Chicago	15.00-15.50
Eastern Pa.	16.00-16.50
Pittsburgh (heavy)	16.50-17.00
Pittsburgh (light)..	15.50-16.00

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer	$4.80
Mesabi nonbess.	4.50
High phosphorus	4.40
Mesabi bessemer	4.65
Old range nonbess.	4.65

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56-63% con. (nom.)	8.00- 9.00
Cop.-free low phos. 58-60% (nom.)	10.00-10.50

Foreign Ore

Cents per unit, f.a.s. Atlantic ports (nominal)

Foreign manganiferous ore, 45.55% iron, 6-10% man.	10.50
No. Afr. low phos.	10.50
Swedish basic, 65%	9.50
Swedish low phos..	10.50
Spanish No. Africa basic, 50 to 60%	10.50
Tungsten, spot sh. ton unit, duty pd.	$15.85-16.00
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f.	19.25

Manganese Ore

(Nominal)

Prices not including duty, cents per unit cargo lots

Caucasian, 50-52%	26.00
So. African, 50-52%	26.00
Indian, 50-52%	26.00

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

Baltimore*	3.00c
Boston††	3.10c
Buffalo	3.00c
Chattanooga	3.36c
Chicago (j)	3.00c
Cincinnati	3.22c
Cleveland	3.00c
Detroit	3.09c
Houston	3.00c
Los Angeles	3.60c
Milwaukee	3.11c-3.26c
New Orleans	3.35c
New York‡ (d)	3.31c
Pitts. (h)	2.95c-3.10c
Philadelphia*	3.03c
Portland	3.50c
San Francisco	3.25c
Seattle	3.70c
St. Louis	3.25c
St. Paul	3.25c-3.40c
Tulsa	3.25c

IRON BARS

Portland	3.40c
Chattanooga	3.36c
Baltimore*	3.05c
Chicago	2.75c
Cincinnati	3.22c
New York‡(d)	3.36c
Philadelphia*	2.93c
St. Louis	3.25c
Tulsa	3.25c

REINFORCING BARS

Buffalo	2.60c
Chattanooga	3.36c
Chicago	2.10c-2.60c
Cleveland (c)	2.10c
Cincinnati	3.25c
Houston	3.25c
Los Angl., cl.	2.45c
New Orleans	3.50c
Pitts., plain (h)	3.05c
Pitts., twisted squares (h)	3.175c
San Francisco	2.45c
Seattle	2.45c
St. Louis	3.25c
Tulsa	3.25c
Young	2.30c-2.60c

SHAPES

Baltimore*	3.00c
Boston††	3.19c
Buffalo	3.25c
Chattanooga	3.56c
Chicago	3.20c
Cincinnati	3.42c
Cleveland	3.31c
Detroit	3.42c
Houston	3.00c
Los Angeles	3.60c
Milwaukee	3.31c
New Orleans	3.55c
New York‡(d)	3.37c
Philadelphia*	2.98c
Pittsburgh (h)	3.15c
Portland (i)	3.50c
San Francisco	3.25c
Seattle (i)	3.70c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.50c

PLATES

Baltimore*	3.00c
Boston††	3.21c
Buffalo	3.37c
Chattanooga	3.56c
Chicago	3.20c
Cincinnati	3.42c
Cleveland, ¼-in. and over	3.31c
Detroit	3.42c
Detroit, ⅜-in.	3.65c
Houston	3.00c
Los Angeles	3.60c
Milwaukee	3.31c
New Orleans	3.55c
New York‡(d)	3.40c
Philadelphia*	2.98c
Phila. floor	4.95c
Pittsburgh (h)	3.15c
Portland	3.35c
San Francisco	3.25c
Seattle	3.55c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.50c

NO. 10 BLUE

Baltimore*	3.10c
Boston††	3.30c
Buffalo	3.62c
Chattanooga	3.36c
Chicago	3.05c
Cincinnati	3.22c
Cleveland	3.11c
Det., 8-10 ga.	3.14c
Houston	3.35c
Los Angeles	3.75c
Milwaukee	3.16c
New Orleans	3.55c
New York‡(d)	3.31c
Portland	3.35c
Philadelphia*	3.08c
Pittsburgh (h)	2.95c
San Francisco	3.35c
Seattle	3.70c
St. Louis	3.45c
St. Paul	3.30c
Tulsa	3.70c

NO. 24 BLACK

Baltimore*†	3.60c
Boston (g)	3.95c
Buffalo	3.25c
Chattanooga	4.16c
Chicago	3.85c
Cincinnati	4.02c
Cleveland	3.91c
Detroit	3.94c
Los Angeles	4.35c
Milwaukee	3.96c
New Orleans	4.50c
New York‡(d)	3.89c
Philadelphia*†	3.60c
Pitts.** (h)	3.55c
Portland	4.10c
San Francisco	4.00c
Seattle	4.40c
St. Louis	4.10c
St. Paul	3.90c
Tulsa	4.75c

NO. 24 GALV. SHEETS

Baltimore*†	4.30c
Buffalo	4.00c
Boston (g)	4.00c
Chattanooga	4.86c
Chicago (h)	4.55c
Cincinnati	4.72c
Cleveland	4.61c
Detroit	4.72c
Houston	4.40c
Los Angeles	4.40c
Milwaukee	4.66c
New Orleans	4.95c
New York‡(d)	4.30c
Philadelphia*†	4.40c
Pitts.**(h)	4.15c-4.45c
Portland	4.50c
San Francisco	4.50c
Seattle	5.00c
St. Louis	4.65c
St. Paul	4.50c
Tulsa	5.10c

BANDS

Baltimore*	3.20c
Boston††	3.30c
Buffalo	3.42c
Chattanooga	3.61c
Chicago	3.30c
Cincinnati	3.47c
Cleveland	3.36c
Detroit, ⅜-in. and lighter	3.39c
Houston	3.25c
Los Angeles	4.10c
Milwaukee	3.41c
New Orleans	3.95c
New York‡(d)	3.56c
Philadelphia	3.18c
Pittsburgh (h)	3.20c
Portland	4.25c
San Francisco	4.10c
Seattle	4.25c
St. Louis	3.55c
St. Paul	3.55c
Tulsa	3.45c

HOOPS

Baltimore	2.30c
Boston††	4.30c
Buffalo	3.42c
Chicago	3.30c
Cincinnati	3.47c
Det., No. 14 and lighter	3.39c
Los Angeles	5.85c
Milwaukee	3.41c
New York‡(d)	3.56c
Philadelphia	3.43c
Pittsburgh (h)	3.70c
Portland	5.60c
San Francisco	6.15c
Seattle	5.60c
St. Louis	3.55c
St. Paul	3.55c

COLD FIN. STEEL

Baltimore (c)	3.73c
Boston	3.90c
Buffalo (h)	3.55c
Chattanooga*	4.13c
Chicago (h)	3.50c
Cincinnati	3.72c
Cleveland (h)	3.50c
Detroit	3.79c
Los Ang. (f) (d)	5.85c
Milwaukee	3.61c
New Orleans	4.30c
New York‡(d)	3.81c
Philadelphia	3.76c
Pittsburgh	4.50c
Portland (f) (d)	6.15c
San Fran. (f) (d)	5.95c
Seattle (f) (d)	6.15c
St. Louis	3.75c
St. Paul	4.02c
Tulsa	4.65c

COLD ROLLED STRIP

Boston, 0.100-in., 500 lb. lots	3.245c
Buffalo	3.39c
Chicago	3.27c
Cincinnati (b)	3.22c
Cleveland (b)	2.85c
Detroit	3.18c
New York‡(d)	3.36c
St. Louis	3.45c

TOOL STEELS

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

	Base
High speed	57c
High carbon, high chrome	37c
Oil hardening	22c
Special tool	20c
Extra tool	17c
Regular tool	11c

Uniform extras apply.

BOLTS AND NUTS

(100 pounds or over)

	Discount
Chicago (a)	70
Cleveland	70
Detroit	70-10
Milwaukee	70
Pittsburgh	70

(a) Under 100 pounds, 65 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; (i) Under 3 in.; (j) Shapes other than rounds, flats, fillet angles, 3.15c.

‡Domestic steel; *Plus quan. extras; **Under 25 bundles; *†50 or more bundles; †New extras apply; ††Base 40,000 lbs., extras on less.

Prices on heavier lines are subject to new quantity differentials: 399 lbs. and less, up 50 cts.; 400 to 3999 lbs., base; 4000 to 7999 lbs., 15 cts., under; 8000 to 14,999 lbs., 25 cts. under; 15,000 to 39,999 lbs., 35 cts. under; 40,000 lbs. and over, 50 cts. under base.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, June 11

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	**Quoted in gold pounds sterling £ s d
PIG IRON			
Foundry, 2.50-3.00 Silicon	$15.69 3 2 6*	$13.86	1 15 0
Basic bessemer	15.69 3 2 6*	11.89	1 10 0
Hematite, Phos. .03-.05	17.82 3 11 0	.....	.....
SEMIFINISHED STEEL			
Billets	$29.49 5 17 6	$18.61	2 7 0
Wire rods, No. 5 gage	44.93 8 19 0	35.65	4 10 0
FINISHED STEEL			
Standard rails	$41.42 8 5 0	$43.57	5 10 0
Merchant bars	1.74c 7 15 0	1.12c to 1.16c	3 2 6 to 3 5 0
Structural shapes	1.68c 7 10 0	1.11c	3 1 6
Plates, †¼ in. or 5 mm	1.81c 8 1 3	1.53c	4 5 0
Sheets, black, 24 gage or 0.5 mm	2.18c 9 15 0	2.08c	5 16 0††
Sheets, gal., 24 gage, corr.	2.63c 11 15 0	2.15c	6 0 0
Bands and strips	1.96c 8 15 0	1.43c	4 0 0
Plain wire, base	2.18c 9 15 0	1.89c	5 5 0
Galvanized wire, base	2.58c 11 10 0	2.10c	5 17 6
Wire nails, base	2.69c 12 0 0	1.71c	4 15 0
Tin plate, box 108 lbs.	$ 4.71 0 18 9	.....	.....

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

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$17.57 3 10 0	(a) $17.16	260	$13.87	410	$25.38	63
Basic bessemer pig iron	18.20 3 12 6	(a) 12.54	190	11.84	350	28.00(b)	69.50
Furnace coke	5.65 1 2 6	6.27	95	4.13	122	7.66	19
Billets	29.49 5 17 6	28.38	430	18.77	555	38.88	96.50
Standard rails	1.85c 8 5 0	2.30c	671	1.53c	1,000	2.40c	132
Merchant bars	2.03c 9 1 0	1.67c	560	.99c	650	2.00c	110
Structural shapes	1.96c 8 15 0	1.64c	550	.99c	650	1.95c	107
Plates, †¼-in. or 5 mm	2.03c 9 1 3	2.09c	700	1.22c	800	2.32c	127
Sheets, black	2.58c 11 10 0½	1.78c	600‡	1.35c	875‡	2.63c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	3.02c 13 10 0	2.84c	950	2.30c	1,500	6.76c	370
Plain wire	2.18c 9 15 0	2.68c	900	1.76c	1,150	3.16c	173
Bands and strips	2.20c 9 16 0	1.98c	650	1.22c	800	2.31c	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 hematite. ††Close annealed.

**Gold pound sterling carries a premium of 62.64 per cent over paper sterling.

Bars

Bar Prices, Page 70

Pittsburgh—Comparatively little rush buying by bar users has been done to circumvent the $2 a ton increase for third quarter. Unless more specifying occurs the last half of June, it seems likely that most consumers will prefer to pay the higher price when they require material. In the main, bar mills are still firm in their declaration to apply the higher market with shipments effective July 1, but doubtless they will relax their policy to accommodate specifications which are placed the last week of June. For the present, merchant steel bars hold at 1.85c, base, Pittsburgh, and alloy bars at 2.45c, mill base.

Cleveland—With agricultural implement makers approaching the end of their spring season, some falling off in steel bar requirements appears. However, this is the only exception to the general increased volume of bar requirements against the third quarter price increase. Mills are speeding up against June 30 deliveries.

Chicago—Speculative buying is more apparent though mills have made no change in their intention to complete shipments of low priced material as early as possible in July. A moderate gain in demand from miscellaneous users is attributed partly to speculative purchasing, but specifications from farm implement manufacturers and the automotive industry are declining. Tractor builders, on the other hand, have not decreased their schedules. Little business is being entered at the higher bar prices scheduled to take effect July 1.

New York—Bar sellers are advancing their deadline on orders acceptable at present prices. Indications now are that business at current levels will be taken until the end of this month, with shipments thereafter at the mills' convenience. Notwithstanding this prospect, tonnage is coming out in increasing volume. Some future covering is getting underway as protection against third quarter price advances.

Philadelphia—As the time approaches for higher prices to become effective, demand for commercial steel bars is expanding. It now appears that consumers will be allowed up to the end of this month to get under cover. Consequently, there may not be so much of a last-minute jam as previously expected.

Iron & Steel Products Inc., Chicago, dealer in railway supplies and equipment, has purchased the North works of the Ryan Car Co., located in Hegewisch, Ill., a Chicago suburb. The purchase consists of all of the buildings and about 27 acres of land.

Plates

Plate Prices, Page 70

Pittsburgh—St. Louis Shipbuilding Co., bidding $496 apiece, has been awarded 80 all-welded steel pontoons for the New Orleans army engineers, on which bids were opened June 8. Each pontoon requires about 9000 pounds of plates. At the same time, the New Orleans engineers took bids on 40 sections of pipe fabricated from ⅜-inch plates. Midland Barge Co., Midland, Pa., is low at $245 per section, followed by Lancaster Iron Works at $246.35. This entire contract, both pontoons and pipe, requires about 480 tons of steel plates. The plate market is fairly firm at 1.80c, Pittsburgh, subject to a $2 a ton advance for third quarter.

Chicago—While steel plates will be quoted 1.95c, base, after June 30, producers are allowing 30 days of grace on orders intended for specific

projects. Formerly the leeway was 60 days. Freight car builders and structural fabricators continue to take the heaviest tonnages of plates and the outlook is favorable for a maintenance of fairly active deliveries during the next several months. Tank fabricators have moderate backlogs but new business lately has been light. Additional pipe lines are under consideration, though few inquiries of size are pending.

New York—Plate buying is brisk, with several sellers now taking orders at current prices until the end of June for delivery at mill convenience. Pending car work is a feature, despite recent heavy commitments.

Philadelphia—Plate production is expanding, with one leading producer in this district operating at the highest rate since June, 1934, just before the last advance in plates. On the present advance in prices leading sellers are now advising their trade that they will take protective tonnage up to the end of June for delivery thereafter at the mill's convenience. As a result, output may not reach a much higher point this month, but good operations appear assured, with the outlook for July more promising in view of the fact shipments against orders booked at present prices will run well into that period.

While relaxing the deadline somewhat on general tonnage taken at current levels, most platemakers indicate their intention of adhering rigidly to the plan of permitting a leeway of only 30 days on identified work. As this is the first time prices have been advanced since this schedule, instead of 60 days, began to be observed in some quarters, a test will be thus provided. The current market is 1.90c, Coatesville, Pa., or 1.99c, Philadelphia.

San Francisco—Demand for plates has improved of late and outstanding awards included 7780 tons of 36-inch welded steel pipe for the water and power departments, Los Angeles, placed with Emsco Derrick & Equipment Co. and 1500 tons of 36-inch welded steel pipe for the same department, booked by Western Pipe & Steel Co.

Seattle—Boiler and tank shops report a rapid rise in demand, many plants being at capacity which two months ago were nearly idle. Industrial plant replacements and improvements account largely for the upturn and while tonnages are small the aggregate is large.

Contracts Placed

7780 tons, for 36-inch welded pipe for Los Angeles, to Emsco Derrick & Equipment Co., Los Angeles.

1500 tons, for 24 and 36-inch pipe for Los Angeles, to Western Pipe & Steel Co., San Francisco.

1090 tons, dam plate work, Colorado Springs, Colo., to American Bridge Co., Pittsburgh.

725 tons, steel tunnel lining on contract 111, metropolitan district commission, Boston, through V. Bartletta, Roslindale, Mass., contractor.

360 tons, 80 all welded steel pontoons, each requiring 9000 pounds, to St. Louis Shipbuilding Co., St. Louis, on June 8 bids to New Orleans army engineers.

300 tons, hopper dredge, United States Engineers, San Francisco, to Bethlehem Shipbuilding Corp., San Francisco.

180 tons, gate shafts, Fort Peck dam, Mont., to Bartlett Hayward Co. Baltimore.

180 tons, steel liner plates, emergency gate shafts, Fort Peck tunnels, to Bartlett Hayward Co., Baltimore.

120 tons, 40 lengths of land pipe, to Midland Barge Co., Midland, Pa., at $245 per section, on June 8 bids to New Orleans army engineers.

100 tons, 6 to 12-inch welded pipe, treasury department, invitation 4-304 and 305, San Francisco, to unnamed interest.

Contracts Pending

442 tons, siphons No. 1 and No. 2, Vasquez Creek tunnel, Denver, Colo.; bids Jue 16.

400 tons, three dump scows for Louisville, Ky., army engineers, bids soon.

280 tons, two dump scows, Cincinnati engineers, for delivery to Fernbank, O., bids June 16.

Sheets

Sheet Prices, Page 70

Pittsburgh—Remarkable diversity in demand for sheets is picking up the slack occasioned by the decline in automotive buying. Large sheet buyers are not interested in speculating to any great degree against the advancing market for third quarter in that they will lay down any unusually large tonnages. Production of full finished sheets was steady last week at around 60 per cent for the industry, although common black and galvanized production were both up at 68 per cent and 56 per cent, respectively. Sheet jobbing mills continue to operate at around 45 per cent.

Cleveland—Mills in northern and eastern Ohio note considerable tapering off in specifications from automotive partsmakers, but these consumers now indicate they will start new model production much earlier this year. Miscellaneous sheet consumers continue to urge orders in somewhat increased tonnages against third quarter price advances. Some makers of galvanized sheets are so filled for June 30 delivery that they are forced to decline further bookings against that date.

Chicago — Some sheet mills are practically sold for June and are unable to accept additional business for June delivery. Heavy commitments since the announcement of higher prices will make it necessary for deliveries to extend into July, but producers state that shipments will be made as early as possible next month rather than to be extended through the quarter. The lack of new automotive buying is retarding total business, though some shipments are being made in connection with final requirements for 1936 models. Little sheet business has been booked at new prices.

New York—Although sheet sellers are extending their time limit for taking tonnage at present levels, with indications now rather definite that most sellers will book until the end of this month at these prices, specifications continue heavy. Apparently no change will be made at this time with regard to the 60-day period of protection on contracts for identified work.

One large seller of sheets has booked more business in June than for all of June, 1935. Demand for domestic fuel oil tanks is heavy. About 100 tons of hot-rolled sheets for electrical boxes for the bureau of printing and engraving building, Washington, is being figured.

Philadelphia — Brisk trading in sheets continues, although the situation with respect to deliveries is being somewhat relieved by the action of mills in allowing sellers to order up to the end of this month on tonnage at current prices for delivery at mills' convenience. No change in the additional period allowed for identified work is indicated, despite the fact that sellers of some of the heavier products appear intent upon putting into effect a 30-day period of protection, as against 60 days. At least one leading sheet mill has indicated definitely that it will allow 60 days from the end of the current calendar quarter for orders taken at current quotations on work of this character.

Cincinnati — Bookings of sheet mills in this district for second quarter delivery so far are not in excess of capacity. Speculative buying has been adequate to offset the downward seasonal trend which had begun to appear two weeks ago.

St. Louis—The leading district producer of sheets has announced its intention to advance prices $2 per ton July 1 on plates, hot-rolled annealed, hot-rolled, and galvanized sheets, including culvert material. The prospective raise in prices has stimulated some buying, but for the most part quantity users are willing to pay the higher quotation, rather than incur the expense of handling, storage and deterioration. Warehouse interests have added to their stocks.

Transportation

Track Material Prices, Page 71

In addition to substantial car work previously noted as pending, additional inquiries are noted, including 100 fifty-ton flat cars for the Chicago Great Western and 150 to 300 twelve-ton banana cars for the United Fruit Co., Boston. In addition, the St. Louis, Southwestern has applied for authorization of the federal court to spend $1,933,203 for rolling stock and rails. Rolling stock includes 50 automobile cars, five coaches, and five 4-8-4 locomotives. Rail requirements involve 740 tons of 112-pound rail. Union Pacific is inquiring for underframes for 50-ton box cars, in lots of 250, 400 and 1000.

Wheeling & Lake Erie is expected to inquire soon for 250 to 1000 sixty-ton hoppers, self-clearing, with twin hoppers. Western Maryland has revived its inquiry for 20 to 25 cabooses. Merchants Despatch has placed an order with Merchants Despatch Transportation Co., both of New York, for 500 refrigerators to be built at East Rochester, N. Y.

A $2 a ton advance in railroad tie plates and a $3 a ton increase in track spikes was announced last week for effect Aug. 1. This will advance the tie plate market to 2.00c, base, and track spikes to 2.75c, base. Specifications at the present market of 1.90c, base on tie plates and 2.60c for track spikes will be accepted during the early part of the third quarter providing shipment is made no later than Aug. 31. Railroad track bolts have also been advanced $3 a ton for shipment up to Sept. 1. Light rails have been reaffirmed at $35, base, Pittsburgh, for third quarter, and rerolling billet light rails at $34 per ton.

New York Central will open bids June 26 on its last half requirements of rails and accessories for delivery by Sept. 30, the tonnage not being announced.

Cars Orders Placed

Merchants Despatch Inc., New York, 500 refrigerators, to Merchants Despatch Transportation Co., to be built at East Rochester, N. Y.

Car Orders Pending

Chicago Great Western, 100 50-ton flat cars; bids asked.

St. Louis, Southwestern, 50 automobile cars, 50 steel underframe flat cars and five coaches, authority being requested of federal court to make expenditure.

United Fruit, Boston, 150 to 300, twelve-ton banana cars, for export; bids asked.

Wheeling & Lake Erie, 250 to 1000 sixty-ton hoppers; bids asked soon.

Locomotives Placed

Boston & Maine, three diesel switchers, to American Locomotive Co., New York.

Portland Terminal Co., three diesel switchers, to Electromotive Corp., Chicago.

Buses Booked

American Car & Foundry Motors Co., New York: Five 30-passenger buses, Hall-Scott horizontal engines, for Montreal Tramways Co., Montreal, Canada.

Pipe

Pipe Prices, Page 71

Pittsburgh — Socony-Vacuum Oil Co. Inc., through its subsidiary, the White Eagle Oil Co., is reported to have placed a contract for furnishing 178 miles of 6-inch pipe line for transporting gasoline from Augusta, Kans., to Kansas City with a local producer. A total of 25,000 tons is involved in four pipe lines which are now proceeding to the inquiry stage.

Demand for tubular products is showing slight improvement.

New York—New bookings in cast pipe are negligible and there are no new inquiries of any size. Eastern pipe foundries continue active on old orders, but operations promise to be curtailed over the next few weeks if business fails to improve. Prices are unchanged.

Chicago — United States Pipe & Foundry Co. has booked 7000 tons of various sizes of cast pipe for Cicero, Ill., largest individual order placed in this district in several years. Chicago is closing on 2827 tons of cast pipe on which it took bids early this month. While inquiries and orders for federally sponsored work are less active, producers continue to ship in good volume against previous contracts. Prices are steady.

San Francisco — Interest centers around the opening of bids on June 17 for the largest cast pipe tonnage of the year, 13,000 tons of 6 to 24-inch for Los Angeles. United States Pipe & Foundry Co. took 190 tons for Alhambra, Calif. Unnamed interests took 200 tons for two sound stages for Century-Fox Film Corp., Los Angeles.

Birmingham, Ala.—All cast iron pressure pipe shops in the district are in steady production, and prospects are for continued activity. Some business is already reported booked for third quarter.

Seattle—Demand for cast pipe is not keeping pace with other items. Projects pending include 525 tons for Portland, Oreg., and 225 tons for district No. 3, King county, Wash., for which figures have been in for some time.

Cast Pipe Placed

8000 tons, 6-inch, for 178 mile line for transporting gasoline from Augusta, Kans., to Kansas City, through White Eagle Oil Co., subsidiary of Socony-Vacuum Oil Co. Inc., to unnamed producer.

7000 tons, 30-inch and smaller, Cicero, Ill., to United States Pipe & Foundry Co., Burlington, N. J., through Leininger Construction Co., Chicago.

200 tons, for two sound stages, Century-Fox Film Corp., Los Angeles, to unnamed interest.

190 tons, 6 and 8-inch, class 250, Alhambra, Calif., to United States Pipe & Foundry Co., Burlington, N. J.

Cast Pipe Pending

13,000 tons, 6 to 24-inch cast iron pipe; bids opened June 17 by Los Angeles.

100 tons, 12-inch, class B or 150, Huntington Park, Calif.; bids June 15.

Strip Steel

Strip Prices, Page 71

Pittsburgh—Prices on all stainless grades of strip steel have been extended unchanged into third quarter. Orders for strip steel are more diversified and the market last week featured more buying on tight cooperage hoop than in any week since December, 1935. The automotive industry's commitments of both hot and cold-rolled strip steel are not declining to the extent predicted a month ago. Last week hot-rolled strip production was up to 52 per cent, compared with 50 the week preceding, and cold-rolled strip gained from 47 per cent to 50 per cent.

Cleveland—Makers of both hot and cold-rolled strip note a perceptible diminution in specifications from automotive interests, but other consumers continue to place their usual requirements. No objection to third quarter price advance on hot-rolled material is being heard.

Chicago—Cold-rolled strip demand is well maintained despite the fact that automotive requirements are slackening, and that there is lack of

speculative buying in the extension of current prices into third quarter. Hot-rolled strip buying has increased, however, due partly to the increase of $2 a ton which becomes effective July 1. Hot strip producers will be rushed in their attempt to complete shipments of low priced material by the end of this month and some shipments will be carried over into July. Third quarter contracting so far is quiet.

Philadelphia—Narrow strip tonnage reflects a better movement in hot-rolled material, due to the impending advance of $2 a ton for third quarter, but shows little change in the volume of cold-finished strip, which remains the same in price. Volume of strip, at best, has been relatively restricted for many months. due to the increasing inroads of slit sheets.

Wire

Wire Prices, Page 71

Pittsburgh—Buying of merchant and manufacturing wire products holds level, with the result that June's tonnage may equal the May total. The market is showing some progress in eliminating concessions, which have been particularly flagrant in nails, largely through eastern New York state. The mill base on nails holds officially at $2.10 per keg, Pittsburgh or Cleveland, 3.00c for galvanized fence wire, and 2.65c on annealed fence wire. Automotive demand for plain manufacturing and spring wire will soon enliven the market. The former item is quoted 2.40c, base, Pittsburgh, and spring wire, 3.05c.

Philadelphia—With no change in the wire prices anticipated for third quarter, tonnage has been running rather even for the past three or four weeks. Moderate tonnage is being booked.

Tin Plate

Tin Plate Prices, Page 70

Pittsburgh—Favorable crop reports have been encouraging to tin plate producers who now are beginning to expect that 1936 will be a record year. The 100 per cent rate of operations initiated early in May lends promise to continuing, owing to backlogs of seven to eight weeks for hand mills and about two months to ten weeks on cold-reduced plate. No price change is in prospect in standard tin plate from the present $5.25 per base box, Pittsburgh, quotation. However, 28 gage tin mill black sheets will be advanced from 2.75c to 2.85c, and long ternes from 3.40c to 3.50c, Pittsburgh, effective July 1.

Semifinished

Semifinished Prices, Page 71

Consumers' specifications covering rerolling billets and sheet bars continued last week at the improved rate which was inaugurated two weeks ago. There is evidence that some nonintegrated mills which are important semifinished steel buyers are beginning to anticipate what they will require in July and August and making arrangements to take in stock before the $2 a ton increase, July 1. However, current requirements for finishing mill schedules prevent inventories accumulating to the extent they might desire, with the result that no unduly large tonnages are being laid down speculatively.

Quicksilver

New York—Quicksilver prices are slightly easy with some sellers holding asking prices unchanged. Currently, small lots of 15 to 25 flasks are quoted $74.50 to $75 a flask. Demand is quiet and influencing prices thereby.

Shapes

Structural Shape Prices, Page 70

New York—With plain structural material slated to move from 1.90c to 2.00c, base, Bethlehem, Pa., July 1, unusual activity is reflected. Actual lettings have been small but many projects are being pushed with a view to getting them under contract by the end of the month. New projects added to the pending list during the past week aggregated well over 10,000 tons. Market is strong.

Pittsburgh—Fabricators are making numerous requests for price protection on specific projects which will take form in the third quarter, but are not laying in stocks to any extent against the price increase. Varying interpretations are being given by steel producers on the effective date of the $2 a ton increase in structural shapes, and it appears likely that shipments against second quarter contracts will be strung out through July. Jones & Laughlin Steel Corp. has signified allocation of 7000 to 9000 tons for the new continuous sheet mill building on the South Side. Successful bidders will soon be announced.

Chicago—Fabricators will have an extensive volume of business for state bridges during summer months, as a result of new inquiries and work already booked. Bridge inquiries from several states involve nearly 7000 tons. Piling inquiries include 1630 tons for three projects. Awards still lag behind new business, but shipments against contracts are steady. Producers are allowing a 30-day extension in closing on business at old prices for an identified job; formerly a 60-day leeway was allowed.

Philadelphia—While awards were light, district fabricators are figuring on considerable work, much from the outside, and there is an increasing demand for draftsmen. Among recent orders are 1300 tons for the bureau of printing and engraving building, Washington, awarded by John McShain, Philadelphia. A leading inquiry involves 1000 tons for a state bridge at Winans, Md., bids opening June 26. Indications point to the probability that routine buyers will be able to specify until the end of the month at the current market of 1.90c, Bethlehem, Pa., or 2.01½c, Philadelphia.

Birmingham, Ala.—Fabricating shops maintain firm conditions, operations being almost at full volume with healthy backlogs still noted and new business coming in daily. Virginia Bridge Co. has contract for 360 tons for a bridge in Louisiana and for 365 tons for bridge in Nebraska. Bids are out on several contracts involving considerable tonnage and awards are looked for at the beginning of week. Prospects are bright for at least three months and new business is in sight to cover remainder of year.

San Francisco—Awards were the largest in over six weeks, Consolidated Steel Corp. booking 500 tons for the observatory at Mount Palomar, San Diego, Calif., and 300 tons for the third sound stage for Century-Fox Film Corp., Los Angeles.

Seattle—Recent awards have been unimportant but fabricating plants

Shape Awards Compared

	Tons
Week ended June 12	18,215
Week ended June 5	16,001
Week ended May 29	13,934
This week, 1935	6,255
Weekly average, 1935	17,081
Weekly average, 1936	19,568
Weekly average, May	20,117
Total to date, 1935	333,033
Total to date, 1936	469,629

are generally busy with orders booked during the last 60 days. Considerable new work in small tonnages has been taken recently although business pending is small. The Pasco-Kennewick, Wash., state bridge job, 250 tons, has not yet been subcontracted. United States engineer, Seattle, has opened bids for 150 tons steel sheeting piling for the jetty at Nome, Alaska.

Shape Contracts Placed

1300 tons, bureau of printing and engraving building, Washington, through John McShain, Philadelphia, to Bethlehem Steel Co., Bethlehem, Pa.; 360 tons of steel piling still pending.

1100 tons, dam, Colorado Springs, Colo., to American Bridge Co., Pittsburgh.

1000 tons, North high school, Binghamton, N. Y., to Leach Steel Co., Rochester, N. Y.

755 tons, Ruppert brewery house, New York, to American Bridge Co., Pittsburgh, through Fassler Iron Works, New York.

710 tons, state highway bridge over Reading railroad at Frackville, Pa., to Phoenix Bridge Co., Phoenixville, Pa.

675 tons, children's hospital, Castleton, N. Y., to Dreier Iron Works, New York.

660 tons, state highway bridge, Larimer, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

600 tons, A. P. W. Paper Co. building, Albany, N. Y., to American Bridge Co., Pittsburgh.

535 tons, dome building for 200-foot telescope, Los Angeles, to Consolidated Steel Corp., Los Angeles.

510 tons, state highway bridge, Onondaga county, New York, to American Bridge Co., Pittsburgh.

500 tons, overpass, Imboden, Ark., to Muskogee Iron Works, Muskogee, Okla.

500 tons, observatory, Mount Palomar, San Diego, Calif., to Consolidated Steel Corp., Los Angeles.

440 tons, two buildings, Fisher Body Co., Lansing, Mich., to Whitehead & Kales, Detroit.

435 tons, school, Norwalk, Conn., to Bethlehem Steel Co., Bethlehem, Pa., through John H. Eisele, New York.

425 tons, Fiftieth street viaduct, Kansas City, Mo., to Kansas City Structural Steel Co., Kansas City.

420 tons, high school, Dunmore, Pa., to Anthracite Bridge Co., Scranton, Pa.

400 tons, state bridge, route 362, Montgomery county, Pennsylvania, to Bethlehem Steel Co., Bethlehem, Pa.

390 tons, bridge, Douglas county, Kansas, to St. Joseph Structural Steel Co., St. Joseph, Mo.

360 tons, postoffice, annex "D," New York, to Norton Steel Co., New York.

355 tons, state bridge, Harrison county, West Virginia, to American Bridge Co., Pittsburgh.

330 tons, stack supports, Consolidated Edison Co., New York, to American Bridge Co., Pittsburgh.

305 tons, pump house for Standard Oil Co., Texas City, Tex., to Bethlehem Steel Co., Bethlehem, Pa.

300 tons, third sound stage, Century-Fox Film Corp., Los Angeles, to Consolidated Steel Corp., Los Angeles.

300 tons, Chesapeake & Ohio railroad bridge, Brighton, O., to American Bridge Co., Pittsburgh.

285 tons, bridge section, Edwardsville, Ill., to Wisconsin Bridge & Iron Co., Milwaukee.

275 tons, bridge, Pike county, Missouri, to Illinois Steel Bridge Co., Jacksonville, Ill.

260 tons, bridge, Inglewood boulevard, Los Angeles, to Ingalls Iron Works Co., Birmingham, Ala.

215 tons, state highway bridge, Mt. Pocono, Pa., to American Bridge Co., Pittsburgh.

200 tons, girder and I-beam spans, Laramie, Wyo., to Midwest Steel & Iron Works Co., Denver.

190 tons, state highway bridge, Spring Valley, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

185 tons, Roosevelt high school, Ossining, N. Y., to Belmont Iron Works, Eddystone, Pa.

185 tons, bridge, Oskaloosa, Iowa, to Des Moines Steel Co., Des Moines, Iowa.

180 tons, cold storage building, Iroquois brewery, Buffalo, to Ernst Iron Works, Buffalo.

168 tons, crossing at Black River Junction, King county, Washington, to Pacific Car & Foundry Co., Seattle.

165 tons, Budlong avenue school, Los Angeles, to Bethlehem Steel Co., Bethlehem, Pa.

160 tons, undergrade crossings, Rivera,

Calif., to Virginia Bridge Co., Roanoke, Va.

150 tons, power house extension, Pan-American Petroleum Co., Texas City, Tex., to Mosher Steel & Machinery Co., Dallas, Tex.

140 tons, bridge, Madison county, Missouri, to Stupp Bros. Bridge & Iron Co., St. Louis.

140 tons, beams for stadium, Nashua, N. H., to Phoenix Bridge Co., Phoenixville Pa.

135 tons, warehouse, United Color & Pigment Co., Newark, N. J., to Savary & Glaeser Inc., Dunellen, N. J.

132 tons, structural and reinforcing steel, substation building, Fort Peck dam tunnels, Montana, to Bartlett Hayward Co., Baltimore, at $83,475 on June 2 bid.

131 tons, structural steel for building emergency shaft, Fort Peck dam tunnels, Montana, to Bartlett Hayward Co., Baltimore, at $16,506 on June 2 opening.

125 tons, bridge, Panola county, Mississippi, to Pidgeon-Thomas Iron Co., Memphis, Tenn.

125 tons, power house, Seaview hospital, Staten Island, N. Y., to Belmont Iron Works, Eddystone, Pa.

125 tons, truss span, Morrocroft, Wyo., to Minneapolis-Moline Power Implement Co., Minneapolis.

125 tons, signal bridge and supports for electrification work, Pennsylvania railroad, to Bethlehem Steel Co., Bethlehem, Pa.

120 tons, manufacturing building, Clearing, Ill., to New York Iron Works, Chicago.

119 tons, emergency gate guides, Fort Peck dam tunnels, Montana, to Bartlett Hayward Co., Baltimore, at $24,411 on June 2 opening.

110 tons, bridge, Chase county, Kansas, to Kansas City Structural Steel Co., Kansas City, Mo.

110 tons, manufacturing building, Lux Clock Co., Waterbury, Conn., to Joseph T. Ryerson & Son Inc., Chicago.

105 tons, recreation building, St. Mary's church, Erie, Pa., to Erie Concrete & Steel Supply Co., Erie.

100 tons, high school, Plattsburg, N. Y., to F. L. Heughes & Co., Rochester, N. Y.

Shape Contracts Pending

2000 to 3000 tons, proposed Port Huron, Mich.-Sarnia, Ont., international bridge, steel cantilever type including one 850-foot span; bids on approaches and span to be taken shortly in following manner: Ontario highway department, approach to Sarnia side; Michigan state bridge commission approach to Michigan side; span bids to be taken jointly.

1600 tons, state hospital, Orangeburgh, N. Y.

1120 tons, stadium, Jersey City, N. J.: American Bridge Co., Pittsburgh, low.

1000 tons, piling, Northern Indiana Public Service Co., Michigan City, Ind.

1000 tons, Brooklyn state hospital, Brooklyn, N. Y.; bids July 1.

1000 tons, state bridge, Winans, Md.; bids June 23.

1000 tons, Federal jail, Los Angeles; bids June 30.

850 tons, state bridges, Indiana; bids June 23.

800 tons, bridge, Hardtner, Kans.

700 tons, Olentangy grade elimination, Ohio state highway project; bids submitted June 9 on general contract.

700 tons, school, Whiteboro, Oneida county, New York.

675 tons, bridge, Romney, W. Va.

500 tons, plant addition, Chevrolet Motor Co., Janesville, Wis.

450 tons, two 60-ton, one 40-ton and two 75-ton traveling cranes for Gene, Intake, Eagle mountain and Hayfield pumping plants, metropolitan water district, Los Angeles, specification 156; bids June 15.

300 tons, sheet piling, United States coastguard, Marblehead, O.; bids close June 17.

300 tons, building for Electrolux Co., Old Greenwich, Conn.

280 tons, piling, dock for Atchison, Topeka & Santa Fe railroad, Chicago.

275 tons, sewage disposal plant, Niagara Falls, N. Y.: Francis A. Canuso, general contractor, Philadelphia, expected to act shortly.

225 tons, Delta, Fulton county, Ohio, bridge; Freeman & Jones, Cleveland, low on general contract; steel not yet placed.

210 tons, auditorium, San Bernardino Valley Union junior high school, San Bernardino, Calif.; bids opened.

200 tons, refinery building for Staley Co., Decatur, Ill.

200 tons, Lehigh Valley grade crossing elimination, Seneca county, New York.

200 tons, bus terminal, 60 West Fifty-first street, New York.

150 tons, sheet piling for jetty at Nome, Alaska; bids in to United States engineer, Seattle.

150 tons, warehouse, Cumberland, Md., for Bernstein Furniture Co.

150 tons, Delaware & Hudson grade

Behind the Scenes with STEEL

Elephants Don't Forget

CHIEF topic behind the scenes last week was the GOP convention. From every possible angle one's ears were assailed by blaring loudspeakers — on hotel roofs, on motor trucks, in airplanes, in automobiles. Horns everywhere poured out a stream of oratory which left the populace generally with severe cases of "loudspeaker-ears."

Best crack we heard during the week was that of a Cleveland sports-writer who depreeatingly suggested that the Republicans nominate Gov. Bridges of New Hampshire for vice president so that the Democrats could adopt as their campaign theme song: "Landon-Bridges falling down."

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Flaw

ON THE front cover of STEEL for June 8 appeared the heading, "All Republic Steels Must Run This Gauntlet of Tests," which gave our vice president in charge of grammar and vocabulary a terrific start. The reason was that word "gauntlet," which is a perfectly good appelation for a certain type of glove but should not be used in connection with "running the gantlet."

Webster's New International says gantlet may mean gauntlet, but gauntlet never means gantlet. Is that clear?

Now Republic Steel will probably come right back and say, "Pardon our glove," after which we will let the whole thing drop.

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Heat Wave

THE Flare of the Welding Arc Climbs to 8700 Degrees Fahr.," shout the Camel cigarette people in a current advertisement. That's real climbing, we'd say. But maybe it got a lift from a Camel.

We'll have to see Mr. Kinkead about that.

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Big Talkers

SPECIAL news release from *Fortune* magazine sees United States Steel Corp. as a "quasi-public institution" and psychoanalyzes the business as a "schizophrenic or split-personality."

Come on, you STEEL editors, drag out some big words. Dig up the old Roget's Thesaurus and let loose a few tongue-twisters. Are you mice or men?

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Anniversary

ALTHOUGH no one sent us a nice chocolate cake with one pink candle stuck in it, we are proud to announce that with this issue "Behind the Scenes with STEEL*" marks the beginning of its second year of existence. Debut was made inauspiciously in the June 10, 1935, issue.*

During the past 52 weeks we hope we have made a few friends, a few new readers and possibly a slight smile where there may have been a frown.

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Scoop!

WORD comes from the editorial department that next week's issue will present some details of a mysterious new welding process that apparently has many technicians in the Middle West slightly gaga.

That's all we can tell you, but we suggest that you make it a point to read STEEL for June 22 carefully. In fact, you are missing a bet if you do not read every issue carefully; over a score of editors are working for you every day, at an average daily cost to you of only $0.008. You couldn't beat that even with the WPA.

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INQUISITIVE CAMERA DEPT.—VI

BOWING to a popular demand for a picture of this department at work, we reproduce herewith such a shot—12 feet, f 4.5, 1/25-second, SS 35 mm. film, skies overcast. Really would be a good picture, except for the fact that at the time we happened to be out to lunch.

—SHRDLU

crossing elimination, Hudson Falls, N. Y.

135 tons, dining room, National Cash Register Co., Dayton, O.; general contract to H. K. Ferguson, Cleveland; steel not yet placed.

125 tons, highway bridge, Franklin county, Illinois; bids June 12.

105 tons, Joan of Arc school, Jackson Heights, N. Y.

100 tons, loft building, 52 West Thirty-ninth street, New York.

Tonnage unstated, state highway bridge, Schenectady, N. Y.

Tonnage unstated, state highway bridge, Orange county, New York.

Tonnage unstated, 5-span, 360-foot state bridge, Blackfoot river, Missoula county, Montana; bids at Helena, Mont., June 16.

Reinforcing

Reinforcing Bar Prices, Page 71

New York—While lettings of concrete reinforcing bars were of less than 500 tons, involving mostly small orders, several tonnages now pending appear to be slated for early closing. The price is unchanged at approximately 1.95c to 2.05c base, Pittsburgh, for bars rolled from new billets.

Pittsburgh — Recent announcement of the new billet reinforcing steel bar market price of 2.05c for third quarter is construed by some as an increase of $2 a ton in view of the firmer establishment of the cutting-to-length extra of 10 cents. Effective with third quarter producers will attempt to name a base to jobbers of 1.85c, Pittsburgh, plus cutting-to-length extra of 10 cents, or 1.95c. The present market is far from firm and going prices reflect the effects of individual negotiation in each case, with the result that some jobbers' prices have been $5 to $8 a ton below the official market.

Chicago—Bookings by distributors are confined principally to small lots, but the tonnage involved in pending work points to fairly heavy shipments for several months. Highway work, sewage disposal systems and dams will require a substantial tonnage in the Central West. The Clarksville, Mo., lock will take 368 tons. More than 1000 tons is expected to be placed shortly for sanitary district work and the outer drive development at Chicago.

Seattle—Improved demand from industrial firms and wholesalers is noted although large tonnages are few and federal requirements have declined. Mills report a fair total in small lots.

San Francisco—Most rolling mills on the Pacific coast are now operating at more than 100 per cent of capacity and backlogs are being built up to an extent seldom witnessed. On a recent inquiry by the government for delivery in ten days, several mills were unable to deliver within 50 days.

Philadelphia—New bar demand has tapered, although a substantial tonnage continues under negotiation, including approximately 600 tons each for two federal housing jobs on which new bids will be asked. On one of these latter projects, the Hillside housing development, the low bid of Starrett Bros. & Eken, New

Concrete Awards Compared

	Tons
Week ended June 12	3,195
Week ended June 5	4,315
Week ended May 29	5,029
This week, 1935	2,634
Weekly average, 1935	6,862
Weekly average, 1936	6,103
Weekly average, May	6,368
Total to date, 1935	117,064
Total to date, 1936	146,478

York, was rejected as being about 22 per cent higher than builders' estimates. On the other project at Wayne, Pa., low bid of Belmar Construction Co., Philadelphia, was rejected on similar grounds. Prices on billet steel bars are firming up to existing official quotations, although there will be no increase in these for third quarter. On the other hand it seems that sellers generally will permit a period of only 30 days protection from the end of the current quarter on whatever quotations may be specified on identified work.

Reinforcing Steel Awards

415 tons, item No. 20, emergency gate shaft contract, opening June 2, Fort Peck dam tunnels, Montana, to Bartlett Hayward Co., Baltimore, at $39,010.

350 tons, bridge, Rockford, Ill.; divided between Concrete Engineering Co. and Olney J. Dean & Co., both of Chicago.

260 tons, outer drive development, Chicago, to Concrete Steel Co., New York, through W. E. O'Neil Construction Co., Chicago.

225 tons, school, Dunmore, Pa., awarded through the Karno-Smith Co., Trenton, N. J., to Bethlehem Steel Co., Bethlehem, Pa.

200 tons, hospital, Bedford, Mass., to Barker Steel Co., Somerville, Mass., through Thomas O'Connor, Cambridge, Mass.

200 tons, warehouse, Certified Grocers of California, Los Angeles, to unnamed interest.

200 tons, addition to Horace Mann junior high school, Los Angeles, to unnamed interest.

170 tons, administration building, Miles field, San Francisco, to Gunn, Carle & Co., San Francisco.

150 tons, S. S. White Dental Mfg. Co., Prince Bay, N. Y., to Truscon steel Co., Youngstown, O., through Austin Co., Cleveland.

150 tons, two wards, state hospital, Camarrillo, Calif., to unnamed interest.

150 tons, buildings for Virgil junior high school, Los Angeles, to unnamed interest.

125 tons, steel reinforcement for building, item No. 10, emergency gate shaft contract, for Fort Peck dam tunnels, Montana, to Bartlett Hayward Co., Baltimore, at $11,500 on June 2 bid.

100 tons, addition to St. Ann's maternity hospital, Los Angeles, to unnamed interest.

100 tons, addition to Herbert Dana junior high school, Los Angeles, to unnamed interest.

100 tons, auditorium, The Palms school, Los Angeles, to unnamed interest.

100 tons, market, Santa Monica boulevard and Randolph court, Los Angeles, to unnamed interest.

100 tons, alterations, Hooper avenue school, Los Angeles, to unnamed interest.

100 tons, addition to State Teachers college, Tempe, Ariz., to unnamed interest.

Reinforcing Steel Pending

1000 tons, superstructure, housing project, South Boston; bids June 17.

650 tons, school, Providence, R. I.; general contract to John Bowen Construction Co., Providence.

600 tons, Hillside housing project, federal government-financed operation, Philadelphia; to be readvertised; bid of Starrett Bros. & Eken Inc., New York, low, but rejected as exceeding builder's estimate by about 22 per cent.

600 tons, housing project, a federal government-financed operation, Wayne, Pa., to be readvertised; bid of Belmar Construction Co., Philadelphia, rejected as too high.

500 tons, contract I, sewer, Buffalo; Frazier-Davis Co., St. Louis, general contractor.

176 tons, cottages on state farm at Farmington, Mo.; McCarthy Construction Co., St. Louis, low.

150 tons, state bridge, Rouses Point, N. Y.; bids June 15.

121 tons, Vasquez creek siphons No. 1 and No. 2, Denver; bids June 16.

Pig Iron

Pig Iron Prices, Page 72

Pittsburgh—With no price incentive for foundries to stock pig iron, the market continues on a hand-to-mouth basis. The average order seems to run to carload size, with the result that producers are obligated to carry a large number of analyses and grades in stock.

Chicago—Shipments so far this month are about equal to the corresponding May period. While foundry operations are well maintained on the average, some seasonal decreases are occurring. Farm implement manufacturers are commencing to curtail schedules, and production of automotive castings is off. Good schedules still prevail among machine tool builders, producers of sanitary ware, and tractor manufacturers. Third quarter business is active and bookings for delivery in that period are more than twice as large as those during the corresponding period prior to the opening of the present quarter. The market is steady.

Boston—While pig iron buying has improved and several moderate tonnages have been placed for third quarter, new business is developing slowly because of assurance that current prices will not be changed for third quarter. Improvement is based largely on placing of normal requirements, plus additional tonnage due to increasing foundry operations.

New York—Domestic sellers appear to be losing an increasing amount of business to importers of foreign iron, and as total consumption is showing only modest improvement, few domestic sellers are able to report increases in bookings. The situation may be improved over the next fortnight as consumers become interested in third quarter tonnage, although little forward buying is expected, in view of reaffirmed prices.

Philadelphia—Pig iron sales are at least being sustained, and very shortly there should be some buying for third quarter, although buyers are not likely to anticipate future requirements very much. Recent importations included 1000 tons of low phosphorus from England, 800 tons of pig iron from British India, 1000 tons of iron from Holland, in addition to 2960 tons received at Bridgeport, Conn.

Buffalo—Demand for pig iron continues good, with sales and shipments this quarter running well in excess of the previous period. Orders

for the third quarter are coming forward in good style, but are limited to lots of 500 tons and less. Ten blast furnaces continue in production.

Cincinnati—Pig iron orders are conservative, for immediate needs. Few melters are showing interest in covering third quarter requirements. Shipments are steady, and indicate a melt close to 70 per cent.

St. Louis—Demand for pig iron continues active, with the melt as a whole maintained at or close to the highest point so far achieved this year. Purchasing is mainly in small lots, while several sizable lots have been placed, as a rule there is no disposition to speculate or invest. Jobbing plants have been a good volume of orders, both from large users of castings, and miscellaneous sources, and the tractor section of the farm implement industry continues to go strong, though some slight curtailment in other branches of the industry is noted. Shipments so far this month are about on a parity with the comparable period in May, but above the like interval in 1935. Specifications indicate the June total will be slightly above May.

Birmingham, Ala.—Some business has been booked for third quarter, and blast furnace interests feel confident a fairly steady trade is coming on. Surplus stock of iron is good.

Toronto, Ont. — Demand for merchant iron improved last week, due to the fact that a number of melters that had been running on stocks again entered the market. Awards for the week totaled about 1200 tons. There has been no forward delivery buying, although producers look for some melters to close for third quarter before June 30. Prices are firm and unchanged.

Scrap

Scrap Prices, Page 73

Pittsburgh — No. 1 heavy melting steel is now quoted $13.25 to $13.75, reflecting buying of the leading interest and a downriver independent, whose purchases in 10,000-ton aggregate were made at $13.50, delivered. Later last week a district independent bought several thousand tons of railroad heavy melting at $14 a ton, delivered, but in all, this slight flurry of buying did not build up more than a 12,000-ton district shortage. However, it has had the effect of firming up the market to an extent.

Cleveland—Iron and steel scrap here is still marking time with uncertainty as to price. The easiness which has developed recently in Pittsburgh and at Youngstown has extended to this market, but so far it has taken the form of sentimental weakness only and has not yet been translated into figures. Offers to sell No. 1 heavy steel into the valley at $13.50 have been refused by important buyers.

Chicago—Scrap continues dull as regards new business, but dealers and brokers are active in covering contracts. Heavy melting steel nominally continues $12.50 to $13, though higher prices are being paid by sellers in completing higher priced orders. Mills display little interest in making new commitments. Supplies are ample to accommodate open-hearth requirements, but there are no distress tonnages.

Boston — Because brokers have comparatively small order books, as a result of continued lack of domestic buying, they have dropped their buying prices on three grades. They now are offering $7.50 to $7.75, f.o.b. cars, Boston district, for iron car wheels, $3 to $3.25 for machine shop turnings and $7.50 to $7.75 for scrap rails. Consumers' buying prices in this district are unchanged, No. 1 heavy melting steel quoted at $9.50, No. 1 machinery cast at $11 to $11.50 and textile cast at $11 to $11.50 delivered.

New York—Brokers have dropped their f.o.b. New York buying prices on mixed borings and turnings, grate bars and foundry stove plate for domestic consumption. Brokers' buying prices, f.o.b. docks, for export, are unchanged on the basis of $9.50 for No. 1 heavy melting steel. Considerable scrap continues to be loaded for export. This is all on old orders and no new export orders are reported.

Philadelphia — Prices on No. 1 steel have eased slightly to $11.75 to $12, delivered, eastern consuming plant, as a result of substantial buying by the Bethlehem, Pa., consumer of steel from outside points for Bethlehem. No. 2 steel also has eased slightly to a spread of $10.75 to $11. Trading generally is light, but with steelmaking operations again on a slightly upward trend, scrap interests do not look for much further decline.

Cincinnati — Quotations on iron and steel scrap remain unchanged, although softness was evident from disinterested bidding on current railroad lists, including one of 6000 tons by the Louisville & Nashville, chiefly rails. Mills are buying only miscellaneous offerings.

St. Louis—Both buyers and sellers of iron and steel scrap are disposed to mark time, and trading has been limited to a few small lots. Prices, with exception of No. 2 heavy melting steel, which declined 50 cents, are unchanged and largely untested. Sentiment, however, is somewhat more bullish than heretofore.

Detroit—The market is listless.

Automotive scrap supplies are smaller, which has depressed prices for the past six weeks. Though brokers look for a generally unchanged scrap price level over the next 30 days, low dealer stocks form a bullish factor. Some activity continues in gray iron and steel foundry scrap grades and this market is firm.

Seattle—The export market is dull but prices are being sustained by continued interest of domestic mills. Japan is not interested, stocks in that country being reported large, although Oriental buyers are expected to resume negotiations in the late summer.

Toronto, Ont.—Trading in iron and steel scrap is active. Increased offerings from rural districts recently have enabled a few dealers to augment yard holdings, but it is stated that the outflow still exceeds the inflow. Foundries are taking machinery cast and there is good call for malleable, but both grades are held in limited quantity. Prices are firm and unchanged.

Warehouse

Warehouse Prices, Page 74

Pittsburgh—Buyers of warehouse steel products are awaiting announcement of a higher price schedule to take effect July 1. According to all indications, the advance will be $2 a ton on hot-rolled items and $3 a ton on cold-finished steel bars.

Chicago—Sales to date in June are heavier than a month ago. Jobbers are inclined to attribute the improvement to gains in consumption rather than to anticipation of higher prices. Higher quotations to meet increases by mills have not yet been announced.

New York—Quantity deductions on large orders for bars, bands, plates, structurals and blue annealed sheets have been increased, according to the schedule on page 74. Volume of business has increased and is at least equal to the average rate of bookings during May. Domestic prices are being shaded by foreign shapes, plates, bars and occasionally sheets.

Detroit—Advances of $2 a ton in hot-rolled finished steel items and $3 a ton in cold-finished steel bars likely will be made by warehouses for effect July 1. Announcements to this effect will be issued probably next week. Meanwhile, some stocking by jobbers is going on against the application of this advance. Aggregate warehouse sales continue at a 1936 peak.

Cincinnati—Volume of warehouses may be larger this month than last, largely because of a steady flow of small orders for home-building materials. No third quarter price changes have yet been announced.

St. Louis—Warehouses and jobbing interests report business in satisfactory volume. Building materials are increasingly active. Prospective advances in prices of sheets and plates has stimulated some buying, stocks having been augmented noticeably since mid-May.

Seattle—Business is reasonably active, all items out of stock continuing in good demand. Lack of WPA buying has been offset by a stronger turnover in industrial and agricultural circles. Prices are unchanged but jobbers will discuss an advance in harmony with mill increases for third quarter.

Bolts, Nuts and Rivets

Bolt, Nut, Rivet Prices, Page 71

The advance of $3 a ton in large structural rivets, announced last week for effect July 1, will move the Pittsburgh and Cleveland base from the present 2.90c market to 3.05c and Chicago base to 3.15c. Since the 5 per cent increase in bolts and nuts, also for third quarter, had been announced earlier, it was generally expected that large rivets would also be marked up. Small rivets will be unchanged for third quarter on the basis of 70-5 off list. Some degree of accumulation by consumers in bolts, nuts and rivets is being done by jobbers, railroad car shops and the automotive trade.

Cold Finished

Cold Finished Prices, Page 71

Pittsburgh—Jobbers of cold-finished steel bars are taking advantage of the opportunity of buying material under the present market based on 2.10c, base, Pittsburgh, stocking it and obtaining a higher resale price after July 1. In fact, an advancing market such as the present $3 a ton increase now pending in cold-finished bars is proving a distinct advantage to jobbers compared with other types of users. At present it appears likely that unfilled orders carried over from second quarter will be shipped at producers' convenience through July.

Coke By-Products

Coke By-Product Prices, Page 71

New York—Shortage of benzol, toluol, industrial xylol and solvent naphtha is more pronounced and producers are having considerable difficulty in supplying customers. Practically the same conditions exist in phenol and naphthalene. Prices on all of these products are unchanged and firm.

Metallurgical Coke

Coke Prices, Page 71

At least one merchant furnace in western Pennsylvania has been making preparations recently to use beehive coke beginning in July, so as to conserve its by-product fuel for the

fall. An important purchase of beehive coke of this type was made recently at $3.25, f.o.b. Connellsville, Pa., ovens, with the specification this coke be made from slack. For standard beehive coke from mine run the $3.65 per ton market is being obtained by sellers on spot sales. Foundry coke is about $4.25 to $4.35 for common foundry grades, with premium beehive foundry coke, $5.35 to $5.50.

Shipments continue at a high level in the Chicago district, with prices unchanged. Cincinnati makers find demand unchanged and shipments at a high rate.

Steel in Europe

Foreign Steel Prices, Page 74

London—(*By Cable*)—Great Britain continues its steady production of steel and pig iron at a high rate. May output of steel ingots and castings was 963,000 gross tons, at the daily rate of 38,520 tons, compared with 991,500 tons in April at the daily rate of 38,134 tons. Had May been one day longer, to equal the number of working days in April, a new record would have been set at just over 1,000,000 tons.

Pig iron production in May was 661,000 gross tons from 112 stacks, the same number as in April. This was at the daily rate of 21,332 tons. In April production was 629,800 tons, a daily rate of 20,933 tons.

The recent advance in prices has exceeded market expectations but new business is small as consumers are heavily committed for months ahead. Steelworks have sufficient bookings to insure activity for many months. Pressure for delivery of foundry pig iron persists in all districts. Arrivals of Russian pig iron are increasing. Scrap is easier.

The Continent reports strike threats retarding business in France. It is expected Continental prices will be advanced after June 30, in sympathy with the British rise.

Ferroalloys

Ferroalloy Prices, Page 72

New York—Ferromanganese producers have reaffirmed $75, duty paid, Atlantic and Gulf ports, for third quarter, and domestic spiegeleisen sellers have taken similar action in extending their prices at a basis of $26, Palmerton, Pa., on quantities up to 50 tons, and $24 on lots of 50 tons and over. Meanwhile, shipments on both products are holding up exceedingly well, in line with continued steelmaking operations. Incidentally, as most steelmakers are now extending their deadline on shipments taken at current prices, a fairly good operating rate is indicated for July, which in turn should be reflected in a moderately good movement of ferromanganese and spiegeleisen.

Prices on all other leading ferroalloys have also been extended.

Nonferrous Metals

Nonferrous Metal Prices, Page 72

New York—Continued weakness in tin prices and the highly favorable copper statistical report for May were outstanding features of major nonferrous metal markets last week. Antimony declined due to easiness in the market in China which was disturbed by armed conflict.

Lead—New demand tapered but consumption held up well. Prices were firm on the basis of 4.45c, East St. Louis.

Copper—Total world refined industrial and non-industrial stocks of copper declined 6100 tons while those of this country alone dropped 3600. Domestic primary or blister production of copper declined but this was offset by increased output from secondary sources. The report showed active deliveries of copper here and steady rate of consumption. All first hand sellers quoted firm levels at 9.50c, Connecticut, for electrolytic.

Zinc—Market appeared quiet but sales may make a favorable showing as in the past two weeks. Prime western held at 4.90c, East St. Louis.

Tin—Prices dropped further to around 42.37½c for Straits spot. Consumers continue cautious due to the uncertainty which exists regarding the extension of the International control plan beyond the end of this year and delay in fixing export quotas for the third quarter.

Antimony—Chinese spot eased nominally to 13.00c, duty paid New York, while American spot dropped to 11.50c.

Uecker Equipment Co., 1217 North Seventy-first street, Milwaukee, which recently engaged in commercial production of a new type of all-steel tubular scaffolding designed by Rein A. Uecker, a general contractor, has arranged with the James Mfg. Co., Ft. Atkinson, Wis., for manufacturing surplus orders. Demand has greatly exceeded the capacity at Milwaukee, and prospects are considered bright in the light of the future of the building industry.

Financial

THE NATIONAL STEEL CORP. has filed a registration statement with the securities and exchange commission covering $10,000,000 first mortgage sinking fund bonds, 3¾ per cent series, due June 1965. Kuhn, Loeb & Co., and associates have advised the corporation that they have sold the bonds to a single purchaser by private sale at an aggregate price of $10,088,000.

The proceeds are to be used to reimburse portion of capital expenditures made and to be made in connection with the improvements and additions to the plants of the Great Lakes Steel Corp., Detroit.

FEWER STEEL STOCKHOLDERS

United States Steel Corp. common stockholders, as of June 1, numbered 178,726, a decrease of 3385 from the 182,111 reported March 7. June 1, 1935, common stockholders numbered 190,880. Preferred stockholders June 1 numbered 61,879, compared with 62,082 March 7, and 63,494 in May, 1935. The record number of steel common holders was 192,898, as of March 18, 1933.

REORGANIZING CONTINENTAL

Formation of a preferred shares committee is to be the first step in reorganization of Continental Shares Inc. The committee, headed by George H. Charls, once president of the United Alloy Steel Corp., and of the Flat Rolled Steel Manufacturers association, will act in an advisory capacity with receivers. It is asking proxies from preferred shareholders.

The reorganization step follows recent approval of a settlement between Chase National Bank, New York, and Continental disposing of the last unrecognized claim against the Shares company.

Chief among the steel stocks owned by Continental are 20,661 shares of Cleveland-Cliffs preferred; 151,123 of Cliffs Corp.; 81,564 of Republic; and 9800 of Youngstown Sheet & Tube.

Steel Bidding Report May Go to President This Week

Report on alleged collusive steel bidding, requested by President Roosevelt, has been corrected and amended by members of the federal trade commission. After redrafting by commission experts, it probably will be sent to the White House before the end of this week.

Washington reports indicate the complete report will not be made public. There has been no intimation as to its findings.

At one of the hearings on the Wheeler-Utterback antibasing point bill in March Secretary Ickes cited numerous cases where he said identical bids had been received, asserting "it is a fair inference that the bidding does not represent free and unrestrained competition." He said he was in sympathy with the Wheeler bill.

Cutler-Hammer Inc., Milwaukee, reports March quarter net income $232,343, after taxes, etc., subject to later adjustments.

West Virginia Company To Scrap Pulaski Furnace

Platnick Bros., Bluefield ,W, Va., were purchasers of the blast furnace plant of the Pulaski Iron Co., Pulaski, Va., which as announced in STEEL for June 8 was sold for scrap on May 26. The purchase involved the entire plant, including 61 acres of land and 27 dwellings for employes and officials. It is estimated that the 4000 tons of iron and steel scrap and 100 tons of copper and brass scrap will be salvaged. Work is required to be completed in one year.

The Pulaski furnace was built in 1887 and has been idle since 1930. It had a rated annual capacity of 90,000 tons of foundry and malleable pig iron.

Equipment

Pittsburgh—Steel Industries Engineering Corp. here recently received an order for a newly designed double-strand pig casting machine of the stationary roller bearing wheel type from Wheeling Steel Corp. for the installation at its Steubenville, O., works. In addition, this builder has recently received orders for the following: One clay gun for Chateaugay Ore & Iron Co. for blast furnace at Standish, N. Y.; one clay gun for Carnegie-Illinois Steel Corp. for its Gary, Ind., works; and one clay gun for the Shelton Iron, Steel & Coal Co. Ltd., the latter order being placed through Ashmore, Benson, Pease & Co. Ltd., Stockton-on-Tees, England.

Chicago—Sales in some equipment markets have shown further gains so far this month. Machine tool buying is equal to or in excess of that of May and for some sellers represents a new peak for the year to date. Best business is appearing for such metalworking equipment as punches, shears, saws, and the like, though a fair call is appearing for lathes, drills and automatic machinery. Rail road shops continue to buy sparingly, though this restraint is occasioned principally by financial reasons, and with increased activity in railroad equipment work in prospect, a further gain in machine tool purchases is anticipated. Foundry equipment retains the better activity noted the past 30 days.

Seattle—General industrial expansion is being reflected in increasing demands for mining, road building and miscellaneous equipment and machinery. Railroad accessories dealers report an improved turnover while logging and lumber companies are making replacements.

Construction and Enterprise

New York

BUFFALO — Fowler & Union Horse Nail Co., 1000 Military road, is moving machinery from the plant here to the Capewell Horse Nail Co. in Hartford, Conn. The Capewell company has acquired the Buffalo concern.

JAMAICA, N. Y. — Board of transportation, J. H. Delaney chairman, 250 Hudson street, New York, will ask bids until June 16 for furnishing and installing equipment for shop of the municipal rapid transit company. Bids taken on contract Y-85.

NEW YORK — Whitehead Metal Products Co., Port Colburne, Ont., subsidiary of International Nickel Co., 67 Wall street, has announced plans for rebuilding immediately the plant recently damaged by fire.

NEW YORK — R. C. Stanhope Inc., dealer, 101 West Thirty-First street, is in the market for a Cooper-Bessemer gas engine driven air or gas compressor capable of producing 25 pounds of pressure at the rate of 1,500,000 cubic feet per hour.

WATERVLIET, N. Y.—Ludlum Steel Co. has awarded a contract for construction of an additional building, here, that will permit an expansion of the present cold wire drawing department.

New Jersey

BAYONNE, N. J. — Erschler & Krukin Inc., manufacturer of stainless steel kitchen and restaurant equipment, North Bergen, N. J., has leased a 1-story brick building between Hudson boulevard and Newark bay formerly occupied by Roslyn Silk Co., and will move into the new quarters.

NEWARK, N. J.—Kingsland Cooperage Co., 649 North Third street, has purchased the Martin Everett Co. factory and machine shop at 273-301 Emmerett street. Everett plant, consisting of a main fabricating building 100 x 325 feet, will be rehabilitated and additional equipment installed for the manufacture of steel tanks and barrels.

ORANGE, N. J. — Monroe Calculating Machine Co., 555 Mitchell street, is planning to spend $150,000 on a plant program that includes the purchase of motors.

Connecticut

BRIDGEPORT, CONN. — Bridgeport Brass Co., East Main street, is considering spending $150,000 for the purchase of new brass rolling mill equipment, machine tools, and other necessary devices. H. W. Jones is vice president.

WATERBURY, CONN. — American Brass Co. plans to erect a 1-story, 70 x 240 feet, factory building here.

Massachusetts

GARDNER, MASS.—Heywood Wakefield Co., Lake street, expects to let contract soon for construction of a 1-story steel boiler plant. F. J. Sill, East Main street, Westboro, Mass., is consulting engineer.

Maine

YORK, ME. — J. Lucas is chairman of a committee which is planning to extend the town's waterworks. Maturity date is uncertain.

Pennsylvania

EAST PITTSBURGH, PA.—Westinghouse Electric & Mfg. Co. plans to construct a 7-story warehouse and office building at Mansfield, O. A special conveyor system will be installed on the warehouse floors.

JOHNSTOWN, PA. — Carnegie-Illinois Steel Corp., Carnegie building, Pittsburgh, is planning to purchase machinery for a coal tipple at tipple No. 5, Lorain division.

PITTSBURGH — Jones & Laughlin Steel Corp., Third and Ross streets, has secured a permit to construct a power plant on Second avenue at a cost of $40,000.

PITTSBURGH—C. W. Klages owner, 808 Sarah street, and Rose & Fisher contractor, 3215 McClure avenue, have applied for a permit to construct a $12,000 steel and brick building.

WAYNESBORO, PA. — Wayne Tool Co. expects to rebuild the 1½-story factory recently damaged by fire. Plans are expected to mature soon for this $150,000 project.

YOUNGSVILLE, PA. — C. Peters, whose flour and feed mill is near completion, is in the market for conveying and transmission equipment for the mill.

Ohio

BARNESVILLE, O. — Board of education will receive bids until June 25 for all labor and material necessary for installing a new heating and ventilating plant in the local high school building.

BARNESVILLE, O.—City will take bids until noon June 26 for furnishing a 150-horsepower, 150-pound pressure steam boiler through consulting engineer, Jennings-Lawrence Co., 12 North Third street, Columbus, O. Cost estimated at $5500. (Noted STEEL May 25).

CANTON, O. — C. C. Kelhofner, route 5, is interested in purchasing a 16 horsepower steam engine, a horizontal boiler, and other equipment.

CINCINNATI—United States engineer will receive bids until June 16 for constructing and delivering two steel dump scows to United States Marine ways, Fernbank, O.

CLEVELAND — Reilly Tar & Chemical Co., 1617 Merchants Bank building, Indianapolis, producer of coal tar products, plans to start construction at once on a new plant in the Cuyahoga valley here. Cost is estimated at $200,000.

CLYDE, O. — Village, Froelich & Emery, Second National Bank building, Toledo, O. (note correction) is now consulting engineer for this locally-financed $55,000 light plant improvement project. A 750 kilovolt steam turbogenerator, cooling tower, and other equipment, is to be purchased. (Noted STEEL June 1).

COLUMBUS, O. — Columbus Railway Power & Light Co. is contemplating construction of a new substation at North High and Arcadia streets at a cost of approximately $210,000.

DOVER, O. — City soon will be ready to accept bids for electrical pumps and a pump house, and a new municipal plant building to house a new 2500 kilowatt turbine and new high pressure boilers. (Noted STEEL May 18).

MARTINS FERRY, O. — City, Lee Woods mayor, will advertise for bids June 20 for submersible type motors in a well improvement program to cost approximately $7500. Walter Lipphardt is service director.

PIQUA, O.—City, W. J. Baldwin purchasing agent, will ask bids until noon June 18 for furnishing one motor-driven water sump pump of the vertical type. Switches, valves and pipe fittings are to be included in proposal.

TIPPECANOE CITY, O. — Village is preparing plans for the purchase of boiler and auxiliary equipment for the municipal power plant. Cost is estimated at $25,000.

Michigan

BAY CITY, MICH.—Electric Auto-Lite Co., Toledo, O., will establish a branch plant here.

DEERFIELD, MICH.—Village has authorized A. H. Smith & Niles, engineer, 112 East Woodruff avenue, Toledo, O., to prepare working drawings for a waterworks system.

DETROIT—Detroit Tool & Mfg. Co., 40001 Beaufait avenue, is planning to double its present factory space. Harvey W. Peltier is president.

DETROIT—Detroit Forging Co., Norman H. Macqueen president, will construct three manufacturing buildings at a cost of $250,000 soon.

DETROIT—Evans Product Co., United Guarantee building, has organized N. L. Ventilation-Heating division to manufacture ventilating, air conditioning and heating equipment.

FLINT, MICH.—Buick Motor Co., here, will construct a 2-story factory addition, 150 x 250 feet, at a cost of approximately $30,000, including a craneway.

KALAMAZOO, MICH.—DeSmit Sheet Metal Works Inc. has been incorporated by William DeSmit, Kalamazoo, to manufacture sheet metal forms.

LANSING, MICH.—Reo Motor Car Co., R. A. DeVlieg vice president in charge of manufacturing, plans to consolidate manufacturing operations and install new equipment.

LANSING, MICH. — Board of light and water is having city engineering department draw plans for additions to the municipal power plant, including equipment and a building. Plans will mature this summer for this proposed $1,500,000 project.

LOWELL, MICH. — Lowell Metal Products Co., now at Saranac, Mich., maker of sprayers and poultry equipment, plans to move to Lowell, and to increase its output.

PONTIAC, MICH.—American Forging & Socket Co. plans to construct a 1-story factory building, 160 x 254 feet. L. J. Heenan is architect.

PONTIAC, MICH.—Pontiac Motor Co., H. J. Klingler president, will install new machinery in a $6,000,000 plant expansion program that includes conversion of an existing building into an axle manufacturing plant.

Indiana

ANGOLA, IND.—Consumers Power Co., Jackson, Mich., has purchased Hillsdale County Electric Co., Angola, and plans to improve and extend transmission lines.

EVANSVILLE, IND. — Servel Inc. expects to place contract soon for steam power plant and equipment. Sanderson & Porter, 52 William street, New York, is engineer for this $40,000 project.

MUNCIE, IND. — Muncie Foundry & Machine Co., maker of gray iron castings for motors, has been taken over by the Merchants National Bank, here, which may reorganize the concern.

Maryland

HAGERSTOWN, MD. — City will open bids for waterworks bonds on June 17.

OCEAN CITY, MD.—City, W. Thomas Elliott mayor, will receive bids until June 26 for construction of a sewage treatment plant, and for mains and appurtenances, Clarke Gardner, Salisbury, Md., is consulting engineer.

PRINCE FREDERICK, MD. — Consumers Cooperative Co. will receive a loan of $90,000 from rural electrification administration if the Public Service commission, Baltimore, grants an operating permit. John B. Gray Jr. is attorney for the cooperative.

District of Columbia

WASHINGTON — Bureau of prisons, department of justice, will accept bids until June 16, schedule 1166 for a diesel engine generator unit.

WASHINGTON—Army medical center will accept bids until June 18 for a

(*Please turn to Page* 92)

(*Continued from Page 90*)

locomotive type, steam driven air compressor, inventory QM 943-36-71.

WASHINGTON — Navy department asks bids until July 15 for furnishing propelling machinery for four submarines. W. H. Standling is acting secretary of navy.

WASHINGTON — Navy department, bureau of supplies and accounts, will accept bids until June 16 for a motor-driven tube bending machine, schedule 8084; until June 19 for a water-driven gasoline centrifugal pump, spares, and a filter, with a 70-gallon per minute capacity, schedule 8092; and a motor-driven engine lathe, schedule 8096, delivered at Eastern yards; and until June 23 for four electric power plants, schedule 8117, for the eastern yards.

Kentucky

LEXINGTON, KY.—E. Reed Wilson, mayor, has received report of H. K. Bell and J. S. Watkins engineers, and Hugh Meriwether and J. T. Gillig architects, for construction of a complete waterworks system to cost approximately $3,761,000. Plans include a pumping station, and erection of one 2,000,000 and two 500,000-gallon standpipes in various sections of the city.

STAMPING GROUND, KY. — City plans to issue $15,000 in bonds to supplement an appropriation of $17,000 in federal funds to finance construction of a waterworks system.

Florida

ORLANDO, FLA. — Florida Public Service Co. has received a loan of $48,500 with which to finance construction of 60 miles of extension lines in Orange, Seminole, Highlands, Volusia, Lake, and Polk counties.

Louisiana

BERWICK, LA.—Stone-Dwyer Co., Whitney building, New Orleans, plans to build a plant, here, to pack shrimp. Sealing machines and other equipment will be purchased.

HOUMA, LA. — Board of aldermen will receive bids until June 24 for furnishing a full diesel type, internal combustion engine-driven generating unit and equipment for extension of the local power plant.

NEW ORLEANS — Southport Petroleum Co., Cornelius Kroll, president, Kilgore, Tex., is planning extensive improvements in a petroleum plant at Avondale, La. Plant recently was acquired from International Storage & Warehouse Terminal Co.

North Carolina

ALBERMARLE, N. C. — Town is seeking PWA financing for waterworks and sewage systems estimated to cost $82,000.

CHARLOTTE, N. C. — City authorized survey of needed improvements in waterworks system before installing efficient pumping equipment at river station, extension of pumps, and other equipment. J. B. Marshall is city manager, and W. E. Vest, superintendent of waterworks.

FREMONT, N. C. — Town has applied to PWA for funds with which to purchase a $55,000 diesel engine.

GATESVILLE, N. C. — Application for a PWA $23,000 loan and grant with which to construct waterworks and sewage systems has been filed by town authorities.

GRIMESLAND, N. C. — Town has filed with PWA an application for a loan and grant of $49,000 with which to finance construction of sewage and waterworks systems.

HOPE MILLS, N. C. — Town is seeking a loan and grant of $80,000 from PWA for waterworks and sewage systems. J. Huckabee is mayor.

West Virginia

CLARKSBURG, W. VA. — Water board will receive bids until July 6 for furnishing and installing two gas engine driven centrifugal pumping units. Fuller & McClintock, 11 Park Place, New York, is engineer.

Virginia

PHILLIPI, W. VA. — Barbour Power Co. has secured a loan of $45,000, and will commence erecting an 80-mile distribution line serving 475 families in Barbour county.

PORTSMOUTH, VA.—City council is considering construction of a municipal electric light and power plant.

RICHMOND, VA.—Car Devices Co. Inc., Wirt P. Marks Jr., president, has been incorporated to manufacture and deal in forgings and castings. Eppa Hunton IV, Electric building, is attorney.

TAZEWELL, VA. — Appalachian Electric Power Co., Richmond, Va., proposes to erect 50 miles of transmission and distribution lines in a rural electrification program.

Missouri

CARUTHERSVILLE, MO. — Craddock Bros. Canning Co., Dyersville, Tenn., proposes to establish a one-story canning plant, 60 x 60 feet.

COLUMBIA, MO. — Boone County Electric Cooperative association has been alloted $65,000 by the rural electrification administration, Washington, and plans to construct distribution lines in Boone county.

KANSAS CITY, MO.—Brus Co., manufacturer of air conditioning equipment, has been incorporated by Emil P. Brus, 5809 Virginia street, and James E. Chandler.

KANSAS CITY, MO. — City, H. F. McElroy city manager, plans to rebuild United States army hanger recently burned at the municipal airport. Capt. H. C. Wisehart is in charge of the PWA financed project, for which $100,000 has been allotted.

ST. LOUIS — James R. Kearney Corp., 4224 Clayton avenue, electrical equipment manufacturer, plans to erect a $150,000 addition to its present plant.

ST. LOUIS—Mississippi Valley Equipment Co., 511 Locust street, is in the market for a 40, 45, 50, or 60-horsepower portable, Scotch, marine type boiler for delivery in Texas.

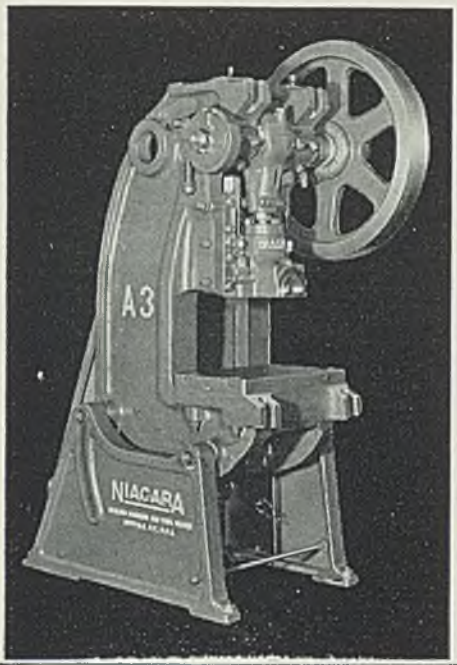
ST. LOUIS — Monark Casket Co., Aaron Smith and Samuel Kranzberg, owners, 1910 Washington avenue, has been incorporated to manufacture steel caskets. Capital is $10,000.

ST. LOUIS—Monsanto Chemical Co., 1724 South Second street, has awarded Stone & Webster Engineering Corp., 90 Broadway, New York, contract for designing and managing construction of an extension of the chemical company's power plant facilities at Monsanto, Ill. Two boilers having 100,000 pounds of steam per hour designed for 675-pound working pressure, and stokers will be installed in this $550,000 project. (Noted STEEL May 18).

Arkansas

LITTLE ROCK, ARK. — Terry Dairy Co., 1801 Scott street, will install automatic conveyors, air conditioning and other equipment in a new 1 and 2-

(*Please turn to Page 94*)



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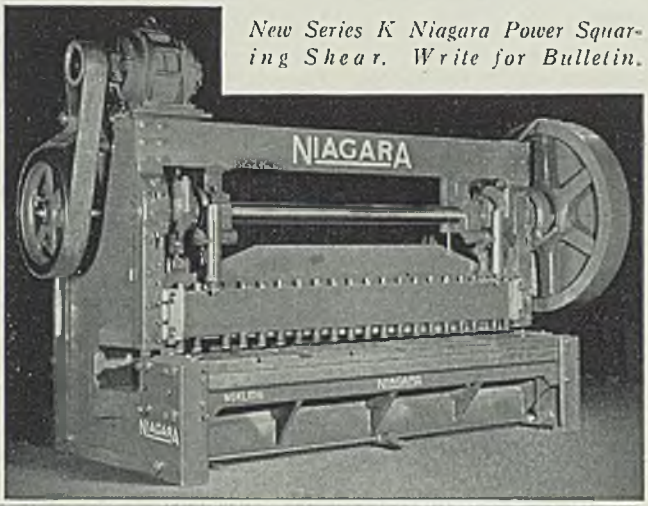

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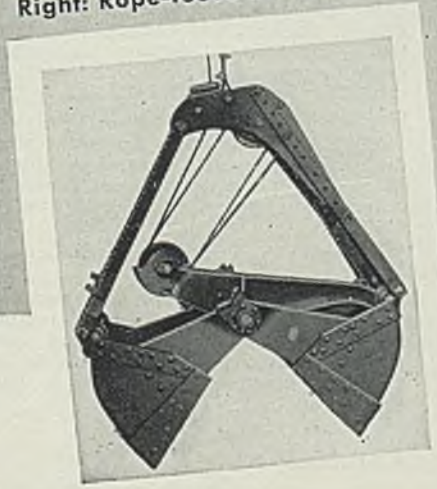

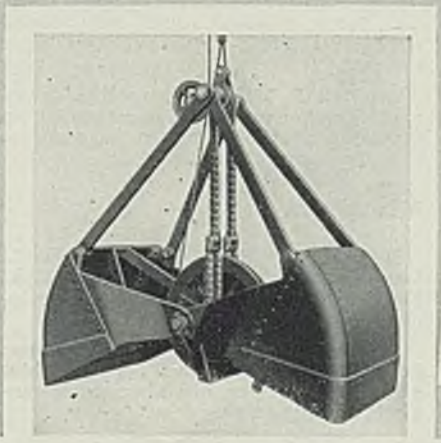

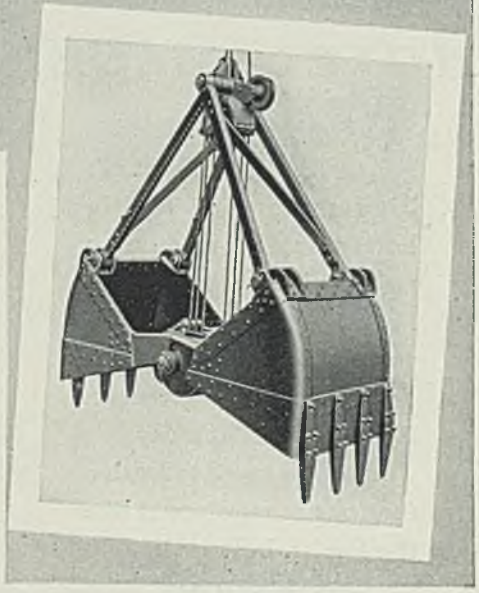

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(*Concluded from Page 92*)

story building, 75 x 100 feet, to be erected for the milk department.

Oklahoma

LAWTON, OKLA. — Wolverton brothers have under consideration plans for erecting 85 miles of rural electrification lines at an estimated cost of $60,000.

TULSA, OKLA.—Interstate Theaters Inc. has applied for a permit to remodel Palace theater and to install air conditioning and other equipment. Total cost is estimated at $45,000.

Texas

ATRECO, TEX. — Atlantic Refining Co., W. M. Irish president, 260 South Broad street, Philadelphia, has decided to spend $3,000,000 additional in a previously-announced $2,000,000 enlargement of a refinery now under construction at Atreco. G. M. Wehrie, Goodhue hotel, Port Arthur, Tex., is consulting engineer; and M. W. Kellog Co., 225 Broadway, New York is general contractor.

DALLAS, TEX. — Texas Power & Light Co., A. G. McRae district manager, proposes to construct three rural power distribution lines in this area.

GEORGETOWN, TEX. — City will vote June 23 on $60,000 worth of bonds for improvement of the power plant, including the proposed purchase of a 700 watt diesel engine. Burns & McDonnell, 107 West Linwood avenue, Kansas City, Mo., is engineer.

LOCKHART, TEX. — City is contemplating construction of a new municipal light and power plant. Estimates and surveys are being made by Burns & McDonnell Engineering Co., 107 West Linwood avenue, Kansas City, Mo., engineer.

MARLIN, TEX. — Levi Goodrich, city engineer, will ask bids until June 23 for a motor grader.

Wisconsin

BURLINGTON, WIS. — Belle City Appliance Co., Racine, Wis., has leased former Badger Basket & Veneer Co. factory, here, and plans to extend production facilities.

MILWAUKEE—Joseph Schlitz Brewing Co. will invest $400,000 in new buildings and equipment to increase output.

MILWAUKEE — Globe-Union Mfg. Co., 900 East Keefe avenue, maker of roller skates and radio parts, will build a $20,000 addition.

MILWAUKEE — Sewerage commission will accept bids until June 18 for furnishing and erecting a pneumatic conveyor for handling chaff. J. L. Ferebee, 2314 East Wyoming place, is chief engineer.

RACINE, WIS. — Twin Disc Clutch Co., 14000 Racine street, has started work on a 2-story shop addition, 60 x 120 feet.

WAUSAU, WIS. — Marathon Electric Mfg. Co. sustained damages in an explosion at the plant. Repairs are to be made immediately.

Minnesota

HALLOCK, MINN. — City, E. L. Lium, engineer, Grand Forks, N. Dak., plans to install pumps and other equipment for the local waterworks.

ST. PAUL — United States engineer, Commerce building, will accept bids until June 24 for dredging pump engines and generating sets.

Wyoming

ROCK SPRINGS, WYO. — Lion Coal Co., Ogden, Utah, has under consideration plans for rebuilding the coal tipple, here, recently damaged by fire. R. Y. Gibson is interested in this $500,000 project.

Nevada

FALLON, NEV. — Truckee-Carson irrigation district plans to purchase and install a diesel hydroelectric plant at Lahontan, Nev., with the proceeds from $125,000 worth of public funds.

Idaho

JEROME, IDAHO — W. A. Peters is considering purchase of four to six pumping units in an underground improvement of the local water supply system. Cost is estimated at $400,000.

Pacific Coast

BURBANK, CALIF. — Cover Diesel Engine Co., manufacturer of light diesel engines for trucks, marine, and stationary service, plans to acquire a factory building.

LONG BEACH, CALIF. — Service Aircraft Inc. has been organized to manufacture airplanes for the army and navy. A plant is to be constructed at the municipal airport. Walter R. Martin, Martin-Decker Co., is chairman of board, and Walter C. Chaffee Jr. is president.

LOS ANGELES—Mission Water Heater Co. is constructing a factory addition, 50 x 100 feet.

LOS ANGELES — Superior Casting Co. has started operations in a foundry at 5926 Regent street.

LOS ANGELES — M. Greitzer Mfg. Co., manufacturer of metal furniture, has moved into larger quarters at 637 Merchant street.

LOS ANGELES—Fluor Corporation Ltd., manufacturer of water cooling towers, 909 East Fifty-ninth street, is planning to move into a building containing 25,000 square feet of floor space.

LOS ANGELES — Pernot & Rich Co. plans to manufacture air conditioning equipment in a building recently acquired at 2526 San Fernando road. The plant has 39,000 square feet of floor space.

LOS ANGELES — Pittsburgh Equitable Meter Co., through W. F. Rockwell president, 400 Lexington street, Pittsburgh, announces that it will spend $1,000,000 here for the construction of a valve manufacturing plant. A $1,000,000 expenditure for an axle plant also is considered.

TORRANCE, CALIF. — Columbia Steel Co., here, a subsidiary of the United States Steel Corp., New York, will spend $100,000 during the next 60 days to replace a burnt-out, obsolete, reheating furnace. E. M. Barber is general superintendent of the plant.

SPOKANE—City has approved plans for construction of a municipal power plant to supply waterworks stations and other city services. Cost estimated at $250,000.

TACOMA, WASH. — St. Regis Kraft Co. plans to spend $1,000,000 on an expansion and improvement program that will include purchase of motors, conveyors, machine drives, and electric hoists. Hardy S. Ferguson & Co., 200 Fifth avenue, New York, is consulting engineer.

Canada

KIRKLAND LAKE, ONT. — Teck township council is considering spending $60,000 for additions to the waterworks pumping station at Gill Lake. G. Brown & T. McIntyre, 28 Prospect avenue, are engineers.