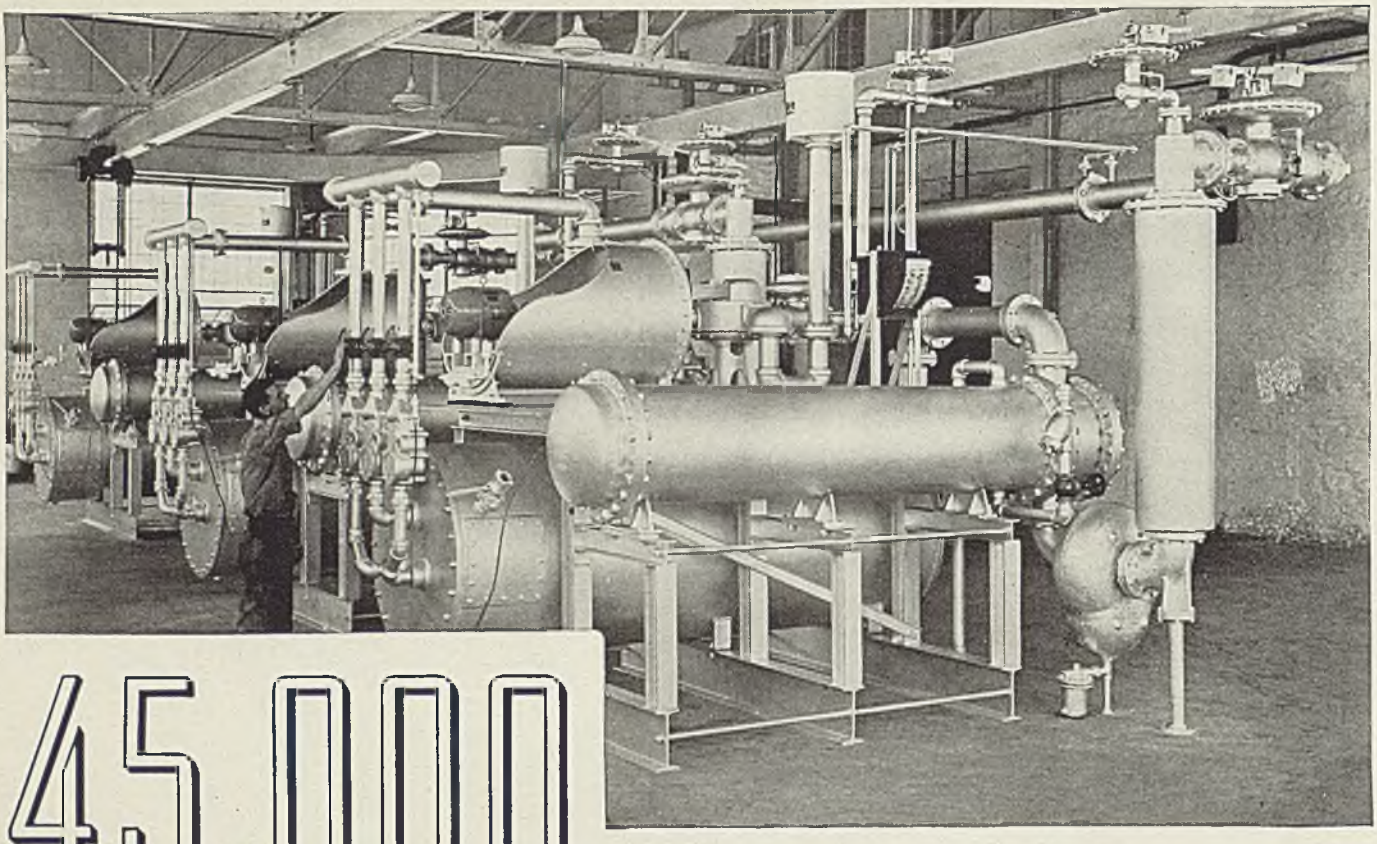
October 4, 1937

STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

FOR FORTY-EIGHT YEARS—IRON TRADE REVIEW

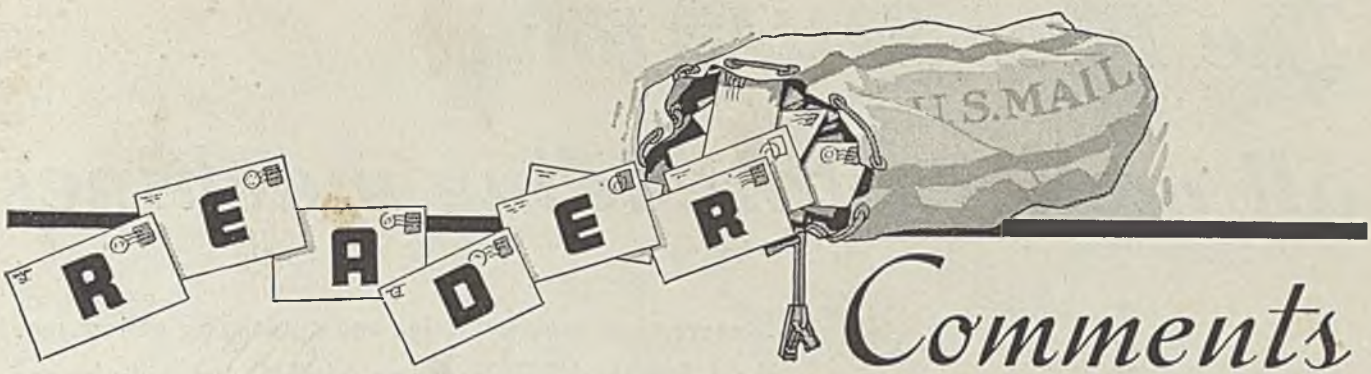


45,000

cubic feet per hour is the combined output of this battery of ***Kemp Atmos-Gas Producers***. Set up for testing on the assembly floor at Kemp of Baltimore these three jumbo units will soon be doing their part in the production of bright annealed sheets for a new continuous strip mill in the Ohio District.

Whether you require 1,500 or 15,000 c.f.h. there is a continuous, automatic ***Kemp Atmos-Gas Producer*** suited to your needs. Special Bulletin G 101-6 gives full details. Write **The C. M. Kemp Mfg. Co., 405 East Oliver Street, Baltimore, Md., or Oliver Building, Pittsburgh, Pa.**

KEMP of BALTIMORE



Comments

Readers are invited to comment upon articles, editorials, reports, prices or other editorial material appearing in STEEL. The editors cannot publish unsigned communications, but at their discretion may permit a writer to use a pseudonym when a bona fide reason exists for withholding his identity. Letters should be brief—preferably not exceeding 250 words.

Esperanto Also Is Modern

To the Editor:

Steel is modern! Particularly so when the metallurgist takes it in hand. Whether it be 18-8 as a bulwark against chemical action, copper bearing sheets for outdoor wearing properties, tungsten sheets for heat resistance, or manganese for wear, it does not lose its identity as steel, and so steel continues to be a modern material for all purposes.

In an industry where men the world over are endeavoring to work together—"are striving for the same results"—far-reaching introduction to world-wide industrial co-operation can speed the realization of the fuller progress toward which they are working.

It was for this reason that the International Commercial Congress held in Paris in 1926 with representatives of ten governments, 14 annual fairs, 171 chambers of commerce and 218 other commercial organizations from 37 countries passed a resolution urging that Esperanto be made a part of the curriculum in the commercial schools throughout the world and that chambers of commerce in all countries encourage its study.

It was for this reason that some of the major industries have already started to use it.

It was for this reason that the International Electro-Technical commission, in compiling their work of standardized electrical terms last year, made Esperanto one of the six languages used throughout.

STEEL, journal of the industry, is modern! Well can it too benefit by the use of the international auxiliary language.

It is exigent that your attention be called to a significant though apparently slight inconsistency in your advertisement. For the very reason that Esperanto is a hybrid language, it cannot be artificial any more than a hybrid plant can be called artificial. Rather it is an improvement and a creation.

The Esperanto Association of Cleveland, 2995 *Lincoln boulevard, Cleveland, O.*

LEE D. STERN
Reader of STEEL *for half a decade.*

Pictures Dramatize News

To the Editor:

I have looked over the pictorial story starting on page 40 of your Aug. 30 issue several times, and I believe that it is most certainly a step forward in gaining reader interest.

There are so many publications and so much reading matter that come across the desk and into the home of the average business man that there is little time to wholeheartedly give over to page after page of just plain ordinary reading matter with just a few uninteresting illustrations. Your present thought undoubtedly is to gain attention through the dramatized illustrations with short concise explanations, thereby leaving part of the story to the eye and the imagination.

Without going into details of the psychological reaction to this method of presentation, I do believe that it is a swell means of regaining that reader interest which has been pretty well fed up on page after page of copy which in too many instances is at best dry reading.

So, with best of luck for your new approach to the problems in hand.

R. C. BULLARD
Advertising Manager,
The Bullard Co.,
Bridgeport, Conn.

Seeks Top Through Shop

To the Editor:

Particularly interesting was your article by C. R. Burt on "Building a Career" (STEEL, Sept. 27, p. 37). Most young men, it seems to me, are too intent on getting to the top via the "white collar" route.

I am a college graduate. Jobs were scarce when I received my diploma. After several months, however, I found two available. One was in the office, the other in the mill—of a steel company. I chose the latter.

My college classmates looked askance when I told my decision. But I sincerely believed that for me the best route to the hoped for executive position was a job in the mill. Now after several years and with several promotions, I am even more confident my decision was wise.

I subscribe to STEEL which I read and then pass on to several friends in my department. We also read many technical books relating to our work and that of the men above us.

A Finisher
Cleveland

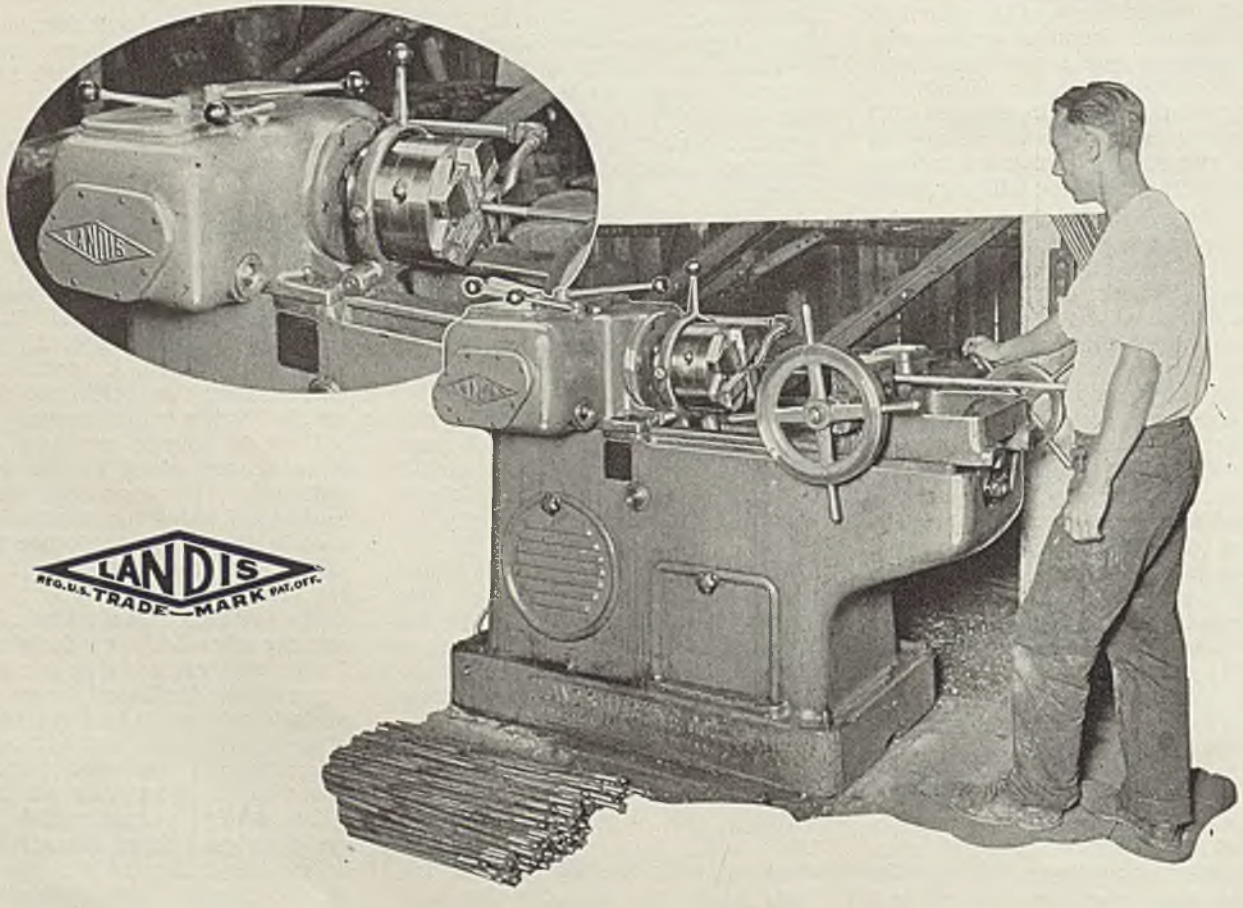
The Pace-Setter for all modern threading machines

The LANDMACO

Because of its superior design and outstanding performance, the LANDMACO Threading Machine can truly be considered the "pace-setter" for all modern threading machines.

The LANDMACO is modern in every detail of construction. Its anti-friction bearings, spiral bevel gear spindle drive, distinctive bed construction, covered guides, and many other distinctive features, all insure precision, reliability in operation, and low up-keep cost.

May we tell you why the LANDMACO will operate profitably on your threading jobs?



LANDIS MACHINE COMPANY, Inc., Waynesboro, Penna.

STEEL

FOR FORTY-EIGHT YEARS—IRON TRADE REVIEW

Published by THE PENTON PUBLISHING CO., Penton Building, Cleveland, Ohio. JOHN A. PENTON, Chairman of Board; E. L. SHANER, President and Treasurer; J. R. DAWLEY and G. O. HAYS, Vice Presidents; F. G. STEINEBACH, Secretary.

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Contents

Vol. 101-No. 14 — **October 4, 1937**

READER COMMENTS 13

AS THE EDITOR VIEWS THE NEWS 17

NEWS
- 3500 Attend Iron, Steel Engineers' Convention 19
- Steelworks Operations for the Week 22
- September Daily Iron Output Drops 2.3 Per Cent 23
- Financial 24
- Labor 24
- Men of Industry 25
- Obituaries 26
- Activities of Steel Users and Makers 26
- Stainless Steel Producer Doubles Plant Capacity 27

MIRRORS OF MOTORDOM 29

WINDOWS OF WASHINGTON 33

England's Union Democratic, Not Despotic Nor Political—*Editorial* 35

THE BUSINESS TREND
- Industrial Activity Clings to Post Labor Day Level 36
- Charts and Statistics 36-37

TECHNICAL
- A.I.S.E. Hears Technical Developments 39
- Gas Association Convenes in Cleveland 42
- British Institute of Metals Meets 44
- New Laboratory Nears Completion 68

MATERIALS HANDLING
- Combination Unit Tilts Coils in Two Directions 47

SURFACE TREATMENT AND FINISHING OF METALS
- Range Design Affects Durability of Finish 50

PROGRESS IN STEELMAKING
- Modern Pickling Plant for Tinplate Mill 56

POWER DRIVES
- Power Lines and Drives in Tunnels at New Mill 63

WELDING, ETC.—*Robert E. Kinkead* 72

NEW EQUIPMENT 73

RECENT PUBLICATIONS OF MANUFACTURERS 78

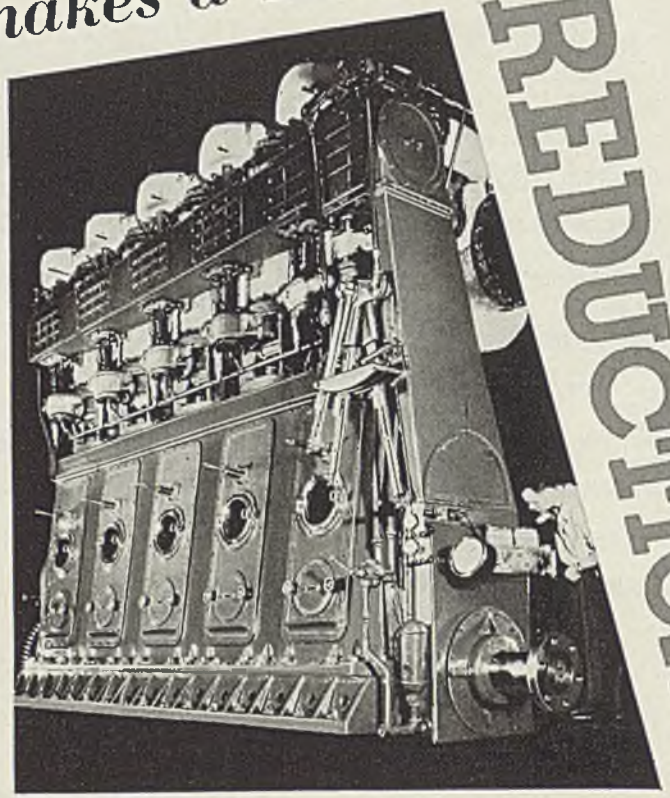
MARKET REPORTS AND PRICES 81
- The Market Week 82

BEHIND THE SCENES 90

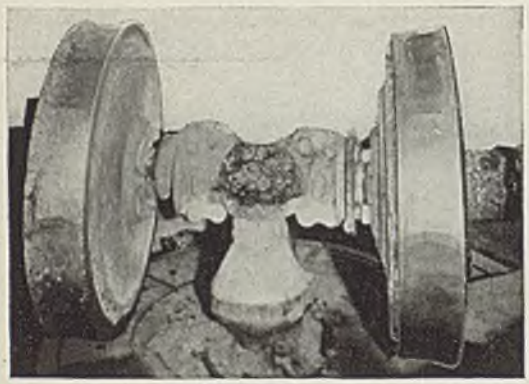
CONSTRUCTION AND ENTERPRISE 104

INDEX TO ADVERTISERS 110

A little NICKEL *makes a* BIG REDUCTION...



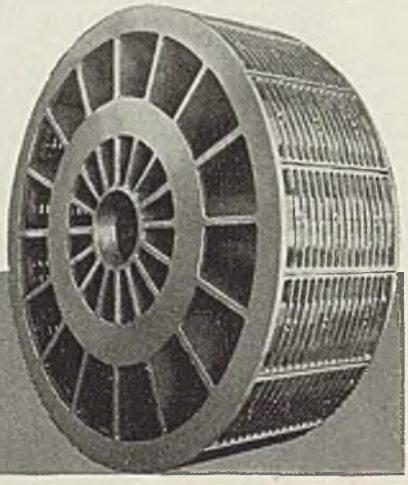
ENGINE troubles are colossal cost boosters. Failures of vital parts not only involve expensive labor and materials, but they interrupt the entire production cycle. But when engines are equipped with cast irons properly alloyed with a small percentage of Nickel, the danger of breakage and wear is materially reduced. The big fellow at the right turns the screws of the Erie Railroad's new ferryboat, "Meadville", and is equipped with cylinder heads with integrally cast valve seats, cylinders and pistons—all made of enduring Nickel Cast Iron. Two engines of similar design and similarly equipped with Nickel Cast Irons are being used by the Virginia Ferry Corporation and have already run up a total of 336,272 miles with only two minor bearing adjustments and with *no engine repairs of any kind.* These engines are the product of the Skinner Engine Co., of Erie, Pa.



ALMOST diamond hard is the gravel used in the manufacture of silica brick, product of the ceramic industry. Hence in crushing this material to the proper degree of fineness the "Mullers" (see picture above) are subjected to punishing abrasion. Before trying Nickel Cast Iron for these "Muller" tires, one producer averaged around 370,000 brick per tire before replacement. He also tried a mildly alloyed iron tire and did considerably better—50%. Finally he tried Ni-Hard*, a special Nickel Cast Iron composition of unusual hardness, beating the original material by 200% greater production. Incidentally the Ni-Hard tire occupied the "lead" position throughout its service where it received 50% greater wear than the mildly alloyed cast iron tire occupying the hind position. The Ni-Hard tires were made by Simpson Bros. Co., Portsmouth, Ohio, under their trade name "Paulite."

... in costly repairs and replacements

HERE'S a drum that will take a terrific lot of beating from corrosion because it is made of Ni-Resist*, a Nickel Cast Iron containing usually 14% Nickel, 6% copper and 2% chromium. Specifically, it is a filter drum used in the processing of salt. While its performance record is not yet available its probable life can be fairly accurately estimated by comparing it with that of Ni-Resist filter grids used in the same service. These grids have been known to deliver 5 years of service as against 4 months for unalloyed plain cast iron. We invite consultation on the use of Nickel Cast Iron and other alloys of Nickel in your equipment.



*Reg. U. S. Pat. Off. by The International Nickel Company, Inc. Canadian Patent No. 281,986 and 278,180

NICKEL CAST IRONS

THE INTERNATIONAL NICKEL COMPANY, INC., NEW YORK, N. Y.

As the Editor Views the News

FOR the most part, industrial executives are not permitting the performance of the securities market to weaken their morale. Naturally the sickening decline in the stock market has caused many company heads to reappraise the business outlook. Their check-ups in September revealed a picture somewhat less promising than that envisioned last summer, but the most searching inquiries have failed to disclose any seriously unfavorable factors which were not existant and known prior to the stock market breaks. Industrial leaders who have commented publicly freely acknowledge the present dip in business volume but hold that a fairly promising fourth quarter is ahead.

• • •

STEEL'S index of activity has been clinging closely to an average of 94.1 since Labor day. This compares with an average of 110.1 (p. 36) for the 15 weeks from the last week of May through August. Thus activity in September has been 14.5 per cent below that of the summer period. This indicates a substantial slackening of pace, yet with expanding automobile production ahead the trend of general activity seems destined to retrace the pattern of the final quarter of 1936. Look at the record of business for September, October and November last year. It will help you to view the present situation more complacently.

Consider Last Fall's Record

• • •

The fact that the pressure for production in some branches of the iron, steel and metalworking industries has eased appreciably, even to the extent of affecting employment, undoubtedly will have a bearing upon labor relations over the remainder of the year. Until the pace of business quickens, it is unlikely that new disorders of serious character or demands for higher wages will develop to the extent that they were prevalent during the late spring and early summer. A lull in labor strife might turn out to be a blessing for employers, employes and even the unions, in that a little retrospection might bring home to all concerned (p. 35) that the path to mutually satisfactory relations lies in natural evolution and not in coercion by one-sided legislation. If there is a lesson for us in British labor experience, it is that the square deal is fundamental.

Less Labor Disturbance

• • •

In last week's issue (Sept. 27, p. 16) announcement was made of the offer by the American Institute of Steel Construction of $9000 for prizes in a competition for the best designs of elevated automobile highways. President Clyde G. Conley, who announced the plan, stressed the point that the highways of the "America of Tomorrow" can be elevated through the use of steel and that such roads, by relieving congestion, reducing accidents, protecting property values and increasing the demand for automobiles, will be beneficial in many directions. The institute is to be congratulated for taking the lead in this highly important work. Adapting the highway system to modern requirements will be one of the most essential phases of the nation's approaching task of "rebuilding" America.

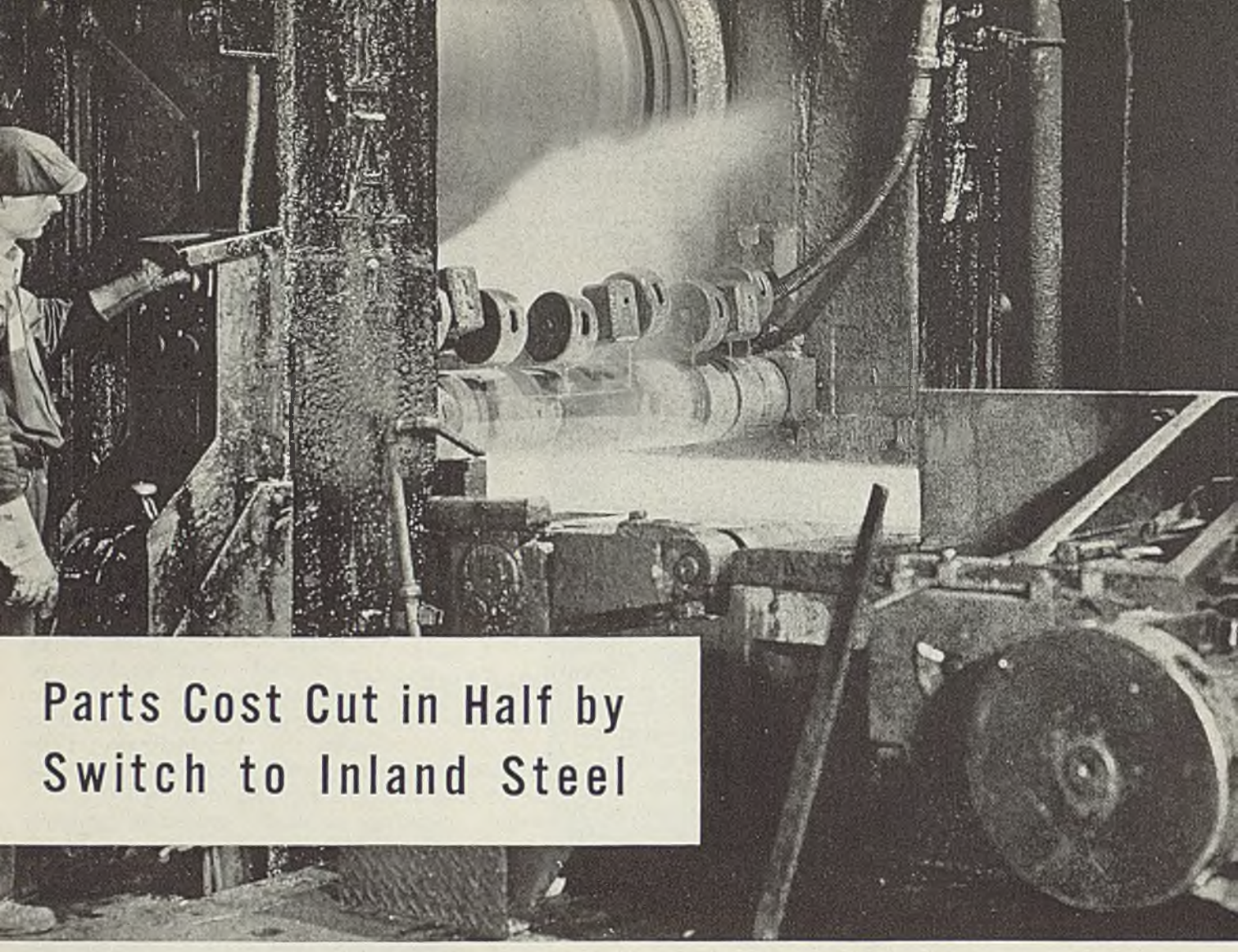
Taking Lead in Highway Work

• • •

Hundreds attending the annual convention and exposition of the Association of Iron and Steel Engineers, Hotel Stevens, Chicago, (p. 19) declared it to be one of the most successful in the association's history. Exhibitors whose displays, equipment and supplies were more representative than in prior years were enthusiastic over volume of inquiry from show visitors. Technical sessions were well attended as were inspection trips to several Chicago mills. A highlight of the convention was the annual banquet which not only commemorated the twenty-fifth anniversary of the founding of the National Safety council but also emphasized the community of interest between the engineering and safety phases of steelworks operations.

Many Inquiries At Exposition

E. L. Shaner



Parts Cost Cut in Half by Switch to Inland Steel

Have You Recently Checked Materials Used In Your Plant?

It's preserving a constant lookout for small wastes that keeps manufacturing costs low. Those wastes creep unseen into cost records . . . then grow and multiply into substantial losses over a year's time.

For example, a manufacturer of vehicle bodies was using an expensive non-ferrous metal for a difficult, small circular stamping.

Inland Deep Drawing Tin Plate proved just as satisfactory for the purpose and made a big saving in material cost.

Inland field men and metallurgists are constantly devoting their time to making savings in the fabrication and uses of steel. You can utilize their efforts in the cost-checking procedure of your plant without cost or obligation. Just call your nearest Inland office.

And Inland Mills are able to follow through! The close cooperation between Inland field men and mill men quickly and definitely adjusts today's most modern steelmaking facilities to each customer's individual requirements. Photo shows Roughing Stand in 76" Inland Hot Strip Mill.

INLAND STEEL

• STRIP • TIN PLATE • BARS • RAILS • TRACK ACCESSORIES • PLATES • FLOOR PLATES • STRUCTURALS • PILING • REINFORCING BARS

INLAND STEEL CO.

3500 Attend Iron, Steel Engineers' Convention in Chicago

DESPITE a disturbed labor situation, and many improvement programs carried on at various iron and steel plants in this country this year, the steel industry has been able to maintain a high rate of operation.

This was emphasized at the open session of the thirty-third annual convention of Iron and Steel Engineers at Hotel Stevens, Chicago, Sept. 28 to Oct. 1, by H. G. R. Bennett, assistant general superintendent, Carnegie-Illinois Steel Corp., Duquesne, Pa., and president of the association.

Mr. Bennett announced that the association shortly will launch an extension in its educational program and will widen the scope of its meetings.

Technical sessions were well attended. Registration cards on file at the closing day totaled 3500.

The iron and steel exposition held in conjunction with the convention drew large crowds. Exhibition hall of Hotel Stevens was filled to capacity with the displays of various companies. One of the ball rooms was used for the overflow.

No technical session was held Wednesday afternoon. Instead more than 500 members and guests spent the afternoon inspecting the sheet and tin plate division of the Carnegie-Illinois Steel Corp. at Gary, Ind.

Commemorate Safety Movement

Friday morning a large delegation was taken by bus to Indiana Harbor, Ind., where the hot and cold rolled strip mills of the Inland Steel Co. were inspected.

The annual convention was brought to a close Thursday evening by a banquet which was followed by a special program commemorating the twenty-fifth anniversary of the founding of the National Safety council. The national safety movement was sponsored by the Association of Iron and Steel Engineers, and the formation of the original committee was the result of a resolution adopted by the association at the annual convention in Milwaukee, Sept. 30, 1912.

Among the speakers Thursday evening were F. C. Schwedtman, first chairman of the National Council for Industrial Safety; and A. V. Rohweder, industrial vice president, National Safety council.

New Officers Elected

New officers of the association follow: President, L. F. Coffin, superintendent of mechanical department, Bethlehem Steel Co., Sparrows Point, Md.; first vice president, C. C. Wales, assistant general manager, Algoma Steel Corp. Ltd., Sault Ste. Marie, Ont.; second vice president, W. A. Perry, superintendent of electrical and power department, Inland Steel Co., Indiana Harbor, Ind.; secretary, J. L. Miller, assistant combustion engineer, Republic Steel Corp., Cleveland; and treasurer, F. E. Flynn, general manager Warren district, Republic Steel Corp., Warren, O.

The role that 4-high mills plays in the production of sheet and strip in this country was described by Stephen Badlam, consulting engineer, Pittsburgh. In 1926, approximately 600,000 tons of these products were produced by the initial mills of this type. Since then many 4-high broad mills have been built in this country until produuction is expected to exceed 10,000,000 tons annually by the end of this year, Mr. Badlam pointed out.

Stephen Badlam

A few of the old time sheet mills, which are capable of operation, now are turning out sheets, the speaker declared. He emphasized that more men are employed in flat rolled production today than ever before.

Back in 1926 a production of 500 tons of wide strip in 12 hours was considered a good run. Mills of this type today are producing more than twice this tonnage in an 8-hour turn. During August the wide mill of the Bethlehem Steel Co. at Lackawanna, N. Y., established a record by rolling 101,300 net tons for the month.

New Construction Described

In speaking of new construction he mentioned that three wide mills are being built at present, including Republic's 98-inch mill in Cleveland; the 48-inch unit of the Tennessee Coal, Iron & Railroad Co., Fairfield, Ala., and Bethlehem's 56-inch mill at Sparrows Point, Md.

An unusual feature concerning Carnegie-Illinois' new mill at Irwin, Pa., he pointed out, is that the mill is built on a hill 220 feet above the Monongahela river, and is approximately 10 miles from the Edgar Thomson steel mills, the source of supply. The plot of ground upon which this mill is built includes 500 acres, 52 of which are under roof.

Hot mills under consideration in this country include a 43-inch unit for Follansbee Bros. Steel Co., and a 44-inch unit for the Wheeling Steel Corp., the product of the lat-

ter mill to be used for cold reduction at the Yorkville division.

A new 4-high stand is being added to Otis Steel Co.'s hot mill in Cleveland, and one finishing stand to the 56-inch mill of the Ford Motor Co., Dearborn, Mich. The latter installation is being widened from 48 inches to 60 inches, and a fourth slab heating furnace is being added. This will permit an increase of 120 tons an hour in slab heating capacity.

Special Features Are Cited

One of the features cited by Mr. Badlam, in connection with new blooming mills now being built in this country, is the fact that the top roll has a higher lift to permit edging the wide slabs for the new broad strip mills.

The speaker mentioned that a 7000-horsepower motor will drive Inland's new 46-inch blooming mill. Republic is building a 44-inch bloomer for its new strip mill. Great Lakes Steel Corp. has a 44-inch slabbing mill under construction, which will supply slabs for its 96-inch hot strip mill. Carnegie-Illinois is installing a universal slabbing mill which will produce slabs 60 inches wide and up to 45,000 pounds.

Six 5-stand cold rolled tin mills now are under construction, he stated. Two are being built by Tennessee Coal, Iron and Railroad Co., Fairfield, Ala., two by Bethlehem and one each by Wheeling Steel Corp. and Carnegie-Illinois.

Visitors to the convention were given evidence of the growth that has occurred in production facilities of the industry in the Chicago district since the time of the last meeting of the organization in that city.

Data covering the increase in steelmaking capacity of the Chicago district were given in STEEL, Sept. 20 in an article describing some of the plants.

Gary, Ind., plant of Union Drawn Steel Co.

Acme Steel Co., a leading strip producer, currently is engaged in an extensive modernization and plant expansion program costing about $1,500,000. In order to concentrate various departments and miscellaneous plant offices into one unit, a four-story building, 95 x 810-feet, is being erected at the company's Riverdale, Ill., property.

Offices Are Air Conditioned

This structure will house the purchasing department, now located at the Archer avenue plant in Chicago, a restaurant for employes, first-aid and hospital rooms, metallurgical laboratory, and the drafting, engineering, electrical and construction departments. Facilities also will be provided for additional electro-galvanizing equipment. Main offices will be air-conditioned.

In addition to this building, the machine shop is being extended 300 feet, and a 70 x 140-foot extension is being added to the No. 2 hot mill building. Two new rolling mills, including a four-high, reversing, cold mill, 12 x 33 x 29, and a two-high, skin-pass mill, 18 x 29, in addition to a double head roll grinder, also are being installed. While this program will not be completed until next year, the accompanying illustration of Acme's Riverdale plant includes the new additions.

Figure reported in the Sept. 20 issue as capacity of the Harvey, Ill., plant of Bliss & Laughlin Inc. was in error since it did not cover enlargements completed there in 1935. This expansion brought the company's annual capacity at Harvey to 130,000 tons of cold drawn bars. This interest's Buffalo plant can turn out 70,000 tons yearly.

Bliss & Laughlin Inc. is one of the earliest pioneers in the cold drawn bar industry, and steady growth in production and capacity has marked the 46-year history of the company. The business was started in 1891 by S. E. Bliss and John E. Laughlin as co-partners. The present company began its corporate existence Jan. 1, 1920, having been organized to take over the original corporation. Production was started at the Buffalo plant in 1929.

Delegates Visit Wire Mill

Wyckoff Drawn Steel Co., another producer of cold-drawn bars, recently completed an addition to its Chicago plant. This extension, not shown in the accompanying photograph, now is being used for storage purposes but eventually will be devoted to manufacturing.

Subject of unusual interest to many visiting steel men was the ultra-modern wire mill opened last spring at the South Chicago works of Republic Steel Corp. Designed especially for serving agricultural markets, this mill is notable for its interesting materials handling sys-

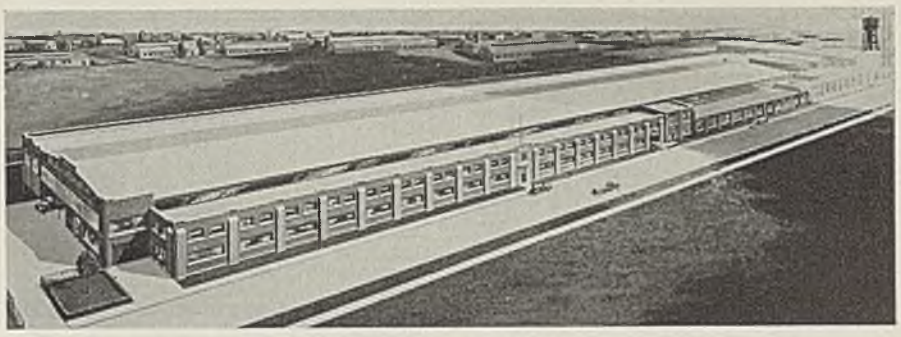
✦

GLASS block panels in the wire mill recently completed by Republic Steel Corp. at South Chicago eliminate the need for casement and sash in the cleaning house, where corrosive fumes from acid baths might attack them. Photo courtesy Austin Co.

tems and unusual arrangement of power applications.

Union Drawn Steel Co., one of Republic's important subsidiaries, operates a complete cold finishing mill in Gary, with facilities for producing cold drawn bars, turned and polished, and turned and ground shafting. This large mill serves the Chicago area and also ships to the Far West and Pacific coast.

(*For some of the papers presented at the convention see pages* 38-41.)

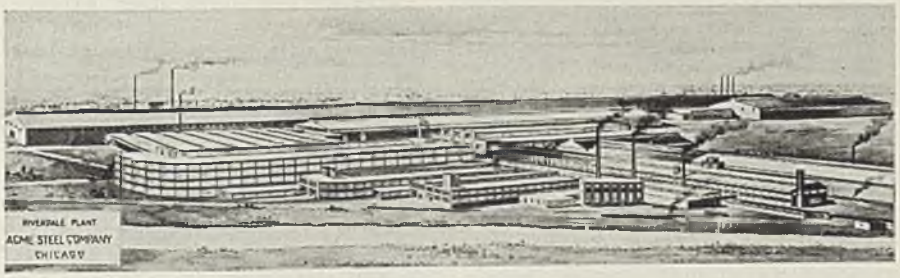


Bliss & Laughlin's Plant at Harvey, Ill.

Sees Soundness in Industrial Construction

The continued high rate of industrial construction, as reflected in September business of the Austin Co., Cleveland, is cited by the company as forceful evidence of the basic soundness of the current business situation.

"During the past three weeks we have received 12 contracts for factory buildings in ten different industries," George A. Bryant Jr., executive vice president stated. "They have come from almost every section of the United States and from Canada, and represent activities whose range is significant."



Riverside plant, Acme Steel Co., Chicago

American Machinery in Increasing Demand

American machinery builders are sharing increasingly in world demand for industrial equipment of all kinds, according to the machinery division, department of commerce.

Economic and industrial development programs, temporarily curtailed or suspended in the depression years, then revived and expanded with the return of better conditions, are being actively pushed separately or co-operatively by both private and governmental organizations in many countries.

Conditions in recent years have intensified the desire for national economic independence in some countries, and for extending the national economy beyond the raw material producing stage in others. Existing industrial plants are being re-equipped with modern and more efficient types of machinery, and expanded by the addition of new units and factories.

Typical in this world picture is the strong upswing in the demand for milling plants for the processing of agricultural commodities, and the important participation of American manufacturers in supplying the needed equipment.

More than $1,300,000 worth of American sugar mill equipment, $570,000 worth of vegetable oil mill machinery, and $150,000 worth of flour, grist and rice mill equipment were shipped abroad during the first six months this year. These exports represent substantial gains.

Huge Tank Will Be Towed 1371 Miles

Too bulky to be handled properly by train or boat, a steel tank 80 feet long, 15 feet in diameter, and weighing 230 tons, will be towed over a 1371-mile route from Jersey City, N. J., to Whiting, Ind. The trip will start about Oct. 15 and will require 16 or 17 days.

The tank is being built by the M. W. Kellogg Co., Jersey City, for the Standard Oil Co. of Indiana and will be used, it is said, for the distillation of crude oil.

As soon as the tank is completed a special door will be cut in the wall of the Kellogg plant and the tank will be loaded on two 65-foot flat cars and moved to a nearby pier, where a large crane will lift it into New York bay.

From that point it will be towed by a tug up the Hudson river, through the Erie canal to Lake Ontario, through the Welland canal to Lake Erie, then over Lake Huron and south on Lake Michigan to Whiting, where special equipment is being built to lift it from the water.

Golden Gate Bridge In Motion Pictures

A new motion picture entitled "Building the Golden Gate Bridge" has just been completed by Bethlehem Steel Co.

Many difficult problems in the construction of the bridge had to be solved and the methods used are discussed in the descriptive lecture on the sound track of the picture. While it is a construction picture of greatest interest to engineers it also has dramatic appeal.

Chicago Plant of Wyckoff Drawn Steel Co.

Production

FURTHER adjustments of operating schedules by producers in the Pittsburgh, Chicago, eastern Pennsylvania and Youngstown districts reduced the national steelworks operating rate 2 points to 74 per cent last week. This compares with 74.5 per cent in the same week last year.

Pittsburgh—Down 2 points to 71 per cent. Forty-six blast furnaces are active, the leading producer having banked one at Duquesne and one at Edgar Thomson.

Wheeling—Unchanged at 82 per cent.

New England—Down 10 points to 65 per cent, with the rate holding this week. About one-half of the idle capacity is down for repairs, the remainder being taken off because sufficient billet stock has been accumulated on more specifications.

Detroit—Unchanged at 100 per cent, all units melting.

Chicago—Declined 4 points to 75½ per cent, the lowest rate for the year with the exception of the strike period. Output still is at the best level for this period since 1929. One blast furnace has been blown out for repairs at South Chicago, giving the district 30 active stacks out of 39.

Cincinnati—Remained at 89 per cent, as mills continued on backlogs and inventory. Future schedules uncertain and subject to revision downward.

Central eastern seaboard—Down 3 points to 60 per cent, due to curtailment at several mills. Operations are still running ahead of finishing mill activity. Some stocking of ingots is noted.

Youngstown—Down 5 points to 65 per cent last week, with 55 open hearths, 3 bessemers and 20 blast furnaces active. Youngstown Sheet & Tube Co. banked a furnace at its Brier Hill works.

St. Louis—Off 10 points to 64 per cent, as a total of four open hearths were taken off, leaving 23 out of 33 units active.

Birmingham—Held at 83 per cent, with no change indicated for this week as mills report some increase in miscellaneous business to keep orders much nearer the rate of shipments.

Buffalo—Unchanged at 74 per cent, with 32 open hearths continuing active.

Cleveland-Lorain—Up 3 points to 67 per cent, as National Tube Co. at Lorain added one unit to its active list. Republic Steel Corp. and Otis Steel Co. continued on unchanged schedules.

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Oct. 2	Change	Same week 1936	Same week 1935
Pittsburgh ..	71	—2	75	48
Chicago	75.5	—4	74	60
Eastern Pa...	60	—3	49	37
Youngstown..	65	—5	80	56
Wheeling	82	None	95	81
Cleveland ...	67	+3	82	62
Buffalo	74	None	81	52
Birmingham..	83	None	64	55.5
New England	65	—10	88	66
Detroit	100	None	95	94
Cincinnati ...	89	None	84	†
St. Louis	64	—10	†	†
Average....	74	—2	74.5	53.5

†Not reported.

Meetings

INFORM-A-SHOW IN CLEVELAND, NOV. 17-19

Purchasing Agents' Association of Cleveland will hold its ninth annual Inform-a-Show in Hotel Cleveland, Nov. 17-19. The program includes commodity luncheons, and the banquet, Nov. 19. A special day will be assigned to superintendents and engineers of local plants.

COPPER, BRASS RESEARCH GROUP TO MEET OCT. 21

The Copper and Brass Research association's annual meeting, originally scheduled for Oct. 14, will be held at Hotel Biltmore, New York, Oct. 21. Officers will be selected and policies for the ensuing year will be considered.

Report New Mill for River Rouge District

Reports are current in Detroit of a new steel mill to be erected shortly in the River Rouge district, presumably for the production of alloy and tool steel and with initial capacity of 18,000 tons annually. A well-known operating executive, an authority on alloy steel, is said to be directing the venture, although it is not yet disclosed whether it will have independent backing or will be sponsored by some automotive or steel interest.

Exports This Year Show Large Increase

August exports of iron and steel semimanufactures were valued at $27,438,000, according to the department of commerce. This compares with $6,106,000 in August last year.

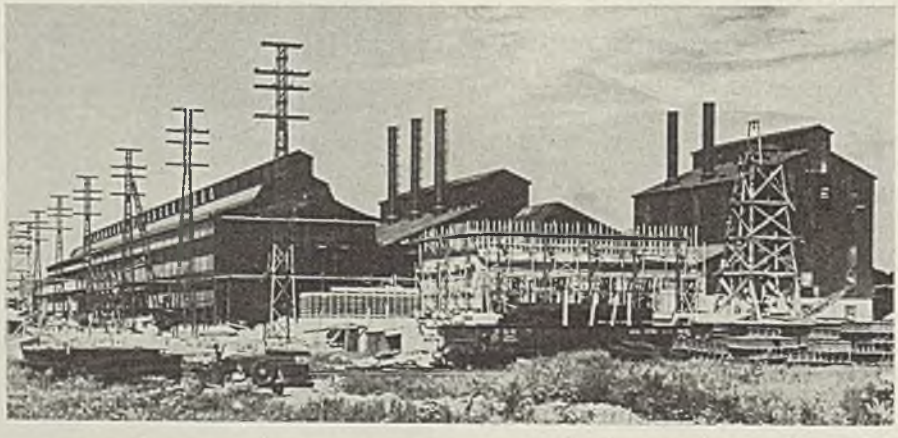
For the eight months ending with August, these exports were valued at $154,811,000, compared with $52,578,000 in the period last year.

Steel mill manufactures exports in August were valued at $5,890,000, compared with $2,653,000 in August last year. In the eight months ended with August, these exports totaled $42,127,000, compared with $19,736,000 in the same period of 1936.

Imports of iron and steel mill products in August were valued at $2,824,000, and ferroalloys at $2,195,000.

Mineral production in Canada in the first half established a new record with a value $50,000,000 higher than for first half of 1936.

Bethlehem's New Hot Mill Nears Completion



THIS new hot mill at Sparrows Pt., Md., is scheduled for operation in November. Part of Bethlehem Steel Co.'s $75,000,000 building program started in 1935, the mill building proper is at the left, flanked by the furnace section to the right. Steam plant serving the hot mill is shown at extreme right in the foreground and foundation and partially completed first floor of the divisions office building is in the central foreground

September Iron Output Off 2.3%; Eight Stacks Out

AN EASING up of blast furnace operations in September, to the extent of eight stacks being banked or blown out, brought about a moderate drop in production. Despite this, total and average daily outputs ranked next to August, the high for 1937.

Average daily production in September was 113,937 gross tons, which, compared with the 116,676-ton daily rate of August, was a decrease of 2739 tons per day, or 2.3 per cent. In September, one year ago, the average daily rate was 90,942 tons.

Total production in September amounted to 3,418,108 gross tons,

MONTHLY IRON PRODUCTION

Gross Tons

	1937	1936	1935
Jan.	3,219,741	2,029,304	1,478,443
Feb.	3,020,006	1,838,932	1,614,905
March	3,470,470	2,046,121	1,770,990
April	3,400,636	2,409,474	1,671,556
May	3,545,180	2,659,643	1,735,577
June	3,115,302	2,596,528	1,558,463
July	3,501,359	2,595,791	1,520,340
Aug.	3,616,954	2,711,726	1,759,782
Sept.	3,418,108	2,728,257	1,770,259
Tot. 9 mo.	26,888,648	21,615,776	14,880,315
Oct.	.....	2,991,794	1,978,379
Nov.	.....	2,949,942	2,066,293
Dec.	.....	3,125,192	2,115,496
Total	.....	30,682,704	21,040,483

this being a decline of 198,846 tons, or 5.5 per cent, from the 3,616,954 tons made in the preceding month. Part of this drop was due to the fact that September was a one-day shorter month than August. Production in September, 1936, was 2,728,257 tons.

For the nine months ended in September, iron production has aggregated 30,306,756 gross tons, this being a gain of 8,690,980 tons, or 40.2 per cent, over the output in the first three quarters of 1936.

Relating production to capacity, operations in September were at the rate of 83.8 per cent, against 85.7 in August and 82.9 per cent in July. In September, one year ago, operation percentage was 66.9.

During September, two steelworks or nonmerchant furnaces resumed activity and ten were blown out or banked, giving a net loss of eight stacks. No units of the merchant classification went in or out.

Stacks blowing in during September were: In Ohio: Youngstown No. 5, Republic Steel Corp. In Pennsylvania: Monongahela No. 3, National Tube Co.

Furnaces blowing out or banking were: In Ohio: Brier Hill No. 1, Youngstown Sheet & Tube Co.; Ohio No. 3, Carnegie-Illinois Steel Corp. In Pennsylvania: Clairton No. 2, two Duquesne and Edgar Thomson I, Carnegie-Illinois Steel Corp.; Monongahela No. 1, National Tube Co. In Alabama: Fairfield No. 6,

AVERAGE DAILY PRODUCTION

Gross Tons

	1937	1936	1935	1934
Jan.	103,863	65,461	47,692	39,537
Feb.	107,857	63,411	57,675	45,385
March	111,951	66,004	57,120	52,438
April	113,354	80,316	55,719	57,873
May	114,360	85,795	55,986	66,370
June	103,843	86,551	51,949	64,563
July	112,947	83,735	49,043	39,630
Aug.	116,676	87,475	56,767	34,199
Sept.	113,937	90,942	59,009	29,969
Oct.	.....	96,509	63,818	30,689
Nov.	.....	98,331	68,876	31,930
Dec.	.....	100,813	68,242	33,161
Ave.	111,014	83,832	57,694	43,774

Tennessee Coal, Iron & Railroad Co. In West Virginia: One Weirton, National Steel Corp. In Illinois: South Works New, No. 10, Carnegie-Illinois Steel Corp.

Century-Old Awards to Wire Company Found

Awards for unusual ability in iron wire production granted 100 years ago to the founder of the oldest manufacturing unit of American Steel & Wire Co. recently were found after having been lost many years.

At the first exhibition and fair of the Massachusetts Charitable Mechanics association in Boston Sept. 18, 1837, Ichabod Washburn, founder of Washburn & Moen Mfg. Co., displayed two boxes of iron wire. For their excellence he was awarded a silver medal and diploma.

Unaccounted for many years, the awards have been discovered and now are part of the exhibits in the Steel & Wire company's museum in Worcester, Mass.

It was in Worcester in 1834 that Washburn started his wiremaking business which later became North works of Steel & Wire.

SEPTEMBER IRON PRODUCTION

	No. in blast last day of Sept.	Aug.	Total tonnage Merchant	Nonmerchant
Ohio	42	43	138,805	640,441
Penna.	60	64	160,833*	927,462*
Alabama	17	18	110,970	111,222
Illinois	15	16	97,938	239,979
New York	14	14	74,288	190,568
Colorado	2	2		
Indiana	15	15	5,684*	518,781
Maryland	5	5		
Virginia	1	1		
Kentucky	2	2		
Mass.	1	1		
Tenn.	0	0		
Utah	1	1	25,582	175,555
West Va.	2	3		
Michigan	4	4		
Minnesota	2	2		
Missouri	0	0		
	183	191	614,100*	2,804,008*

*Includes ferro and spiegeleisen.

RATE OF OPERATION

(Relation of Production to Capacity)

	1937[1]	1936[2]	1935[3]	1934[4]
Jan.	76.6	48.2	34.2	28.3
Feb.	79.5	46.6	41.4	32.5
March	82.5	48.5	41.0	37.5
April	83.7	59.1	40.0	41.4
May	84.3	63.1	40.2	47.5
June	76.6	63.6	37.2	46.3
July	82.9	61.5	35.2	28.4
Aug.	85.7	64.3	40.7	24.5
Sept.	83.8	66.9	42.5	21.5
Oct.	...	71.0	45.8	22.1
Nov.	...	72.3	49.5	22.8
Dec.	...	74.2	49.0	23.7

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

$8,000,000 in Minnesota Iron Ore Taxes for 1937

All prior records for iron ore production will be shattered this year by Minnesota's iron ore mines, with total production estimated at 48,000,000 tons. This was indicated in reports based on anticipated occupational and royalty tax collections, expected to be about $8,000,000, the largest year's revenue from these sources. The estimated output is well above the previous all-time peak in 1929.

Increased tonnage, combined with an increase in the tax rate—from 6 to 10 per cent—will bring to the state $6,500,000 in occupational taxes and $1,500,000 in royalty taxes, the state tax commission has estimated. Last year the total was slightly over $3,000,000.

Labor

HEPPENSTALL RESUMES; ELECTION TO BE HELD

The Heppenstall Co.'s plant in Lawrenceville, Pa., closed since July 12 because of a strike, was reopened last week following a conference between representatives of the company, the steel workers' organizing committee, and James F. Dewey, commissioner of conciliation for the United States department of labor.

The strike settlement, covered by letters sent to Dewey by C. W. Heppenstall, president, and Philip N. Murray, chairman of SWOC, provides for a virtual resumption of the pre-strike status. There is to be no change in wages, hours or general working conditions, nor has any contract been signed between company and union.

When the strike was called, negotiations were on looking toward an election to determine whether SWOC was entitled to act as bargaining agent for the employes. The present understanding is that a conference will be held within the next 60 days, to determine on the terms of such an election.

Pending the election, the company agrees to deal with the SWOC in settlement of grievances of any of its members "under the same terms as are included on this point in the SWOC's wage agreement with the Carnegie-Illinois Steel Corp." A representative of the company points out that this arrangement, which is substantially provided for by the national labor relations act, already prevailed in the Heppenstall plant before the strike was called.

HEARING IN REPUBLIC LABOR CASE CLOSED

More than 300 witnesses were heard in the extended national labor relations board hearing in the Republic Steel Corp. case, concluded last Monday at Cleveland. John T. Lindsay, trial examiner, would not say when he would submit his intermediate report to the board at Washington.

The hearing started July 19 in Washington and continued in Canton, Youngstown, Massillon and Cleveland. Charges on which the labor board's complaint was based were filed by CIO unions which instigated a strike at Republic's plants May 26.

HEARINGS CONTINUE

Attorneys for the national labor relations board, at the hearing in Johnstown, Pa., last week turned their attention to operations of a citizens' committee during the steel strike at the plant of Bethlehem Steel Co. last summer. Witnesses testified that the committee was organized to help maintain law and order.

In Steubenville, O., where the hearing against Weirton Steel Co. has been in progress, the parade of witnesses continued, with several clashes between opposing counsel.

Clinton Golden, SWOC official, refused to reveal the union's membership in Weirton mills. Company counsel attempted to bring out the fact that SWOC had less than 1800 signed membership cards, but Golden would not confirm or deny this, finally declaring: "I won't tell you."

MARTIN BRANDISHES GUN AS ROOM IS PICKETED

Shakeup in the executive personnel of the United Automobile Workers' union, in which 100 organizers were removed from the payroll, a publicity committee disbanded and other realignments effected by Homer Martin, president, brought quick reaction from the membership in and around Detroit. Last Friday a rank-and-file contingent of UAW members besieged Martin at his hotel, picketing all entrances and refusing to leave until they had "talked matters over" with him. Martin brandished a revolver when a delegation rapped at his door.

Meanwhile a strike vote was scheduled by union workers at the Ternstedt division of General Motors for late in the week, in protest against what several UAW members charged a "terrific speedup" in production rates.

BAR MILL WAGES STEADY

Amalgamated Association of Iron, Steel and Tin Workers' wage rates for boiling, muck mill and bar mill workmen will be unchanged for October. The average selling price in September for common steel bars was reported as 2.45 cents. The wage rates have not been changed since they were advanced voluntarily by members of the Western Bar Iron association April 1.

Financial

WEIR SAYS STOCK MARKET DECLINE OVEREMPHASIZED

Analysis of real business conditions does not justify the pessimism that has been rampant recently, said E. T. Weir, chairman, National Steel Corp., in an interview recently.

"People are comparing the present business situation with that of 1929," said Mr. Weir. "That is ridiculous. The banking structure is sound; we have an excellent financial situation; there is plenty of money; normal consumption of consumers' goods, and there are excellent prospects of moderately favorable business if normal conditions are allowed to prevail.

"The decline in the stock market is overemphasized.

"I feel that security prices advanced to a point not justified, and we are now having a natural reaction in the market.

"A careful investigation of the consumers' ability to buy fails to indicate a collapse in business.

"The labor situation is one of the big factors in loss of confidence. The attacks of the labor board against industry are very disastrous."

EARNINGS

Pittsburgh Steel Co. and subsidiaries report for year ended June 30 shows net profit of $1,391,664 after depreciation, depletion, amortization, interest and federal normal income taxes, compared with net loss of $265,359 in the previous fiscal year.

Report of Carpenter Steel Co., Reading, Pa., for the fiscal year ended June 30, shows net profit of $1,190,679, equal to $3.31 a share on 360,000 shares outstanding. For the preceding year, net profit was $673,315, equal to $1.87 a share.

DIVIDENDS DECLARED

Link-Belt Co., Chicago, has declared a regular quarterly dividend of 50 cents on common stock, payable Dec. 1 to holders of record Nov. 15.

Warren Foundry & Pipe Corp., New York, declared an extra dividend of $1 and a regular quarterly of 50 cents, both payable Nov. 1 to stock of record Oct. 15.

Stainless Clad Steel Used on Holyoke Bar

Referring to the caption under a photograph labeled "Ultra-modern Bar of Stainless Steel, Illuminated," which appeared on page 24, STEEL for Aug. 2, the impression was given that the bar was fabricated throughout of stainless steel. This was an error. While some solid stainless was used on the back of the bar, which cannot be seen in the photograph, the only part of solid stainless in the front of the bar is a strip at the very top. The rest of the panels, according to the Withill Sheet Metal Works, Holyoke, Mass., fabricator, is IngAclad, 18-8 stainless clad steel, made by the Ingersoll Steel & Disc division, Borg-Warner Corp., Chicago.

Men of Industry

DR. HEINRICH KOPPERS, ruddy 64-year old engineer and industrialist of Essen, Germany, returned to Pittsburgh last week to renew his friendship with the engineers and chemists with whom he was once associated.

Dr. Koppers, who as a pioneer in the chemistry of coke spurred the worldwide development of the by-product process, and for whom the far-flung Koppers interests in the United States are named, was a guest at numerous luncheons and other affairs. He visited the new Mellon institute in Pittsburgh and met many former associates. He plans to remain in this country at least two weeks, visiting Detroit, Chicago and other cities.

He told how economic necessity is forcing Germany into increasing activity in the field of synthetic products, principally fuels.

"We have no gold dollars," he explained. "So, what we cannot buy we have to learn to make ourselves. Today we are producing in commercial quantities synthetic oils for fuels. In a few years we will be independent of all imports of fuel oils.

"Our ersatz (substitutes) some day will make us an independent, practically self-sufficient nation."

When he landed in New York, Dr. Koppers was met by Dr. Joseph Becker, vice president Koppers Co., Pittsburgh, and Joseph Van Ackeren, also of the Koppers Co.

♦ ♦ ♦

. W. Taylor, purchasing agent, ry Electric Steel Co., Detroit, been elected president of the etroit Purchasing Agents association.

♦ ♦ ♦

William A. Irvin, president, United States Steel Corp., New York, has been elected to the board of governors of the Bankers Club of America.

♦ ♦ ♦

F. F. Brooks, president, First National bank, Pittsburgh, was elected a director of Pittsburgh Steel Co. at a meeting of the board of directors Sept. 22.

♦ ♦ ♦

Charles Velie and Raymond Heath have been added to the staff of Hancock Valve division of Manning, Maxwell & Moore Inc., Bridgeport, Conn. Mr. Velie will make his headquarters in Chicago and Mr. Heath will be located in Dallas, Tex. Both men will devote their entire efforts

Dr. Heinrich Koppers

to the sale of Hancock valves through Hancock distributors.

♦ ♦ ♦

Herman L. Tygesson has joined Kron Co., maker of industrial dial scales, Bridgeport, Conn., as general superintendent, and Warner DeFoe has been transferred to the Bridgeport office to act as purchasing agent.

♦ ♦ ♦

Latimer Kovarik, 408 South Graham street, Pittsburgh, and Presley Hamilton, 149 Broadway, New York, have been appointed representatives for Salem Engineering Co., Salem, O., in their respective districts.

♦ ♦ ♦

Commemorating the completion of 30 years of service with Penton Publishing Co., Cleveland, a congratulatory luncheon was

Samuel H. Jasper

tendered Samuel H. Jasper in Hotel Cleveland, Wednesday, Sept. 29, by about 75 of his associates with the Penton company. The Penton company publishes STEEL and other business and industrial papers. Mr. Jasper is manager of the company's Pittsburgh office.

Mr. Jasper entered the company's employ as a lad in charge of the stockroom, progressed through the circulation and advertising departments until in 1911 he was made manager at Pittsburgh.

The toastmaster was E. L. Shaner, president of the company and editor-in-chief of STEEL, who read many congratulatory messages and telegrams received from Mr. Jasper's friends. On behalf of Mr. Jasper's associates, John A. Pent[illegible] chairman of the board, presented him a gold watch, suitably engraved, as a token of appreciation.

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J. A. Ahnfelt and A. G. Carlson, retiring operating manager and chief engineer, respectively, Universal-Atlas Cement Co., Chicago, a United States Steel Corp. subsidiary, were honored last week when 35 business associates tendered them a farewell luncheon at the Union League club, Chicago. Mr. Ahnfelt has been with the company 42 years and Mr. Carlson 34 years.

♦ ♦ ♦

Frank M. Steinberg has been elected president, American Steel Engineering Co., Philadelphia. He succeeds the late John H. Smith. Homer S. Pittinger has been named vice president, and John I. Smith, treasurer. Both Mr. Steinberg and Mr. Pittinger have been associated with the company 15 years, more recently in the respective capacities of sales manager and chief engineer.

♦ ♦ ♦

Virgil W. McDaniel has been named general sales manager, Eclipse Counterbore Co., Detroit, maker of interchangeable end cutting tools. He succeeds J. E. MacArthur, recently resigned. Mr. McDaniel has been connected with the Chrysler Corp., parts division, in special sales work during the past two years, and previous to that was associated with Dewey & Almy Chemical Co., Cambridge, Mass., in a managerial capacity.

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T. M. Galbreath, vice president and general sales manager, Sharon Steel Corp., has announced a revision of the corporation's sales setup, so that each class of products will now be handled by a separate division. The following appointments were made to put the new plan into effect: Lloyd Miller, assistant general manager of sales; R. B. Allen, manager of hot rolled sales; James D. Glenn, manager of stainless steel sales; H. S. Baker, manager of cold rolled sales, and R. E. Peterson, manager of coated product sales.

♦ ♦ ♦

Leonard T. Beecher, secretary and treasurer, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., has retired under the United States Steel Corp. retirement plan, after 45 years continuous service. He will be succeeded by C. R. Sexton,

assistant secretary and treasurer since 1923. Mr. Beecher has had a long and distinguished career with subsidiaries of the Steel corporation, starting as a bookkeeper in the offices of the former Illinois Steel Co. E. C. Herron will succeed Mr. Sexton as assistant secretary and treasurer.

♦ ♦ ♦

Wallace L. Cook has been appointed director of personnel, and Lawrence G. Andrews, assistant director of personnel for the Chicago district of Carnegie-Illinois Steel Corp. Mr. Cook is a graduate of Cornell and received his master's degree at Yale. He has been connected with the Carnegie-Illinois industrial relations division since June 1, 1936, and previous to that served on the board of several educational institutions and had been prominent in industrial relations activities of trade associations.

Upon graduating from Ohio State university, Mr. Andrews received a scholarship from the bureau of personnel research at Carnegie Institute of Technology. From 1921 to 1926 he served as an assistant employment manager for Jones & Laughlin Steel Corp. at Aliquippa, Pa., and in 1926 entered the personnel department of Armour & Co. He has been assistant superintendent of industrial relations at South works of Carnegie-Illinois since January, 1936.

♦ ♦ ♦

W. Cordes Snyder Jr. has been elected president, Lewis Foundry & Machine Co., Pittsburgh, a subsidiary of Blaw-Knox Co. Mr. Snyder

W. Cordes Snyder Jr.

has been associated with the company for a number of years and was elected vice president in 1936. He is also a director of Blaw-Knox.

♦ ♦ ♦

Dr. John Chipman has been appointed professor of metallurgy, Massachusetts Institute of Technology, Cambridge, Mass. From 1934 until his new appointment he

Dr. John Chipman

was associate director of research for American Rolling Mill Co., Middletown, O., and previous to that was research engineer at the University of Michigan, Ann Arbor, Mich., for six years. In 1934 Dr. Chipman was awarded the Howe medal by the American Society for Metals for his paper "Application of Thermodynamics to the Deoxidation of Liquid Steel."

Died:

HOWARD C. HUNT, 47, vice president and treasurer, National Automatic Tool Co., Richmond, Ind., in that city, Sept. 22. Born and reared in Richmond, he was connected with Dun & Bradstreet Inc., Cincinnati, before becoming affiliated with the National Automatic company in 1916.

♦ ♦ ♦

Andrew Hunter, 77, former general manager, J. M. & J. B. Cornell Iron Works, Cold Spring, N. Y., in that city, Sept. 20.

♦ ♦ ♦

William E. Francis, assistant traffic manager, United States Pipe & Foundry Co., Birmingham, Ala., in Birmingham, Sept. 22.

♦ ♦ ♦

Thomas Allsop, 71, president, Philadelphia Drying Machine Co., Philadelphia, at his home in Mount Airy, a suburb, Sept. 24.

♦ ♦ ♦

William Bragg, 52, factory superintendent, Mercoid Corp., Chicago, in Waukegan, Ill., Sept. 18. He had been associated with the company since 1924.

♦ ♦ ♦

Ernest J. Lees, vice president and chief engineer, National Tool Co., Cleveland, in that city, recently. He was well known for his inventions in the machine tool industry.

♦ ♦ ♦

Charles Stollberg, 77, former vice president, American Can Co., Sept. 23 at New York. He was in charge of manufacture from 1921 to 1933, when he retired. A native of Toledo, O., Mr. Stollberg became head of the Toledo Tinware Mfg. Co. which became affiliated with American Can in 1901. He remained in charge of Toledo plant until 1918 when he was transferred to New York.

Activities of Steel Users and Makers

FALK CORP., Milwaukee, which recently acquired one unit, 115 x 310 feet, of old National Brake & Electric Co. plant in Milwaukee for reassembly at its main works, has now purchased a second unit, 150 x 200 feet, to be dismantled and moved to its plant on Canal street, Milwaukee. Both buildings are to be used for concentration of all welding operations, heretofore in scattered locations. The new department is expected to be ready to function by Dec. 1 or Jan. 1.

♦ ♦ ♦

Linde Air Products Co., a unit of Union Carbide & Carbon Corp., New York, has moved its Boston district office to 441 Stuart street.

♦ ♦ ♦

American Rolling Mill Co., Middletown, O., has named George H. Soule Co., St. Albans, Vt., a distributor of Armco ingot iron.

♦ ♦ ♦

J. A. Hunt Co., Philadelphia, has been appointed district representative for the Kron Co., Bridgeport, Conn., maker of industrial dial scales.

♦ ♦ ♦

Blaw-Knox Co., Blawnox, Pa., has received an order from Gold Seal Asphalt Roofing Co., Minneapolis, for five standard steel industrial buildings to house the organization's new factory at Chicago Heights, Ill.

♦ ♦ ♦

Hagan Corp., Pittsburgh, has booked an order through Rust Furnace Co. for a complete combustion control with furnace pressure, gas pressure and air-gas ratio control to be installed on a regenerative soaking pit in the plant of Otis Steel Co., Cleveland.

♦ ♦ ♦

Robinson Welding Supply Co., Detroit, has been formed by J. M. Robinson to handle Lincoln Electric Co. products exclusively, including welding machines, electrodes and accessories. Mr. Robinson formerly was Detroit district manager for Lincoln Electric the past 12 years. Headquarters are at 1921 East Ferry street.

Stainless Steel Producer Doubles Plant Capacity

RUSTLESS IRON & STEEL CORP., Baltimore, has doubled its production capacity with the formal opening of a $1,500,000 addition to its stainless steel plant, providing for a 20,000-ton expansion of the company's annual ingot capacity.

The plant was inspected last Thursday by Baltimore public officials, executives of Baltimore industries, visiting heads of other companies prominent in the steel industry, manufacturers of stainless steel products, and representatives of national business and industrial associations.

In addition to a modern three-high type 12-inch merchant bar mill, housed in a 240 x 80-foot monitor type building equipped with a 10-ton 80-foot span overhead crane, billet heating furnaces, cooling pit, etc., the new plant includes three 12-ton electric furnaces, equipped with 3500 KVA transformers, a 60 x 323-foot brick and steel building housing equipment for cold drawing and finishing rustless steel bars in straight lengths; a two-story service building, containing a dispensary, lockers, shower and dressing rooms, and personnel office, a new electrical substation and transmission lines; cranes, storerooms and transportation equipment.

Other facilities at the company's plant include a 20-inch blooming mill, and 14-inch and 9-inch bar and rod mills; grinding equipment, annealing and pickling and heat treating departments; a wire mill containing 16 draw blocks and equipped to cold draw stainless steel rods and coils into wire; bridge cranes for the handling and storage of raw materials; and chemical, metallurgical and research laboratories. The addition was designed and construction supervised by the corporation's engineering staff and by H. A. Brassert & Co., Chicago.

Yearly Capacity To 40,000 Tons

Yearly capacity has been increased to 40,000 tons of stainless steel ingots, and to 12,000 tons of rerolling and forging billets and hot and cold finished bars and wire. The American Iron and Steel institute's statistical report gives an estimate of 90,966 tons of stainless steel ingot production in 1936.

The Rustless plant is understood to be the only one exclusively devoted to performing all operations in the conversion of virgin chrome ore and other materials into stainless steel in the form of bars, rods and wire, ready for fabrication into products for industrial, commercial and consumer use.

Since chrome ore must now be brought half-way around the world to Rustless furnaces, a year's supply is constantly maintained at the plant. Principal present sources are in New Caledonia, Southern Rhodesia, Turkey and India.

Earnings of the corporation have progressively increased since the last quarter of 1934. Gross sales totaled $2,162,091 for the first half of 1937. This nearly equals sales for all of 1936, which totaled $2,646,783. Sales for 1935 were $1,675,494, and for 1934 were $819,161.

Capital and capital surplus total $2,363,172, with 848,027 shares of common and 25,000 shares of preferred stock which are owned by 8500 stockholders. Assets are valued at $3,487,240. There is no funded indebtedness.

The corporation was organized in 1924 as International Rustless Iron Corp. It was then a patent holding company, but in 1926 organized its operating subsidiary, Rustless Iron Corp. of America. The former Hess Steel Co. plant at Baltimore, which constitutes the nucleus of its present plant, was acquired the same year. The name Rustless Iron & Steel Corp. was adopted in 1933, at the time of a re-capitalization which resulted in converting the corporation's mortgage debt into equity securities. Rustless Iron Corp. of America was dissolved in 1936, its assets being acquired and its liabilities assumed by Rustless Iron & Steel Corp.

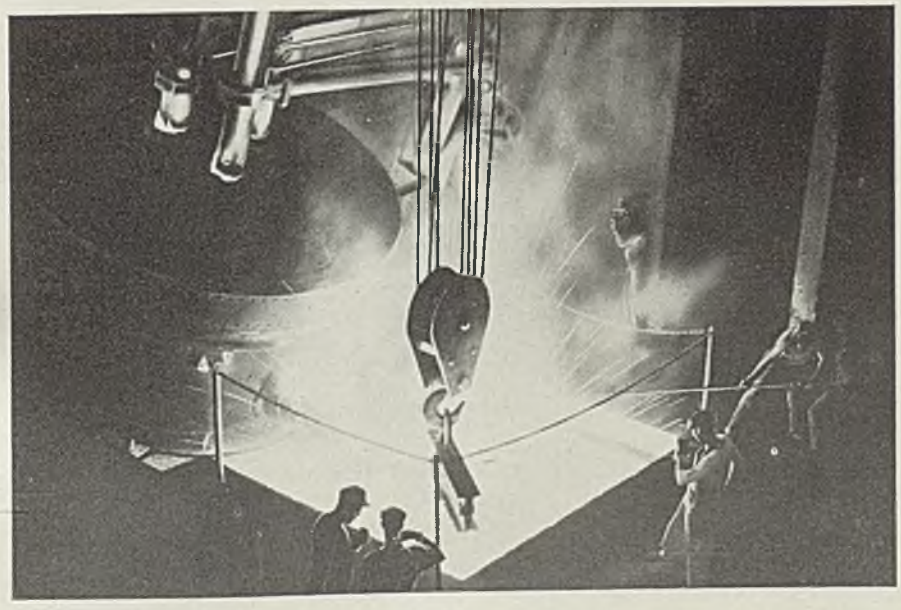
New Processes Developed

Early activities of the corporation were devoted chiefly to improving its processes and developing its business. The present management took charge in 1931, and beginning with that year new processes were developed.

Officers and directors are: C. E. Tuttle, president and chairman of the board; T. F. McLaughlin, vice president in charge of operations; J. K. Remsen, secretary and treasurer; G. B. Pumphrey, comptroller and assistant treasurer; Bruce Borland, S. E. Bramer, Charles R. Hook, C. S. Payson, W. W. Sebald and Calvin Verity, directors. W. B. Pierce is sales manager.

Branch offices and representatives are: Detroit, 4-137 General Motors building, A. L. Grinnell, manager; H. S. RuDesill, sales engineer; Chicago, 4013 Milwaukee avenue, E. P. Geary, manager; Philadelphia, 1263 Commercial Trust building, A. MacLean, Jr., manager.

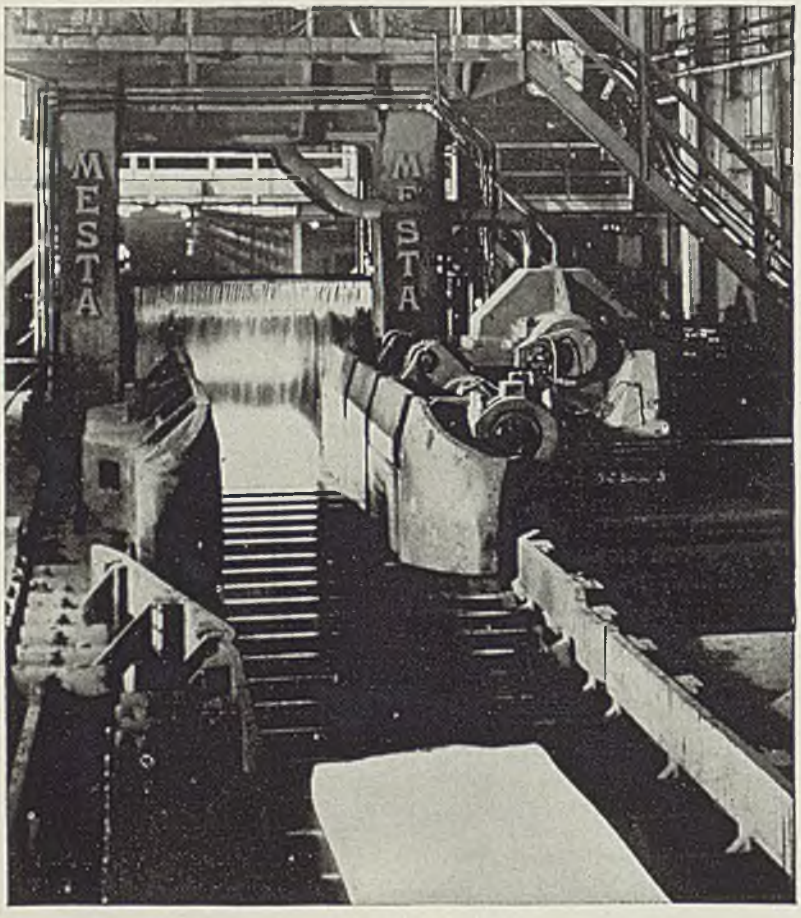
Speakers at the luncheon included George M. Verity, chairman of the board of directors, American Rolling Mill Co., Middletown, O.; Howard W. Jackson, mayor of Baltimore; General Henry M. Warfield, president, Baltimore Association of Commerce; Charles S. Payson, director, Marine Midland Trust Co., New York; and Mr. Tuttle.



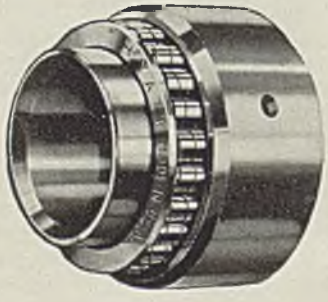
POURING stainless steel at the Rustless Iron & Steel Corp.'s plant in Baltimore. Three of these 12-ton electric furnaces have been added in the corporation's $1,500,000 plant expansion, which includes new hot and cold rolling mills formally placed in operation Sept. 30

Longer Equipment Life

-with HYATT *Roller Bearings*



This **MESTA 46" SLABBING MILL** now in operation at Inland is being duplicated with two similar units, likewise with Hyatt Roller Bearings on all the tables. Repeat order after order for tables, cranes, cars, etc., with Hyatt equipment proves the worth of these better bearings.



Because Hyatt Roller Bearings have long-life designed and built right into them, it is no wonder they are so generously employed. In addition to increasing the life span of the equipment they serve, they further save through the power and maintenance economies they effect. That's why steel mill men have such confidence in specifying Hyatts and why the equipment manufacturers have like faith in Hyatt applications for the extra protection they assure. Hyatt Bearings Division, General Motors Corporation, Newark, Detroit, San Francisco. Hyatt Roller Bearings Sales Company, Chicago and Pittsburgh.

MIRRORS OF MOTORDOM

DETROIT

REQUIEMS have been sung for the Packard 115 and 120 models, and in their places have emerged from the chrysalis the resplendent six on 122-inch wheelbase and a glistening eight on 127-inch wheelbase, both retaining characteristic Packard lines, but with steel tops, slightly altered body lines, more flexible rear springing, V-type windshields and rear windows, much larger and deeper fenders, headlamps faired into the fender skirts, new instrument boards, and—say it softly—price increases starting at $70 and ranging upward to $200.

Static friction in rear spring leaves is lessened by the use of rubber and bronze inserts fitted into "cups" at the ends of the spring leaves, and by mounting spring ends in rubber, with rubber shackle bushings.

The Packard line for 1938 will include four series, a super-eight and a twelve in addition to the junior lines. Tin-plated aluminum alloy pistons, used hitherto only in the six, have been extended to all models. Camshafts, in addition to crankshafts, on the six and eight are hardened by the induction process, those on the larger models continuing to be carburized. Oil filters are now standard on all lines.

The new all-steel bodies for the smaller Packards have been given special acoustical treatment, 11 different types of noise-deadening material being used for insulation purposes. Body hardware is redesigned, being more massive and harmonizing with the lines of the car.

Another innovation is the adoption of thermostatically-controlled radiator shutters or "winter fronts."

TECHNICAL experts here are speculating upon the effect of "shot" loading of the Nash steel top, an innovation designed to overcome any possible drumming action of the solid roof.

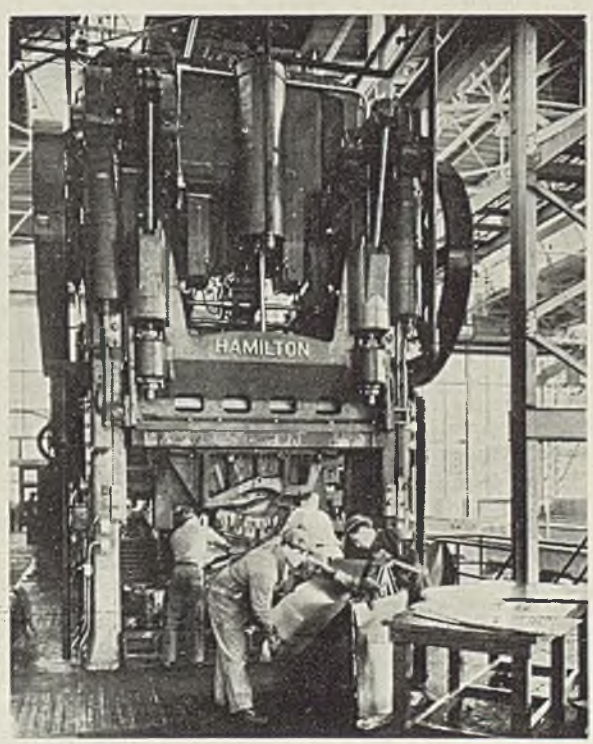
It appears that some steel tops have been found to possess low vibration periods which, even though they are below the audible frequency, have been blamed for causing headaches and tired feeling on long drives, when the car is entirely closed. Nash is reported to have overcome any such tendency by applying lead shot to the under side of the steel panel, distributing it unevenly so that it destroys critical vibrations. Details of how the shot is applied have not yet been revealed, but one guess is that it is mixed with a certain adhesive or cement and stuck on in some fashion.

It will be recalled Hudson recently sought to solve the vibration problem by cutting a hole in the flooring under the rear seat, covering the outlet with screen, thereby permitting air circulation and avoiding a tightly sealed interior which would concentrate air vibrations on the ears of the occupants.

This matter of drumming action and low vibration periods is one which undoubtedly is little understood by the average car buyer, but its significance is well appreciated by engineers, and it has been considerably magnified since bodies have gone to all-steel welded construction and windows and doors have been tightly sealed. It is a fact that it is difficult to close tightly the doors of some cars when windows and ventilators are shut, so thoroughly have interiors been sealed from the out-

BY A. H. ALLEN
Detroit Editor, STEEL

Radiator Shells Start Down Line



RADIATOR shells start from flat sheets through a series of drawing, shaping and trimming operations in this giant press in the new De Soto plant in Detroit. Daylight working conditions are provided by generous use of glass in walls and ceilings of the building. Note press pits at right, where expansion of press capacity will be made at some later date. Operators in foreground are partially bending a sheet before it is placed in press

MIRRORS OF MOTORDOM

side air. With tops and side panels now joined in a single, solid unit, consideration of vibration problems must be extended to the entire body and not necessarily confined to just the roof panel.

PRACTICALLY everything for 1938 has been previewed, with the exception of the Ford lines which likely will be the last to get under way. Last week six hand-made Zephyr models were shipped from the Lincoln plant for display at European automobile shows, and executives are understood to have boosted again their estimates on 1938 production, aiming at about 400 per day which would mean a year's output of anywhere from the originally contemplated 60,000 to 100,000.

Ford is approaching a bank of 20 days' supply of nearly all parts for 1938 models and, pending some last-minute decisions, should be ready to start assemblies any day now. It is understood all Ford sedan models for next year will come equipped with trunks in the rear, doing away entirely with the plain-back models of this year.

Ford May Expand in St. Louis

A report is heard that Ford is contemplating some extensive expansion in the St. Louis territory, possibly establishing a central assembly and distribution plant for the Southwest. The present plant operated in Kansas City is anything but up to Ford standards and this fact, plus difficulties which have been experienced with labor in the K.C. vicinity, may be the tipoff on the rumor Ford is planning to go into St. Louis.

Equipment still is being purchased for a new tool and die shop at the Rouge, and apparently the intention is to set up facilities to provide all dies required by the new press and body shop which will shortly be started at the Rouge plant. Engineers also are figuring currently on additions to the Ford hot strip mill facilities.

A leading manufacturer of wheels in this area also is considering the feasibility of investing a considerable sum in equipment for an enlarged and centralized tool and die shop. Figures are said to be in, but approval of the appropriation by the management is still being awaited.

Crowds thronged the General Motors building to inspect the new Buick and Olds models last week. Of the two, Olds has probably made the most radical changes, eliminating louvres and all other "gingerbread" from body exteriors, completely redesigning grilles, and featuring a rather startling innovation in instrument panels. All instruments are grouped in a cylindrical shaped metal box set away from the dash directly under the steering wheel. The latter has been changed to provide a better view of the instruments, the wheel rim being supported by a single horizontal spoke bar, reinforced by curved grips at either side. Lights are set wider apart, being faired into the front fenders. Olds prices have been marked up, the minimum being a reported $75.

Buick Bodies Wider

Buick prices likewise have been stepped up, a maximum of 4.1 per cent. Advance in the 40 series, which constitutes 70 per cent of the Buick output, is $26. Appearance of the 1938 Buick differs from that of its predecessor chiefly from the standpoint of radiator grille which comprises fewer horizontal bars, each being further embellished by an additional S-shaped bright metal piece where the grille meets the hood. Hubcaps are decorated by a series of cup shaped depressions around the outer rim. The gas tank filler cap is concealed by a spring-hinged lid which, when closed, fits into the fender contour. Bodies are wider and give the appearance of being lower to the ground. Rear coil springs look to be about 6 inches in diameter and 12 inches in height.

Fleetwood body division of GM, by the way, is supplying some of the bodies for the larger Buick models, those retaining the composite construction.

Pontiac has snapped into 1938 production in a hurry and is already in excess of 1000 units daily. Officials there see a total of 300,000 assemblies on the horizon, comparing with 236,189 for this year's models; 173,137 in 1936; 124,926 in 1935 and 76,553 in 1934.

The Pontiac plant has been geared up to supply considerably more material for other divisions of General Motors next year. This extracurricular production will include 50,000 engines for General Motors Truck and all the axles for Olds assemblies. Pontiac expects to turn out 115,000 more motors in the coming season than were produced for 1937. The axle plant boasts a considerable volume of new equipment; new welding machines and presses have been installed in the sheet metal plant; and new conveyors and auxiliary equipment in the foundry will bring pouring capacity from 250 tons to 600 tons daily.

Pontiac Retains Lines

The new Pontiac presents few changes from last year, retaining the characteristic "silver streak" design for the fourth consecutive year. Minor changes in grille and hood have been made, mainly to provide an altered appearance.

Five new presses and new roller leveling equipment are included in equipment for a new right and left front fender line at the De Soto plant, now in operation. While subassemblies are going ahead full tilt, it is not likely any completed cars will be coming through until about Oct. 10. The new model will have wheelbase lengthened by 4 inches to get away from the excessive overhang of the radiator in front, to which some buyers objected this year.

Plymouth is entering its tenth anniversary year with capacity for 2000 units daily and assemblies are already well on their way to this level. Beyond a smaller grille, giving the effect of a longer hood, a new steering system, redesigned hardware and stationary windshield, the new model does not differ appreciably from the 1937 line.

Automobile Production

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

	1935	1936	1937
Jan.	300,335	377,244	399,634
Feb.	350,346	300,810	383,698
March	447,894	438,943	519,177
April	477,059	527,625	553,415
May	381,809	480,518	540,357
June	372,085	469,368	521,139
July	345,297	451,206	456,775
7 mos.	2,674,825	3,045,714	3,374,195
Aug.	245,075	275,934	*370,000
Sept.	92,728	139,820	.....
Oct.	280,316	230,049	.....
Nov.	408,550	405,799	.....
Dec.	418,317	518,958	.....
Year	4,119,811	4,616,274	.....

Estimated by *Ward's Automotive Reports*

Week ended:	
Sept. 4	64,200
Sept. 11	59,017
Sept. 18	30,150
Sept. 25	28,030
Oct. 2	44,330

	Week ending Oct. 2	Sept. 25
General Motors	15,500	14,000
Ford	.....	.....
Chrysler	15,050	3,075
All others	13,780	10,955

*Estimated.

"The Standard Lubrication Engineer was here today...

we 'stepped up' output on the gear shapers"

Such conversation takes place somewhere almost every day. Not always about gear cutting. It may be honing, grinding, or the lubrication of other equipment, but "the Standard Lubrication Engineer had been there... and suggested a saving."

That is only natural. Standard Lubrication Engineers are trained, equipped and placed at your service for the purpose of spotting opportunities to reduce lubrication costs in your plant. Their knowledge of lubricants enables them to make these savings *safely*—without sacrificing lubricating quality or obtaining low cost lubrication at the expense of high maintenance. Their combined experience covers every phase of industrial lubrication.

You have been overlooking a real opportunity to get helpful, money-saving suggestions on lubrication if you have failed to investigate this service. It's free. Call your local Standard Oil (Indiana) office today and ask for the Standard Lubrication Engineer.

StanoStamp Satisfies Heavy Drawing and Forming Requirements

Three grades of StanoStamp provide the exact forming lubricant to meet all conditions encountered in heavy stamping or drawing of sheet metal, including alloy or low carbon steel.

Advantages of StanoStamp include: the elimination of sticking dies and frequent die cleaning—the ease of preparation and stability of the emulsion—ease of application to and removal from the work—all contributing to faster, less costly operation in your forming department.

The Standard Lubrication Engineer can recommend the exact lubricant for lowest cost operation on any particular job. Call him today.

THE RIGHT LUBRICANT • PROPERLY APPLIED • TO REDUCE COST

STANDARD OIL COMPANY (INDIANA)

LUBRICATION ENGINEERING

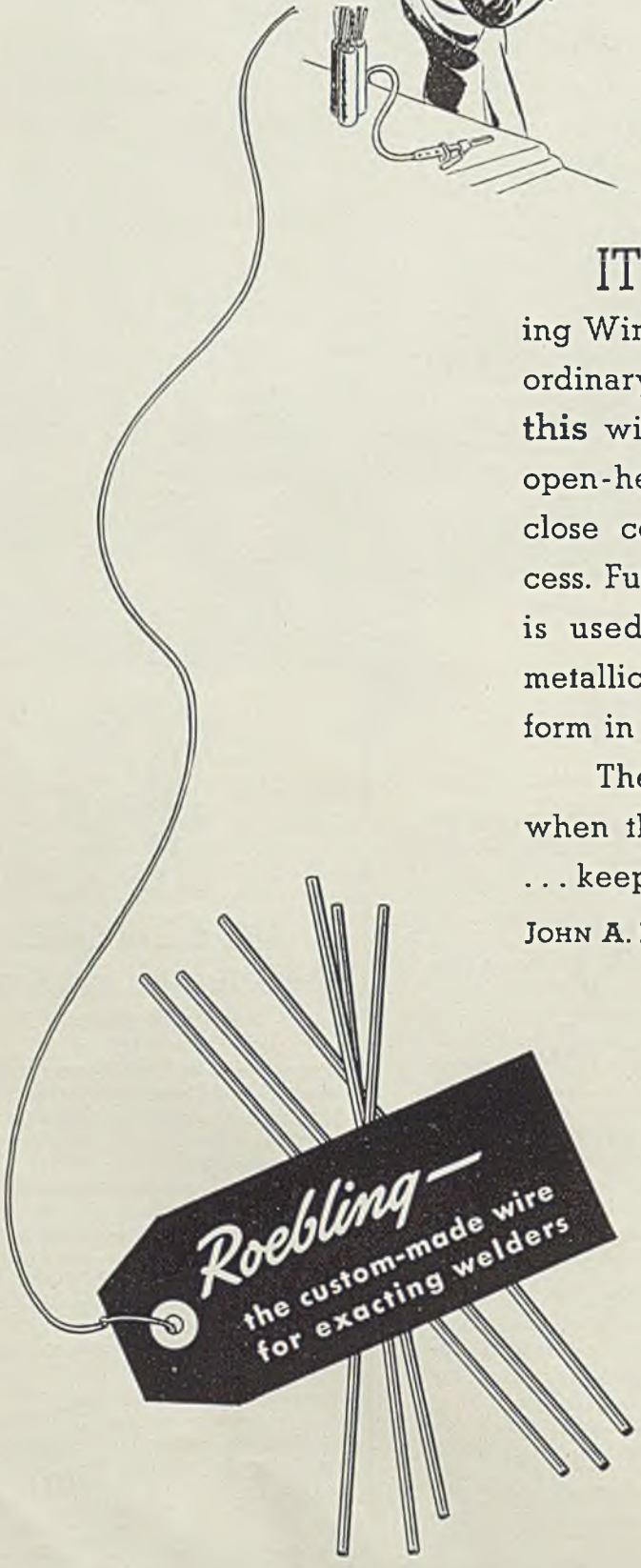
"This welding wire is always the same, Bill"

"That's been my experience, too"

IT'S Roebling custom-made Welding Wire. Unlike welding wire made of ordinary "tonnage" steel, the steel for **this** wire is produced in special small open-hearth furnaces, permitting very close control of the steel-making process. Furthermore, special melting stock is used. Result: a wire free of non-metallic impurities and absolutely uniform in quality.

There is no need for current changes when this wire is used. This saves time . . . keeps down welding cost.

JOHN A. ROEBLING'S SONS CO., TRENTON, N. J.
Branches in Principal Cities



WINDOWS OF WASHINGTON

BY L. M. LAMM
Washington Editor, STEEL

WASHINGTON

PRESSURE is being brought to bear on Secretary of State Hull by domestic manganese producers to restore full duty on manganese ore—but indications are the decision, expected soon, will be adverse to these interests.

A recent report compiled by a special committee in his own department has been given to Hull and, while it has not yet been made public, it is reported to be adverse to domestic producers.

Domestic manganese producers believe the delay will be good for their cause. They point out daily developments show increasing need for the further development of manganese in the United States for purposes of national defense. For this reason, they think, favorable government action on their plea necessarily will be taken soon. However, they have been thinking that for several years for one reason or another.

During the past session of congress, the war department urged purchase of $150,000,000 worth of manganese, tungsten, tin and chrome. For this congress authorized an appropriation of $3,500,000 to the navy department with which to make purchases of these commodities during the 1937-1938 fiscal year.

Well informed circles here report substantial investments are ready to be made in domestic manganese developments and increased production can be had but the domestic producers are awaiting some assurances from the state department that the prices will be stabilized through the restoration of the old duty. It is contended by the domestic men the responsibility for development or nondevelopment of domestic manganese at this time rests squarely on the shoulders of the state department.

BIGGERS' METHODS PLEASE GOVERNMENT OFFICIALS

John D. Biggers is a Republican, it is said. The question therefore is being asked by the curious of Washington whether the President could not find a Democrat good enough to take the unemployment census. Or did he select Biggers so he could blame the Republicans if it should fail?

Some curious reactions to the work of the Toledo industrialist and his methods have been noticed. One government official, fairly high up the ladder, who has sat in with Biggers and others at some of the conferences, expressed considerable surprise at his methods and activities. This particular official gained an idea perhaps all "economic royalists" were not as bad as painted. In fact, this man expressed pleased surprise at the manner in which Biggers was handling things and predicted the census would be a success, whereas when congress adjourned, he felt very gloomy about it.

President Impressed

It is apparent the President has been much impressed by Biggers. This is evidenced by the fact that during the past few months he has been asking his advice on several business matters, it is reported. Also not so many weeks ago Mr. Roosevelt offered Biggers a position as chairman of the federal communications commission. This was really a compliment because the President is on the spot here and was called upon to put someone at head of the commission who would be able to stop internal wrangling.

Biggers declined the communications commission job but he was practically drafted for the unemployment census job—and as a dollar-a-year man is attacking it with a vengeance.

The President is understood to have given his indorsement to the program for the census which has so far been worked out by the glass manufacturer and the latter has said the job will not cost more than the $5,000,000 allotted.

The work will be done by the post office department through questionnaires. Probably the tabulating work will be done by the census bureau which has an elaborate system and machinery for tabulating work. It is expected the job will be completed by Dec. 1 which means they will have to hustle.

Under plans as drafted, reporting on the cards will be voluntary and the questions will be made as simple and direct as possible.

A meeting was held at the White House last week, called by the director of the work, at which representatives of labor, industry and the government were given an opportunity to make suggestions.

UNDISTRIBUTED CORPORATE TAX ASSAILED IN SURVEY

A survey has been made of the business tax situation by the United States chamber of commerce which shows specific handicaps arising from application of the surtax on undistributed corporate earnings. Of course, this information is available to treasury department experts who also are working on this subject, but probably they will take it all with a grain of salt. That is their usual reaction to anything from business.

It is said results of the survey indicate clearly the surtax is seriously hampering national business expansion, adversely affecting employment and inflicting numerous financial difficulties on business and industry. Reports were requested and answers received from representative corporations enumerating effects of the surtax. It is stated these corporations are located in various parts of the country and cover a wide range.

George H. Davis, president of the organization, in making public the results of the survey, said practical experience with the surtax has fully demonstrated validity of objections made by business interests when the

tax was under consideration by congress.

Davis said that "our study shows the surtax in actual operation is one of the most important factors now retarding an increase in employment, because it restricts normal business development at the same time it produces great uneasiness in taxation. If the tax is to be retained, the next congress should give attention to alleviating the outstanding hardships and inequalities which have been shown to exist."

PRESIDENT NOT COMMITTED TO TRADE PRACTICE BILL

Someone in Washington is trying to throw a scare into business and industrial leaders. An inspired story went out from here a couple of weeks ago to the effect the administration was sponsoring a program which would include trade practices in the proposed hours and wages legislation.

It is true this was contemplated at one time, but it is also apparent the President is not committed to such procedure now.

A very definite statement was made to the writer by one close to high authorities last week that trade practices would not be sponsored by the administration until after something had been done by congress to correct weaknesses in the present antitrust laws.

Of course, correcting the Sherman law, which will be prominent in next winter's congressional program, cannot be done overnight. Considerable whispering has been heard around Washington by trade association executives and others that Don Richberg and Ernest D. Draper, the former well known as head of the NRA and the latter assistant secretary of commerce, were working on some kind of a trade practice law. It is known this is not correct. They may have had it in mind at one time but the time for it is not ripe yet.

ONLY ONE TAX RETURN WILL BE NECESSARY

Steel employers along with those in other industries will be interested to know Guy T. Helvering, commissioner of internal revenue, has announced employers subject to tax under title 7 of the social security act will be required to file only one information return for the period July 1 to Dec. 31, this year.

This is the return on a form on which the employer reports to the collector of internal revenue the amount of wages paid to each employe. These are used both for verifying the accuracy of the monthly federal social security tax returns and as a basis for crediting wages to the accounts of employes in the federal old age benefits program.

Under this ruling instead of requiring a return for the current quarter which ended Sept. 30 and another return for the quarter ending Dec. 31, the employers will make one six-month return, which will be filed with collectors on or before Jan. 31.

TRADE ASSOCIATIONS ARE AWARDED CERTIFICATES

The Institute of Scrap Iron and Steel and the Drop Forging association have been awarded certificates of recognition in the annual awards made by the American Trade association executives.

The association executives in addition to making a general award and certificates of honor this year added this new classification and in announcing awards to the steel organizations explained that "the great interest shown by other trade associations in the annual award competition, prompted the A.T.A.E. to offer certificates of recognition." The two awards mentioned above with twenty others were made because of exhibits entered by them which "were judged worthy of these certificates."

JAPANESE IMPORTING LESS UNITED STATES SCRAP

Government officials, who for obvious reasons are not willing to be quoted, say such official figures as are now available here indicate the Japanese are getting out of our scrap market. For the past couple of months the government figures have noted a material decrease in exports to Japan. Reports received here indicate that large sales of scrap are being made to the British-European cartel.

CHANGES ANNOUNCED IN FOREIGN COMMERCE SERVICE

A number of changes were announced last week by the department of commerce in personnel of the foreign service department, both at home and abroad.

H. Lawrence Groves, a career man, has been appointed chief of foreign commerce service. Groves went into his new job from that of assistant to the director of the bureau of foreign and domestic commerce. Prior to that, Groves was commercial attache at several European posts, the last being Berlin.

Randolph Blinn took Groves' former position as assistant to the director of the bureau. In addition to changes in the executive positions in the foreign service in Washington a number of changes were made in the position of commercial attaches and others in various posts.

REPLACING McGRADY TO BE DIFFICULT TASK

The administration really is being hard put to find a suitable person to fill the vacancy left by Ed McGrady, assistant secretary of labor, who resigned to handle labor relations for David Saranoff's RCA.

When one considers the President will try to please Miss Perkins, AFL and the CIO, that is some order. It seems impossible of fulfillment, but it may be done. It is reported all kinds of pressure is being brought to bear. It must be remembered this is a $9000 a year job, a first class piece of patronage in any man's country.

One thing that has helped the government is that there are no major industrial disturbances at present and the administration can take its time in making a selection.

Whether it will remain so or not, the office of the assistant secretary of labor under McGrady developed into a key position in settling major strikes. This was due in part because a woman (Miss Perkins) could not handle a strike as well as a man, and also because of the wide experience that McGrady had had in labor union matters. Take it any way you like, it will be hard to replace Ed McGrady.

CAR LIMIT BILL WOULD COST $150,000,000 YEARLY

M. J. Gormley, executive assistant of the Association of American Railroads, discussing the bill to limit freight trains to 70 cars, said it is not a safety measure as labor unions call it, but actually a make-work bill which would increase operation costs $150,000,000 a year.

In connection with the question of safety, Gormley said "the very great increase in safety on the railroads since 1920 in every feature of operation, including passenger handling, has been little less than astounding. To show that there can be no real basis for considering the 70-car train limit bill as a safety measure, it is only necessary to call attention to the fact that with an increase of 16 per cent in the average length of trains from 1923 to 1935 there has been a decrease in the frequency of accidents to train and engine service employes of 66 per cent.

"The railroads," he continued, "have spent large sums of money for new and more efficient locomotives and other facilities which have enabled them to increase the length of trains since 1923 by 16 per cent and at the same time to increase the average speed of freight trains by approximately 46 per cent."

GERMANY CONTINUES DUTY EXEMPTION ON ALUMINUM

The expiring German import duty exemption on crude aluminum (in blocks, bars, pigs, grains, cast plates), and aluminum scrap and waste, has been continued in effect until March 31, 1938.

Editorial

England's Unions Democratic, Not Despotic Nor Political

IN HIS highly informative and very readable letters from England, E. C. Barringer, editor of *Daily Metal Trade,* who has been delving into the characteristics of British industry, presents sidelights on labor relations which should interest every employer in the United States.

Here are significant excerpts from his column "The Situation" in *Daily Metal Trade:*

"Not all English iron and steel producing and consuming interests are a closed shop, but for all practical purposes all are unionized. Unions are accepted as a logical, and almost invariably as a desirable, thing.

"But there do not seem to be any John Lewises in the British labor movement. A sitdown strike or the tactics employed by CIO in recent months would be unthinkable here.

"An undercurrent of reason seems to pervade the relationships of employer and unions. When employes have a grievance they send for a representative of their union. His procedure is to seek a conference with the management, and ask searching questions concerning the situation.

"The union's representative usually accepts the responses of the management and goes back to the men with them. He is more an arbiter than an advocate.

"One union representative more than once has informed his men that their grievance was unfounded or their demand unwarranted, and urged them to forget them. Once when the men persisted in striking, the union withdrew its support and broke the strike.

"At another plant the men walked out and picketed the gates. But when the managing director (president) wanted to drive into the plant, the pickets stood aside and tipped their hats.

"At still another plant, the union recently went on strike to force a closed shop. It made plain that it had no complaint on any score, but simply wanted a 100 per cent shop. After almost a fortnight the union sent a letter to the management that it was ready to return to work and that was that."

Trade Unionism Based on Typically British Stability of Character

Mr. Barringer states that all this indicates that British trade unionism is old, steeped in tradition and founded on a certain stability of character that is typically English. "For another thing," he declares, "British employers appear to do much more for their labor than do American employers. They provide them with canteens, meals at cost or lower, recreation facilities and more comforts."

Illustrative of this, he cites the case of the Pressed Steel Co. at Oxford:

"A canteen and club occupy a brand new 2-story building that is a really large unit in a 30-acre floor space workshop, as the English term a factory.

"A cafeteria which is clean, inviting and superior to any cheap lunch in the average city offers a noon meal, of which the following prices are typical: stewed steak and onions, 8 cents; pork sausage and chips, 6 cents; other meat dishes as low as 4 cents; rice pudding, 4 cents; tea, 1 cent; coffee, 1½ cents."

But even in England, one finds an open shop. At Dagenham near London, Henry Ford has duplicated his Dearborn plant on a small scale and, according to Barringer, "his non-union factory at Dagenham is an oasis in a vast desert of British trade unionism."

How does Ford get away with it? Here is Barringer's explanation:

"The minimum wage at Dagenham is 36 cents an hour against 75 cents at Detroit. But the real comparison is with other British wages, and here Ford leads by a wide margin. . . . But wages tell only a fraction of the story.

"If an employe works 1600 hours a year, $25 is set aside for him when he leaves the company's employ. If he gets in over 1600 hours a year, $26.20 is put to his credit on the books. He draws this only as a separation bonus.

"If after working three months, he is killed in the plant, his widow or estate receives $1000. In addition, accident-insurance carried on him by the company pays him $7.20 a week for the duration of his disability.

"But the greatest boon of all is a fortnight's vacation with pay provided he has been on the payroll for 12 months and has worked 1600 hours.

"The only deduction from any pay envelope is 6 cents per fortnight for the sports club to which 9000 of the 12,000 employes belong.

"No wonder British unions have let Ford alone!"

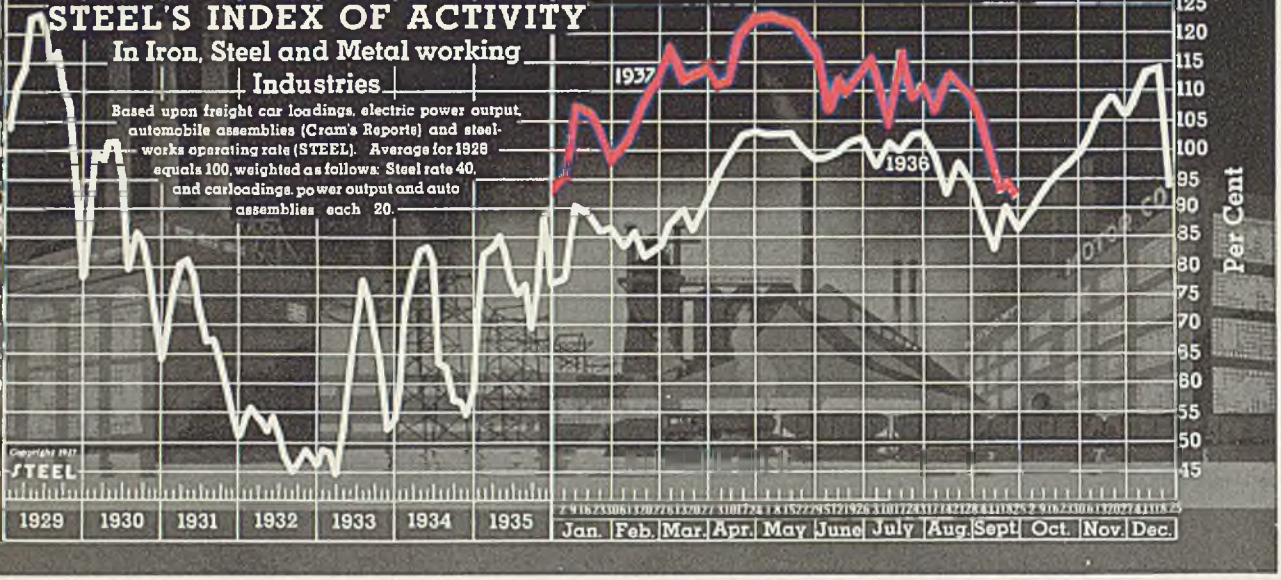
Fair Deal for Labor Typical of British Employers' Policy

Two observations seem to be in order. One is that apparently it is a democratic, practical type of union which works effectively in England and not a dictator type nor a politically sponsored organization, such as our CIO in the United States.

Secondly, in union or non-union plants, a fair deal for employes is a characteristic of British labor policy.

Also, we cannot escape the significance of the hat-tipping incident. English employers deal with men who have respect for law and order and who recognize a class distinction. Here we have disrespect on both counts. Our problem is made more difficult by this fact.

But we still think that fair dealing will lead American employers to a labor relations policy that will be superior to the unionization system of England. It will be a system developed from experience and based upon merit. It will not be an inflexible, arbitrary system introduced by autocratic leadership, fostered by one-sided legislation and crammed down the throats of employers and employes by government coercion.



STEEL'S index of activity declined 1.9 points to 93.1 in the week ending Sept. 25:

Week ending	1937	1936	1935	1934	1933	1932	1931	1930
July 24	108.0	102.1	80.8	66.4	78.8	51.5	69.7	78.7
July 31	109.1	102.6	78.4	64.6	75.8	46.1	68.9	79.2
Aug. 7	107.3	98.7	64.6	73.4	74.7	45.1	67.0	85.6
Aug. 14	113.8	92.6	71.5	61.4	74.2	44.6	67.4	86.2
Aug. 21	110.3	97.9	77.0	60.3	71.6	44.9	67.3	88.5
Aug. 28	108.5	94.0	77.3	55.1	70.3	45.2	66.5	87.4
Sept. 4	104.8	87.5	70.9	53.5	65.5	45.4	65.3	79.0
Sept. 11	94.3	83.1	70.1	58.7	69.1	44.9	60.9	85.9
Sept. 28	95.0†	90.1	69.4	58.1	68.2	47.8	65.6	86.2
Sept. 25	93.1*	86.2	68.5	59.3	66.9	48.0	65.2	83.8

†Revised. *Preliminary.

Industrial Activity Clings To Post Labor Day Level

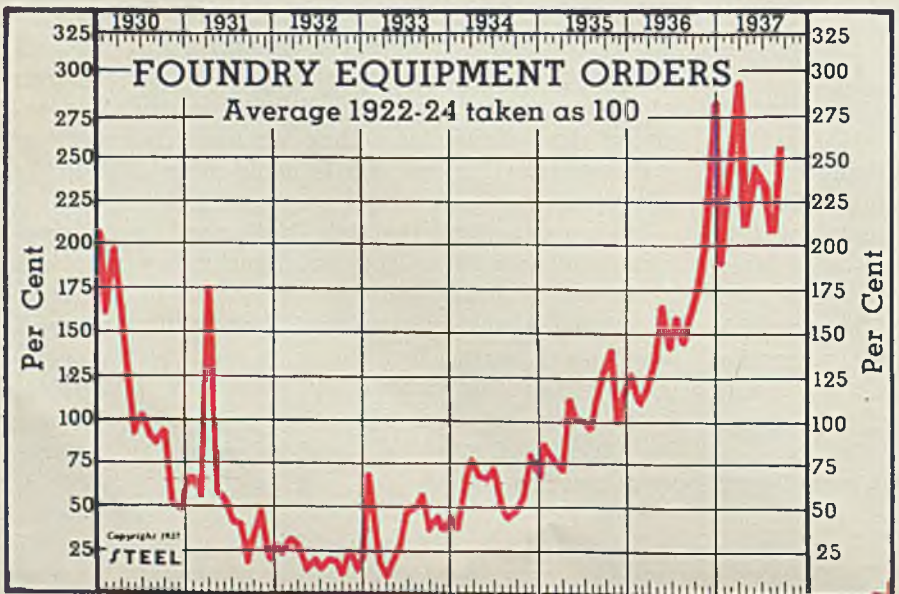
WITH records available for three full weeks after Labor day, it appears that industrial activity has settled down to a rather consistent level, which, measured in terms of STEEL'S index, is approximately 14.5 per cent below the average of the 15 summer weeks preceding Labor day.

From the last week in May to the end of August the index fluctuated within the limits of 103.8 and 115.7, with an average of 110.1. In the three weeks since Labor day the index has remained within the brackets of 93.1 and 95.0, averaging 94.1.

Seasonal and contraseasonal forces have contributed to reducing the index to a plateau at the 94.1 level. Revenue freight car loadings in the weeks ending Sept. 18 and Sept. 25 established consecutive new highs for the year. It is predicted that in some districts car loadings for the fourth quarter will exceed those of the final quarter of 1936 by more than 10 per cent.

Electric power output, while down slightly in a contraseasonal movement, still is running ahead of last year's figures consistently. Steelworks operations, hovering around the 75 per cent mark, are slightly above the level in the corresponding period of 1936.

Automobile output is at the lowest point of the year, yet production in September 1937 will exceed that of September 1936 by a wide margin. An upward trend in automobile output, which is due now, will inject a more positive tone to the business situation in October.

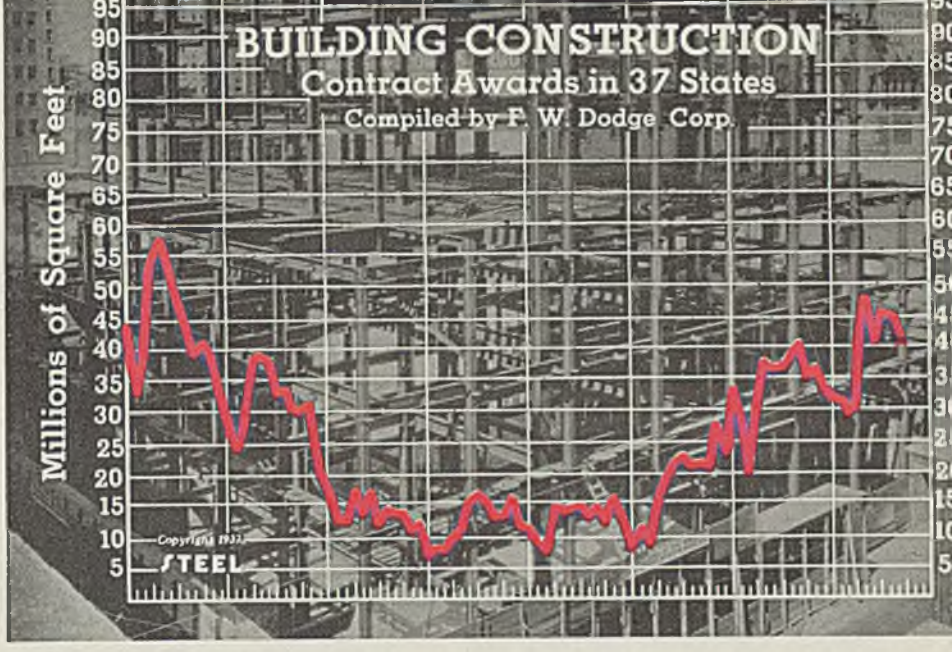


	Per Cent			
	1937	1936	1935	1934
Jan.	190.9	127.0	76.6	37.2
Feb.	249.5	110.4	75.7	65.8
March	294.2	115.0	69.4	75.4
April	208.3	134.0	113.2	67.9
May	242.0	165.4	100.7	66.5
June	228.2	141.4	100.2	70.4
July	204.0	159.6	94.0	50.7
Aug.	257.5	144.8	113.0	43.1
Sept.	.....	161.0	128.5	46.4
Oct.	.....	173.8	140.0	55.3
Nov.	.....	200.4	100.4	80.4
Dec.	.....	283.3	118.1	66.9

BUSINESS TREND

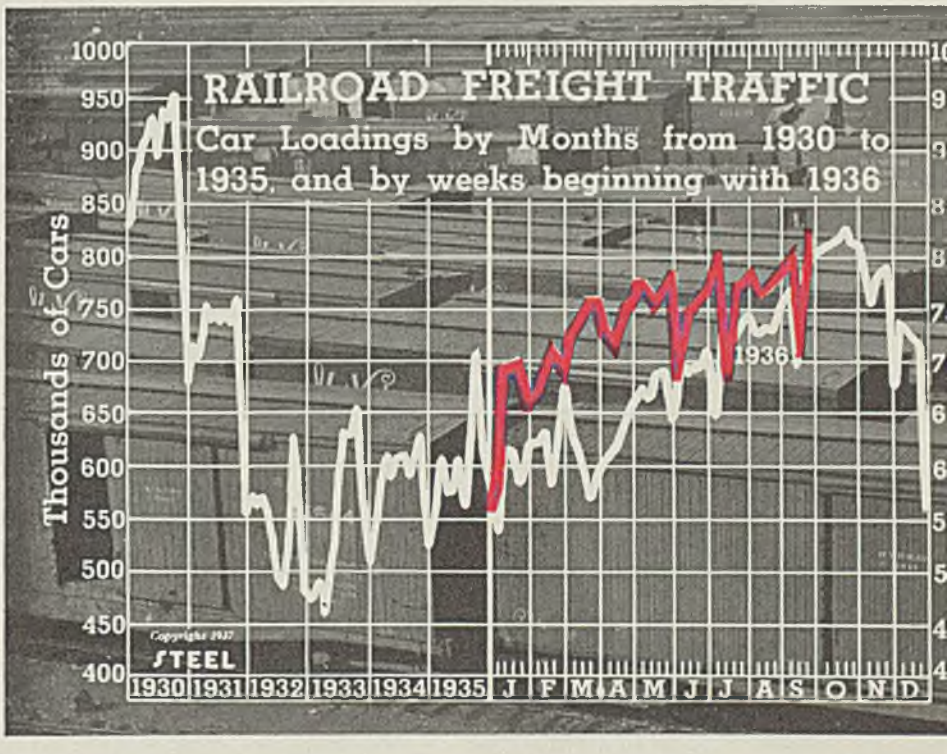
August Building Awards Register Slight Decline; Above Year Ago

	Three-Month Average Square Feet		
	1937	1936	1935
Jan....	33,470,000	27,053,300	11,245,100
Feb....	29,942,100	20,856,700	9,670,300
Mar.	41,567,800	31,257,900	15,845,300
Apr....	48,396,100	37,490,200	19,917,300
May...	40,287,900	36,362,100	22,276,200
June .	46,393,100	36,883,900	22,878,000
July...	45,812,600	38,762,500	21,565,900
Aug...	42,077,100	40,285,100	21,545,400
Sept...	.....	35,448,000	21,365,700
Oct....	.....	36,718,900	27,775,900
Nov..	.....	34,947,500	24,120,700
Dec..	.....	33,632,600	33,441,900



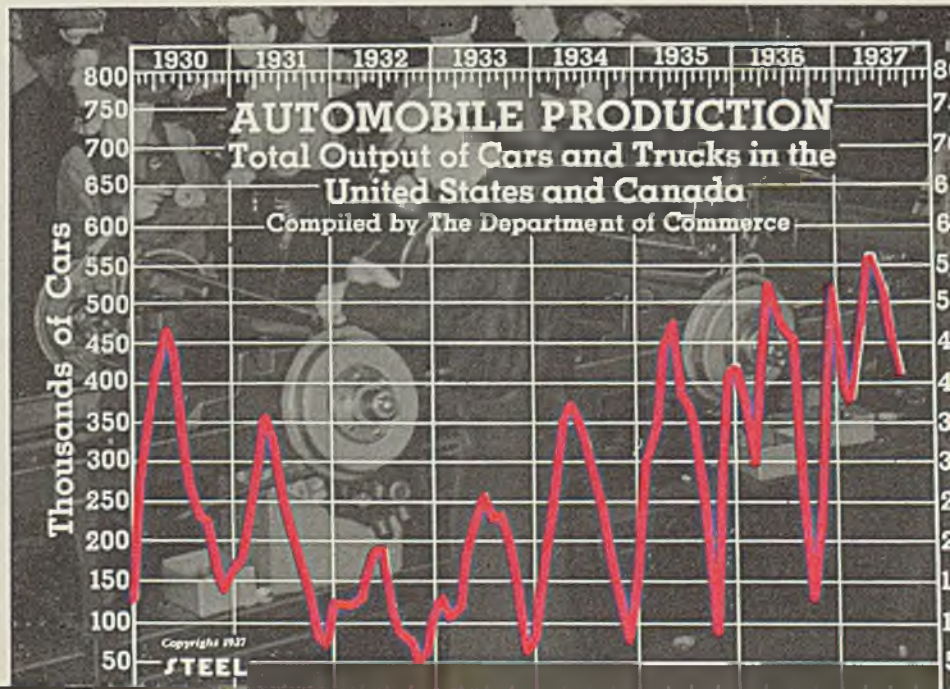
Railroad Freight Traffic Continues Upward Trend

	1937	1936	1935
Sept. 18....	826,565	789,510	707,644
Sept. 11....	711,299	699,859	700,357
Sept. 4	804,633	764,680	592,786
Aug. 28....	787,378	753,742	679,861
Aug. 21....	781,247	734,973	626,373
Aug. 14....	777,382	736,497	615,006
Aug. 7	769,706	728,293	583,743
July 31	782,660	747,551	597,083
July 24	770,980	731,062	596,462
July 17	770,075	729,402	593,366
July 10	682,205	724,324	566,488



Automobile Production Continues Seasonal Decline

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



Iron and Steel Engineers

SERIES of interesting technical papers was read before the annual convention and exposition of the Association of Iron and Steel Engineers, held in Chicago Sept. 28-Oct. 1, inclusive.

Recent advances and developments in steel mill technology and related subjects were described by more than a score of authorities.

STEEL publishes herewith for your information abstracts of some of the papers presented. The remaining papers will be abstracted and presented in next week's issue.

With the advent and growth of the wide strip mill the capacity of the table and coiler drives grew by leaps and bounds. In some cases the total capacity of motors has been over 2000 horsepower for a single table, according to L. A. Umansky, General Electric Co., Schenectady, N. Y. The several table sections and the coilers had to be individually started and stopped. The converting plant consisting of direct to alternating current motor-generator sets included in some cases six or more sets, aggregating well over 300 kilowatt amperes.

It then became apparent the capacity of the apparatus made the otherwise good system unwieldy, uneconomical and inefficient.

Its first and inherent handicap is that of any adjustable speed a-c drive. We take for granted that the squirrel cage motors are simple and rugged. However, the only means of adjusting their speed is by varying the applied frequency. There is no good and practicable means as yet developed of providing commercially a source of adjustable frequency, except in a rather crude way, by means of a d-c to a-c set.

Direct Current Is Simpler

Since the power supply is usually a-c, this means that another a-c to d-c set, is used somewhere in the system to provide power to run the adjustable frequency sets. Thus, the power is converted through five machines in succession, from a-c supply to table rollers. Likewise, a squirrel cage motor, simple and therefore attractive as it is, is not particularly well adopted for a rapid start-and-stop service. In the d-c system, proposed by the writer, each group of motors, say 30 to 60 per table section, is connected electrically to a d-c generator. To start the table—the generator voltage is built up. To stop it—the voltage is rapidly brought to zero, and the table motors are pumping their energy back. There are no losses similar to rotor losses of squirrel cage motors.

With motor heating reduced so markedly, it is obvious that a smaller continuous capacity is required if d-c drives are chosen in preference to a-c, with the external work done being exactly the same in either case.

An analysis recently made along these lines has shown that the extra power loss in case of a-c drives may easily exceed, in case of a wide strip mill, 1,500,000 kilowatt-hours in a year. At 0.7 cents per kilowatt hour, the use of d-c drives is apt to save over $10,000 per year in power cost alone.

What about maintenance of the d-c drives? There is no use denying that it is apt to be higher, everything else being equal, than that of the squirrel cage motors, due to the wear of brushes. However, one must remember that the maintenance of any drive is that of the motors. The latter is so much simpler and so much easier working with d-c drives that it is questionable whether the total maintenance expense will be higher. We will know it better in a year from now. It is far from the writer's intention to advocate d-c drives for all runout tables, regardless of size. When the amount of power involved is relatively small, and when starting and stopping is not frequent—the a-c motors will hold their own. Cost analysis will decide the issue in specific cases.

In speaking on steam power development Charles W. E. Clarke, United Engineers & Constructors Inc., Philadelphia, stated in the past ten years there has been a tremendous development in the power plant field. Boiler pressures, steam temperatures and sizes of boilers and generating units have increased enormously. Pressures in the last 20 years have increased in general

M. Stone

A. N. Otis

C. W. E. Clarke

H. W. Kane

Hear Technical Developments

from about 250 pounds to 1400 pounds. Steam temperatures during a like period have increased from about 650 to 950 degrees total final temperature. In 1915 the boiler with a steaming capacity of 100,000 pounds per hour would have been considered a large unit. Today boilers of 750,000 to 1,000,000 pounds per hour capacity are not rare and capacities as high as 1,250,000 pounds per hour actually have been obtained from existing units.

In the case of turbines, 20 years ago a 15,000 kilowatt unit was considered a large unit. By 1920 this had been increased to about 50,000 kilowatts and today, units of 100,000 kilowatts are in general use, while there are several units in actual operation of from 160,000 kilowatts to over 200,000 kilowatts capacity.

Coincident with these changes there has been a material increase in the overall efficiency of the generating plant. With the steam cycle of today it is entirely feasible to obtain overall plant thermal efficiencies of about 30 per cent. Ten years ago 23 per cent would have been considered excellent performance.

Many of the boilers being installed today consist in general of a large amount of radiant waterwall surface combined with a relatively small amount of boiler convection surface and are usually attended by extremely large economizers and relatively large heaters.

In general most of the larger boilers are now pulverized fuel fired. Both wet and dry bottoms are being used. The continuous-tap wet bottom is gradually superseding the older slag-tap or intermittent type of wet bottom.

The draft system, combustion control, fans, degree of superheat, auxiliaries—all have been influenced by the fundamental changes in pressures and temperatures. There is a development in process for combining forced and induced draft fans in one casing, with a resulting saving in cost but with some sacrifice of flexibility.

Topping Units Increase

It is sometimes necessary, particularly in industrial plants where there is no condensate available for feed water use, to operate the boilers with 100 per cent make-up. Treatment of feed water has advanced to such a point that this is entirely possible and there are many relatively high-pressure plants operating at large capacities with 100 per cent make-up for feed water. This would have been considered more or less impossible even five years ago.

Perhaps one of the most striking results of all is the enormous increase in so-called topping units in both industrial and public utility plants. A topping unit is usually understood to consist of a unit taking steam at relatively high inlet pressure and exhausting either into the lower pressure turbine inlet or into steam mains for auxiliary plant use at relatively low pressures, usually in the neighborhood of 200 pounds. One particular advantage in this type of unit is that it does allow the rehabilitation of old generating plants. Where existing generating equipment is reliable, it is possible by the use of a topping unit to bring the overall efficiency of the rehabilitated plant up to date

Another important development is the use of hydrogen as the cooling medium for the generator. A large proportion of present-day machines are, or will be, hydrogen cooled.

The general trend in condensers is for completely welded shells. In many cases these are being welded directly to the turbine exhaust nozzle which is of fabricated steel.

Regular inspection and lubrication schedules should be established by the mechanical or maintenance department in conjunction with the engineering and operating departments, according to O. L. Maag, Timken Roller Bearing Co., Canton, O.

Lubricants must act to: (1) Form a film between the operating metal parts, thus preventing metal-to-metal contact and still further reducing the already slight internal friction in the bearing. (2) Dissipate heat. (3) Aid in keeping out foreign matter such as water, scale, etc.

A. J. Boynton

A. M. Candy

S. J. Rosch

T. A. Lewis

T. E. Hughes

A. E. Krogh

F. L. Aime

H. Weichsel

(4) Prevent rust and corrosion. Holding bearings and lubricants to a uniformly low temperature will aid materially in maintaining gauge and quality of rolled products as well as increasing the life of the lubricant and reducing maintenance.

EP lubricants should carry a minimum load of 30 pounds on the Timken lubricant tester. Care should be exercised in their use if copper bronze bushings are used, as active sulphur compounds will attack the copper.

For gear units, satisfactory results are reported with lead-soap-sulphur base, chlorinated sulphur base and phosphorous compounds in the EP type of lubricants. In greases, various types of EP lubricants with sulphur-saponifiable, lead-soap-sulphur, chlorinated and phosphorous types or combinations show satisfactory results.

Steel Houses Considered

Howard W. Kane, Kane & Roach Inc., Syracuse, N. Y., in speaking on future possibilities of producing various structural shapes by the cold roll forming of strip steel, said the basic trend all along the line today toward light weight construction immediately brings to mind the picture of steel houses, employing light weight construction throughout. The day is not far distant when some one will make come true the mass production of prefabricated houses.

Where close tolerances are important, the cold rolled section is the answer to the problem. The cold roll forming machine, on the other hand, because of its flexibility of adjustment, is able to roll to close tolerances with ease. In the ramification of products being built today there is practically no end to the number of shapes and designs which must be manufactured, either through press, hot rolling, cold roll forming, drawing, extruding, or by some other method of forming a shape to get the particular design desired for the individual product. It is right here, therefore, that the cold roll forming industry can be of aid, for it offers a means of forming a great many sections which because of price, quantity or peculiar shape do not lend themselves to forming by other methods.

Lists Advantages

Among other advantages of cold roll forming are high production speed, low initial tooling and machine cost, low unit rolling cost, saving in floor space, low operating cost due to lessened power consumption, and the fact that a section can be completely formed in one pass. I wonder if it is generally known that it is not only possible to run a piece out of a forming machine to whatever length desired, but also to cut the piece, bend or coil it, punch it, paint it, solder it, tin it, plate it, braze another coil on—all in one continuous operation.

Standardized metal trim, stained and grained so that it is really beautiful as well as fireproof, will be the rule before long on all ocean-going vessels. Cold roll forming will play an important part in all this, as it will also in the production of light-weight steel furniture, which now is only in its swaddling clothes. Even on the farm it won't be long before steel barns and silos, fire-proof and properly insulated to prevent spontaneous combustion, will be commonplace.

The new light-weight, rust-resisting, alloy steels are concededly one of the miracles of the age. The steel industry is faced with new concepts, new objectives, new ways of doing things. Some of the most constructive thinking in the world is being done these days in the metallurgical laboratories of the steel mills. And as the steel industry goes forward to new heights of achievement, the cold roll forming industry is doing its best to keep in step, ready to meet the thousands of problems that loom on tomorrow's horizon.

Factors influencing the selection of insulated cables for steel mills were outlined by F. L. Aime, Electrical Engineer, S. J. Rosch, Manager Insulated Products Development, and R. B. Steinmetz, District Engineer Anaconda Wire & Cable Co., Hastings-on-Hudson, New York.

According to this paper, all component parts of a cable are equally important. Balanced design is paramount to obtain best results; that is, the choice of a cable should be made to meet all the requirements of installation and operation. Since the cost of cables in a steel mill is but a small percentage of the total cost, even the most expensive construction would be prohibitive.

Three Factors Involved

Factors involved naturally fall into three groups; design, installation, and operation. Factors in the design of a cable which determine its ability to keep the mill running are:

Operating voltage and frequency, a-c or d-c
Grounded or ungrounded neutral
Ambient temperature
Duct, aerial or submarine installation
Kind of insulation
Shielded or non-shielded type cable
Daily load cycle
Single or multiple-conductor
Type of sheath or protective covering
Conductor size and current-carrying capacity
Cable diameter.

Conditions of installation naturally have a direct bearing on the application of the cable for satisfactory results. Briefly, these conditions must be recognized in selecting the proper cable design and the most favorable methods and practices should be followed when the cables are installed.

Methods of operation have a de-

cided influence on reliability, maintenance and cable life. After the cable has been properly designed to meet its requirements and installed in a manner to insure safe operation, it is only good business to protect them from abuse and unsafe practices. Some of the factors of importance are:

Protection against overload and overvoltage
Protection from external heat
Protection against mechanical damage
Routine inspection for protection against corrosion and electrolysis (if metallic sheath is used)
Cable sheath grounding and bonding.

Development of Electrodes

Development and application of covered electrode arc welding was recounted by A. M. Candy, consulting engineer, Hollup Corp., Milwaukee. According to Mr. Candy, within relatively recent years the use of covered electrodes in this country has taken a predominant position, and they are now sold in large tonnage quantities. In fact, covered electrodes are rapidly superseding bare electrodes.

There are a large number of objectives to be obtained by means of rod coverings among which are the following: Increase the melting rate of the rod and base metal. Make the arc more stable. Minimize spatter loss of molten metal. Improve physical properties of weld metal. Make equally good welds with positive or negative polarity. As a result of these developments, welds having physical properties equal to or better than the base metal can be made in any of the steels including all alloys and in the nonferrous field including aluminum copper and others.

As a result of improved weld properties the field of application of electric welding has been expanded vastly. The cost of producing many structures has been decreased. Furthermore many structures can now be welded with safety and assurance so that they will not fail in service where they are subject to shocks, alternating loadings or alternating pressures or temperatures.

One of the largest presses ever produced is entirely welded. The press is approximately 29 feet long, 28 feet high and 6 feet wide, and weighs approximately 750,000 pounds. Covered electrodes were used on all main stress carrying members.

Probably no machinery equipment receives more abuse nor is subjected normally to tougher service requirements than road building machinery. In fact, the largest equipment of this type is arc welded, and could not be constructed satisfactorily in any other way.

A field which is absolutely dependent upon the use of covered electrodes is that of various grades of stainless steel. Kitchen fittings including tables and cupboards are typical examples of stainless clad steel fabrications produced entirely with covered electrodes.

Railroads Use Welding

The hard surfacing field is also dependent upon covered electrodes of various types.

Probably one of the outstanding developments of recent years is the rapid expansion of welding in the construction of railroad cars, both passenger and freight. In the case of passenger cars much of the welding is done by the spot welding process, and one railroad in particular has applied the process to a portion of its freight car construction. However, even here a considerable proportion of the welding is done with the covered electrode arc process.

Another outstanding example of mass application of covered electrode arc welded construction is that of the Duryea cushion underframe for railway freight cars and cabooses. Ten years ago only 50 cars were so equipped whereas this year the total will reach at least 24,000, more than 11,000 of which have been equipped within the last two years.

Probably the most interesting new development in welded construction is an all arc welded locomotive boiler just finished by the Delaware & Hudson railroad with the permission of the interstate commerce commission. This boiler is being put in service as a stationary boiler for a preliminary period of six weeks after which it will be put in regular road service on a standard D. & H. R. R. Class E-6-A locomotive.

Truly, we are at the threshold of an age of welding. One could go on and on citing examples, but these are sufficient to indicate the trend of the times.

Issues Revision of Arc Welding Handbook

Electrical Arc Welding Manual, by W. J. Chaffee; paper, 94 pages, 5½ x 8 inches; published by Hobart Bros Co., Troy, O.; supplied by STEEL, Cleveland, for $1; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

This is the second edition of this manual. After six printings of the first edition, issued in 1930, in each of which some revision was made, this edition has been completely revised to keep pace with the rapid development in the welding industry.

Facts are presented in nontechnical language and the effort has been made to give them in the most readable form. A complete series of training exercises for operators is included. Some of the less essential matter in the first edition has been omitted or curtailed and on such cases references are given for additional reading and study.

C. H. Williams

L. C. Werking

R. B. Steinmetz

Gas Association Hears Call to Modernize and Meet Competition

APPROXIMATELY 2500 delegates, representing executive, engineering, sales and advertising branches of the gas industry, heard the call to modernize equipment, conserve resources and unify promotional efforts at the 19th annual convention of the American Gas association in Cleveland, Sept. 27-Oct. 1.

Speakers who addressed the delegates included N. C. McGowen, newly elected president of the association and Walter C. Beckjord, vice president. Complete list of newly elected officers is as follows: President, N. C. McGowen, president, United Gas Public Service Co., Shreveport, La.; first vice president, Conrad N. Lauer, president, Philadelphia Gas Works Co., Philadelphia; second vice president, Walter C. Beckjord, vice president, Columbia Gas and Electric Corp., New York; treasurer, J. F. Rooney, ass't. to executive vice president, Consolidated Edison Co. of New York, New York.

The board of directors elected for a two-year term were: F. H. Adams, vice president, Surface Combustion Corp., Toledo, O.; Charles M. Cohen, vice president, Consolidated Gas Electric Light & Power Co., Baltimore; J. S. DeHart, Jr., president, Isbell-Porter Co., Newark, N. J.; L. B. Denning, president, Lone Star Gas Co., Dallas, Texas; C. E. Gallagher, president, East Ohio Gas Co., Cleveland; George S. Hawley, president, Bridgeport Gas Light Co., Bridgeport, Conn.; B. J. Mullaney, vice president, Peoples Gas Light & Coke Co., Chicago; Otto Snyder, president, New York Power & Light Co., Albany, N. Y.; T. J. Strickler, vice president, Kansas City Gas Co., Kansas City, Mo.

Two awards were presented for outstanding services to the gas industry. Elmer Frederick Schult, ass't. superintendent, central district, Peoples Gas Light and Coke Co., Chicago was awarded the Beal medal for his paper "The Precision Method of Locating Gas Leaks" presented at the distribution conference of the technical section held at Washington, April 12-14. The award consists of a bronze medal and a substantial cash payment. George Wehrle, superintendent, gas department, Public Service Co. of Colorado, Denver, was presented with the Charles A. Munroe Award for his work in directing the solution of problems attending the conversion of the Denver system from manufactured gas to natural gas in 1928. This award consisted of a substantial financial acknowledgement and an engrossed certificate.

Industrial Consumers Increase

First paper at the general session was presented by F. H. Adams, Surface Combustion Corp., Toledo, O., who spoke on "Serving American Industry." Opening his address, Mr. Adams, pointed out the growing use of gas in industry. Figures quoted showed that increases in the past year, as compared with 1929, were 110 per cent in customers; 54 per cent in send out and 29 per cent in revenue almost all of which was due to increased industrial consumption. Reasons for this increase were given as follows: First—As industry has refined its processes, increased its production, improved its materials and metallurgy, higher standards of uniform and dependable heating performance have been necessary. Gas fired equipment has met these standards. Second—Gas also has those inherent qualities and added values in processes where the chemical and metallurgical reactions of the gas with the product are an integral and important part of the process, as in carburizing and bright annealing. This was brought out again in subsequent papers.

In the steel industry the comparatively recent drastic change to the continuous mill was cited as one of the direct causes for all heating operations to go so predominately to gas. Close control required of heating operations can be accomplished most economically with gas. Gas fired slab furnaces, for instances, permit 40 to 65 per cent increase in tonnage and fuel efficiency from 20 to 35 per cent better than former furnaces.

Use of radiant tube furnaces with no limitations on the heavy heating up demands, with their ability to maintain the temperature gradients essential to uniform heating during long annealing cycles and their full automatic control, met instantaneous acceptance by the steel industry. Not only has there been this improvement in the process requirements but it has meant a possible saving of over $2 per ton of annealed sheets. When it is considered that ordinary sized furnaces handle 40 to 50 tons of sheets with the attendant savings of $100 per heat the argument for gas becomes irrefutable.

Probably the most fundamental advance in the history of metallurgy was made possible by the development of controlled gas atmospheres now so prevalent in the heat treatment of steel. Finished work can now be heat treated without scale or decarburization. Many times the savings in pickling and rehandling are far in excess of the entire fuel costs.

In the vitreous enameling field the fact that no products of combustion can be present in the furnace atmosphere has made gas firing difficult. Radiant tube furnaces have solved this problem also. During the past year 24 installations of this type have been made.

In summing up the future of the gas industry Mr. Adams stated: "Fifteen years ago the industrial heating field was headed toward electricity with considerable momentum. In spite of the gas industry's lack of trained salesmen, proper utilization equipment and with an inferiority complex in sales aggressiveness, we see today's picture in which gas has won its place on the basis of sound and outstanding service. However, competitive results in the future will depend on the record of salesmanship. Failing in that serious inroads will be made simply because the world stopped long ago beating a path to the maker of the best mousetrap—if it ever did. You must go to the buyer."

Walter C. Beckjord, Columbia Gas and Electric Corp., New York, also speaking before the general session, urged increased activity in such fields as gas refrigeration, air conditioning and the construction of gas ranges "farther ahead of anything now on the market" to keep

up with an American sociological trend of "demanding more and more time and more energy saving equipment." "The industry must increase its markets and develop 'mass sales' to counteract the living habits of the people," Mr. Beckjord declared.

The general session was closed with an address by N. C. McGowen, president-elect of the association, who spoke on conservation. Mr. McGowen told the assembled delegates that co-operation between the gas and oil industries was imperative to conserve the nation's natural gas supply. While not advocating government control of either industry, he asserted: "Experience has shown that in matters of conservation, more beneficial results have been obtained under wise state orders than by voluntary agreement among operators in any one state." Mr. McGowen cited the conservation laws of various states and showed where each had resulted in definite benefits to the gas industry, the oil industry and the public.

Steel Treatment Discussed

The industrial gas sessions were featured by a number of timely papers. In summing up "What Industrial Gas Men Should Know About Steel," Robert G. Guthrie, Peoples Gas Light & Coke Co., Chicago, warned against trying to fully understand a field as highly specialized as modern metallurgy. Industrial gas men were advised to gain a rudimentary knowledge of heat treating and some metallurgy and metallography by studying "Steel and Its Heat Treatment" by Professor John Keller, and a course of lectures entitled "The Heat Treatment of Steel" by Dr. Marcus A. Grossman. In addition the American Society for Metals Handbook was recommended as a reference book. Armed with a rudimentary knowledge the industrial gas man is in a position to co-operate with steel companies' experts who are interested in heat or atmosphere or both.

The definite place of gas in the modernization of ferrous metal manufacturing and fabricating plants was brought out in a paper entitled "Advanced Applications of Gas to Forging Fine Steels" presented by Adam M. Steever, Superintendent, Columbia Tool Steel Co., Chicago Heights, Ill. After describing the various types of gas heating and atmospheres, Mr. Steever brought out the fact that he preferred the oxidizing atmosphere for his purpose, because it provided better fuel economy, caused little or no decarburization and lent itself readily to control. Initial installation involved conversion of furnaces with hearths up to 16 feet in length, 7 feet in depth and with loading capacities up to 30,000 pounds.

Conversion work also involved redesigning of the combustion end of the furnace to give satisfactory dimensions and conditions for proper combustion. Multiple low pressure burners, having a capacity of 2100 cubic feet per hour of 1000 B.t.u. natural gas, with 12 ounce air supplied individual blower, supplied the heating medium. Combustion chamber on first installation was approximately 7 feet wide and 6 feet long.

Experiment showed that in using an air gas mixture to produce an oxidizing atmosphere of approximately 11 per cent carbon dioxide and 1 per cent oxygen, a fine scale was produced which was readily removed during mechanical working of the product. In addition, no total decarburization appeared upon the surface of the materials. A slight surface decarburization of the surface existed but it was reduced 66 2/3 per cent and scaling 75 per cent compared with prior standard practice. Speed of heating plus accuracy of temperature control, which has come to be taken for granted in installations of this type, has further improved the quality of the finished work.

Research was directed chiefly to the problem of complete combustion control—in other words, the achievement of a heating flame of definite size and characteristics, the products of which have proved to be most desirable for this type of heating. Operation of these furnaces has resulted in a closer approach to perfection in this respect than has further improved quality.

Furnace Life Increased

Newest furnaces are box type and of the so-called portable design, involving a steel underframe resting but not fixed to a heat resisting concrete slab which permits expansion and contraction and transmits a minimum of ground shocks to the furnace proper. This construction is expected to contribute substantially to longer furnace life and reduce repairs to refractories.

Further reduction in gas consumption has followed in furnace design from the utilization of insulation. An air curtain is provided at each furnace door for protection of operators. This curtain also serves to cool door and frame castings. The furnaces operate at a slight positive pressure which is a result of the measures taken to control atmosphere.

Incidental to this furnace practice is the fact that controlled gas firing makes possible a floored, lighted, comfortable, clean shop free from soot, scale and cinders. All furnace equipment, such as rolling mills, hammers, shears and the like, can be kept in a clean aluminum painted condition, all of which is conducive to high standards of workmanship.

A forum on Unit Heater Applications in Commercial Establishments was devoted largely to analyses of the present market for unit heaters and methods of marketing. J. F. Quinn, Brooklyn Union Gas Co., Brooklyn, N. Y., presented a survey of commercial heating installations. sold. Unit heaters were shown to be in the same position now as the gas designed boiler was some 15 or 20 years ago. They were pointed out as the best weapon, at present, to obtain new gas load in all types of commercial establishments. In nearly all cases actual cost of heating with unit gas heaters has been less than estimated. The monthly bill for all installations listed in the survey averaged approximately $22 during the heating season.

Unit Heaters Are Rented

F. S. Paxton, Kansas City Gas Co., Kansas City, Mo., described the gas unit heater rental plan utilized by his company. The plan was put into effect in 1935. Up to this time 84 unit heaters had been installed by this company. During 1935 unit heaters installed totaled 122 which exceeded installations for the previous six years. On the whole, rental plan of gas unit heaters in Kansas City, Mo., has been successful and has assisted materially in securing heat loads which formerly the gas company had little chance to secure.

Of interest to steel makers was the paper Heating Liquids by Submerged Combustion by C. H. Lekberg, Northern Indiana Public Service Co., Hammond, Ind. Mr. Lekberg described a pickling tank in which the flame was directed through a tubular combustion chamber down to and across the tank bottom where they could be vented and distributed to give the rate and control of agitation desired. Production rate of pickling tanks was generally increased 100 per cent by this method of heating as compared with the steam methods of heating. Acid dilution is eliminated and one steel company in the Hammond, Ind. district saved 72 cents per ton on all steel pickled by the gas submersion method. This mill now has four such installations and is planning more.

Other papers of interest to steel makers were Corrosion of Metals and Alloys by Flue Gases presented by Louis Shnidman and Jesse S. Yeaw, Rochester Gas and Electric Corp., Rochester, N. Y., and Corrosion of Metals in Soils as a Factor in the Selection of Pipe Materials. In these papers the effect of various corrosive elements upon a large variety of metals and alloys is described, tabulated and compared in a manner which makes these papers very valuable to metallurgists and industrial engineers. Other papers covering steam generation and power production were also presented.

British Metal Men Discuss Mechanical Properties

TESTING of zinc coatings, mechanical properties of metals broken at high speeds, and effects of cold rolling were among subjects discussed in technical papers presented at the twenty-ninth annual autumn meeting of the British Institute of Metals in Sheffield, Sept. 6-9.

Methods of testing zinc coatings were dealt with in a paper by L. Kenworthy, research investigator, British Nonferrous Metals Research association, London. The author described how he carried out the measurement of the protective value of zinc coatings on iron and steel by examination of certain properties of the coating—namely, average weight, uniformity, structure, and porosity. Under these four headings, the various methods which are in use or which have been proposed for carrying out this type of determination were described, together with their respective advantages, limitations, and, in certain cases, suggested modifications.

Under the first heading, mention was made of the recently-developed electrolytic test (Britton's test), in which the time taken to remove the coating with a current of a known density is used. In his conclusions, the author stated that requirements of zinc coatings to withstand corrosion vary with conditions of exposure, and while for atmospheric attack life is dependent almost entirely on the total weight of the coating including alloy layer. For immersed conditions there is evidence that composition of the coating plays an important part.

D. W. Ginns, engineering laboratories, Cambridge university, reported upon an investigation of the mechanical properties of some metals and alloys broken at ultra high speeds. He gave results for carbon steels, copper, brasses, and aluminum alloys when broken in tension. It was found that the average time taken to reach the yield-point was 0.001-second, and to reach fracture, 0.005-second. A pressure-resistance method was used for measuring stress, and a photo-cell method for strain, the two being combined to give a direct diagram on the cathode ray oscillograph.

It was shown that, compared with the ordinary commercial tensile test values: (a) yield-point is increased considerably, over 100 per cent increase being recorded for some materials; (b) maximum stress is increased by a much smaller amount; (c) percentage elongation and percentage reduction of area shows comparatively small changes; (d) types of fracture are almost identical with those obtained for the slow test.

Contributing a paper on deformation of the macrostructure of some two-phase alloys by cold rolling, Dr. Ing. Hermann Unckel, engineer for control and research, Finspongs Metallverk A. B., Finspong, Sweden, states that the deformation on rolling of alloys consisting of several phases having different yield-points differs from that of alloys of homogeneous structure. Harder particles imbedded in a softer matrix deform less, and softer particles somewhat more, than the matrix. A secondary flow is thereby caused around the inclusions. Dr. Unckel also showed that deformation takes place in such a way that the work of deformation becomes a minimum value.

Determination of Alumina

Determination of alumina in the presence of metallic aluminum was the subject of a paper by G. B. Brook and A. G. Waddington, British Aluminum Co. Ltd., Kinlochleven. This paper described an investigation into the volatilization process for determination of alumina in presence of metallic aluminum, using hydrogen chloride. This method, according to the authors, has proved superior to any yet proposed for determining alumina in granulated aluminum dross, etc.

Dr. W. O. Alexander and Prof. D. Hanson, University of Birmingham, reported upon the first part of the results of their investigations on copper-rich nickel-aluminum-copper alloys, this part dealing with the effect of heat-treatment on hardness and electrical resistivity. The authors experimented on some 56 copper alloys containing quantities of nickel and aluminum varying up to 10 per cent by weight of each metal and which were cast and extruded.

Results indicate that above 800 degrees Cent. all the alloys consist of uniform alpha solid solution. When heated at temperatures below 800 degrees Cent., some of the alloys harden, and their electrical resistivity decreases. Results reveal the approximate limits of the alpha solid solution, while the manner of the changes in properties at lower temperatures implies precipitation of new phases. In their conclusions, the authors stated that the disposition of alloys showing maximum hardening capacity together with minimum electrical resistivity agrees with the optimum ratio 4:1 nickel to aluminum.

The autumn lecture was presented by Dr. D. R. Pye, director of scientific research, Air Ministry. His subject was "Metallurgy and the Aero Engine."

Nominations for officers for 1938-39 were announced as follows: President, Prof. C. H. Desch, National Physical Laboratory, Teddington; vice president, Prof. J. H. Andrew, University of Sheffield, Sheffield; members of council, Dr. J. W. Donaldson, Scott's Shipbuilding & Engineering Co. Ltd., Greenock; Engineer Vice Admiral G. Preece; and H. S. Tasker, Lingfield, Surrey.

Safety Council Sections Planning Joint Sessions

Power Press section and Automotive and Machine Shop section of the National Safety council will hold joint sessions during the twenty-sixth National Safety congress in Kansas City, Mo., Oct. 11-15. Three sessions are planned, these to be on the afternoons of Oct. 12, Oct. 13 and Oct. 14 in Municipal Auditorium.

Details of programs for these sessions are as follows:

Tuesday, Oct. 12

AFTERNOON

Election of officers.

Developing Safe Workers in Metalworking Industries

"Through the Employment Office and Job Training," by H. C. Bigler, safety director, General Motors Research Laboratory, Detroit.

"Through Visual Education Methods," by R. H. Ferguson, manager of safety, Republic Steel Corp., Cleveland.

"Through the Regular Supervisory Force," by Van B. Hunter, supervisor of Safety, International Harvester Co., Chicago.

Wednesday, Oct. 13

AFTERNOON

"Placement of Men from the Standpoint of Physical Fitness," by Dr. Harold A. Vanachen, medical director, Caterpillar Tractor Co., Peoria, Ill.

"Point of Operation Guards for Metalworking Machines—Other Than Power Presses," by Samuel S. Dibsdale, safety engineer, J. G. Brill Co., Philadelphia.

"Designing for Safety—Power Press Dies, Jigs, Fixtures and Tools," by B. E. Rockhoff, designing engineer, Detroit Steel Products Co., Detroit.

Thursday, Oct. 14

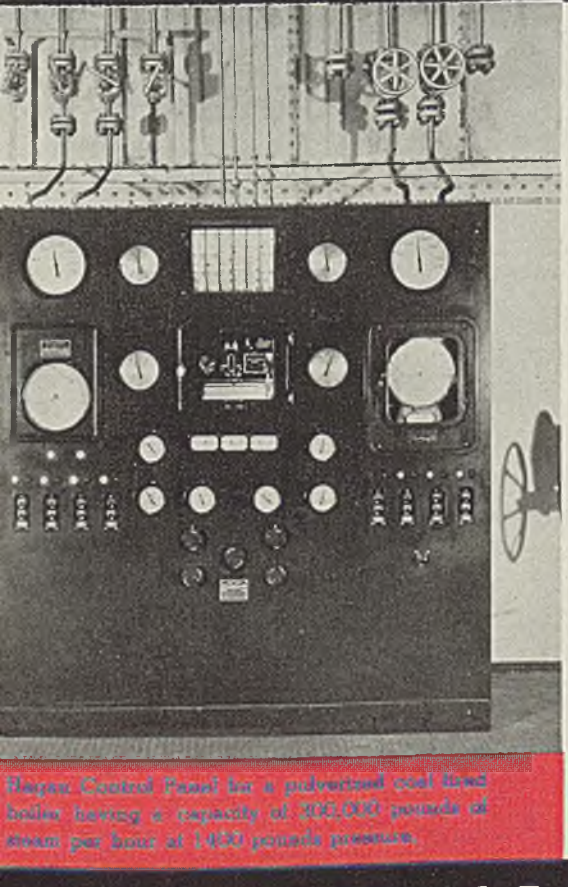
AFTERNOON

"Recent Developments in the Safety of Internal Transportation and Machine Shop Equipment—Power Trucks, Hand Trucks, Cranes, Conveyors, Etc." by B. F. McAuley, materials handling engineer, Western Electric Co., Hawthorne Works, Chicago.

"Controlling the Accident Hazards of Repetitive Opertions," by Dr. James S. Thomas, president, Chrysler Institute of Engineering, Detroit.

JUST PUSHING A BUTTON

COULD WRECK THE PLANT



Hagan Control Panel for a pulverized coal fired boiler having a capacity of 200,000 pounds of steam per hour at 1400 pounds pressure.

IN 1930 three large high-pressure boilers, burning eithe blast furnace gas or pulverized coal, or both in combina tion, were installed in a large steel mill in the Pittsburg area. The necessarily complicated automatic control syster operating these boilers utilizes 54 Hagan Regulators, a properly synchronized. For the past seven years, this Haga Control installation has been tested weekly by *deliber ately pushing a button which simulates a fan-moto power failure*. That the control always handles the situ ation like clockwork is only part of the story. More importan is the fact that the plant has completed seven years of un faltering operation . . . that, in spite of terrific load swings constant steam pressure is maintained. These are result characteristic of Hagan Automatic Combustion Control in stallations all over the world.

If you have a control problem, why not let a Hagan Engineer work with you?

HAGAN COMBUSTION CONTROL

HAGAN CORPORATION

200 ROSS STREET PITTSBURGH PENNA

● Delays are not as dramatic as fires—but oftentimes just as costly. Most modern production is built around the timely movement of materials or parts in process. Delay one operation and you delay many. Have a single industrial truck break down on an important job and sometimes the result will follow all the way down to the month's profit-and-loss sheet. No wonder more than half the industrial material-handling trucks are powered by steel-alkaline batteries.

Invented by Thomas A. Edison, the steel-alkaline battery is not only an important advance over the gasoline engine where smooth, certain operation is required—but it also represents a tremendous improvement over all other batteries. It is not subject to sudden failure—doesn't sulphate—stands jars and knocks because it's built of steel—lives 2 to 5 times longer and is more dependable all its life. Such dependability might be worth a big premium—but the per-year cost of the Edison Steel-Alkaline Battery is actually least of all.

EDISON STORAGE BATTERY

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

MATERIALS HANDLING

Combination Unit Tilts Coils in Two Directions

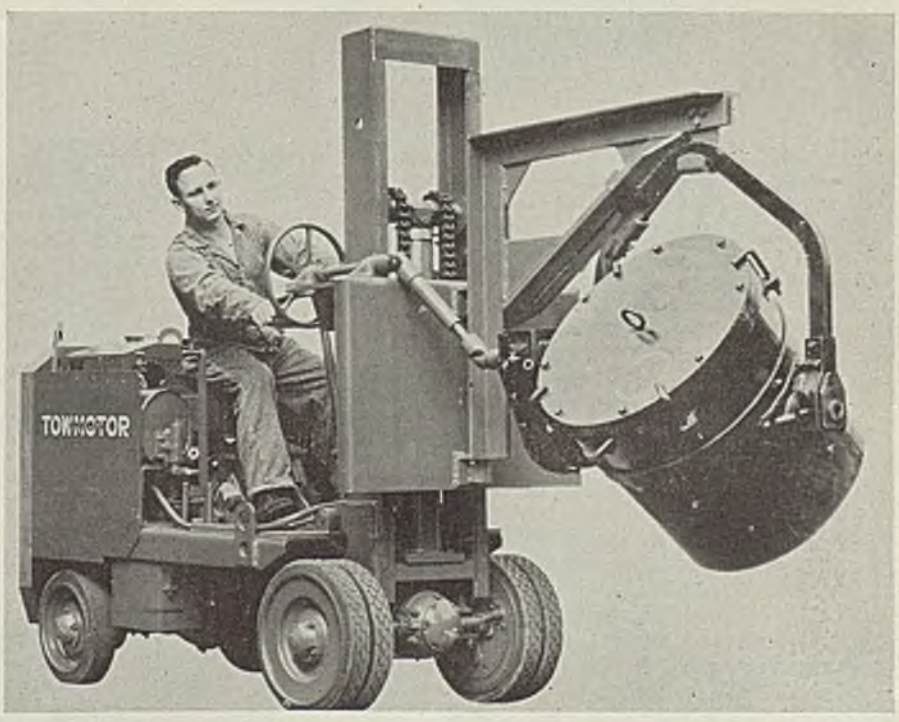
HANDLING coils of steel on ball-bearing roller conveyor is common practice in the new continuous strip and sheet mills. Traveling on end, the coils are carried over a flat roller bed; traveling on side, they are carried in a V-type trough roller bed.

To meet processing and storage requirements, the coils must sometimes be shifted from one of these positions to the other; i.e., they must be down-tilted from a vertical to a horizontal position or up-ended from a horizontal to a vertical position. Another requirement is that the down-tilted coil be discharged over the side of the conveyor, an operation commonly referred to as side-tilting. For example, coils tiered on end in storage often are lifted by traveling crane and deposited on a flat roller conveyor, to be carried over the gravity rolls to an uncoiling machine. The conveyor line here serves two purposes: It provides live storage for a bank of coils ahead of uncoiler, and allows crane to re-stock the line at intervals, releasing it in the meantime for other service. Approaching the uncoiler, the coil is down-tilted to a short storage line of trough rolls and then rolled sidewise off the conveyor line to the coil box. Effecting these changes in position heretofore required two individual power units in the conveyor line: A down-tilter for turning the coil vertically through 90 degrees and a separate side-tilter for discharging the coil to uncoiler. As coils weighing up to 25,000 pounds are handled, the tilting equipment must be of massive construction. Not only the purchase price but also the space occupied and the operating time are important factors in production costs.

Logan Co., Louisville, Ky., has now combined the functions of down and side-tilting into one unit — the combination tilter, which costs but little more than a simple down-tilter, requires no more space and no more operating time.

The machine is designed to discharge the coils in the same direction as that from which they are received. The design can be readily altered to discharge from the opposite side. Likewise, on the receiving side, the machine may be designed to receive from either side or from the end. When receiving from the side, the rolls in the receiving bed are skewed in order to guide the coil and seat it snugly against the troughed portion before rotation begins. The far side of re-

Lift Truck Handles Ladles



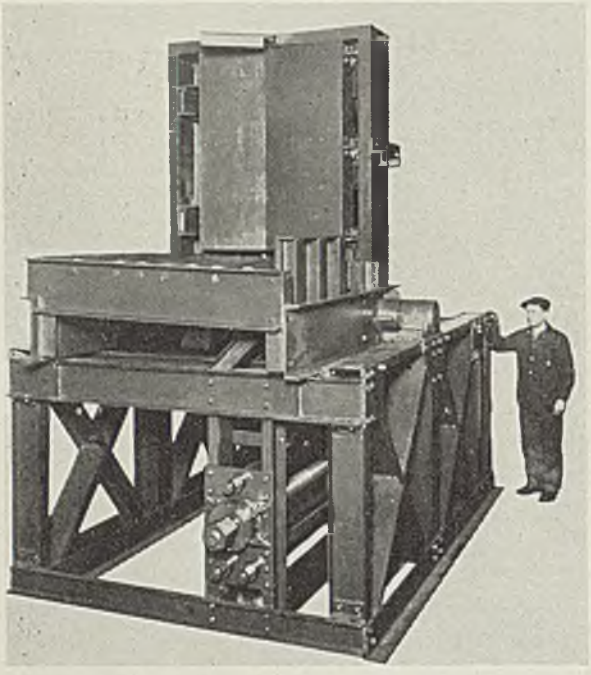
HERE is a new application of one of Towmotor Co., Cleveland, products. The power truck shown includes a vertical lifting arrangement, swinging arms and ladle tilting mechanism to handle a ladle having capacity for 2000 pounds of molten iron. The complete equipment is manufactured by the company, takes a ladle having a tilting mechanism as indicated in the illustration. A universal jointed tilting wheel, mounted on the truck, attaches to the mechanism as shown

MATERIALS HANDLING

ceiving bed is provided with a bumper.

The trough portion of the combination tilter is constructed of heavy steel plate, mounted at one side on a longitudinal shaft. Near the completion of the down-tilting cycle, the troughed plate pivots about this shaft to accomplish the side-tilting. Heavy helical springs hold the trough bed in normal position at all times except when the side-tilting mechanism is functioning.

The general operating cycle is as follows: A brake (usually air-operated escapement type) in the storage conveyor line just ahead of the combination tilter is released to feed a single coil to receiving bed of machine. After coil is in position against the trough plate, now in vertical position, the motor is energized by pushbutton and the down-tilting begins. As the carriage approaches the completion of its 90-degree movement, a bearing plate on the underside of troughed plate contacts a member on the stationary supporting frame. This causes the troughed plate to tilt laterally by pivoting about its shaft and the coil rolls off at right angles; the carriage then strikes a limit switch and stops. A pushbutton reverses the motor and returns carriage to original position.



LOGAN combination tilter, which combines the functions of down and side tilting into one operation, effecting cost and space economies

More Wear on Coke Belt

WEAR on a rubber belt handling hot coke was chiefly on about one-half the width of the belt because the coke was discharged onto it from a side conveyor. The practice had been to turn the belt over to discharge on the back or driving side which was protected only by a thin rubber covering and soon wore into the canvas plys of the belt.

By turning the belt end-for-end instead of over the thick unworn half of the carrying surface receives the discharge of coke. Thus the thick rubber covering is worn down completely on both halves of the belt before discarding.

Turning end-for-end increased the total lift of the belt about 25 to 30 per cent above that obtained by turning the belt over.

Largest Battery Built for Electric Industrial Trucks

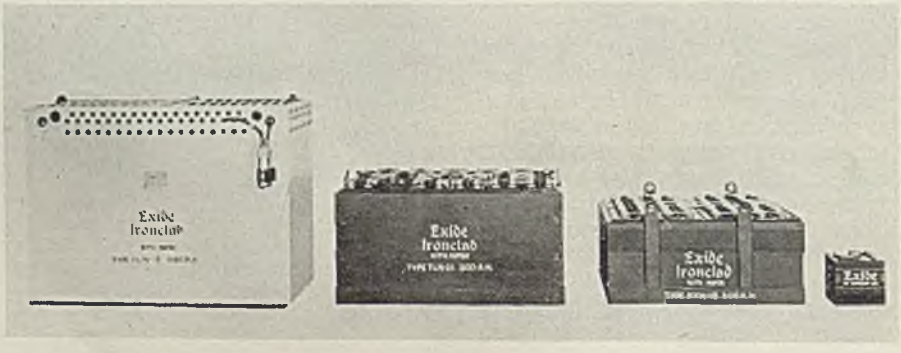
FOR the past few years, with a growing trend towards heavier and heavier capacities of electric industrial trucks, considerable discussion has been centering around the question of what is the ultimate limit in tonnages for handling by this class of equipment. On several occasions during the past year, manufacturers in the truck industry consistently have answered questions on this subject with a reply to the effect that "the limit of size will be, in all probability, the limitations of the power unit." Naturally, battery manufacturers have kept pace with requirements and units have been developed with capacities to serve the heavy duty machines.

Most recent indication of this is the announcement made within the past few weeks by the Electric Storage Battery Co., Philadelphia, that it has just completed manufacture of the world's largest battery for electric industrial trucks. This new battery is called Super-type FLM-13 Exide Ironclad, and is the first of several of the same size which will be constructed for heavy-duty service.

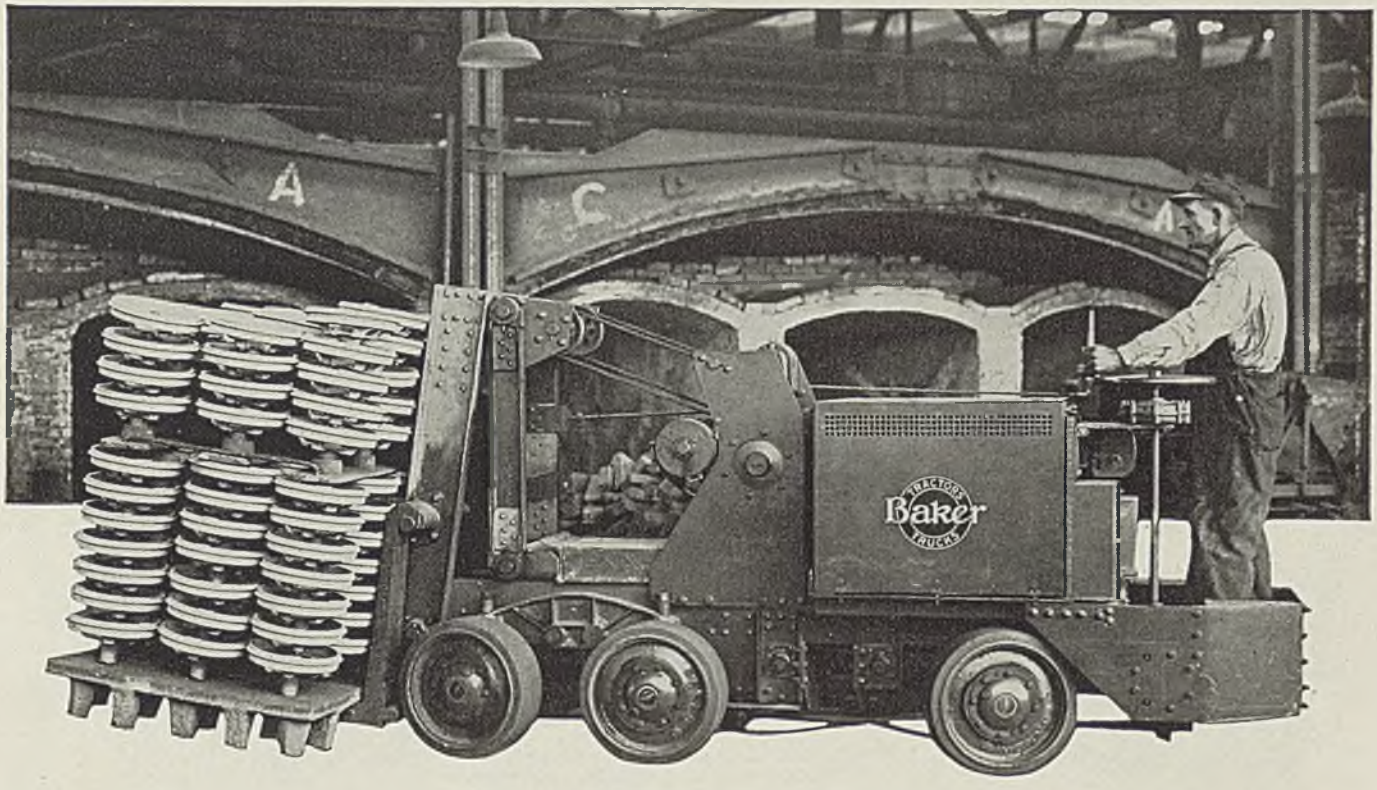
In this unit, a cell has a capacity of 1080 ampere hours at the normal discharge rate. The company's 16-cell battery, assembled in a steel tray, occupies a space of only 26 by 51 inches. It weighs 2½ tons.

(*Please turn to Page* 77)

INTERESTING comparison of largest battery for industrial trucks and two smaller industrial batteries with an automobile storage battery



FAST WORK..



In the faster operation and lowered costs so essential to profits today, Baker Industrial Trucks are making a secure place for themselves. Especially designed for heavy duty use, these sturdy units are writing highly satisfactory records of time and cost savings in all types of industrial work. Sound construction and low maintenance requirements are enabling plant owners to hold these savings through years of day-in-day-out operation.

The Baker Materials Handling Engineer can bring you accurate data and records of savings effected in hundreds of plants. You'll find his information helpful in the study of your own handling problems. Write for complete information. BAKER INDUSTRIAL TRUCK DIVISION *of the Baker-Raulang Company,* 2167 W. 25th St., Cleveland, Ohio.

OLDEST MANUFACTURER
Baker
TRADE-MARK REG. U. S. PAT. OFF.
OF ELECTRIC VEHICLES

POWER INDUSTRIAL TRUCKS FOR EVERY PURPOSE

SURFACE TREATMENT AND FINISHING OF METALS

Seven porcelain enameled panels, exclusive of burner covers, comprise entire outer shell of these ranges. Suspended individually, they are unaffected by expansion and contraction

Range Design Has Marked Effect on Finish Durability and Ultimate Cost

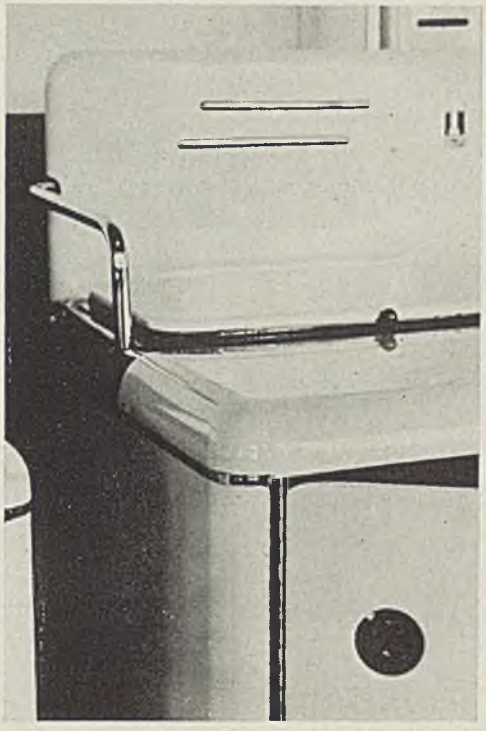
MUCH has been said about the necessity for durability and beauty in finishes applied to consumers goods, especially in cases where the purchasers are women. Little or nothing, however, has been said about the effect of design upon finish durability since stress has been laid principally upon beauty of line and harmony of color. Instance after instance can be pointed out in which an excellent finish has been applied to a product only to have it fail in a short time because service stresses caused the finish to crack and peel. This is especially true in porcelain enameled goods such as gas and electric ranges.

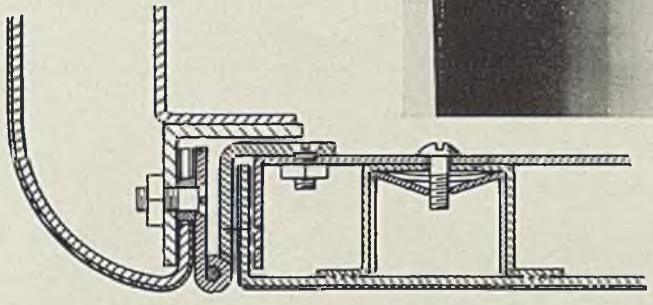
Prior to 1920 stoves and ranges were constructed of plain black iron and in some cases were finished with black japan and a nickel plated trim. Little or no difficulties were caused by heat stresses and physical abuse and manufacturers and dealers had few headaches from that type of complaint.

Design Changes Cause Difficulties

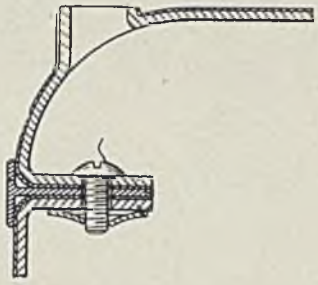
About 1922 the first enamel sheet construction of stoves began but little or no change was made in design. Bolt heads were in plain sight and beauty of line and color were given but light consideration. The following year, about 1923, the first models in which bolt heads were hidden, and some attention was paid to flowing lines, began to appear. With these models the troubles started and many manufacturers began to wish they had never even heard of porcelain enamel. Construction of these stoves was such that the least flexion caused by heat or movement was transmitted directly to finished surfaces and complaints began to pour in from the field accompanied by a demand for replacement parts.

To return to the old black iron methods was unthinkable—the public had seen porcelain enamel and liked it, but they wanted it applied in such a way that it would have a reasonable service life. Desirable service life for ranges is in the





BELOW is shown how outer panels are suspended to chassis. Note how door panel at bottom is suspended so flanged portion has clearance on both sides. Side panel at left is suspended so that all pressure bears on unenameled side. Above right is shown how top is bolted to chassis with stainless steel T-strip to act as cushion for porcelain enamel. Center, door, side and top panels as they appear when finally assembled



order of 15 years and the industry soon realized that something must be done to halt the flood of demands for replacements. Cost problems introduced many difficulties and progress was not very rapid since many manufacturers could not reconcile themselves to price raising in the highly competitive market.

Service Failures Raise Costs

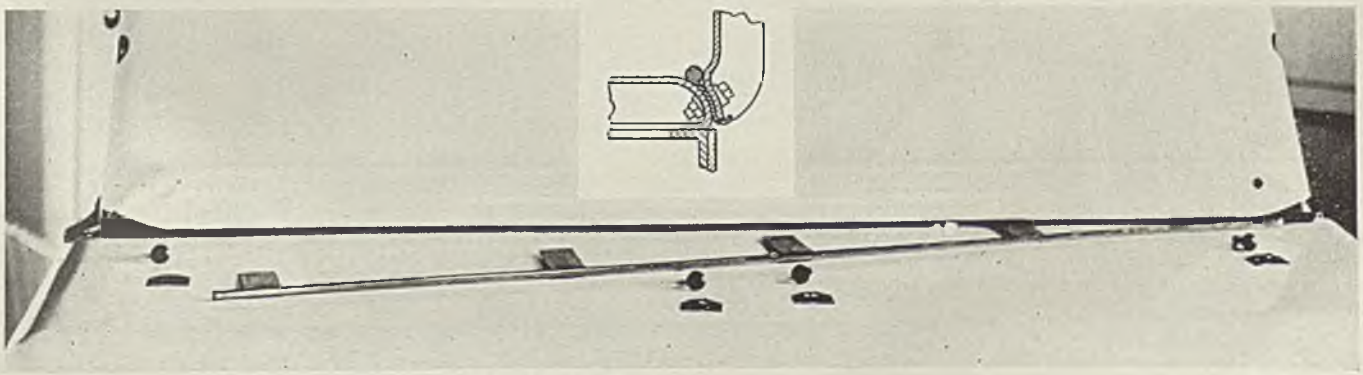
One manufacturer, Albert H. Tinnerman of Tinnerman Stove & Range Co., Cleveland, established the principle that the cost of a range should include not only manufacturing and selling costs but also the cost of service and replacements during the first two years in the customers' hands. In other words, a range should not be built down to a cost but up to a quality standard. Obviously the most expensive range from the manufacturer's standpoint is one which fails in service during the guarantee period. Realizing this, Mr. Tinnerman set about to produce a range so designed and constructed that it would stand an extraordinary amount of style and finish were also necessary to create sales appeal.

The first step was to design a chassis which would take all strains due to expansion and contraction caused by heating and cooling and stresses induced by lifting or placing of heavy objects on the range. On this chassis an enameled shell was hung in such a manner that abuse, keeping in mind always that each panel was floated independently of the others by means of an ingenious mounting system whereby each panel supports only its own weight. It was the development of this floating mount that brought about the invention of the Tinnerman speed nut now used so widely in many other industries. These nuts keep the panels under spring tension and not only provide a cushion for the porcelain, which is merely glass and steel, and prevent chipping from vibration but eliminate lock washers and nuts. They will not shake loose.

Molding Strips Cushion Enamel

Wherever two pieces of porcelain meet on the range a T-shaped stainless steel molding strip is provided which fits between the panels and prevents them from grinding together. These strips form a cushion which prevents chipping and crazing due to expansion and contraction of the range. They also protect the seams from grease and dust, making it easier to clean the range.

One large source of chipping in ranges lies in the older style porcelain enameled legs. These legs are usually mounted in place after they reach the retail store and inexperienced workmen frequently mount them poorly and cause them to chip before they are even sold. In addition, this type of leg can not be adjusted to level the stove and is subject to the scuffing action of floor mops and other hazards which shatter the enamel. Mr. Tinnerman has eliminated this by developing a new style, tubular, chromium plated leg in the form of a skid



SPLASH guard is bolted firmly to top panel. To prevent bearing of one glass surface against another, stainless steel strip is placed between panels as shown in inset below

TWO YEARS RESEARCH BACK

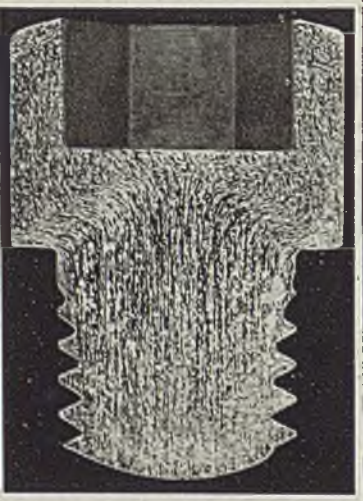
Superior Cold-Forging Process Replaces Milling From Bar Stock

25 YEARS EXPERIENCE IN COLD-FORGING GIVES PARKER-KALON AN ADVANTAGE

It is an accepted fact that forging adds strength to steel—and strength is one of the essential requirements in Socket Screws. That is why Parker-Kalon decided in favor of cold-forging their Socket Head Cap Screws, Socket Set Screws and Socket Head Stripper Bolts instead of milling them from the bar. The cold-forging process provides against head breakage and other structural failures by retaining the fibrous structure of the steel and obtaining a concentration of metal at all points subject to strains.

Scientific Heat Treatment Assures Unvarying Uniformity

Uniformity of the physical and metallurgical characteristics of Parker-Kalon Socket Screws can be definitely depended upon because every size and type is put through an individual laboratory-controlled routine of heat treatment.



Cold-forging retains unbroken fibrous structure and increases strength at points subjected to greatest stresses. Note also flat base socket—wrench seats to bottom.

NEW COLD-FORGED SOCKET SCREWS ACCEPTED ON MAKER'S REPUTATION

Industry Welcomes Latest Parker-Kalon Product

"Amazed at Wonderful Reception" . . . Salesman for Large Philadelphia Distributor Reports

Leading mill supply distributors and hardware jobbers all over the country who have already begun to introduce Parker-Kalon Cold-forged Socket Screws report that their customers accept them without question or hesitation. Engineers and shop men take the quality of these new products for granted, knowing Parker-Kalon's reputation for producing screw products of the highest quality.

One Philadelphia jobber's salesman, after soliciting business for Parker-Kalon Socket Screws, writes: "I was frankly amazed at the wonderful reception which your product received and am greatly impressed with the attitude of the larger screw users, which is: If the product is made by Parker-Kalon, it must be O.K."

New Products To Be Sold Through Recognized Distributors

The new Parker-Kalon Cold-forged Socket Screws will be sold through recognized distributors all over the country consistent with the maker's long established policy based on the confirmed belief that —"distributors serve industry economically".

favor of cold-forging their Socket Head Cap Screws, Socket Set

received ... impressed with ... attitude of the larger screw users, which is: If the prod-

Get Samples - Compare

CLIP THIS COUPON TO YOUR LETTERHEAD

PARKER-KALON CORPORATION
200 Varick St., New York

Please send samples as checked

Socket Set Screws ☐

Socket Head Cap Screws ☐

Socket Head Stripper Bolts ☐

PARKER-KALON

OF NEW SOCKET SCREWS

LABORATORY PLAYS IMPORTANT PART

The Parker-Kalon Mechanical and Metallurgical Laboratory is a constant safeguard of the quality of Parker-Kalon Modern Fastening Devices.

$250,000 SPENT FOR LABORATORY EXPANSION

Parker-Kalon Equipment for Research, Development and Control of Quality Has No Counterpart in Screw Industry

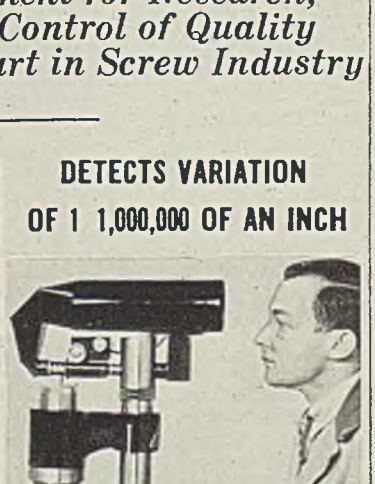
It was obvious to Parker-Kalon that in order to produce Socket Screws of exceptional merit, it was absolutely necessary to have complete facilities for determining the good qualities as well as any shortcomings of the Socket Screws already on the market because only with that knowledge could they turn out a product that would embody only the good characteristics of the others.

They saw, too, that it was equally important to provide the most modern equipment as well as a highly trained personnel to maintain the standard of quality which this research would establish.

These very practical reasons explain why Parker-Kalon invested more than a quarter million dollars to expand the facilities of the Parker-Kalon Mechanical and Metallurgical Laboratory. Every modern scientific aid was provided for the determination and control of all physical and metallurgical characteristics which the uses of Socket Screws demand.

Editors of leading industrial publications who have seen these facilities proclaim them as having no counterpart in the screw industry.

DETECTS VARIATION OF 1 1,000,000 OF AN INCH



This amazing instrument developed and built in the Parker-Kalon Laboratory checks gauge blocks used to maintain the accuracy of all production gauges. It is sensitive to variations as minute as one millionth of an inch, and gives direct readings.

Parker-Kalon Announcement Ends Speculation About Its New Product

RESULTS JUSTIFY LARGE EXPENDITURE OF EFFORT AND MONEY

This month the attention of the metal working industry will be focused on the Socket Screws developed by Parker-Kalon Corporation who, while new in this particular branch of screw manufacture, has for years been recognized as a leader in the fastening device field.

Formal announcement of the new line of products ends the interested speculation concerning them which began when it became known that Parker-Kalon was preparing to enter the Socket Screw field and would offer a product of exceptional merit. Much was expected of this concern because of the ingenuity it has frequently exhibited in producing meritorious fastening devices, among which are the now famous Parker-Kalon Hardened Self-tapping Screws. It was a commonly expressed opinion that if Socket Screws could be improved, Parker-Kalon would be likely to improve them.

Task Took Over Two Years

An executive of Parker-Kalon, describing the effort put into the new products, makes it clear that the Company took a big job upon itself when it decided to enter the Socket Screw field. He states: "It took well over two years of intensive research and development work to produce Socket Screws good enough to uphold our reputation. We had to do more than produce a 'good' product because good ones were already on the market.

"In reviewing the work it seems that the biggest advantage we had was the ability to begin at the beginning, without preconceived ideas or existing equipment. We could, and did, take full advantage of the many modern developments in metallurgy and in the mechanical arts.

Spent Fortune In Laboratory

"We spared no expense to accomplish the result we were after. A good example of that is found in the Parker-Kalon Mechanical and Metallurgical Laboratory where we invested a sizable fortune for the additional facilities necessary to develop Socket Screws of the highest quality; and to maintain that standard in production."

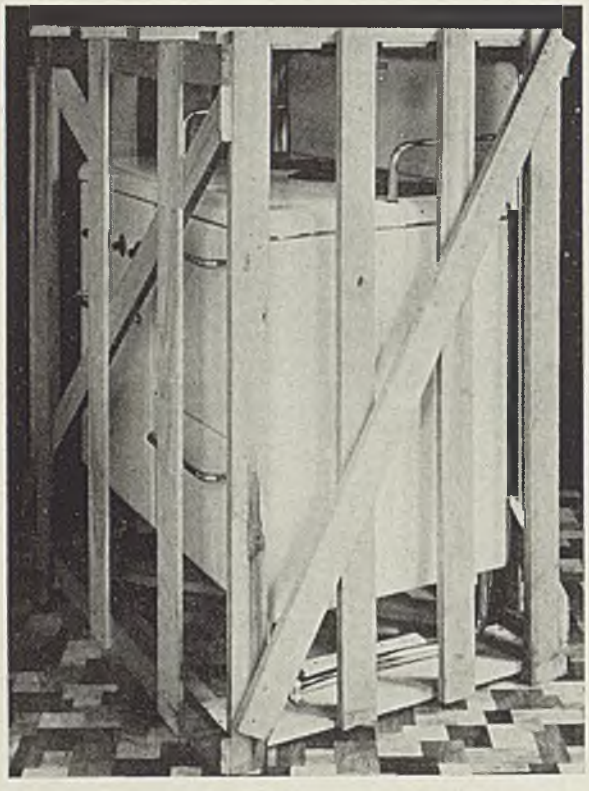
Details and Samples

Parker-Kalon has concisely covered the details of their new Socket Screws in an illustrated bulletin which is offered to users of Socket Head Cap Screws, Socket Set Screws and Socket Head Stripper Bolts. This bulletin together with samples of the new products for inspection and test will be sent upon request.

QUALITY SAFEGUARDED

From the rod to the finished product Parker-Kalon Cold-forged Socket Screws must pass 28 metallurgical and physical inspections.

Cold-forged SOCKET SCREWS



RANGES are shipped completely assembled. They are entirely supported by legs which are strapped firmly to crate base. Damage during shipment and field assembly is practically unknown to this company

which houses in a steel forging bolted to the corners of the range chassis. The end of each leg is filled with a steel plug and the leg is locked in place by means of a set screw in the leg bracket.

Legs of this type are not only easy to keep clean but are easy to clean around. They will not chip or craze like porcelain enamel and are assembled in place at the factory. In fact they are so solid that they are the principle means by which the range is fastened in the shipping crate, a matter which will be discussed further.

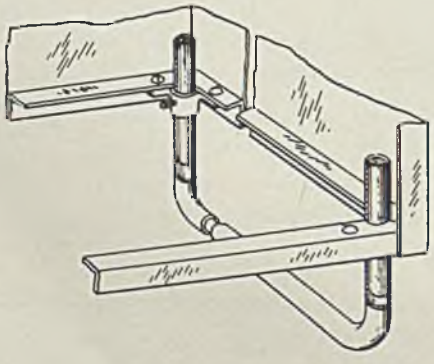
While engineering and manufacturing economy have been observed throughout in the design and manufacture of these ranges there has been none of the penny-pinching cutting of costs which has become the fetish of some manufacturers attempting to capture the market with low prices. Weak sections of the porcelain enameled panels are bolstered with spot welded reinforcements; open corners are welded and filed smooth; piano type hinges are used on all doors and many other features which improve quality are incorporated.

Two Colors Are Popular

These ranges are available in two colors, white and ivory. Handles and trim are of molded plastic and can be obtained in many colors. Trim is demountable and can be changed readily to suit customers' demands. Color in ranges was first introduced in 1927 and for a time the "color in the kitchen" theme amounted to a craze. Good taste eventually came to the rescue of manufacturers and the above mentioned colors are now the most popular in the approximate order given.

Possibly one of the greatest sources of chipping and otherwise marring of finished products is rough handling during shipping. The construction of the Tinnerman range lends itself ideally to overcoming this difficulty. As mentioned above, the legs of these ranges are of the skid type and fastened solidly to the chassis. These legs are strapped firmly to the crate base and form the only support for the range. The rugged, vibration resistant construction of the range is such that the crate can be tilted in any position without causing the range to sag and touch the crate at any point. When the range reaches its destination the crate needs only to be sawed through in four places after which it can be lifted off leaving a completely assembled stove strapped to a wooden base. Cutting of these straps is a simple matter and the range is ready for use or display without the aid of a mechanic or skilled man to assemble parts knocked down for shipment. This method of shipping has not only proved a great convenience to dealers but has reduced shipping losses due to damage to a minimum.

ADJUSTABLE stainless steel legs in the form of skids are fastened to the rugged inner chassis as shown below. Leveling is a simple matter and housewives have little difficulty in cleaning around these legs



Three Qualities Are Demanded

The development of these ranges can be attributed to the fact that through better than 60 years' experience in manufacturing and merchandising, this company has found that the majority of people insist upon the following three fundamental qualities in a range to satisfy their needs:

1. The range must have beauty. It must be decorative and harmonize with the design of the modern kitchen and at the same time not be too modern to fit the surroundings of the average kitchen.
2. It must provide greater convenience. It must have new features which lighten a woman's burden and make it fun to cook. Women want something more than the same old thing in a new dress.
3. It must be built to insure permanence of service. The construction must be such that the range will withstand a long period of use, free from annoying interruptions of service.

Prefinished Metals Colored By Electrolytic Process

A line of prefinished metals in color, known as Tint-Metal, is now being offered by American Nickeloid Co., Peru, Ill. The unusual feature of these metals lies in the fact that the colors are not applied as pigmented organic materials but by an electrolytic process. The colors available are yellow, blue, red and green.

The colors are said to be rust and tarnish proof and can be formed or stamped without injury using reasonable care. They are offered applied to copper-zinc, copper-steel and copper-tin base metals in sizes up to 36 by 96 inches and in any gage. Each color on any of the above metals can be obtained in bright, satin or striped finish and, if desired, in crimped or scored patterns.

This line of colored metals can be used for window trim, display stands, signs, advertising novelties, toys and many other stamped products.

Since "safety bikes" scorched down the pike

Automotive applications in wide variety have proved the superiority of . . .

SHELBY SEAMLESS STEEL TUBING

IN "bloomer girl days" SHELBY Seamless made its initial appearance as simple bicycle tubing. Today in machinery and equipment of all kinds and especially in automotive construction innumerable parts essential to efficiency are being made of this superior mechanical tubing.

You'll find SHELBY Seamless used in front axles and rear axles, rear axle housings, steering columns, drag links, tie-rods, torque tubes, brake cross shafts, seat frames, etc. And for sound economic reasons.

These parts are not only better but cost less to produce. They are strong. Without excess weight. Uniformly dependable in service. And because SHELBY fabricates easily—minimizes grinding and machining operations, cuts tool costs, reduces labor, they can be turned out to meet rock-bottom cost requirements.

Find out what you can do with SHELBY Seamless Steel Tubing for automotive parts. It is available in round, square, oval, rectangular, and streamlined shapes — in practically any size and wall thickness, in grades and treatments of steel to meet the most exacting and specific requirements.

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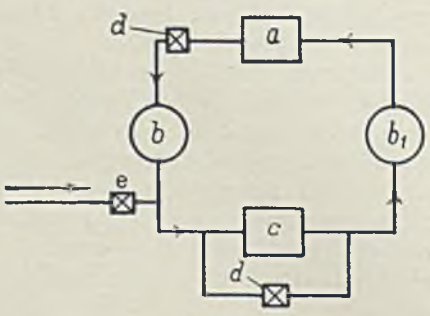
UNITED STATES STEEL

PROGRESS IN STEELMAKING

Modern White Pickling Plant For a Tinplate Rolling Mill

MAJORITY of the pickling plants in Germany today are driven electricially by crank gear, either direct or by interposing ropes, while in Great Britain and America steam pickling plants of the tower type are still used.

Although the working costs of electrical plants are much lower than those of steam pickling plants, the latter offer such enormous advantages owing to better pickling that in Great Britain and America the high working costs and the large amount of space required for the fairly large boiler plant are put up with. The steam pickling plants would work still more uneconomically if compressed air were to be used as the driving medium in place of steam, though the space required for a compressor is much less than that required for an equivalent boiler plant.



a—white pickling plant, b—low pressure air receiver, b_1—high pressure air receiver, c—recompressor, d—governor, e—loss equalizing governor with connection to the compressed air network

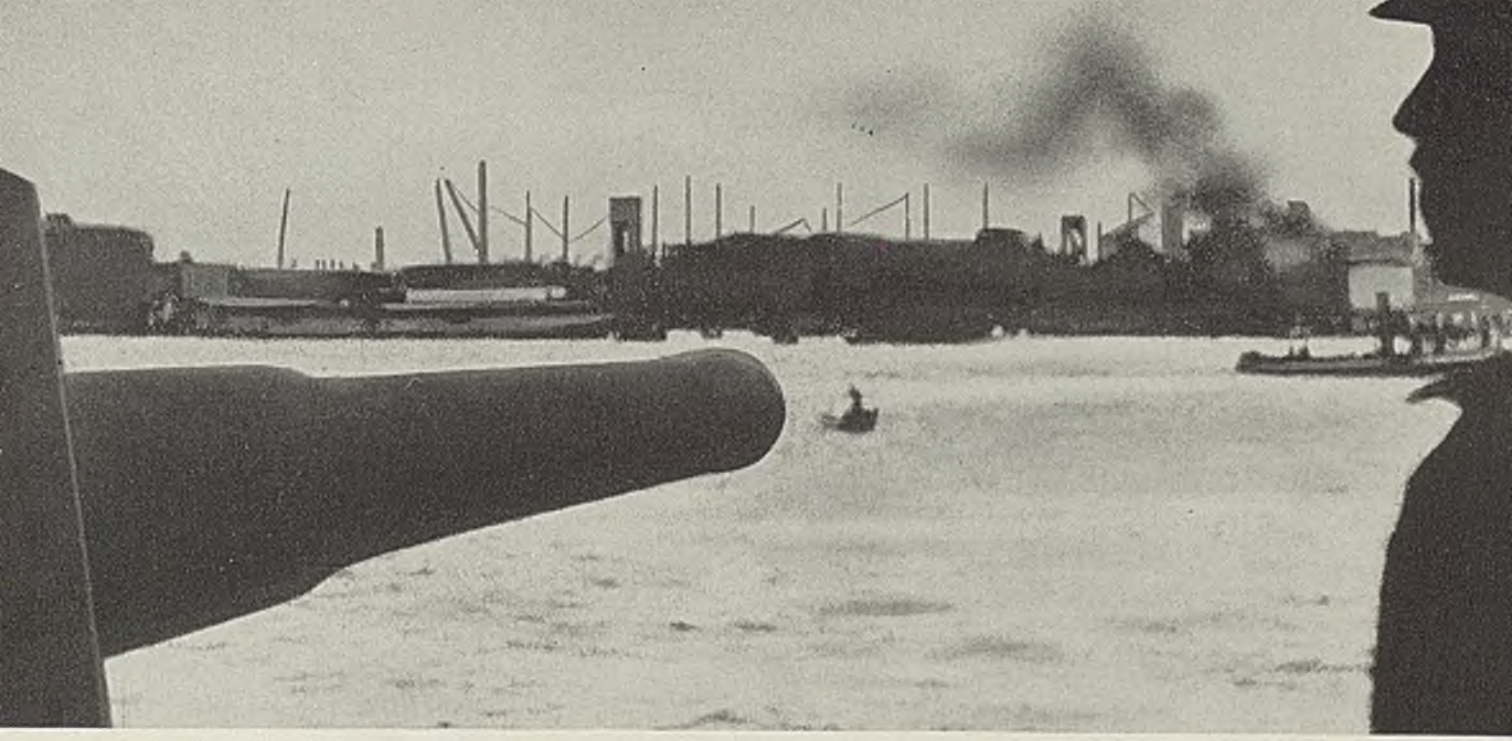
FIG. 1—Layout of a compressed air white pickling plant, in which the compressed air, which is only partially expanded in the lifting cylinder is recompressed in the circuit to the working pressure by a recompressor

In order, on the one hand, to have an elastic working medium for the purpose of obtaining favorable pickling results and nevertheless, on the other hand, to be able to do the job properly at low working costs, DEMAG, at the instigation of a German sheet mill, decided to build a compressed air pickling plant, in which, however, the compressed air by a special process is only partially depressed. The recompression of the spent air to the original working pressure by a recompressor results in a saving of power of 65 per cent which contributes greatly to diminishing the working costs as reported in *DEMAG News*.

The possibility afforded by the driving medium — compressed air — of adjusting the height of the lift, the number of lifts and the force of the jerk, just as required, to correspond to the different thicknesses of the sheets, nearly to buckling limit, has in the case of the compressed air pickling plant produced results far in excess of those previously attained, high as they already were. This is impossible with electrical pickling plants, since, with them, one is tied down to always the same lift, the like number of lifts and a uniform crank movement. The jerking force is limited also in the case of the compressed air plant, as, were this not the case, the acid would get splashed about in all directions. To avoid this, the vats have been made very deep.

Fig. 1 shows the arrangement of a compressed air pickling plant, in which the spent air of about 3.5 absolute atmospheres after passing through the low pressure air receiver is recompressed in the circuit by the recompressor to the required working pressure of 7 absolute atmospheres. From there the compressed air goes to the high pressure receiver, and the circuit terminates in the pickling plant. Additional air is delivered from the network through a loss equalizing governor, in order to equalize the loss of air due to leakage.

As is shown in Fig. 2, the compressed air as driving medium allows the plant to be designed as a tower pickling plant with one pickling and one washing trough each. The lifting cross-head has three arms, each of which can carry a basket. While one basket is being moved up and down in the acid trough and a second basket simultaneously in the washing trough, the third basket, released automatically from the crosshead, is standing on a revolving table and can be moved



FROWNING GUNS ON BURNING SHANGHAI

ROCKET TOOL STEEL PRICES!

MO-MAX*

TRADE MARK REG. U.S. PAT. OFF.

Molybdenum-Tungsten High Speed Steel

NOT AFFECTED!

As the grim floating fortresses of Japan blockade the China Coast from Shanghai to Hong Kong, the world's major source of tungsten dries up—and the price of tungsten steel rockets to new heights. Requiring but a minor proportion of tungsten, MO-MAX high speed steel is not affected. Thus a distant undeclared war, or even a threat of war, affects the price of high speed steel. It happened before during the World War. It is starting to happen now. It could happen again but for an improved high speed steel that is now available and that is not subject to such fluctuations.

MO-MAX, independent of tungsten imports, has become decisively established as a superior high speed steel. The outstanding advantages of MO-MAX, conclusively demonstrated in the shops of consumers, prove its marked superiority. It is easy to weld, forge, machine and grind. Tools made of MO-MAX are tougher, harder and have superior cutting quality.

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

SHIFT TO MO-MAX FOR QUALITY AND QUANTITY PRODUCTION

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

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in any direction to enable the sheets to be taken out and put in conveniently.

As Fig. 3 shows, the force of the jerks, the loading of the baskets with packs of sheets and especially the duration and number of the individual picklings are continuously noted. After the jerking is over and the third basket loaded, the crosshead is lifted in order to change the baskets and take on the freshly loaded basket. The three-arm crosshead can then be easily turned by hand, as the load rests on an air cushion and there is not much friction resistance to be overcome. The initiating of the pickling and washing movements as well as the raising and lowering of the crosshead can, on the other hand, as Fig. 5 shows, be done conveniently from the operator's stand.

Lifting cylinder is located in the foundation and access to it is afforded by a separate channel underground laid in such a way that no acid vapors can get into the room. The acid vapors over the pickling vat are exhausted by a fan, so that there is practically no acid in the air in the pickling room. The recompressor, the air receivers, the loss equalizing governor, etc., can be placed away from the pickling room, in keeping with local conditions.

It may be mentioned in conclusion that in the white pickling plant of a tin plate mill, as illustrated, with a basket capacity of 1600-2000 pounds and a lifting height of 12-20 inches according to the thickness of the sheets, the recompressor with a 35-horsepower motor provides such a favorable jerking action that over 250 tons of sheets are perfectly pickled in 24 hours, but even this splendid performance can be improved upon, as tests have shown, by more rapid loading and unloading, to as much as 400 tons in 24 hours; that is, three times the usual output hitherto.

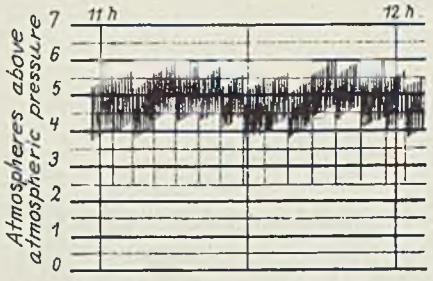


FIG. 3—Graphic diagram of a compressed air pickling plant, showing the duration and number of the individual picklings, force of the jerks and load on the baskets

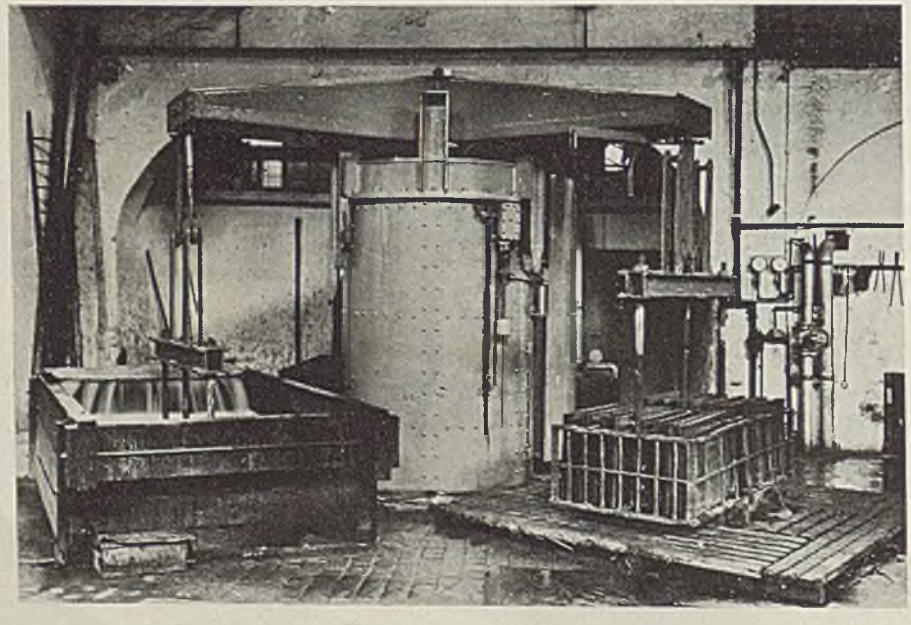


FIG. 2—Compressed air pickling plant with washing plant seen on the left

Photo courtesy DEMAG

New Volume Presents Gas and Metal Reactions

Gases and Metals, by Colin J. Smithells; cloth, 218 pages, 5½ x 8½ inches; published by John Wiley & Sons Inc., New York; supplied by STEEL, Cleveland, for $4.50; in Europe by Penton Publishing Co. Ltd., 416-17 Caxton House, Westminster, London.

In many branches of science and industry the behavior of gases and metals in contact is of fundamental importance and gas-metal equilibriums are being studied from many viewpoints by different workers. Diffusion of gases in solid and liquid metals, and the solubility of gases in metals have a profound effect in the manufacture of metallurgical products. While the general principles underlying gas and metal equilibriums are established, the results obtained in various fields were widely scattered in scientific literature until the author gathered them to form this book. In addition he shows the intimate connection between the various phenomena.

While the author does not make any attempt to deal with the practical application of the principles to metallurgical processes, the data presented in the book undoubtedly will aid in understanding and solving problems relating to gas and metal equilibriums. The book is divided into three chapters of which the first is devoted to adsorption, chapter II to diffusion and chapter III to solution. A subject index and a name index are included.

Announce Program for Iowa Foundry Meeting

American Foundrymen's association has announced the program for the meeting which it is holding at the State University of Iowa, Iowa City, Iowa, Oct. 29-30, in cooperation with the Quad City chapter of the association. This is the second annual foundry conference devoted to various phases of foundry practice.

Speakers and topics to be discussed are as follows:

Friday, Oct. 29

MORNING

Sand Problems

"Sand Control," by H. W. Dietert, president, Harry W. Dietert Co., Detroit.

"Natural Molding Sands," by C. M. Hardy, president, Hougland & Hardy Co., Evansville, Ind.

AFTERNOON

Testing and Melting

"Physical Tests of Cast Metals," by H. L. Daasch, Iowa State college, Ames, Iowa.

"Analysis of Iron," by John Fielding, State University of Iowa, Iowa City, Iowa.

Melting Practice

"Foundry Coke," by Lewis D. McClaren, Republic Coke & Gas Co., Chicago.

"Operation of the Cupola," by W. R. Bean, vice president, Whiting Corp., Harvey, Ill.

"Cupola Practice," by Garnet Phillips, metallurgist, International Harvester Co., Chicago.

EVENING

Dinner. Speakers: Eugene Gilmore, president, University of Iowa, Iowa City, Iowa; and H. Bornstein, director of laboratories, Deere & Co., Moline, Ill., and president, American Foundrymen's association.

Saturday, Oct. 30

MORNING

Nonferrous Metals

"Metallurgy of Nonferrous Castings," by C. O. Thieme, H. Kramer & Co., Chicago.

Alloy Cast Iron

Roundtable discussion. Speakers: R. G. McElwee, Vanadium Corp. of America, Detroit; E. K. Smith, Electro Metallurgical Co., Detroit; V. A. Crosby, Climax Molybdenum Co., Detroit; and Fred J. Walls, International Nickel Co., Detroit.

Distribution Lines, Control and Drives Placed in Tunnels at New Wire Mill

MAIN distribution circuits, control and a number of drives are housed in tunnels in the South Chicago wire mill of Republic Steel Corp. In this new plant (STEEL, pp. 42-45, May 3, 1937) the overhead area is thus unobstructed—free from distribution feeder circuits or belts which would have interfered with good lighting or with overhead transportation of materials. Also, induction motors are used for some hoists and drives where direct-current equipment has been the more general practice.

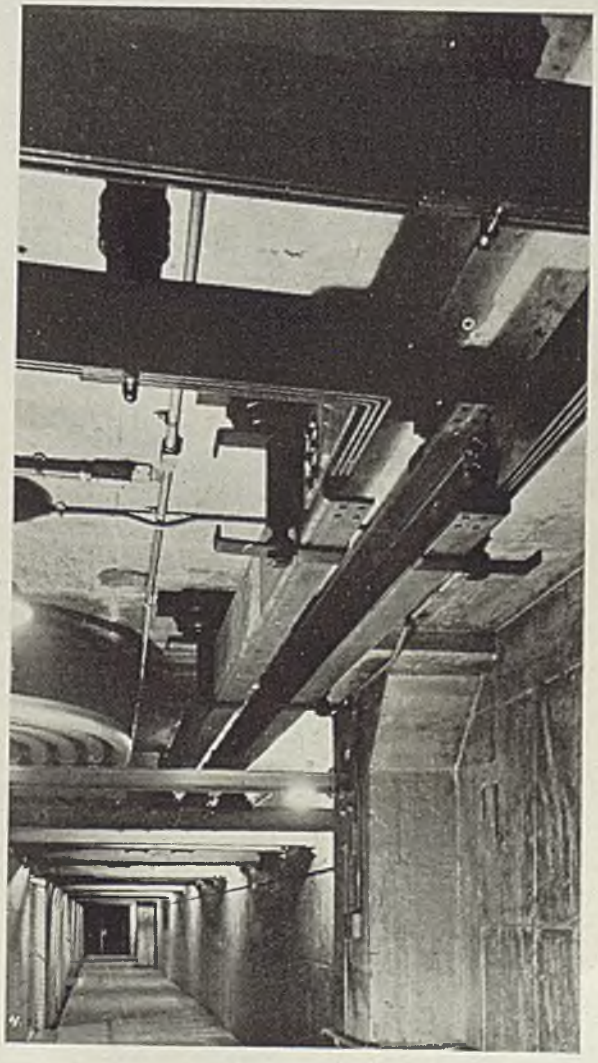
This entire arrangement was laid out only after giving careful consideration to present requirements and future plans.

The first consideration in the planning of power circuits is the location of the distribution point. For most economical distribution this should be in the center. However, such positioning usually interferes with the smooth flow of work by necessitating the hauling of materials and work around it. The substation, therefore, was placed near the river in the center of the back side of the plant, as planned for future expansion, so that it would not interfere now or later.

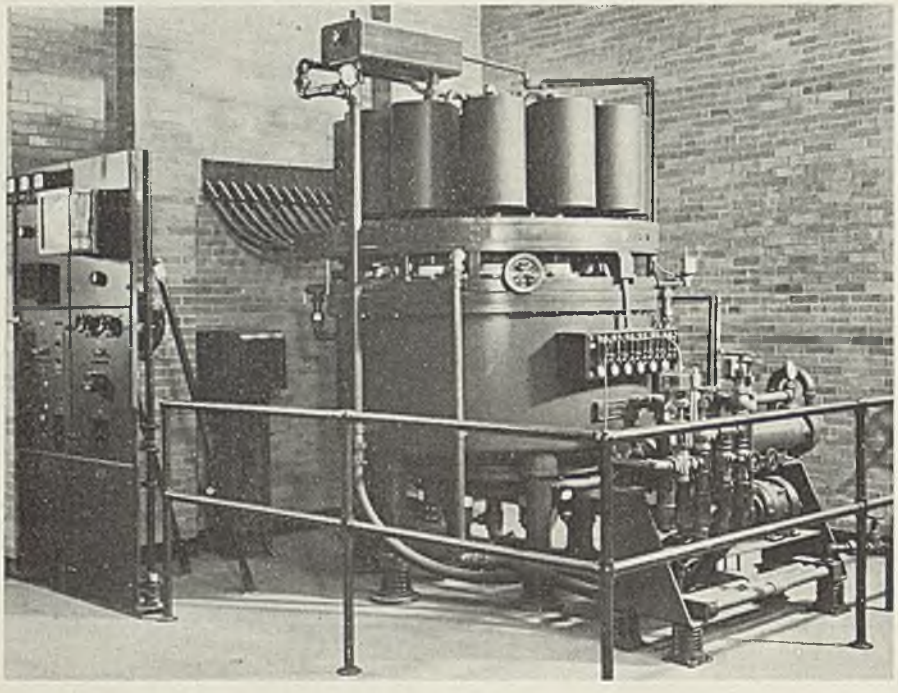
Since the plant was constructed on low land, thus necessitating high foundations, a tunnel distribution system was planned using foundation walls as the sides of the 8½-foot tunnels. This decreased the amount of fill and added little to the cost.

Distribution lines, control and drives are easily accessible but only to authorized individuals, as the entrances to the tunnels are always locked. The tunnels are cool, and natural circulation through the latticed wire doors carries away any heat dissipated by the main feeder circuits and resistors in the control equipment.

Approximately 1200 feet of tunnel are located beneath the floor of the plant, and ample height is provided to permit mounting feeders overhead. The 250-volt, direct-current feeders consist of 15½ tons of 9-inch copper channels, ½-inch thick, the largest sections of this type ever rolled. These are ceiling-mounted on



DIRECT and alternating - current distribution lines are placed in the tunnels. Note provision for extra bus



DIRECT-CURRENT is supplied from this 1000-kilowatt, mercury arc rectifier, the first to be so used in the steel industry

special insulators, as shown in an accompanying illustration. Note also the special double clamps which will easily permit placing a duplicate bus installation when required for additional equipment in the wire drawing and other departments.

This single feeder circuit carries direct-current power to all important distribution centers where the bus is tapped, rather than carrying a feeder to each center. The copper feeders are provided with expansion joints approximately every 75 feet.

The control equipment for the variable speed motors driving the continuous wire-drawing machines is located in a branch of the main tunnel to shorten wiring and installation costs and to protect it from the lime dust loosened in the drawing operation. Each panel is mounted directly below the machine it controls.

Direct current is provided at 230 volts by a 1000-kilowatt, mercury arc rectifier having automatic control by means of electrically energized grids. Voltage is maintained at load center by returning two pressure wires back to the rectifier voltage regulator in the power substation. A mercury arc rectifier was selected because of its high efficiency at low load factors, low maintenance, and lack of necessity for expensive foundations required by a motor-generator set.

Alternating-current is distributed in conduits in the tunnel at 440 volts. Extra curved sections of conduit were placed in the tunnel where it changes direction, to provide for expansion, as these sections would be difficult to install later without partial dismantling.

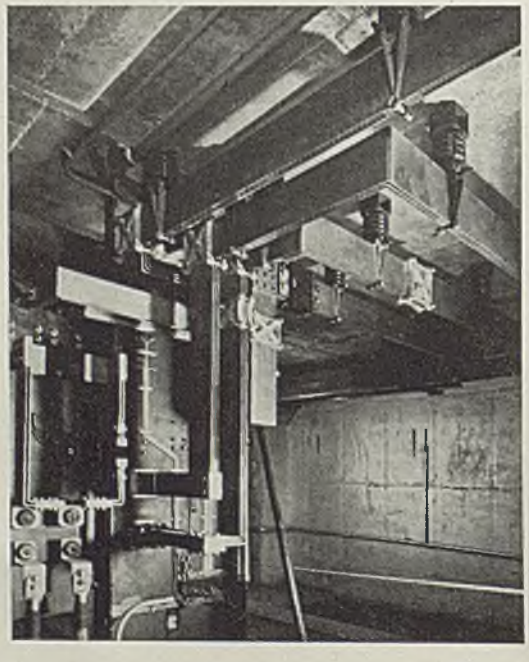
Embedded In Concrete

Heavy-wall steel conduit and transite duct are used for all circuits above 600 volts, embedded in concrete. In the galvanizing department all conduit is embedded in concrete.

Safety grounding is provided by a No. 0000, bare-stranded, copper cable extending the full length of the tunnel. This is bolted and brazed to a number of copper plates, 2 feet square and ⅛-inch thick, which are buried in the damp soil beneath the foundations. All conduits and structural steel supporting conduits are connected to this ground wire. The tunnel also carries pipes for gas, air, city water and river water.

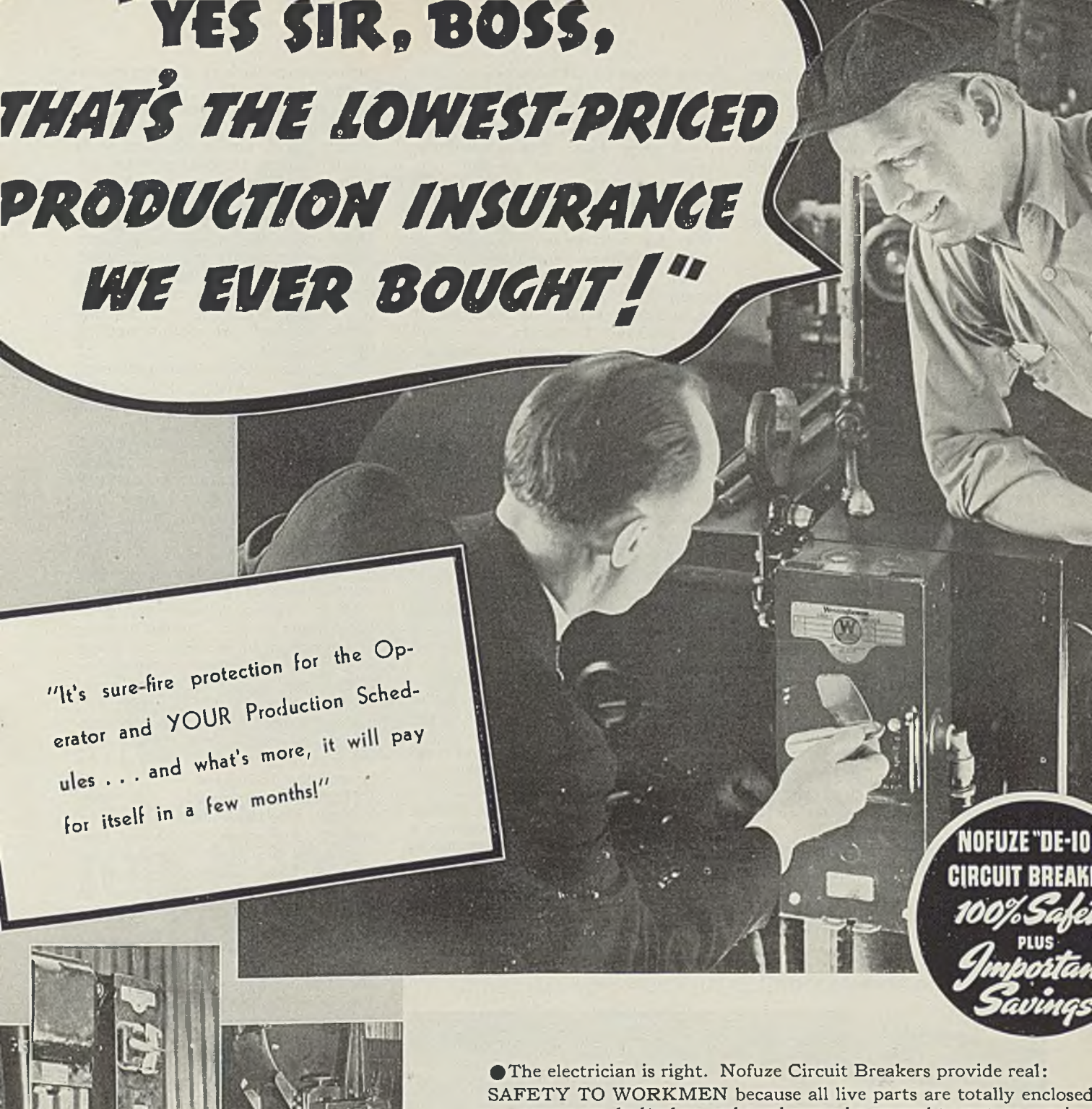
Line start, 3-phase induction motors are used wherever possible because of their reliability and low maintenance. For example, conveyors and baker door lifts in the cleaning room have ball bearing, high-torque, line start induction motors of the fully-enclosed type with acid-proof windings. Wiring and control are protected from acid fumes by cast-iron switch cases and control housings with gasket covers.

Pointer and hoist motors in the wire drawing room are also of the totally-enclosed, ball bearing, line start, induction type to protect them from the lime dust. Similarly, line start induction motors, with one ex-



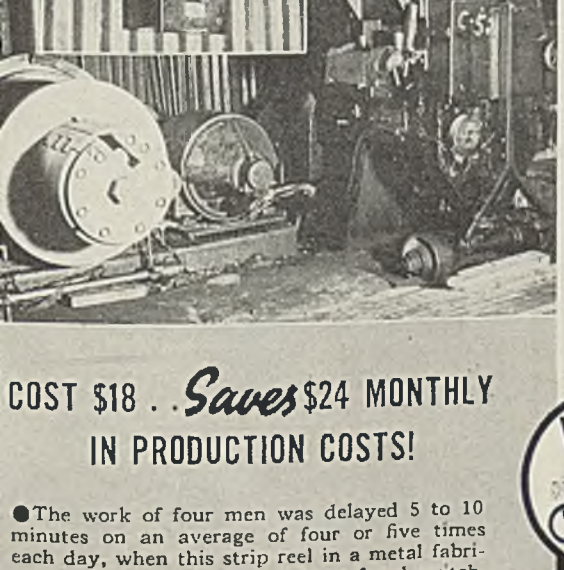
LEFT — Flat busbars carry direct-current from high-speed circuit breaker below rectifier to copper-channel distribution lines. Right — Control equipment, such as this to wire drawing drives, is placed in the tunnel directly under the machines. Note stack-type reflectors

"YES SIR, BOSS, THAT'S THE LOWEST-PRICED PRODUCTION INSURANCE WE EVER BOUGHT!"



"It's sure-fire protection for the Operator and YOUR Production Schedules . . . and what's more, it will pay for itself in a few months!"

NOFUZE "DE-ION" CIRCUIT BREAKERS
100% Safe
PLUS
Important Savings



COST $18 . . *Saves* $24 MONTHLY IN PRODUCTION COSTS!

●The work of four men was delayed 5 to 10 minutes on an average of four or five times each day, when this strip reel in a metal fabricating plant was protected by a fused switch. Lost man hours alone cost at least $24 per month. An $18 Nofuze Breaker replaced the fused

●The electrician is right. Nofuze Circuit Breakers provide real:

SAFETY TO WORKMEN because all live parts are totally enclosed . . . covers are *bolted* on and need never be opened to restore service.

SAFETY TO MACHINES AND CIRCUITS because the mechanism is tamper-proof and trip-free, cannot be held closed against severe overloads. And . . .

PROTECTION FOR PRODUCTION SCHEDULES because electrical service can be restored immediately when dangerous overloads are removed. The all-too-frequent drains on profits by fuse outages . . . costly losses of time by men and machines, fuse renewals, resultant delays in rush production schedules . . . *all are banished when you install Nofuze Circuit Breakers.*

It will pay you to investigate NOW. Call your nearest:

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ELECTRICAL WHOLESALER
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W WESTINGHOUSE ELECTRIC

Westinghouse

ception, are used on nail machines and nail tumbler drives. The same is true of the drives to barbed wire and fence machines. Hoist motors operate on 220-volt, 3-phase current stepped down from 440 volts through dry-type transformers for safety. Butt welders operate from 220-volt, single-phase current obtained from the same bank of transformers.

Use Elevated Platforms

Control, which in almost all cases is push-button operated, is placed either in the tunnels beneath the floor or on elevated platforms, leaving the floor clear for unobstructed handling of material. To simplify tracing out of control circuits, all control wiring is tagged with bird legbands for easy identification. Also, panel and control boxes are stenciled to indicate unit controlled. Framed circuit diagrams are located adjacent to apparatus.

Direct-current motors are used wherever smooth acceleration or variable-speed control is required, as in the wire drawing operations, galvanizing and patenting take-up frames and rod storage and cleaning room cranes.

Starting panels, for the motor-generator sets supplying the current for the electro-galvanizing setup and for the auxiliary equipment, are mounted in an enclosed overhead pulpit or control room and push-button operated from the floor. This room is located in a high bay and has windows which may be opened for outside ventilation.

The four motor-generator sets, each driven by 220-horsepower, 2300-volt, line start, synchronous motors operating at 150 revolutions per minute, are connected to 20,000-ampere, 7-volt generators. The synchronous motors are mounted on the overhanging shaft with the 20-ton load carried on two bearings. Lubrication is by ring oilers. Field excitation for both synchronous motors and low-voltage generators is taken from the 230-volt direct-current lines.

Sufficient copper is installed in the 2300-volt feeder to the motor-generator sets to permit adding another frame. Copper bars for plating circuits were purchased flat and bent on the job as installed. Conduit wiring for the 2300-volt lines is buried in the concrete flooor and in the columns up to the control room for safety, so no contact may be made from the floor.

In addition to using the tunnel for wire drawing control equipment, the lineshaft drives, induction motors and control of the nail-making machines are also mounted in a tunnel beneath the machines. Motors are operated by conveniently mounted push-buttons on the floor above.

Have Overhead Lineshafts

Drives to barbed wire machines are from overhead lineshafts. Nail tumblers are individually motor driven through a clutch. Field fence and bale tie machines are also individually driven.

Trough duct, with three 440-volt busbars insulated and enclosed in a steel duct, is used for distributing power to various isolated motors. These are mounted overhead and tapped at the bottom for connections to individual units. Thus additions or changes can be made without disturbing the feeder circuit or running conduit lines back to a main distribution center. This duct extends down the plant to a point that will be practically the center of the expanded plant, and is designed with ample capacity for contemplated additional requirements.

Adequate lighting is provided throughout the plant by a 3-phase, 4-wire distribution system from transformer vaults connecting with the main tunnel. Both power and lighting transformers, except a few of the dry type, use a noninflammable, nonexplosive cooling medium instead of oil.

RLM glass-steel reflectors are used throughout. Where the ceiling slopes, these are all set the same distance from the floor to give even light. In the wire drawing department, these reflectors have dust-tight covers; in the cleaning department they are vapor proof. Reflectors over control equipment in the tunnel are of the stack type (originally developed for libraries) which direct the light downward over the control without glare.

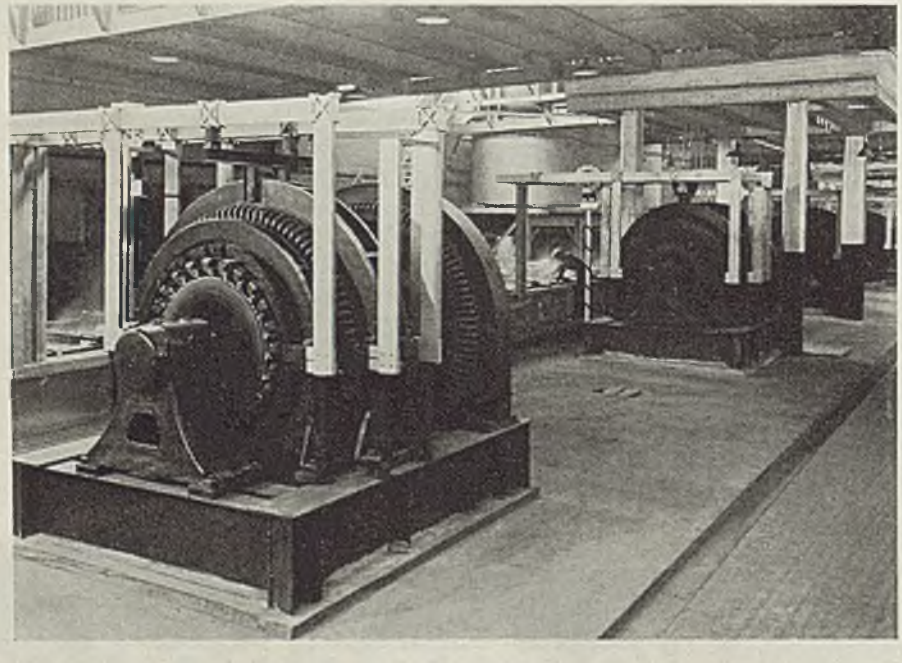
Plant lighting is controlled from distribution panels. Tunnel lighting is controlled in sections by 3-way push-button switches so the electrician can go through the tunnel turning the lights on ahead of him and off behind him without returning to the first switch. Thus only the section of the tunnel in which he is working is lighted.

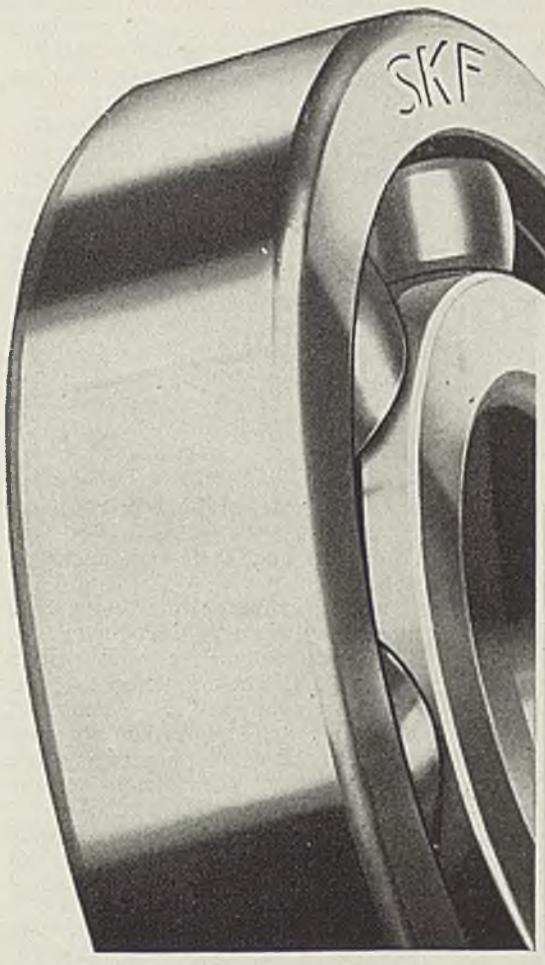
Numerous automatic and interlocking electrical devices are installed. For example, the rod bakers have automatic temperature control. The burners cannot be turned on, however, until the fan is operating and are shut off if it stops.

Similarly, an automatic interlocking circuit, push-button operated by the cleaning house craneman, opens the doors to the bakers, advances the rod coil conveyor one step and closes the doors. However, if the previous lift of baked rod has not been removed from the opposite end of the conveyor it does not operate but sounds a warning bell to the trucker. When the trucker removes the baked rod from the discharge end of the conveyor he then operates it by a push-button at this end. On the truck battery charging set, when the trucker plugs in, the motor-generator set starts up, and stops when he disconnects.

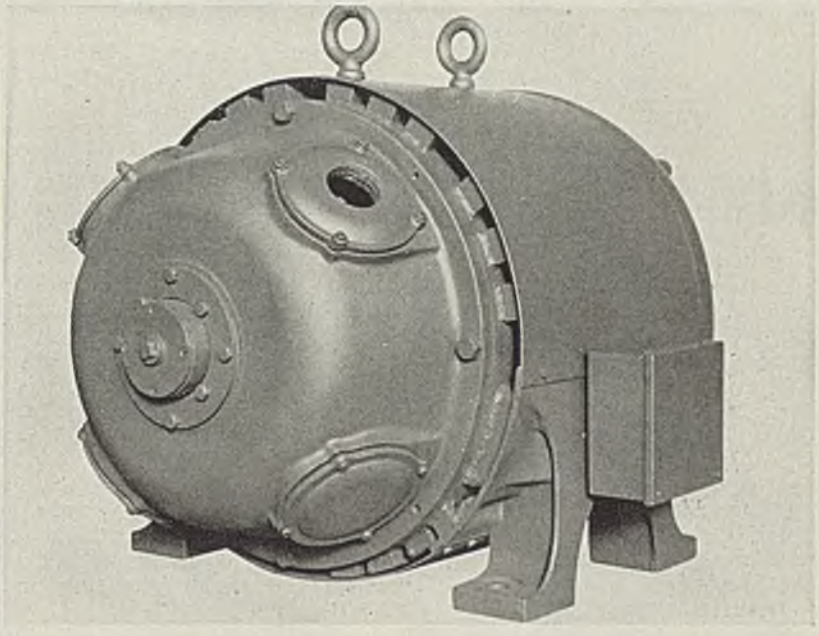
Throughout, the installation shows careful planning to permit operation with a minimum of maintenance and interruption and to provide for expansion at the least expense for feeder and distribution lines. In this way expansion may be gradual, and made at a minimum of expense without disturbing operations or duplicating circuits, except in a few instances.

DIRECT - CURRENT end of 20,000-ampere, 7-volt motor-generator sets for electro-galvanizing fence wire. These are driven by 2300 - volt synchronous motors mounted on overhung shafts





SKF EQUIPPED BUILT BY RELIANCE ELECTRIC & ENGINEERING CO.



On motors...rolling mills...cranes...auxiliary equipment

TOUGH JOBS REQUIRE TOUGH BEARINGS

• THERE'S MORE TRUTH THAN POETRY in the saying that "tough jobs require tough bearings". It's particularly true of the operation of this fully enclosed, fan-cooled Reliance Motor that has flying particles of dust for companions. Rugged . . . practically frictionless . . . with unvarying precision that assures a permanently maintained air gap, SKF Bearings are mounted in dust-tight cartridges—are fully protected from dust even when the armature is removed from the motor. They carry heavy radial and thrust loads easily . . . enable this motor to transfer power with a maximum of efficiency. When it comes to bearings, remember the letters "SKF". They are synonymous with tough bearings.

3936

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

SKF

BALL AND ROLLER BEARINGS

New Laboratory Represents Peak of Research Program

NEARING completion in Middletown, O., is one of the finest research laboratories to be found in connection with an American industrial institution. It represents the latest development in a research program conducted continuously by the American Rolling Mill Co. since 1903.

In the new building, covering 43,000 square feet, a staff headed by Dr. Anson Hayes, director of research, will carry forward the study of problems involved in the development of new products and the improvement of products already established.

Research work has been the stimulating force behind the company's progress ever since the period 1903 to 1907, when it was developing the particular product which has since become famous as Armco Ingot Iron.

At that time research work was carried on in the plant by the operating department, the only special facilities enjoyed being housed in a small 1-room chemical laboratory.

A conception then engendered has continued to dominate the research effort. This is that research work is a joint problem of the entire organization.

Although the company set up research as a separate department in 1929, this department has no fence around it. As is the case with all of the company's activities, research work heads up directly in the office of Charles R. Hook, president and general manager. By a policy of exchanging all ideas and information, fostered by the management, the research department receives the full co-operation and support of the entire operating and sales personnel.

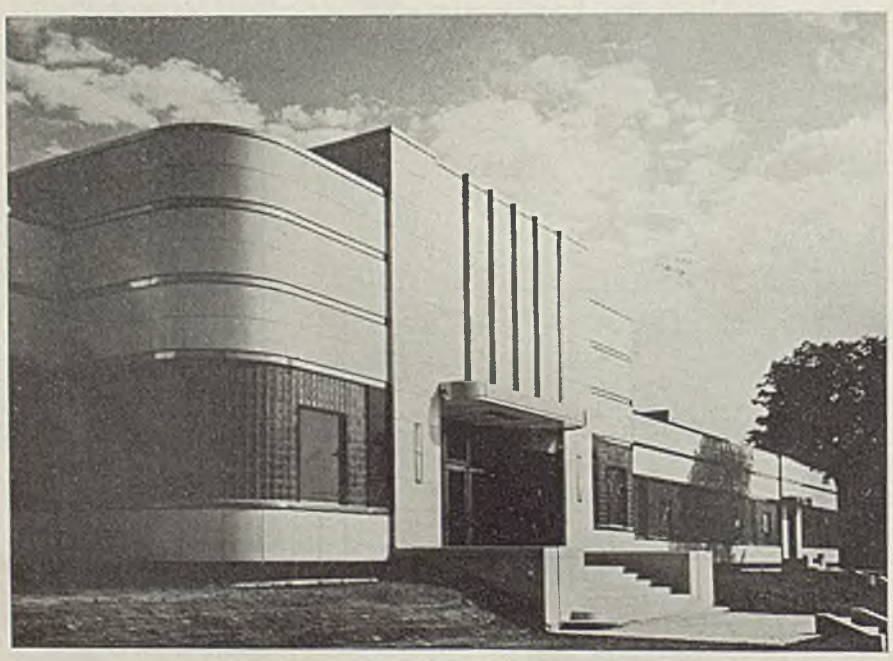
Research work is costly but it pays substantial profits when intelligently directed, as the company executives know from experience. They believe that it can succeed only when aimed at definite objectives whose attainment will benefit not only the company but its customers and their customers as well.

As an example, the company's pioneering work in introducing the continuous wide strip rolling process is cited. The reduction in costs and improvement in quality of sheet and wide strip products resulting from this development has given unprecedented stimulation to the use of flat rolled products.

This development led to many new uses for sheets with the result that the tonnage of flat rolled steel sold has mounted steadily.

The research work which culminated in the continuous mill, in other words, has created a vast amount of new business with resultant prosperity to a host of manufacturers in the metalworking industry.

EXTERNALLY finished, the new laboratory at Middletown is being equipped inside with the most modern and complete scientific equipment available



Research Is Classified

Research at present falls into 12 classifications. Each is entrusted to a separate, specialized, group for which complete facilities are available in the new laboratory. These classifications are as follows:

1—Setting up of all tests for determining and maintaining quality of all the company's products.

2—Elimination of sound in metal products.

3—Porcelain enameling and the development of sheets for porcelain enameling.

4—High finished sheets for deep drawing operations.

5—Sheets for electrical purposes.

6—Development of lead, zinc and other metal coatings for sheets.

7—Development of non-metallic coatings such as asbestos, asphalt, paint, lacquers, synthetic enamels; also the development of surfaces that hold such coatings tenaciously.

8—Stainless steel.

9—Rolled steel car wheels.

10—Development of low priced, corrosion resistant sheets and strip.

11—Weldable flat rolled material, and welding methods.

12—Steelmaking—with respect to developments in blast furnaces,

open-hearth and electric furnace operations.

An interesting subject is that in connection with the elimination of sound in metal products.

There are many such problems today. Oil and gas burning furnaces and circulating unit heaters, for instance, develop "ticking" and "oil-can effect" noises due to expansion and contraction of the metal.

In architecture, when using metal ceilings and partitions, it is necessary to control noises within rooms and between adjacent rooms.

It has been found that noise may be eliminated in various ways. Use of asbestos bonded sheets represents one way of going about it. By a patented process the company galvanizes sheets and, while the zinc still is in the molten state, applies sheets of asbestos under pressure of several thousand pounds so that the asbestos fibres are bonded permanently into the zinc. A nonresonant product results.

The program in the field of porcelain enameling dates back many years during which the company has been an important cooperating agency in conducting studies which have resulted in superior porcelain enameling, at much lower cost, and which has led to a great increase in demand for porcelain enameled products. The program in connection with high finished sheets dates back to pioneering work done by the company with sheets for automobile bodies, and furniture. The program in electrical sheets dates back to about 1903 and has had an important bearing on the developments in the electrical industries.

Building Is All Steel

The work on rolled steel car wheels is of particular importance at this time due to the trend toward high-speed streamline trains. In this equipment the strains in the wheels require special attention, and resistance to thermal checking of treads and to shelling must be provided.

The new laboratory is the result of an effort to develop a building as nearly all-steel in construction as possible. The building is of one story construction without basement and the floors are of reinforced concrete while the building itself is 100 per cent of steel, ingot iron, glass and rockwool.

On the concrete foundation is a framework of structural steel tubing which extends upwards 19 feet all around the building. This is filled in with Steelox channeled sheets with the face of the channel turned out. Cream colored porcelain enameled sheets are applied on the exterior to a height of 4 feet. The next 7 feet are of glass blocks, broken up by vertical columns of black porcelain enameled sheets. The remaining 8 feet to the roof are covered by cream colored porcelain enameled sheets. The wall is decorated with four bands of stainless steel.

Interior of the laboratory is divided into many rooms, some having partitions 8½ feet high to reduce sound, while others have partitions that go up to the roof. The sheets that comprise the interior walls of the executive office and conference rooms are finished in dark walnut grained steel. Trim is of stainless steel. Partitions in some of the laboratory rooms as well as the offices of the group workers are painted dark green below and light green above. In the main laboratory rooms battleship gray paint is used below, and aluminum paint above.

The east wall of the building, which may be moved to permit expansion up to 50 per cent, if necessary, is of ingot iron sheets inside and outside, 4-inches apart, welded together by means of Z-shaped strips, and the space filled with insulating material. Sections in this wall were fabricated by Insulated Steel Construction Co., Middletown, O. Steelox sections used in the other walls were fabricated by Steel Buildings Inc., Middletown, O.

Interesting use of sheets has been made in the roof, and particularly in developing a soundproof ceiling. The main laboratory roof is of sawtooth type with vertical sections of glass blocks for daylight illumination. The office roof is flat. Roof deck is 9 inches thick. Inner members are Steelox channels whose inside faces are perforated. Inside the channels, mounted on metal saddles 1-inch above the perforated surface, is acoustic mineral cork. The channels are 5 inches deep and 9 inches wide and are placed horizontally on the structural steel purlins. Across the top faces of the channels are laid corrugated Armco Ingot galvanized sheets. On top of these sheets is placed 1 inch of rock cork and on top of that is 4-ply composition roofing.

Air conditioning for summer and winter has been provided by means of coils provided with circulating fans. In summer the laboratory is cooled by passing well water at 53 degrees Fahr. through the coils. In winter steam is passed through the coils, this heating arrangement being supplemented by a humidity control. The entire conditioning system is controlled automatically. All windows in the building except in the rear wall are fixed so that windows cannot be opened.

The cost of this research laboratory building is $360,000. Construction along conventional lines of a multistory building constructed of brick, concrete and steel, the company figures, would be more costly.

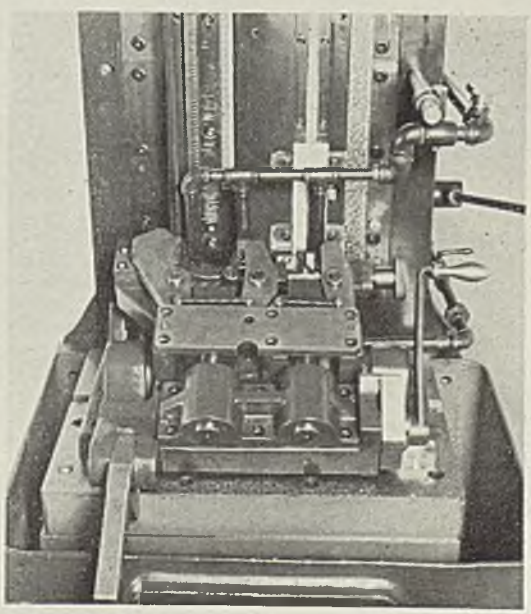
New British Tax Chart

National Defence Contribution, by Charles H. Tolley, London; supplied by STEEL, Cleveland; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

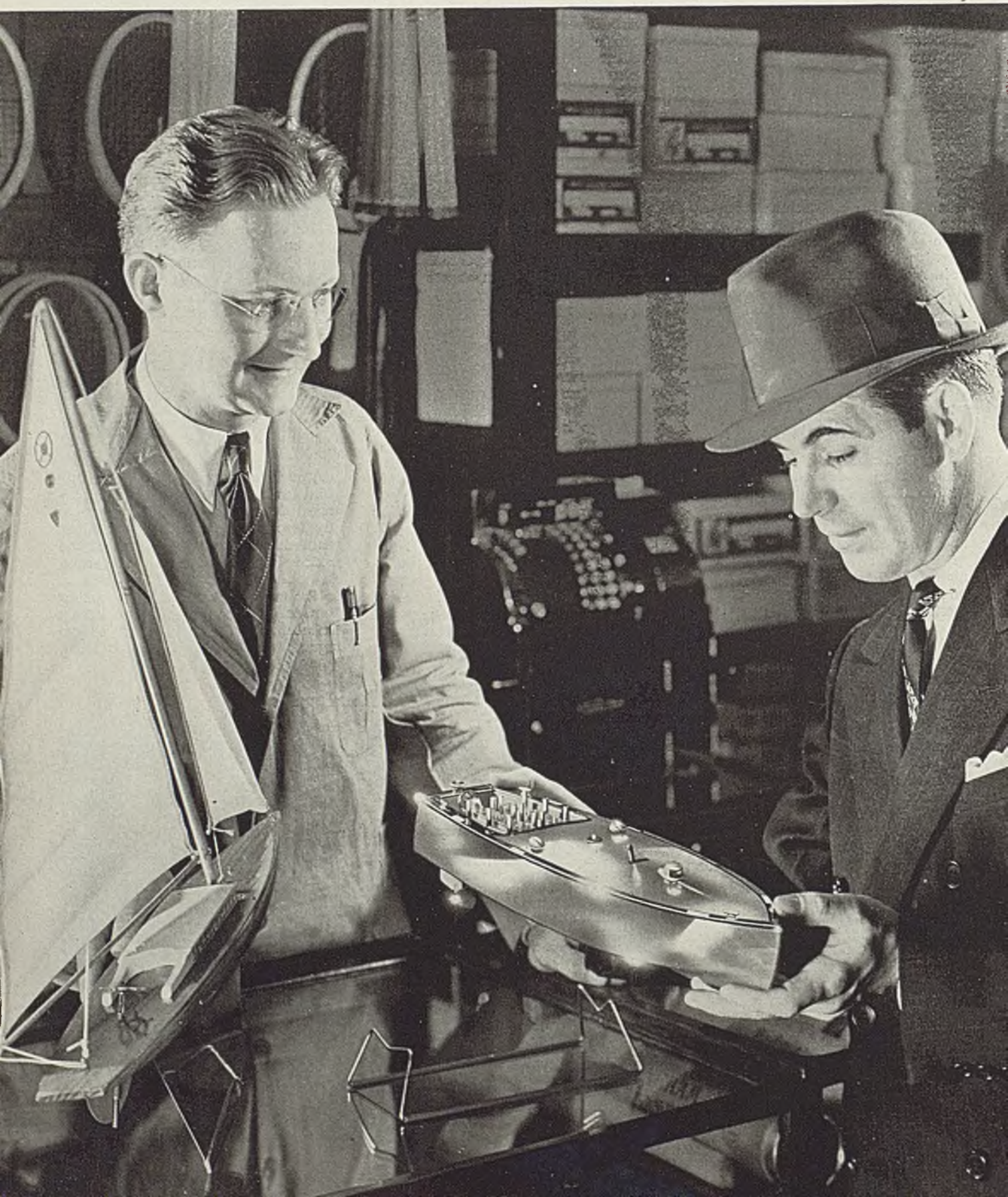
American companies having subsidiaries in Great Britain will be interested in this chart, issued as a supplement to Tolley's income tax manual. It shows provisions of the national defense contribution or industrial profits tax. This addition to the tax structure imposes further burden on all business in Great Britain and the new chart is designed to guide in its computation.

Finishes Shifter Forks

TWO sets of broaches on a single-ram Colonial Broach Co. machine completely finish the shifter forks for an automotive transmission. Illustration shows broaches raised with the fixture in the loading position. Left-hand broaches finish the inside faces of the forks; right-hand sets cut out the cross slot in the fork and finish the end face of the shifter yoke. Yokes are steel forgings and are broached from rough forging to finish with a single pass, production averaging 300 pieces per hour. Cutting stroke is 32 inches on this 36-inch stroke machine, rated at 10 tons capacity



It's the *Sparkle*



that makes the Sale!

GO home tonight and try this experiment on your young son. Offer him a new toy with a dull finish. Maybe he'll show some interest and maybe he won't.

Then offer him a new toy with a dazzling, silvery surface. Twist it a little so the sparkle catches his eye . . . and notice how quickly he reaches out for it!

From earliest childhood, there's an unmistakable tendency in humans to reach out for anything that sparkles. For the sparkle means newness, cleanliness . . . stimulates pride of ownership.

This little simple experiment illustrates the *emotional* appeal of stainless steel. But this modern metal has an equally strong *rational* appeal.

For stainless steel is much more than "stainless" and corrosion-resisting. It resists heat. It resists high unit stresses. It resists mechanical deformation. It resists abrasion. It resists shock and fatigue. It resists weathering. It resists even the ravages of time.

It is metallurgy's closest approach to the perfect metal.

There is no sounder kind of salesmanship than the salesmanship of stainless steel—an instinctive human attraction supported by outstanding technical excellence.

If you want to make more people "reach" for your product, consider making all or part of it from U·S·S Stainless Steel. In many cases, you will increase its usefulness as well as its saleability.

Our metallurgists who specialize in stainless steel will gladly consider any problem, give it laboratory study if warranted, and submit practical recommendations.

From babyhood days, it's human nature to reach instinctively for that which has a clean and brilliant sparkle . . . for where there is a sparkle, there is light and life.

That explains why inviting stainless steel attracts extra travelers to railroads, draws customers into shops, increases food checks in restaurants, helps secure tenants for buildings, sells drinks at fountains, creates interest in new kitchens, helps automobile salesmen close their sales, gives product after product a new selling advantage.

U·S·S STAINLESS STEEL

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
NATIONAL TUBE COMPANY, *Pittsburgh*

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

WELDING, ETC.

BY ROBERT E. KINKEAD

Welding Is Fertile Field for Physicists

FORCES which hold a piece of solid metal to its existing shape are the forces which are used to make a weld. When these forces disappear, as in the case in which the metal is made liquid by heat, no resistance is offered to the making of a weld.

Welds are also made at temperatures lower than are required for melting, but in this case mechanical pressure is required to accomplish the bond. At very high mechanical pressures (1,000,000 pounds per square inch) welds have been made at ordinary temperatures. With almost perfect surfaces two pieces of metal can be put together with very slight pressure and the attraction of the one for the other may be measured, although the bond is not a perfect weld as ordinarily defined.

These basic facts are about all that are known about welds. The reason for the molecular attraction under these conditions is as much a mystery as ever. Although anything that can be melted can be welded, it is not always convenient to melt metals to accomplish a weld. Breaking a metal bar and welding it together again by application of the same amount of force which was used to break the molecular bond has never been done although it seems theoretically possible.

In spite of the fact that there are in the neighborhood of a hundred different ways to weld any one metal by all the different processes and their modifications, no one knows much about precisely what happens when two molecules come close enough together to be locked into a bond which we call a weld. Here appears to be a good field for fundamental research by highly trained physicists.

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

♦ ♦ ♦

Begin at Home And Start Tomorrow

PROMINENT manufacturer of welding rods complains that while he pays higher wages and salaries than any manufacturer in his locality, in other lines the men are steadily being forced into a lower standard of living because everything they buy costs more than it did even a year ago.

If he raises prices too much, his competitors will get too much of his business and he will have to let some of his men go. If he raises wages and salaries without increased prices, he will dissipate the working capital of the business and eventually fail.

Another welding rod manufacturer suggests that they all band together and reduce wages and prices on the theory that everyone will see the advantage of doing that and follow suit, which is an optimistic thought to say the least—unless a dictatorship is contemplated. The steel producer, fabricator and machinery builder are all up against the same problem.

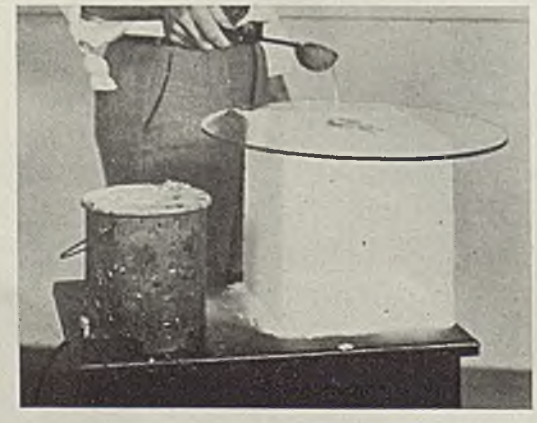
The administration professes the belief that the government can cure the situation, presumably by some method no one has thought of yet.

Our own thought in the matter is so simple and unflattering that it will be immediately rejected by most managers who are having difficulties of this nature. Pleasing solutions always involve having the other fellow stop his sins. But suppose every manufacturer started tomorrow morning to spend 2 per cent of his monthly sales trying to find out why his mechanism for making a better product and selling it for less money is not working the way it was intended to work.

Granted that everything everyone else is doing is wrong and crazy, the time seems to have come for every manufacturer to put his own house in order with reference to making a better product for less cost. It is no use to refer in the grand manner to the amount of money being spent on development and research; if the situation is getting difficult, the mechanism is simply not functioning the way it ought to.

Meeting the difficulties arising from the ascending spiral of prices means beginning at home and working with the plant and mechanism immediately available to do a better job for less money. In general, the fellow who yells the loudest about how fast the country is going to Hell is getting the least results in the direction of keeping it from going there.

New Lens Can Take It, Hot or Cold



TO demonstrate the ability of this lens to withstand sharp temperature change, molten lead is being poured on it while it rests on a cake of dry ice. Temperature differential of over 450 degrees between surfaces has no ill effect. This lens was developed by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., for use in Millite lighting units where extreme service is required, such as in steel mills. It will withstand the impact of a 1.68 pound ball dropped from a height of 7 feet

What a Foreman Should Know To Be a Success

How To Be a Good Foreman, by Charles Reitell; 186 pages; published by Ronald Press Co., New York; supplied by STEEL, Cleveland, for $1.50; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

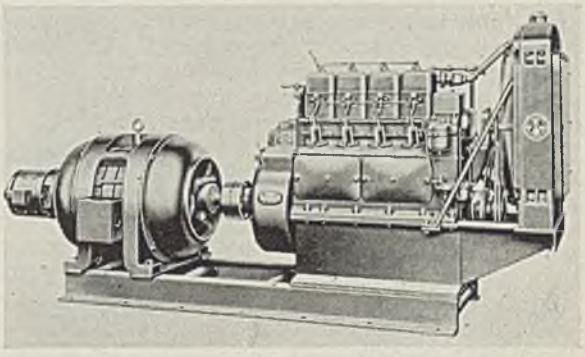
A wide variety of details which must be understood by the foreman to make progress in modern industry, is contained in this book. Since the foreman must have a mastery of the human element, a grasp of technical requirements and a knowledge and use of costs and budgetary control, the book has been divided into those three main sections. Twenty-five illustrations are included to further embellish the text.

The book may be used either for individual study or as a text and guide for foremen's classes.

NEW EQUIPMENT

Thread Grinding Machine—

Jones & Lamson Machine Co., Springfield, Vt., has announced a new automatic thread grinding machine, designed to grind threads in hard or soft material on work up to 8 inches in diameter when using a 20-inch grinding wheel. Work 48 inches long may be held between centers, and 18 inches of thread may be ground anywhere on 36 inches of work length. Work 11½ inches in diameter may be swung over the work slide and 11½-inch diameter threads may be ground when the wheel is 16½ inches in diameter, or smaller. A 20-inch diameter grinding wheel is furnished as standard, and, as the wheel decreases in size, the proper peripheral speed may be retained through rheostat control of the wheel motor. The helix angle capacity of the machine has been increased to include 25 degrees right hand and 30 degrees left hand. The helix angle is adjusted or changed by means of a worm and gear. Standard equipment includes change gears for pitches from 2 to 48 inclusive. The machine will grind single, double, triple, quadruple and sextuple threads, either right or left hand. Using a simple hardened and ground former, it will grind taper, combination of straight and taper, or double taper threads. Accurate reproduction of taper is claimed. The grinding wheel is always at right angles to the axis of the work, therefore no adjustment of thread form is required when changing from straight to taper threads, and the method of grinding taper threads makes lead compensations unnecessary. The machine, with the necessary attachments, will grind button type hobs and circular chasers without lead; it will back off, or relieve, straight or taper hobs or taps with either straight or spiral flutes. A standard attachment may also be furnished for grinding interrupted threads on straight or spiral-fluted taps.

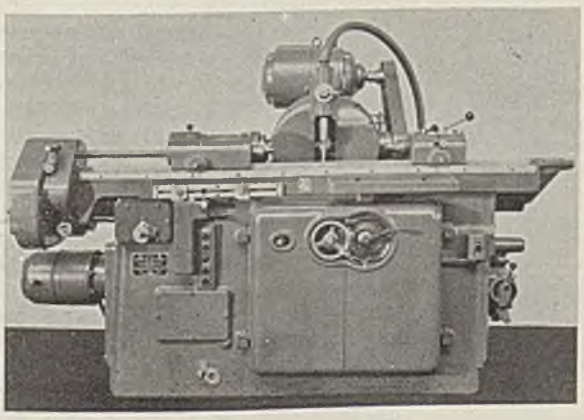


Parts for Fairbanks-Morse diesel generating sets are standardized and replacements quickly available

♦ ♦ ♦

Generating Sets—

Fairbanks, Morse & Co., Chicago, has announced a line of model 36-A diesel generating sets designed for use in industrial plants either as independent units carrying the entire load or for parallel or auxiliary operation in conjunction with other electrical service. Diesel economy and dependability are available in the new model. It is a vertical type, four-cycle, medium-high speed engine employing mechanical fuel injection. Design permits easy inspection and servicing. Parts are standardized and replacements quickly available, each set being built in its entirety by the one company. Design features include integral combustion chamber said to provide an exceptionally high degree of turbulence, two piece connecting rod with precision cadmium silver bearing shells, and large water spaces to assure uniform cooling of cylinder liner and effective lubrication. Oversize precision bearings are accessible from above through large openings in the upper base. Crankshaft is rigidly supported on heavy cast bridges in the lower base. Additional features include individual cylinder heads, convenient speed control, full automatic pressure lubrication, removable cylinder liners, ball bearing governor and individual injection pumps with short connections to nozzles. Alternating-current sets are available in ratings from 5.3 to 100 kilovolt-amperes and direct-current sets from 5 to 80 kilowatts.



Automatic machine grinds threads in hard or soft material on work up to 8-inch diameter, using 20-inch wheel

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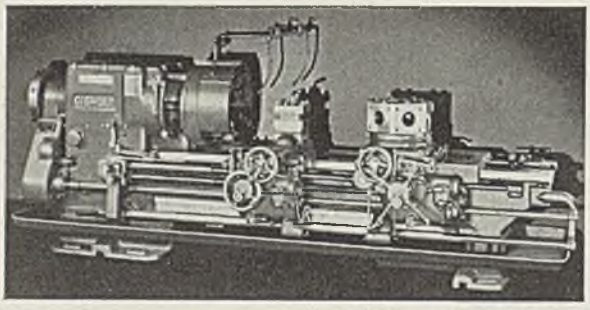
Turret Lathes—

Gisholt Machine Co., Madison, Wis., has announced improved Gisholt 3AL, 4L and 5L heavy duty



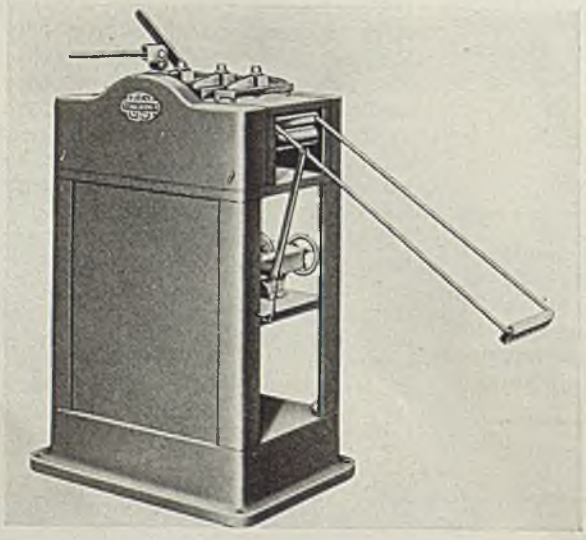
Gisholt improved heavy duty turret lathes are available in three sizes

turret lathes available in three sizes ranging from 6 to 12-inch bar capacity and 21 to 32-inch chucking capacity. Bed and headstock are cast in one piece from nickel semi-steel, and bed ways are of steel, hardened and ground in place. New 12-speed transmission is of sliding gear construction and has a normal speed range of 12 to 220 revolutions per minute for the 3AL and 8 to 142 revolutions per minute for the 4L and 5L. Speeds are arranged in geometric progression. Spindle is mounted on twin tapered roller bearings at the front and a straight roller bearing at the rear. An automatic multiple disk spindle brake stops the spindle quickly when the clutch lever is placed in neutral position. All gear shafts and bearings run in oil bath and spindle bearings are continually fed clean oil from a catch reservoir. Feeds and rapid traverse are controlled at each carriage entirely independent of each other. The eight reversible feeds are selected at the aprons and range in arithmetical progression from 0.008 to 0.250-inch. With the change gears provided, this range may be varied from a fine range of 0.004 to 0.125-inch to a coarse range of 0.016 to 0.500-inch, providing a total of 64 available feeds. Feeding is accomplished through accurately-cut lead screws for each carriage and the feeds provided permit cutting all U. S. standard threads from 2 to 32, including the 11½; special change gears may be provided for special threads. Mutiple V-belt motor drive is standard, with the motor mounted on the headstock. Depending on speed of operation or type of work, power for the 3AL is 15 to 25 horsepower and for the 4L and 5L, 25 to 40 horsepower.

♦ ♦ ♦

Power-Driven Straightener—

U. S. Tool Co., Ampere, East Orange, N. J., is manufacturing a power-driven straightener for heavy coiled stock. On the new unit all rollers are equipped with needle bearings. Roll adjustment is simple and automatic, and rolls are always parallel. A new coil of stock may be inserted without disturbing the setting of the straightening rolls. Single movement of the operating lever releases feed rolls to start a new coil. When used with the company's automatic coil cradle and the slide feed, stock can be automatically removed from coils, straightened and fed in accurate lengths to the punch press. The new unit can also be used in conjunction with the U. S. plain stock straighteners for handling thin, springy material. Power-driven straighteners are built in a number of sizes to handle stock up to ¼-inch thick. Units can be furnished to handle any width stock. Having a variable speed drive, units are Mercoid switch controlled and operate intermittently to synchronize with the punch press feeds.

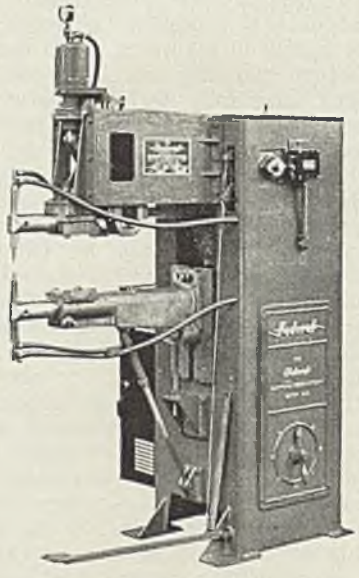


U. S. power-driven straighteners are built in a number of sizes to handle stock up to ¼-inch thick

♦ ♦ ♦

Spot Welders—

Federal Machine & Welder Co., 212 Dana avenue, Warren, O., has brought out a new line of press type spot welders known as the P-1 series. They are built in six different capacities, from 20 to 75 kilovolt-amperes inclusive and with three different types of pressure device—direct air, direct cam, and air and toggle types. This latter type is shown in the illustration equipped with standard horns and water cooled electrodes, but universal type horns can be furnished when required, with electrodes at any angle up to 30 degrees. Horns can be adjusted in and out for point alignment and can be rotated or swiveled, setting the electrodes at an angle in order to weld in corners. The lower horn socket is adjustable to the right or left to facilitate the use of offset points when required, and is also adjustable up and down approximately 8 inches by means of a jack screw to accommodate the large size work. It is also further supported by an adjustable brace to take up the pressure. All of these welders have 8 point regulator switches for varying the secondary voltage and current to suit the particular work at hand. The welder is operated by means of a foot pedal which trips the clutch, which in turn controls the gear train. This gear train consists of a fractional horsepower motor, Reeves Vari-Speed transmission giving 3 to 1 ratio speed, worm gear and pitman which in turn operates the toggle device. The toggle de-



Air and toggle type welder is one of the new Federal P-1 series of welders

vice is cushioned by means of an air cylinder which insures uniform pressure at all times and also prevents hammering at the points. When the foot lever is depressed and released quickly, the welder goes through one cycle to make one spot weld. When the foot lever is down, the welder will continue to operate until the clutch is released again. The welder is operated electrically by means of a fan type cam on the end of the drive shaft which operates the limit switch, which in turn operates the contactor panel or control or timer as the case may be.

♦ ♦ ♦

Centrifugal Pumps—

Logansport Machine Inc., Logansport, Ind., recently has introduced a new line of Logan Sure Flow centrifugal pumps. These units are inherently self-priming, no part of the pump need be submerged, and accessories such as auxiliary priming reservoir, foot or check valves are not needed. The impeller is semi-scavenging in action and this, with design of the liquid chamber and passages, accounts for the suction lift developed. The pumps will handle liquids under temperatures up to the boiling point as well as safely handle liquids charged with abrasives, chips, filings and many corrosive impurities. Drive shaft and bearings are protected from the liquid by lifetime rotary seals. Units are simple, compact, self-contained and said to be unusually small in any given capacity. They are made in ten sizes, ranging from 4 to 150 gallons per minute capacity, and are available in three types of drive—direct motor power, stub shaft adapter for vertical power take-off, and belt driven. There are three mounting styles—standard horizontal base, vertical mounting bracket, and flange type base for close mounting on a vertical plane.

Logan Sure Flow pumps are self-priming and no part need be submerged

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Recording Thermometers—

Foxboro Co., Foxboro, Mass., has introduced a line of indicating and recording thermometers incorporating improvements in design, construction and operating characteristics. Known as Mono-therm thermometers, these instruments employ a thermal system providing a complete permanent seal for the actuating medium. Entire system is either welded or braised so it becomes an integral piece of metal, construction claimed to reduce to a minimum any possibility of leaky joints which would affect accuracy. A tight thermal system is assured in face of mechanical shocks, continued vibration and overrange temperatures. This construction is being applied at present to Foxboro thermometers of the vapor-pressure, gas-filled and liquid-filled types. With a new extra overrange protection being provided, the liquid-filled

instrument can be protected against an overrange up to a maximum of 500 degrees Fahr. Gas-filled instrument can be protected against an overrange of 100 per cent up to 1000 degrees Fahr. Vapor-pressure type can be protected for a 100 per cent overrange to the breakdown point of the actuating medium.

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Indicating Papers—

Udylite Co., Detroit, is manufacturing pH Indicator Papers used for determining the pH of plating solutions at the tank in as little as five seconds time. Papers are graded for pH range, and require no technical knowledge to read or understand. They consist of strips of a special paper, impregnated with a highly sensitized indicator and a scale of color bars, each bar being of a different color and having a definite pH value. When the strip is dipped into the solution the indicator will change color. By comparing the color of the indicator with the colors of the color bars, the pH value of the solution can easily be ascertained. In use, a test paper of the desired pH range is selected, dipped for a second in the solution, held to the light and the correct pH reading is instantly obtained by color comparison. The papers are also adaptable for determining the pH of alkaline cleaners, a method favored to maintain maximum cleaning efficiency. Cleaners are compounded to give the desired pH and such emulsifying agents are employed which reach the maximum efficiency within the predetermined pH range. It is claimed that tests conducted by outstanding electro-chemists prove pH test papers to be very accurate. Indicator Papers come packed 200 in a box and can be carried in the pocket or kept in a convenient place near plating solutions ready for instant use. They do not deteriorate or lose effectiveness in giving correct pH readings over long periods of intermittent use.

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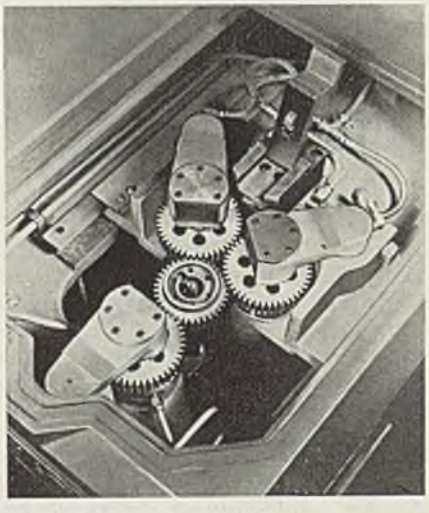
Gear Burnisher—

Cimatool Co., Dayton, O., has announced a new Bolender burnishing machine for improving and truing up the surfaces of gear teeth. Characteristics of the new unit are said to be the ease and speed of both set-up and change-over, production speed, control of pressure between gears, range of pressures available, and accuracy in alignment between master burnishers and work gears. Cone worm drive, forced feed lubrication to all bearings, combined timing and reversing mechanism and horizontal mounting of master burnishing gears are among additions and rearrangements of mechanical elements in the redesigning. Others include taper Timken roller bearings throughout, special V-belt drive, mechanism for quickly mounting master burnishers, convenient hydraulic adjustment and control, and new dual push-button control. The units accepts gears of 1¼ to 20-inch diameters.



Bolender gear burnishing machine is a product of Cimatool Co., Dayton, O.

Largest Battery Built for Electric Industrial Trucks

(*Concluded from Page* 48)

Its capacity is 33 kilowatt hours, almost twice that of an 18-cell unit of the Exide TLM-21 type, which is the largest size of the latter which can be assembled in the same space as the new battery.

Steel tray assembly permits quick changes in double-shift service through the use of duplicate batteries, as the tray can be either rolled or lifted readily from the truck, when one battery is discharged, and a freshly charged unit installed in its place.

It is said that the battery has power sufficient to propel the largest electric truck through a full day's operation on one charge.

THIS package conveyor, installed recently in the plant of the Commercial Solvents Corp., Peoria, Ill., was designed to do a special job, namely, to handle packages and cartons containing empty quart or gallon cans. Built by the Lamson Co. Inc., Syracuse, N. Y., it has a rise of 12 feet 4 inches at an incline of 30 degrees and is equipped with a belt specially developed by the B. F. Goodrich Co., Akron, O., for handling packages, cartons and boxes in inclined conveyors. This belt has a cover consisting of a series of small rubber fingers to the number 3000 in every square foot of surface. Great frictional resistance is provided by the belt surface and no slippage results despite light weight of packages and steepness of the incline

RECENT PUBLICATIONS OF MANUFACTURERS

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

Turret Lathes—Gisholt Machine Co., Madison, Wis., has issued a new catalog to illustrate and describe the Gisholt improved 3AL, 4L and 5L heavy duty turret lathes.

Compressors—Chicago Pneumatic Tool Co., 6 East 44th street, New York, has issued bulletin No. 762 covering portable and stationary compressors of new design.

Carburizing Furnace — Hevi Duty Electric Co., Milwaukee, has published a sixteen page bulletin illustrating and describing the Hevi Duty carburizing furnace.

Unit Heater—Dravo Corp., Dravo building, Pittsburgh, has issued a new catalog describing the Lee direct-fired unit heater and showing installations in industrial plants.

Lock Screws—Dardelet Threadlock Corp., 55 Liberty street, New York city, has issued bulletin No. 17 dealing with Dardelet self-locking cap and set screws.

Welded Piping — Linde Air Products Co., 205 East 42nd street, New York, discusses, in an illustrated booklet, the advantages of welded joints in installing piping.

Saws—Pittsburgh Tool-Knife & Mfg. Co., 209 Ninth street, Pittsburgh, has issued a 16-page catalog on Pittsburgh inserted tooth saws and outlines in actual size the eight tooth sizes, giving specifications.

Tool Salvaging — Eastern Cutter Salvage Corp., 30 Littleton avenue, Newark, N. J., is distributing a new 40-page catalog illustrating and describing tool salvaging and hard chrome plating.

Potentiometer—Weston Electrical Instrument Corp., Newark, N. J., has released a bulletin containing a general and a technical description of its new model 721 photoelectric potentiometer.

Midget Welder — Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued a catalog section dealing with the new Midget Marvel Flexarc alternating-current welder.

Controllers — Foxboro Co., Foxboro, Mass., is offering three new bulletins on controllers. Bulletin 202-1 covers potentiometer controllers, 184-2 is on Rotax controllers and 205 deals with air-operated controllers.

Packing Braiders—Fidelity Machine Co., 3908 Frankford avenue, Philadelphia, has issued an 18-page, wire-bound booklet illustrating and describing its line of packing braiding machines.

Recorders, Meters—Esterline-Angus Co., Indianapolis, Ind., has issued "Solving Industrial Crimes, Case No. 17," booklet dealing with Esterline-Angus graphic instruments.

Wire Cloth — Cambridge Wire Cloth Co., Cambridge, Md., has published a large loose-leaf catalog dealing with wire cloth and wire screen and including specifications and prices.

Pipe Line Equipment—American Steel Works, Kansas City, Mo., has published catalog No. 20 covering pipe line equipment and including heating kettles, oil burning units, bending shields and boiler parts.

Fire Extinguishers—Walter Kidde Co., 60 West street, Bloomfield, N. J., has printed a booklet on Lux fire extinguishing equipment. Typical installations are illustrated and operation of the Lux system explained.

Pipe Repair — M. B. Skinner Co., South Bend, Ind., has issued a pipe repair handbook illustrating and describing Skinner-Seal pipe repairing equipment and the respective cases in which it is used.

Meters — Roots-Connersville Blower Corp., Connersville, Ind., has published bulletin 40-B-12 on rotary displacement meters, describing general operating principles as well as listing meters for smaller volumes than in previous bulletins.

Cranes — Industrial Brownhoist Corp., Bay City, Mich., has issued a booklet on its line of diesel and gasoline locomotive cranes of 10 to 50-ton capacity. Uses are illustrated and important features of construction described.

Grinders — Kling Bros. Engineering Works, 1300 North Kostner avenue, Chicago, has issued bulletin No. 837, which describes and illustrates the T series, highspeed, heavy-duty grinders, including the AT grinder with wheel wear compensator.

Oil Well Drilling — Caterpillar Tractor Co., Peoria, Ill., has issued a booklet on the subject of oil well drilling, giving specific examples of Caterpillar diesels powering rotary rigs, cable tool rigs and spudders.

Electrical Equipment — Janette Manufacturing Co., 556 West Monroe street, Chicago, is distributing a folder listing and illustrating the Janette line of motors, speed reducers, generators, rotary converters and blowers.

Die Making Machine—Hack Machine Co., 440 North Oakley boulevard, Chicago, has issued a catalog on the new Hack die making machine and explaining its fifteen short cuts to faster tool and die making.

Friction Clutches—Link-Belt Co., 307 North Michigan avenue, Chicago, has completed sixteen-page illustrated list price catalog No. 1532 on friction clutches. Besides specifications and other data on Meeseco and Twyncone clutches, the booklet tells how to select and order the proper clutches.

Diesel-Electric Power — Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued an illustrated publication showing methods of manufacture and outstanding features of Westinghouse electrical equipment for diesel-electric motive power.

Combustion and Control—Hays Corp., Michigan City, Ind., is mailing a circular dealing with Hays combustion instruments, particularly in regard to a recent municipal lighting plant installation. Also issued is a new price list of instruments.

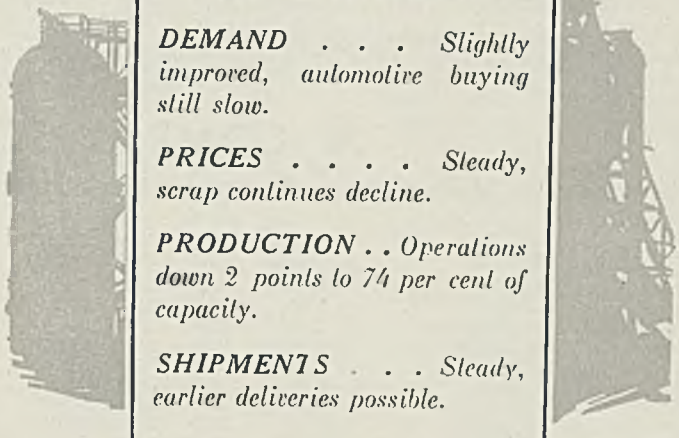
Turbo-Generators — Allis-Chalmers Mfg. Co., Milwaukee, Wis., has announced illustrated bulletin No. 1180 covering condensing reaction type, turbo-generator units of 1500 to 5000 kilowatt capacity. The bulletin treats both turbine and generator construction in considerable detail.

Commutator Resurfacing — Ideal Commutator Dresser Co., 1005 Park avenue, Sycamore, Ill., is mailing a folder illustrating and describing the many Ideal products, including commutator and slip ring resurfacers, precision grinders, tank type cleaners and undercutters.

Steel — United States Steel Corporation subsidiaries, 434 Fifth avenue, Pittsburgh, have completed a large, 68-page, spiral bound, booklet on Cor-Ten, high strength, corrosion resisting steel. The booklet comprises illustrations, tables and factual data, applications and fabricating technique.

Look to October for Revival in Steel Buying

Auto Output Gains; Scrap Market Weak; Backlogs Are Low



MARKET IN TABLOID

DEMAND . . . Slightly improved, automotive buying still slow.

PRICES . . . . Steady, scrap continues decline.

PRODUCTION . . Operations down 2 points to 74 per cent of capacity.

SHIPMENTS . . . Steady, earlier deliveries possible.

STEELMAKERS entered October with a fair volume of incoming business and confidence for improved demand during the month.

Although September's aggregate tonnage fell well below earlier expectations, and backlogs are considerably lighter than a month ago, several reassuring factors are noted. Foremost among these is the certainty the automotive industry soon must start buying in large quantities as 1938 model assemblies increase. To date automotive buying has been delayed by the longer than usual run on 1937 models, and in some instances by difficulties in obtaining new dies and equipment. Practically all automobile builders now are in production of 1938 models.

Consistently bright is the outlook for farm implement and equipment builders. Apparently unaffected by the post-Labor day flurry, these manufacturers' operations have held up better than those of any other important steel consuming industry and promise to continue active well into the fourth quarter.

Export inquiry remains good in most lines, such as sheets, tin plate, bars, tubular goods and semifinished steel. In addition a fairly large inquiry for pig iron has appeared at Pittsburgh.

Dwindling backlogs and only slight improvement in new business has caused downward adjustment in operations, the national operating rate falling 2 points to 74 per cent of capacity. Pittsburgh dropped 2 points to 71 per cent, Chicago 4 points to 75.5, Youngstown 5 to 65, Eastern Pennsylvania 3 to 60, New England 10 to 65 and St. Louis 10 to 64. Cleveland made the only gain, 3 points to 67 per cent. Unchanged were Wheeling at 82, Buffalo at 74, Birmingham, Ala., at 83, Detroit at 100 and Cincinnati at 89.

Railroad car builders have light backlogs and a not too promising outlook for new business. Earnings continue to make an unfavorable comparison with last year and carloadings are not measuring up to earlier expectations. Disposition of the wage and freight rate questions would help clear the way for contemplated equipment and track material buying. Rail inquiries should appear in October, although these may be delayed. Rolling of such tonnages, of course, would fall largely into next year.

Scrap prices continue to decline, falling from $1 to $2 in practically every market. In many centers this was a corrective movement to adjust artificially high nominal quotations following recessions at Chicago and Pittsburgh. Demand is light and the lower prices have been confirmed by small lot sales. Railroad lists which will close soon are expected to indicate whether the market has reached a temporary bottom.

With the deadline on contract tin plate shipments now past, operations of tin plate mills are likely to decline slowly except in cases of mills affected by labor trouble last summer. In order to complete shipments, hot mills in some districts have been working 18 turns a week.

September pig iron production totaled 3,418,108 tons, 5.5 per cent less than the 3,616,954 tons produced in August, the high month of the past eight years. September's daily rate was 113,937 tons, 2.3 per cent under the rate in August, 116,676 tons. Eight less stacks were active in September than in August when 191 were in blast. For nine months this year, output totaled 30,306,756 tons, an increase of 40.2 per cent over the 21,615,776 tons prodced in the first nine months of 1936.

Automobile assemblies last week totaled 44,330, compared with 28,030 the preceding week, low mark for the model change season. Chrysler produced 15,050 units, against 3075 the week before; General Motors gained 1500 with 15,500 units; independent builders had 13,780, compared with 10,955 the preceding week. Ford remained closed.

Further declines in all markets have caused STEEL'S scrap composite to drop 66 cents to $17.17. This is near the level at the end of June and almost $5 under the high point in April. Weakness in scrap reduced the iron and steel composite 17 cents to $39.81. Finished steel composite is unchanged at $61.70.

COMPOSITE MARKET AVERAGES

	Oct. 2	Sept. 25	Sept. 18	One Month Ago Sept., 1937	Three Months Ago July, 1937	One Year Ago Oct., 1936	Five Years Ago Oct., 1932
Iron and Steel	$39.81	$39.98	$40.19	$40.16	$40.03	$34.67	$28.80
Finished Steel	61.70	61.70	61.70	61.70	61.70	53.90	47.64
Steelworks Scrap ..	17.17	17.83	19.08	18.99	18.51	16.44	6.96

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

	Oct. 2, 1937	Sept. 1937	July 1937	Oct. 1936
Steel bars, Pittsburgh	2.45c	2.45c	2.45c	2.05c
Steel bars, Chicago	2.50	2.50	2.50	2.10
Steel bars, Philadelphia	2.74	2.74	2.74	2.36
Iron bars, Terre Haute, Ind.	2.35	2.35	2.35	1.95
Shapes, Pittsburgh	2.25	2.25	2.25	1.90
Shapes, Philadelphia	2.45½	2.45½	2.45½	2.11½
Shapes, Chicago	2.30	2.30	2.30	1.95
Tank plates, Pittsburgh	2.25	2.25	2.25	1.90
Tank plates, Philadelphia	2.43½	2.43½	2.43½	2.09
Tank plates, Chicago	2.30	2.30	2.30	1.95
Sheets, No. 10, hot rolled, Pitts.	2.40	2.40	2.40	1.95
Sheets, No. 24, hot ann., Pitts.	3.15	3.15	3.15	2.60
Sheets, No. 24, galv., Pitts.	3.80	3.80	3.80	3.20
Sheets, No. 10, hot rolled, Gary	2.50	2.50	2.50	2.05
Sheets, No. 24, hot anneal., Gary	3.25	3.25	3.25	2.70
Sheets, No. 24, galvan., Gary	3.90	3.90	3.90	3.30
Plain wire, Pittsburgh	2.90	2.90	2.90	2.50
Tin plate, per base box, Pitts.	$5.35	$5.35	$5.35	$5.25
Wire nails, Pittsburgh	2.75	2.75	2.75	2.05

Semifinished Material

Sheet bars, open-hearth, Youngs.	$37.00	$37.00	$37.00	$32.00
Sheet bars, open-hearth, Pitts.	37.00	37.00	37.00	32.00
Billets, open-hearth, Pittsburgh	37.00	37.00	37.00	32.00
Wire rods, No. 5 to ⅝-inch, Pitts.	47.00	47.00	47.00	40.00

Pig Iron

	Oct. 2, 1937	Sept. 1937	July 1937	Oct. 1936
Bessemer, del. Pittsburgh	$25.26	$25.26	$25.26	$20.8132
Basic, Valley	23.50	23.50	23.50	19.00
Basic, eastern del. East. Pa.	25.26	25.26	25.26	20.81
No. 2 fdy., del. Pittsburgh	25.21	25.21	25.21	20.3132
No. 2 fdy., Chicago	24.00	24.00	24.00	19.50
Southern No. 2, Birmingham	20.38	20.38	20.38	15.50
Southern No. 2, del. Cincinnati	23.69	23.69	23.69	19.44
No. 2 X eastern, del. Phila.	26.135	26.135	26.135	21.68
Malleable, Valley	24.00	24.00	24.00	19.50
Malleable, Chicago	24.00	24.00	24.00	19.50
Lake Sup., charcoal, del. Chicago	30.04	30.04	30.04	25.7528
Gray forge, del. Pittsburgh	24.17	24.17	24.17	19.6741
Ferromanganese, del. Pittsburgh	107.29	107.29	107.29	80.13

Scrap

Heavy melting steel, Pittsburgh	$17.75	$20.40	$19.40	$18.15
Heavy melt. steel, No. 2 East Pa.	15.75	16.69	18.00	13.95
Heavy melting steel, Chicago	15.75	17.85	17.05	16.25
Rails for rolling, Chicago	18.75	20.35	20.30	16.95
Railroad, steel specialties, Chicago	20.25	20.50	20.20	17.75

Coke

Connellsville, furnace, ovens	$4.40	$4.45	$4.50	$4.00
Connellsville, foundry, ovens	5.25	5.25	5.30	4.25
Chicago, by-product foundry, del.	11.00	11.00	11.00	9.75

Steel, Iron, Raw Material, Fuel and Metals Prices

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

Sheet Steel

Prices Subject to Quantity Extras and deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

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

Hot Rolled Annealed No. 24

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

Galvanized No. 24

Pittsburgh	3.80c
Gary	3.90c
Chicago, delivered	3.93c
Philadelphia, del.	4.09c
New York, delivered	4.13c
Birmingham	3.95c
St. Louis, del.	4.03c
Granite City, Ill.	4.00c
Pacific ports, f.o.b. dock	4.40c

Tin Mill Black No. 28

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

Cold Rolled No. 10

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

Cold Rolled No. 20

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

Enameling Sheets

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

Tin and Terne Plate

Gary base, 10 cents higher

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

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

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

Straight Chromes

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

Steel Plate

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

Structural Shapes

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

Bars

Soft Steel

(Base, 3 to 25 tons)

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

Rail Steel

To Manufacturing Trade

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

Iron

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

Reinforcing

New billet, straight lengths, quoted by distributors

Pittsburgh	2.55c
Chicago, Gary, Buffalo, Cleve., Birm., Young.	2.60c
Gulf ports	2.65c
Pacific coast ports, f.o.b. car docks	2.95c
Philadelphia, del.	2.84c

Rail steel, straight lengths, quoted by distributors

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

Wire Products

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

Base Pitts.-Cleve. 100 lb. keg.

Standard wire nails	$2.75
Cement coated nails	$2.75

(Per pound)

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

To Manufacturing Trade

Plain wire, 6-9 ga.	2.90c

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

Spring wire, Pitts. or Cleveland	3.50c

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

Cold-Finished Carbon Bars and Shafting

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

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

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons*)

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

Alloy	Diff.	Alloy	Diff.
S.A.E.		S.A.E.	
2000	0.35	3100	0.70
2100	0.75	3200	1.35
2300	1.55	3300	3.80
2500	2.25	3400	3.20
4100	0.15 to 0.25 Mo.		0.55
4600	0.20 to 0.30 Mo. 1.50-2.00 Ni.		1.10
5100	0.80-1.10 Cr.		0.45
5100	Cr. spring		0.15
6100	bars		1.20
6100	spring		0.85
Cr. N., Van			1.50
Carbon Van.			0.85
9200	spring flats		0.15
9200	spring rounds, squares		0.40

Piling

Pittsburgh	2.60c
Chicago, Buffalo	2.70c

Strip and Hoops

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

Hot strip to 23¾-in. Pittsburgh	2.40c
Chicago or Gary	2.50c
Birmingham base	2.55c
Detroit, del.	2.60c
Philadelphia, del.	2.69c
New York, del.	2.73c
Cooperage hoop, Pittsburgh	2.50c
Chicago	2.60c
Cold strip, 0.25 carbon and under, Pittsburgh, Cleveland	3.20c
Detroit, del.	3.40c
Worcester, Mass.	3.40c

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

Rails, Track Material

(Gross Tons)

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

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

Bolts and Nuts

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

Carriage and Machine

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

Plow Bolts

All sizes	65-5 off

Stove Bolts

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

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

Nuts

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

Hexagon Cap Screws

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

Square Head Set Screws

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

Rivets, Wrought Washers

Structural, Pittsburgh, Cleveland	3.60c
Structural, Chicago	3.70c
⅝-inch and smaller, Pitts., Chi., Cleve.	65-5 off
Wrought washers, Pitts., Chi., Phila. to jobbers and large nut, bolt mfrs. l.c.l. $5.40; c.l. $5.75 off	

Cut Nails

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

Welded Iron, Steel Pipe

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

Butt Weld

In.	Blk.	Galv.
Steel		
⅛	59½	49
¼	62½	53
1—3	64½	55½
Iron		
¾	26	8
1—1¼	30	14
1½	34	16½
2	33½	16

Lap Weld

Steel		
2	57	47½
2½—3	60	50½
3½—6	62	52½
7 and 8	61	50½
9 and 10	60½	50
Iron		
2	26½	10
2½—3½	27½	12½
4	29½	16
4½—8	28½	15
9–12	24½	10

Line Pipe

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

Butt Weld

	Blk.	Galv.
Iron		
¾	25	7
1 and 1¼	29	13
1½	33	15½
2	32½	15
Lap Weld		
1½	23½	7
2	25½	9
2½ to 3½	26½	11½
4	28½	15
4½ to 8	27½	14
9 to 12	23½	9

Boiler Tubes

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

Lap Weld

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

Seamless

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

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

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

Class A Pipe $3 over Class B.

Stnd. fitgs., Birm., base	$100.00

Semifinished Steel

Billets and Blooms

4 x 4-*inch base; gross ton*

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

Forging Billets

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

Pitts., Chicago, Buffalo	43.00
Forging, Duluth	45.00

Sheet Bars

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

Slabs

Pitts., Chicago, Cleveland, Youngstown	37.00

Wire Rods

Pitts., Cleve., No. 5 to ⅝-inch incl.	47.00
Do., over ⅝ to 13/16-inch incl.	52.00

Chicago up $1; Worcester up $2.

Skelp

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

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$4.35- 4.50
Connellsville, fdry.	5.00- 5.50
Connell. prem. fdry.	6.00- 6.50
New River fdry.	6.50- 6.75
Wise county fdry.	5.75- 6.00
Wise county fur.	4.75- 5.00

By-Product Foundry

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

Coke By-Products

Spot, gal. Producers' Plants

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

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

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

Eastern Plants, per lb.

Naphthalene flakes and balls, in bbls. to jobbers	7.25c
Per ton, bulk, f.o.b. oven or port	
Sulphate of ammonia	$28.50

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.	Malleable	Basic	Bessemer
Bethlehem, Pa.	$25.00	$25.50	$23.50	$26.00
Birdsboro, Pa.	25.00	25.50	24.50	26.00
Birmingham, Ala.‡	20.38	.....	19.38	25.00
Buffalo	24.00	24.50	23.00	25.00
Chicago	24.00	24.00	23.50	24.50
Cleveland	24.00	24.00	23.50	24.50
Detroit	24.00	24.00	23.50	24.50
Duluth	24.50	24.50	.....	25.00
Erie, Pa.	24.00	24.50	23.50	25.00
Everett, Mass.	25.75	26.25	25.25	26.75
Hamilton, O.	24.00	24.00	23.50	.....
Neville Island, Pa.	24.00	24.00	23.50	24.50
Provo, Utah	22.00	.....	.....	.....
Sharpsville, Pa.	24.00	24.00	23.50	24.50
Sparrows Point, Md.	25.00	.....	24.50	.....
Swedeland, Pa.	25.00	25.50	24.50	26.00
Toledo, O.	24.00	24.00	23.50	24.50
Youngstown, O.	24.00	24.00	23.50	24.50

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

Delivered from Basing Points:

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

†Over 0.70 phos.

Low Phos.

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

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

Silvery†

Jackson county, O., base: 6-6.50 per cent $28.50; 6.51-7—$29.00; 7-7.50—$29.50; 7.51-8—$30.00; 8-8.50—$30.50; 8.51-9—$31.00; 9-9.50—$31.50; Buffalo $1.25 higher.

Bessemer Ferrosilicon†

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

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

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

Refractories

Per 1000 f.o.b. Works, Net Prices

Fire Clay Brick

Super Quality

Pa., Mo., Ky.	$64.60

First Quality

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

Second Quality

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

Ohio

First quality	43.70
Intermediate	39.90
Second quality	35.15

Malleable Bung Brick

All bases	$59.85

Silica Brick

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

Ladle Brick

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

Dry press	$30.00
Wire cut	$28.00

Magnesite

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

Base Brick

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

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

Fluorspar, 85-5

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

Ferroalloys

Dollars, except Ferrochrome

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

†Carloads. Quan. diff. apply

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper, Electro, del. Conn.	Copper, Lake, del. Midwest	Copper, Casting, refinery	Straits Tin, New York Spot	Straits Tin, New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 99%	Antimony American Spot, N. Y.	Nickel Cathodes
Sept. 25	14.00	14.12½	13.75	57.87½	57.12½	6.25	6.10	7.25	20.00	17.25	35.00
Sept. 27	13.00	13.12½	12.75	57.50	56.87½	6.00	5.85	7.25	20.00	17.25	35.00
Sept. 28	13.00	13.12½	12.75	57.87½	57.20	6.00	5.85	7.25	20.00	17.25	35.00
Sept. 29	12.00	13.12½	11.75	55.62½	55.00	6.00	5.85	6.50	20.00	17.25	35.00
Sept. 30	12.50	13.12½	11.75	55.62½	55.25	6.00	5.85	6.50	20.00	17.37½	35.00
Oct. 1	12.50	13.12½	12.50	56.50	55.87½	6.00	5.85	6.50	20.00	17.37½	35.00

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 14.00c Conn. copper

Sheets

Yellow brass (high)	19.75
Copper, hot rolled	21.87½
*Lead, cut to jobbers	9.75
Zinc, 100-lb. base	12.25

Tubes

High yellow brass	22.50
Seamless copper	22.62½

Rods

High yellow brass	16.25
Copper, hot rolled	18.62½

Anodes

Copper, untrimmed	19.12½

Wire

Yellow brass (high)	20.00

OLD METALS

Nom. Deal, buying prices

No. 1 Composition Red Brass

*New York	8.00-8.25
*Cleveland	8.75-9.00
*Chicago	8.75-9.00
St. Louis	8.50-8.75

Heavy Copper and Wire

*New York, No. 1	10.25-10.50
*Cleveland, No. 1	10.25-10.50
*Chicago, No. 1	10.75-11.00
St. Louis, No. 1	10.50-10.75

Composition Brass Borings

*New York	7.50-7.75

Light Copper

*New York	8.25-8.50
*Cleveland	8.25-8.50
*Chicago	8.75-9.00
St. Louis	8.75-9.00

Light Brass

Cleveland	5.25-5.50
Chicago	5.75-6.00
St. Louis	5.25-5.50

Lead

*New York	5.50
*Cleveland	5.00-5.25
*Chicago	5.25-5.37½
*St. Louis	4.75-5.00

Zinc

New York	4.25- 4.50
Cleveland	3.75- 4.00
St. Louis	4.00- 4.25

Aluminum

Borings, Cleveland	9.75-10.00
*Mixed cast, Cleve.	13.25-13.50
Clips, soft, Cleve.	15.25-15.50
Mixed cast, St. L.	12.75-13.00

SECONDARY METALS

*Brass, ingot, 85-5-5-5, lcl,	13.75
Stand. No. 12 alum.	18.50

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

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

IRON BARS

Portland	3.50c
Chattanooga	4.21c
Baltimore*	3.25c
Cincinnati	4.05c
New York‡ (d)	3.65c
Philadelphia	4.00c
St. Louis	4.09c
Tulsa	3.35c

REINFORCING BARS

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

SHAPES

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

PLATES

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

NO. 10 BLUE

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

NO. 24 BLACK

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

NO. 24 GALV. SHEETS

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

BANDS

Baltimore	4.20c
Boston††	4.25c
Buffalo	4.22c
Chattanooga	4.41c
Cincinnati	4.25c
Cleveland	4.16c
Chicago	4.10c
Detroit, ⅛-in. and lighter	4.185c
Houston	3.35c
Los Angeles	4.80c
Milwaukee	4.21c
New Orleans	4.75c
New York‡ (d)	4.32c
Philadelphia	4.10c
Pittsburgh (h)	4.00c
Portland	5.00c
San Francisco	4.80c
Seattle	4.95c
St. Louis	4.34c
St. Paul	4.35c
Tulsa	3.55c

HOOPS

Baltimore	4.45c
Boston††	5.25c
Buffalo	4.22c
Chicago	4.10c
Cincinnati	4.25c
Detroit, No. 14 and lighter	4.185c
Los Angeles	6.55c
Milwaukee	4.21c
New York‡ (d)	4.32c
Philadelphia	4.35c
Pittsburgh (h)	4.50c
Portland	6.50c
San Francisco	6.50c
Seattle	6.30c
St. Louis	4.34c
St. Paul	4.35c

COLD FIN. STEEL

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

COLD ROLLED STRIP

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

TOOL STEELS

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

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

Uniform extras apply.

BOLTS AND NUTS

(100 pounds or over)

	Discount
Chicago (a)	55 to 60
Cleveland	60-5-5
Detroit	70-10
Milwaukee	60 to 65
New Orleans	60
Pittsburgh	65-5

(a) Under 100 lbs., 50 off.

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

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

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

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Sept. 30

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

	British gross tons U. K. ports	Continental Channel or North Sea ports, metric tons	
		Quoted in dollars	**Quoted in gold
PIG IRON	£ s d	at current value	pounds sterling £ s d
Foundry, 2.50-3.00 Silicon	$29.76 6 0 0	$24.11	3 0 0
Basic bessemer	19.47 3 18 6	23.71	2 19 0
Hematite, Phos. .03-.05	35.96 7 5 0*	.....	.....
SEMIFINISHED STEEL			
Billets	$39.06 7 17 6	$43.20	5 7 6
Wire rods, No. 5 gage	53.69 10 16 6	49.22	6 2 6
FINISHED STEEL			
Standard rails	$50.22 10 2 6	$46.20	5 15 0
Merchant bars	2.43c 11 0 0	2.18c to 2.28c	6 0 0 to 6 5 0
Structural shapes	2.35c 10 12 6	1.96c	5 7 6
Plates, †¼ in. or 5 mm.	2.56c 11 11 3	2.59c	7 2 6
Sheets, black, 24 gage or 0.5 mm	3.32c 15 0 0 4.14c 18 15 0	3.18c 3.99c	8 15 0†† 11 0 0
Sheets, gal., 24 gage, corr.	3.03c 13 15 0	3.81c	10 10 0
Bands and strips	4.31c 19 10 0	2.54c	7 0 0
Plain wire, base			
Galvanized wire, base	5.14c 23 5 0	3.18c	8 15 0
Wire nails, base	4.09c 18 10 0	2.90c	8 0 0
Tin plate, box 108 lbs.	$ 6.45 1 6 0	.....	.....

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

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$25.05	5 1 0(a)	$17.27	505	$26.12	775	$25.29	63
Basic bessemer pig iron	24.80	5 0 0(a)	.....	...	.....	...	27.90 (b)	69.50
Furnace coke	8.80	1 15 6	6.09	178	7.25	215	7.63	19
Billets	39.06	7 17 6	25.91	757.50	32.35	960	38.74	96.50
Standard rails	2.24c	10 2 6	1.73c	1,080	2.06c	1,375	2.38c	132
Merchant bars	2.53c	11 9 0	1.49c	995	1.65c	1,100	1.98c	110
Structural shapes	2.44c	11 0 6	1.46c	970	1.65c	1,100	1.93c	107
Plates, †¼-in. or 5 mm.	2.59c	11 14 3	1.86c	1,240	2.06c	1,375	2.29c	127
Sheets, black	3.48c	15 15 0§	2.48c	1,650‡	2.36c	1,575‡	2.59c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	4.31c	19 10 0	3.38c	2,250	2.85c	1,900	6.66c	370
Plain wire	4.31c	19 10 0	2.22c	1,480	2.49c	1,650	3.11c	173
Bands and strips	2.70c	12 4 0	1.79c	1,120	2.33c	1,550	2.29c	127

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel a del. Middlesbrough. b hematite. ††Close annealed.

**Gold pound sterling carries a premium of 65 per cent over paper sterling.

Iron and Steel Scrap Prices

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

HEAVY MELTING STEEL

Birmingham,† No. 1	15.00-16.00
Birmingham,† No. 2	14.00-15.00
Bos. dock No. 1 exp.	16.00
N. Eng. del. No. 1	16.00-16.50
Buffalo, No. 1	17.50-18.00
Buffalo, No. 2	15.50-16.00
Chicago, No. 1	15.50-16.00
Cleveland, No. 1	17.00-17.50
Cleveland, No. 2	16.00-16.50
Detroit, No. 1	13.50-14.00
Eastern Pa., No. 1	18.00-18.50
Eastern Pa., No. 2	15.50-16.00
Federal, Ill.	14.00-14.50
Granite City, R. R.	16.00-16.50
Granite City, No. 2	14.50-15.00
New York, No. 1	†14.00-14.50
N. Y. dock No. 1 exp.	15.50-16.00
Pitts., No. 1 (R. R)	18.50-19.00
Pitts., No. 1 (dlr.)	17.50-18.00
Pittsburgh, No. 2	16.00-16.50
St. Louis, R. R.	17.00-17.50
St. Louis, No. 2	14.50-15.00
Toronto, dlrs. No. 1	12.00
Toronto, No. 2	11.00
Valleys, No. 1	18.00-18.50

COMPRESSED SHEETS

Buffalo, dealers	15.50-16.50
Chicago, factory	15.00-15.50
Chicago, dealer	14.50-15.00
Cleveland	16.50-17.00
Detroit	15.00-15.50
E. Pa., new mat.	18.00-18.50
E. Pa., old mat.	13.00-13.50
Pittsburgh	17.50-18.00
St. Louis	11.50-12.00
Valleys	18.00-18.50

BUNDLED SHEETS

Buffalo	11.50-12.00
Cincinnati, del.	12.00-12.50
Cleveland	12.50-13.00
Pittsburgh	16.50-17.00
St. Louis	10.00-10.50
Toronto, dealers	8.00

SHEET CLIPPINGS, LOOSE

Chicago	11.50-12.00
Cincinnati	10.50-11.00
Detroit	11.25-11.75
St. Louis	9.00- 9.50

STEEL RAILS, SHORT

Birmingham	17.00-18.00
Buffalo	22.00-22.50
Chicago (3 ft.)	19.00-19.50
Chicago (2 ft.)	20.00-20.50
Cincinnati, del.	19.50-20.00
Detroit	20.00-20.50
Pitts., 3 ft. and less	22.00-22.50
St. Louis, 2 ft. & less	20.00-20.50

STEEL RAILS, SCRAP

Boston district	†14.00-14.50
Buffalo	18.50-19.00
Chicago	15.50-16.00
Cleveland	18.50-19.00
Pittsburgh	18.50-19.00
St. Louis	17.00-17.50

STOVE PLATE

Birmingham	10.00-10.50
Boston district	†10.00-10.50
Buffalo	14.50-15.00
Chicago	10.50-11.00
Cincinnati, dealers	9.50-10.00
Detroit, net	10.25-10.75
Eastern Pa.	14.50-15.00
New York, fdry.	†11.00-11.50
St. Louis	12.00-12.50
Toronto, deal'rs, net	10.00

SPRINGS

Buffalo	23.00-23.50
Chicago, coil	22.00-22.50
Chicago, leaf	20.00-20.50
Eastern Pa.	24.00-24.50
Pittsburgh	22.50-23.00
St. Louis	21.00-21.50

ANGLE BARS—STEEL

Chicago	17.00-17.50
St. Louis	17.00-17.50

RAILROAD SPECIALTIES

Chicago	20.00-20.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	21.00-22.00
Cleveland, billet, bloom crops	23.00-23.50
Eastern Pa., crops	24.00-24.50
Pittsburgh, billet, bloom crops	22.50-23.00
Pittsburgh, sheet bar crops	22.00-22.50

FROGS, SWITCHES

Chicago	15.50-16.00
St. Louis, cut	17.00-17.50

SHOVELING STEEL

Federal, Ill.	14.00-14.50
Granite City, Ill.	14.00-14.50
Toronto, dealers	10.00

RAILROAD WROUGHT

Birmingham	13.50-14.00
Boston district	†10.00-10.25
Buffalo, No. 1	14.00-14.50
Buffalo, No. 2	17.50-18.00
Chicago, No. 1 net.	13.50-14.00
Cincinnati, No. 2	14.50-15.00
Eastern Pa., No. 1	20.00-20.50
St. Louis, No. 1	14.00-14.50
St. Louis, No. 2	16.50-17.00
Toronto, No. 1 dlr.	16.00

SPECIFICATION PIPE

Eastern Pa.	16.00-16.50
New York	†12.00-12.50

BUSHELING

Buffalo, No. 1	15.50-16.00
Chicago, No. 1	14.50-15.00
Cincin., No. 1, deal.	14.50-15.00
Cincinnati, No. 2	8.00- 8.50
Cleveland, No. 2	12.00-12.50
Detroit, No. 1, new.	14.00-14.50
Valleys, new, No. 1	17.00-17.50
Toronto, dealers	9.00

MACHINE TURNINGS

Birmingham	6.00- 7.00
Buffalo	11.50-12.00
Chicago	9.50-10.00
Cincinnati, dealers	9.00- 9.50
Cleveland	11.00-11.50
Detroit	10.00-10.50
Eastern Pa.	12.50-13.00
New York	8.75- 9.25
Pittsburgh	12.50-13.00
St. Louis	8.00- 8.50
Toronto, dealers	8.00- 8.50
Valleys	14.00-14.50

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†8.00
Buffalo	11.00-11.50
Cincinnati, dealers	8.00- 8.50
Cleveland	12.50-13.00
Detroit	10.50-11.00
Eastern Pa.	11.50-12.00
New York	†8.50- 9.00
Pittsburgh	13.50-14.00
Toronto, dealers	8.00- 8.50

CAST IRON BORINGS

Birmingham	8.00- 8.50
Boston dist. chem.	†10.00
Bos. dist. for mills	†8.75
Buffalo	11.00-11.50
Chicago	10.50-11.00
Cincinnati, dealers	8.00- 8.50
Cleveland	12.00-12.50
Detroit	10.50-11.00
E. Pa., chemical	14.50-15.00
New York	†9.00
St. Louis	8.00- 8.50
Toronto, dealers	9.00

PIPE AND FLUES

Cincinnati, dealers	10.00-10.50
Chicago, net	11.50-12.00

RAILROAD GRATE BARS

Buffalo	12.00-12.50
Chicago, net	10.50-11.00
Cincinnati	10.00-10.50
Eastern Pa.	14.50-15.00
New York	†11.00-11.50
St. Louis	12.00-12.50

FORGE FLASHINGS

Boston district	†11.25-11.50
Buffalo	15.50-16.00
Cleveland	16.00-16.50
Detroit	13.50-14.00
Pittsburgh	16.00-16.50

FORGE SCRAP

Boston district	†9.50-10.00
Chicago, heavy	20.00-20.50

ARCH BARS, TRANSOMS

St. Louis	19.00-19.50

AXLE TURNINGS

Boston district	†11.00-11.50
Buffalo	15.50-16.00
Chicago, elec. fur.	16.00-16.50
Eastern Pa.	17.00-17.50
St. Louis	13.50-14.00
Toronto	9.50

STEEL CAR AXLES

Birmingham	19.00-20.00
Buffalo	21.00-21.50
Boston district	†24.00-25.00
Chicago, net	24.00-24.50
Eastern Pa.	26.00-26.50
St. Louis	23.50-24.00

SHAFTING

Boston district	†18.00-18.50
New York	†18.00-18.50
Eastern Pa.	24.00-24.50
St. Louis	18.00-18.50

CAR WHEELS

Birmingham	18.00-19.00
Boston dist., iron	†15.00-15.25
Buffalo, steel	20.50-21.50
Chicago, iron	18.00-18.50
Chicago, rolled steel	18.50-19.00
Cincinnati, iron	18.00-18.50
Eastern Pa., iron	19.50-20.00
Eastern Pa., steel	24.00-24.50
Pittsburgh, iron	19.00-19.50
Pittsburgh, steel	22.50-23.00
St. Louis, iron	18.00-18.50
St. Louis, steel	21.00-21.50

NO. 1 CAST SCRAP

Birmingham	15.50-16.00
Boston, No. 1 mach.	†14.50-15.00
N. Eng. del. No. 2	15.00-15.50
N. Eng. del. textile	18.00
Buffalo, cupola	16.00-16.50
Buffalo, mach.	17.00-17.50
Chicago, agri. net	12.50-13.00
Chicago, auto	13.00-13.50
Chicago, mach. net	13.50-14.00
Chicago, rallr'd net	13.50-14.00
Cincin., mach. cup.	13.50-14.00
Cleveland, mach.	18.50-19.00
Eastern Pa., cupola	19.50-20.00
E. Pa., mixed yard	17.00-17.50
Pittsburgh, cupola	18.00-18.50
San Francisco, del.	13.50-14.00
Seattle	8.00- 9.00
St. Louis, No. 1	12.75-13.25
St. L., No. 1, mach.	13.75-14.25
Toronto, No. 1, mach., net	14.00-15.00

HEAVY CAST

Boston dist. break.	†13.00
N. Eng. del.	14.50-15.00
Buffalo, break.	14.50-15.00
Cleveland, break.	16.00-17.00
Detroit, break.	13.50-14.00
Detroit, auto net.	15.00-15.50
Eastern Pa.	18.50-19.00
New York, break.	†13.50-14.00
Pittsburgh	15.00-15.50

MALLEABLE

Birmingham, R. R.	12.50-13.50
New England, del.	20.00
Buffalo	18.00-18.50
Chicago, R. R.	17.25-17.75
Cincin., agri. del.	15.00-15.50
Cleveland, rail.	19.00-20.00
Detroit, auto	14.00-14.50
Eastern Pa., R. R.	19.50-20.00
Pittsburgh, rail	18.00-18.50
St. Louis, R. R.	17.00-17.50

RAILS FOR ROLLING

5 feet and over

Birmingham	19.00-20.00
Boston	†15.50
Chicago	18.50-19.00
Eastern Pa.	21.00-21.50
New York	†17.00-17.50
St. Louis	18.50-19.00

LOCOMOTIVE TIRES

Chicago (cut)	20.00-20.50
St. Louis, No. 1	19.00-19.50

LOW PHOS. PUNCHINGS

Buffalo	21.50-22.00
Chicago	19.00-19.50
Eastern Pa.	24.00-24.50
Pittsburgh (heavy)	22.00-22.50
Pittsburgh (light)	21.50-22.00

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer	$5.25
Mesabi nonbess.	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbess.	5.10

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56.63% con.	9.00-10.00
Cop.-free low phos. 58-60%	nominal

Foreign Ore

Cents per unit, f.a.s. Atlantic

Foreign manganiferous ore, 45.55% iron, 6-10% man.	*17.00
No. Afr. low phos.	20.00
Swedish low phos.	nominal
Spanish No. Africa basic, 50 to 60%	*16.00
Tungsten, Nov.-Dec. sh. ton, unit, duty pd.	nominal
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f.	$25.50-26.50

*Nominal asking price for spot.

Manganese Ore

(Nominal)

Prices not including duty, cents per unit cargo lots.

Caucasian, 50-52%.. nom. 52.00 to 53.00

So. African, 50-52% nom. 52.00 to 53.00

Indian, 50-52% Nominal

Sheets

Sheet Prices, Page 82

Pittsburgh—The start of October found sheet mill operations a few points under rate prevailing at the beginning of September. Incoming tonnage in September was somewhat under earlier expectations, partly due to the delays which automobile manufacturers encountered in getting underway with production of 1938 models and the fact that production on 1937 models was continued longer than usual. Auto builders continue optimistic over outlook for coming year. Last week one large manufacturer temporarily suspended all shipments while inventory was being taken, but expected to resume within a few days. Sheet producers are confident the hesitancy which has been apparent recently will be dissipated before long, resulting in a good volume of new business.

Cleveland—Sellers report only moderate improvement during September, with specifications falling well below former expectations. Little if any forward buying has been noted as most consumers continue to purchase on a hand to mouth basis. Backlogs on all finishes declined considerably in past month, making curtailed operations necessary in some instances. However, most mills have sufficient orders to retain current rate through October. Character of recent orders placed by local stamping concerns indicate the beginning of the heavy buying for 1938 models by auto builders.

Chicago—Mills still are well engaged in production of certain grades, including galvanized and hot-rolled annealed material, but backlogs of other commodities need bolstering. The automotive industry still is slow to increase its demand but sheet producers anticipate substantially heavier buying as assembly of new models becomes further advanced.

Boston—Sheet buying is spotty with distribution as to products uneven without much change in aggregate volume. While some business has been placed for delivery through the quarter, such covering has been light and buying for inventory inactive, notably from jobbers through which a large part of the needs in New England are sold. Direct-mill buyers, mostly fabricators of household goods, are well booked in some instances and are ordering out tonnage, with improved deliveries, about in line with consumption. Miscellaneous demand for sheets is lagging.

New York—New sheet orders are now expanding and as soon as automotive demand gets under way an improved delivery schedule is expected. Deliveries have been holding their own, following a steady decline over a period of weeks. Leading sheet sellers report an improvement in incoming tonnage for September compared with August, and are looking for a further modest improvement in October. Jobbers appear particularly well supplied on galvanized sheets, and with a number of producers having postponed the effective date for discarding the functional allowance of $2 a ton to jobbers, there is little incentive to buy on this score. Some producers have indicated that they will continue to book on the old schedule throughout the remainder of the fourth quarter.

Philadelphia—Additional releases are expected momentarily from automotive partsmakers on both hot and cold-rolled sheets. In the meantime, extensive banks of parts have been built up, awaiting shipment orders from assembly plants. New sheet business in general continues light as reflected in further improvement in deliveries. Hot-rolled and hot-rolled annealed now are available within a maximum of two to three weeks; cold-rolled three to four weeks; and galvanized five to six. Prices are firm but buyers are said to be viewing prospects critically.

Detroit — Ford Motor Co. has notified suppliers of various materials, including steel sheets, bars and strip, to suspend shipments. Many suppliers still hold much material on Ford order. This notice has resulted in some hand-rolling sheet mills suspending operations, but they expect to resume early this week as Ford gets under way on new models.

Cincinnati—Sheet sales rebounded last week to about 70 per cent of capacity after sinking to about one-half rated tonnage. Buying for automotive needs is playing a major role. Miscellaneous demand is fairly active. Depleted backlogs have caused lightening of rolling schedules, but open hearth operations continue unaffected.

St. Louis — Delivery situation rapidly is approaching normal. Demand from principal buying groups is slow. Shipments continue in substantial volume, particularly in tin plate and galvanized sheets. There has been some improvement in enameling stock, coming mainly from stove and range manufacturers. Requirements of refrigeration manufacturers and makers of other household are less. Small drum and tank manufacturers report an active business and a considerable volume of galvanized is going into highway culverts.

Birmingham, Ala.—Sheet mills are operating above rated capacity with no indication of slackening. Demand far exceeds other specifications, although high production schedules keeps shipments on a satisfactory relation with orders.

Strip

Strip Prices, Page 83

Pittsburgh — Hot and cold-rolled strip consumers continue using up stocks and ordering when necessary in close relationship to actual needs. Fairly prompt deliveries can be obtained since backlogs which mills had two months ago have dwindled. Since incoming business in September was below volume expected, producers are hopeful a good-sized increase may be shown in October.

Cleveland—Current requirements for hot and cold-rolled strip remain below shipments despite a moderate reduction in mill operations. Miscellaneous consumers have yet to show the expected interest in contracting for fourth quarter. With a general decline in their operations in past month and with the outlook dimmed by many unfavorable external factors, most have been content to specify only for immediate needs. Consumers' stocks are well below average earlier this year.

Chicago—Strip production has declined in absence of improved demand. Hope is held that better automotive schedules will result in increased strip shipments within the next several weeks. Uncertainty attends outlook for heavier use by miscellaneous consumers.

Boston—Unless incoming tonnage increases materially, narrow cold strip mill operations will be further reduced from the approximate 65 to 70 per cent rate. Buying from sources affiliated with the automobile industry does not measure up to expectations. Miscellaneous demand has declined in spots. Material ultimately destined for use in agricultural products continues to move in good volume. While there are some orders on the books for delivery through this quarter, advance buying is not general and bulk of business is for prompt delivery. Mill backlogs on numerous items are about cleaned up. Prices are steady and unchanged.

New York—Cold-rolled strip buying in narrow widths continues to lag, incoming orders being for prompt delivery with specifications spotty. Forward covering is light and orders for stock are nil. With backlogs down, mill operations in the East are spotty, fluctuating with

the trend in new specifications. While upturn in buying has been deferred, sellers still hold the last quarter of the year will witness substantial buying. Hot-rolled strip is inclined to lag behind cold-finished as most re-rollers stocked heavily earlier in the year and the trend in cold-rolled buying apparently doesn't warrant substantial covering. Prices, which have attracted little attention for some months, are being watched closer.

Philadelphia—One of the large makers of miscellaneous stampings has been taking in more hot-rolled strip, but this constitutes one of the few bright spots at present. Consumer stocks are reported ample, especially in view of a moderate recession in activity. Prices are steady.

Birmingham, Ala.—Cotton ties are in good demand with the result that strip production continues at a steadily higher rate than most products.

Gold Seal Asphalt Roofing Co., Minneapolis, will move its plant to Chicago Heights, Ill., where a new $225,000 plant will be built. Blaw-Knox Co. has been awarded the contract for the construction of five units to be built near the latter city. The five units will provide 60,000 square feet of floor space.

Plates

Plate Prices, Page 82

Cleveland—Steel plate requirements are confined to small tonnages for structural projects and miscellaneous tank and ship repair work. Deliveries can be made within four to five weeks, although some heavier grades are further extended. Many anticipate little change over the next several weeks, or until the involved railroad outlook is clarified.

Chicago—Plate sales for fabricated structural work have been heavier lately but a lag still prevails in business for railroad use. Backlogs for freight car building and repairs are declining and light shipments in that direction are in prospect this quarter. Some proposed buying of freight cars has failed to materialize and financial reports of the railroads lately have been unfavorable for the placing of additional orders. Tank fabricators are busy on old work but new bookings are light.

Boston—Buying and specifications for miscellaneous plate needs improves slowly, boiler shop fabricators and shipyard demand being on the up trend. The Holyoke, Mass., pipe fabricator has placed several hundred tons with a Pennsylvania mill for a 42-inch welded steel line, Boston subway project. While municipal tank work is light, Kingston, Mass., takes bids shortly on a 500,000-gallon tank.

New York—Plate buying is about holding its own, with some sellers reporting a decline for September. Indications are more promising for October, but still indefinite. Deliveries show further improvement. Platemakers do not expect much pickup in railroad demand before late November or December.

Philadelphia—Plans are reported on the drawing boards for several cargo shipments, but are not likely to reach the active stage for several months. Placing of several tankers, also awaits only a clearer business and political outlook. Mills are promising deliveries within a maximum of three weeks, with the average closer to a week or ten days. Backlogs of locomotive builders are slimmer although South African railways still may place 45 engines in this country. Plate stocks in the

hands of consumers are reported substantial.

Birmingham, Ala. — Southern mills are operating practically on an order-to-order basis in plates with a miscellaneous sprinkling of orders materializing from week to week in sufficient quantity to keep production fairly steady, if somewhat uncertain.

San Francisco—Demand for plates remains quiet. San Francisco will open bids Oct. 4 for reconditioning of 5.4 miles of 36-inch welded steel pipe, but little new tonnage is involved. The same city will shortly take bids on 9400 feet of 60-inch welded steel pipe for the Sunset district discharge line. Awards for the year total 42,839 tons, compared with 104,350 tons a year ago.

Seattle—New business is at the moment confined to small tank and boiler jobs, but local shops have fair backlogs. Seattle has approved plans for a large cross city water main for which $300,000 is available and specifications are expected soon.

Plate Contracts Placed

350 tons, 42-inch welded steel pipe, Huntington avenue subway extension, Boston, to Walsh Holyoke Steam Boiler Works, Holyoke, Mass., total contract $38,847.20. More material will be purchased.

280 tons, three sand barges, Leetsdale, Pa., to Dravo Corp., Pittsburgh.

200 tons, lighted buoys, Lighthouse bureau, Staten Island, to Union Boiler & Mfg. Co., Lebanon, Pa. and R. D. Cole Mfg. Co., Newnan, Ga.

100 tons, 200,000-gallon water tank and miscellaneous work, Erlanger, Ky., to Pittsburgh-Des Moines Steel Co., Pittsburgh; bids Sept. 18. Wells to Ohio Drilling Co. Pipe requirements, to be bought by general contractor, include 15,800 feet, 10-inch cast iron pipe; 5100 feet, 10-inch, steel pipe, and 10,000 feet, various other sizes, cast iron pipe.

100 tons, boiler, state hospital, Talmadge, Calif., to unnamed interest.

Plate Contracts Pending

650 tons, tanks, Pontiac Refining Co., Corpus Christi, Tex.; taking bids.

175 tons, 500,000-gallon steel water tank, Kingston, Mass.; bids soon at estimated cost of $25,000. Several hundred tons 8-inch cast iron pipe also to be bought in connection with extension project estimated at $10,000.

Unstated tonnage, three 12-foot diameter penstocks, Semino power plant, and two 6-foot diameter outlet pipes, outlet works, same work, Semino Dam, Kendrick project, Wyoming; bids Oct. 8, bureau of reclamation, Denver, spec. 975-D.

Bolts, Nuts, Rivets

Bolt, Nut, Rivet Prices, Page 83

Bolt and nut business in the East was off about 20 per cent in September from the preceding month, with operations hovering around 55 to 60 per cent. Building construction has declined sharply and both jobbers and railroads have been specifying sparingly. Of much interest to the eastern trade was the recent opening of two carloads of bolts and nuts for the North Beach airport by the United States treasury procurement division, proposal 172105. Pittsburgh Screw & Bolt Corp. was low at $4084, with other bids ranging as high as $6230. The bidding indicated a substantial concession under the going market.

Bars

Bar Prices, Page 82

Pittsburgh—Specifications in September failed to show any great gain over August and were below shipments. A fair demand is noted from some forgers and agricultural implement industry. Jobbers, however, are well stocked in most sizes

Behind the Scenes with STEEL

Shows Up the Bull

ARTIST'S impression of STEEL under the Oxometer is shown herewith. Albert Jay Nock, scion of an illustrious family and one of the more fertile minds of the day has released recently his plans for the Oxometer, which ultimately may prove to be one of mankind's greatest blessings. Turned on the printed page, this charming device immediately makes invisible all tripe, bull and hooey, according to Mr. Nock's description in *Atlantic Monthly*. Not only that, but it will immediate-

ly silence the same stuff coming out of a radio loudspeaker.

Of course we of the staff have no illusions as to the contents of STEEL. Any article, long or short, which is lucky enough to get through the black, not blue, pencillings of all of our more than a score of editors will have no tripe, bull or hooey left in it. Of course this means that many contributions are reduced from pages down to sentences, but like the Oxometer, the editors unerringly remove all tripe and feed it to the wastebasket for dinner. Privately, however, we hope nobody ever tries to throw an Oxometer our way. Might have to go back to the old size.

♦ ♦ ♦

Big

NOW barrelling through the presses is the October 11 issue of STEEL. This super colossal gigantic production, to use a bit of movie slang, will eclipse in size some of the Yearbooks of Industry published in the dear dead days of the depression. Editorially, the Metal Show issue will bring you the pulse of the metal industry through the medium of a lot of comments, secured by telling the executives of the various leading companies that here was their chance to appear in print. Photos, too, gathered from the near and far, will do their bit in chronicling progress. Don't miss it, because there will be a goodly number of things to interest all of you there, according to advance statements released by our vice-president in charge of duns, bills and statements.

♦ ♦ ♦

Stoppers

MOST interesting catalogue we have seen for some time is a 4-page folder from a small company down state. Not elaborate or attractive, its qualities are founded on the fine names of products it contains. For instance, one learns from this brochure that coal busters, cement tampers and post mauls are offered for sale, while those who are interested in the welfare of animals can find some beautiful animal pokes. Home builders will be interested in the porch supports and goose neck traps offered by this versatile manufacturing establishment. In fact, anything that your little heart desires, they'll make for you, from garden tools to swimming pools. And of course they are ardent readers of the most progressive business paper serving the iron, steel and metalworking industries. Need we tell you?

♦ ♦ ♦

Screws Is News

ACTION, page-tearing action comes busting through on pages 52 and 53 of this week's book, where Parker-Kalon is "breaking the news." News is screws, capscrews, brought out after two years' research. We like it—it's fresh and newsy.

—SHRDLU

and have been ordering in close relationship to outgoing orders.

Cleveland—Most consumers of carbon and alloy steel bars continue to specify freely against current needs. Forging concerns and nut and bolt manufacturers serving the auto trade have shown best improvement in activity. However, many still are hesitant about contracting for fourth quarter as they have not been able to accurately estimate future needs. Farm equipment manufacturers have increased requirements moderately. Many look for still further improvement soon.

Chicago — Steel bar sales are steady, due principally to sustained demand from farm equipment manufacturers and miscellaneous users. Buying by automotive interests still is dragging but mills anticipate a substantial increase in bar shipments to motor car plants during the new quarter. Nothing has appeared to interrupt excellent outlook for farm implement and tractor builders, operations of these groups holding near the brisk rate of recent weeks.

Boston—Demand for alloy steel bars for government shipyards is heavy, bids being in on 600 tons, pearlitic manganese stock for Newport, R. I., while 305 tons, chromium-molybdenum bars, for the same point, have been awarded the Bethlehem Steel Co. Several hundred tons have also been placed for Portsmouth, N. H. Inquiry for alloy forgings for these yards is heavy; also corrosion-resisting bars. For private industrial needs, buying of alloy and forging bars is moderately active with carbon steel material dull, traceable in considerable degree to still ample stocks held by warehouses. Distributors of tungsten high speed steels experienced a flurry in buying, largely from machine tool consumers, before the price advance Oct. 1.

New York—Commercial bar specifications here reflect continued absence of important railroad buying, a decline of possibly 20 per cent in the September bookings of eastern bolt and nut manufacturers, and a lull in demand from jobbers, and who are apparently well stocked. Outlook for this month is more encouraging but tangible evidences of improvement are still lacking. Deliveries continue easy, with most large sellers still able to offer a good range of sizes for delivery within a fortnight and less. Prices are unchanged.

Philadelphia — Demand for hot and cold-rolled bars continues slack, failing to show the recovery expected a few weeks ago. Stocks in the hands of both consumers and the warehouse trade are reported

relatively heavy. Small amount of business now coming out is mostly for small lots and quick shipment.

Birmingham, Ala.—Bars are disappointingly slack. Little, if any, backlogs remain, and buying is in scattered and somewhat small lots.

Pipe

Pipe Prices, Page 83

Pittsburgh—Uncertainties and the hesitancy apparent recently in general business have contributed to an easier tone in tubular goods. Demand for boiler tubes and mechanical tubing has fallen off. Producers are cutting into backlogs on oil country goods, although demand from some sources is still fair. Export inquiry is fairly well maintained.

Cleveland—The long awaited inquiry for the West side water main, Cleveland, came out last week. The project will require 11,100 feet of 24-inch steel pipe, with ⅜-inch wall, involving about 555 tons. Bids are due Oct. 8. Miscellaneous requirements continue unchanged with industrial repairs and extensions taking the greater portion of current tonnage.

Chicago — Cast pipe demand is dull and sellers anticipate a quieter market with the approach of cold weather. Except for a 2610-ton inquiry for Chicago, pending business generally involves lots of less than 100 tons. Producers' backlogs are light.

Boston—On 1355 tons, Class C cast pipe for Boston stocks, the district foundry was low as follows: 100 tons, 6-inch; 400 tons, 8-inch, and 800 tons, 12-inch, $54.95, delivered, and on 55 tons, 48-inch, $53.10. The award goes to the Everett, Mass., foundry at these figures. Kingston, Mass., is planning a water line extension, taking several hundred tons of 8-inch. Small diameter steel pipe buying is steady, but not heavy, for plumbing and heating needs with resale prices maintained.

New York—Bulk of cast iron pipe buying continues for small lots with few outstanding inquiries. Estimates are being taken on about 800 tons for a real estate water line extension, Rye, N. Y. In some recent bidding prices have been slightly lower. Foundries are beginning to make deliveries on recently placed New York city contracts. For some, this tonnage represents the bulk of backlogs. Utilities are doing little.

Birmingham, Ala.—Cast iron pipe manufacturers have less business than for months and nothing outstanding in inquiries. Operations, fairly well sustained for some weeks at 50 to 60 per cent, are not over 40 per cent now.

San Francisco — Little or no change is noted in the cast iron pipe market. The only inquiry of importance calls for 338 tons of 16-inch pipe for San Diego, Calif., up for bids on Oct. 26. So far this year 22,622 tons have been placed as compared with 39,193 tons for the corresponding period in 1936.

Seattle—Inquiry is slightly more active but few important projects are pending. Unstated interests have taken 165 tons of 4 to 10-inch cast iron for Helena, Mont. McNeil Island, Wash., has purchased concrete pipe, alternate bids for 225 tons of cast iron also having been received. Business pending includes 125 tons for Seattle and 115 tons for Vancouver, Wash., general contracts awarded. Seattle is awaiting a PWA grant before calling bids for the proposed White Center $235,000 extension. Several rural water system projects are awaiting WPA.

Cast Pipe Placed

1355 tons, 6, 8, 12 and 48-inch, class C, supply department, Boston, for stock, to Warren Pipe & Foundry Co., Everett, Mass.; bids Sept. 27 to D. Frank Doherty, superintendent of supplies. Bids are also in, Oct. 1, on 125 tons, class F, two-part screen boxes, for Boston.

350 tons, various sizes with fittings, Dayton, O., to United States Pipe & Foundry Co., Burlington, N. J.

210 tons, approximately, 6, 8 and 10-inch, Panama, to United States Pipe & Foundry Co., Burlington, N. J., $12,594, delivered.

165 tons, 4 to 10-inch, for Helena, Mont.; to unnamed interest.

146 tons, 4 to 10-inch, Helena, Mont., to unnamed interest.

100 tons, 24-inch and under, cement-lined, procurement division, treasury department, New York, for delivery Port Richmond, Staten Island, N. Y., to United States Pipe & Foundry Co., Burlington, N. J., bids Sept. 30.

100 tons, 24 and 48-inch, Minneapolis, Minn., to United States Pipe & Foundry Co., Burlington, N. J.

100 tons, 6 and 12-inch, Spokane, to Pacific States Cast Iron Pipe Co., Provo, Utah.

Cast Pipe Pending

800 tons, 10-inch and under, water line extension, Westchester-Biltmore real estate development, Rye, N. Y.; taking bids.

555 tons, 24-inch, for West side water main, Cleveland; bids Oct. 8.

500 tons, 6 and 8-inch, Portland water district, North Windham, Me.; taking estimates.

338 tons, 16-inch, class B, San Diego, Calif.; bids Oct. 26.

Transportation

Track Material Prices, Page 83

Tentative figures indicate the award of 1216 freight cars by domestic lines in September, against 1475 in August. On this basis domestic freight car awards for the first nine months amounted to 49,706 cars, against 37,313 in the corresponding period for last year. Incidentally, September sales a year ago involved 1750 cars.

Current demand is sluggish, with little buying or inquiry. The proposed advance in wages of the operating employes of the railroad is believed to be virtually agreed upon, but until the interstate commerce commission renders its decision with respect to the petition of the carriers for higher freight rates, it is believed that the railroads will do little buying in any direction.

Freight loadings and net operating income of most carriers have fallen below earlier expectations, lending a further restriction on equipment buying prospects. Backlogs of bars, plates and shapes for car building purposes are light.

Rail Orders Placed

New York Central, 5000 tons, to Carnegie-Illinois Steel Corp., Pittsburgh, Bethlehem Steel Co., Bethlehem, Pa., and Inland Steel Co., Chicago, for delivery over the remainder of this year.

Car Orders Placed

General Chemical Co., 90 tank cars, to General American Transportation Corp., Chicago.

Car Orders Pending

Barrett Co., 40 tank cars, bids asked.

Atchison, Topeka & Santa Fe, 17 coaches and 20 baggage cars.

Locomotives Placed

Lehigh Valley, six diesel electric engines, to the Electro-Motive Corp., Chicago.

Locomotives Pending

Central Railroad of Brazil, unstated number of locomotives.

Wire

Wire Prices, Page 83

New York — Buying is confined mostly to replacement purchases for prompt delivery, with incoming volume showing slight gain. Fill-in demand accounts for the bulk of manufacturer's wire activity. One large warehouse distributor has placed orders for numerous wire products for shipment through the last quarter and on some items beyond Jan. 1 at prevailing prices. This is decidedly an exception, however. Heavy buying by the government has benefitted several eastern mills, total contracts approximating $400,000 in the last 10 days. A brisk demand prevails for wire rods for export and substantial sales have been closed at prices about in line with domestic prices. Some of this business has been taken by sellers, formerly, turned down such inquiries due to heavy backlogs.

Union Drawn Steel Co., Massillon, O., has been awarded the contract for 1,210,000 feet free-machining steel rod for the Frankford, Pa., arsenal at 3.69c, per pound, delivered; bids Sept. 27. Crucible Steel Co. of America, New York, and Bethlehem Steel Co., Bethlehem, Pa., were awarded contracts involving 300,000 feet, annealed tungsten-chromium steel rods at 26.50c and 25.50c per pound respectively, bids also Sept. 27.

Pittsburgh—Improvement in demand for fencing has been slow to materialize, but sellers confidently

anticipate requirements of agricultural areas will be well maintained. In the experience of some producers here, September bookings for nails, barbed wire and other merchant products were below the corresponding month last year, but manufacturers' wire offset this loss, putting the past month ahead of September, 1936, and about even with August, 1937. Several large inquiries for barbed wire have been received recently from export sources.

Cleveland—Shipments and consumption of manufacturing and merchant wire products continue the upward trend since the middle of the month. Little forward buying has been noted, but sellers are confident this condition will be reversed as fall revival really gains momentum. Many consumers have ample stocks, although well below average earlier this year. Specifications against commitments are fairly well maintained, with shipments going into immediate consumption.

Chicago—Demand is steady and there are expectations the automotive industry will help turn sales upward during October. September business was about equal to August, though slight gains were shown in some directions. Sales of merchant wire products in rural districts are expected to be commensurate with the improved financial status of agriculture. Backlogs are light, operations reflecting reduced rate of buying.

Boston—Incoming wire tonnage, while meager, is well diversified and for prompt delivery. Forward buying is sluggish. With backlogs washed away on many specifications, operations in some departments are slowing down with scattered curtailment in employment. This situation is appearing moderately in other industries, some of which are wire consumers. There has been no material slump in demand from current rates, but with backlogs shipped and the failure of new tonnage to arrive in expected volume, some adjustment, believed to be temporary, has been inevitable. Prices are steady, but are being more closely watched.

Birmingham, Ala.—Demand for wire products continues to lag, although showing some improvement over the past two weeks. Mills here report a certain increase, however, is in the offing as dealers stocks become depleted with advent of fall purchasing. A considerable portion of the season's business to date has been supplied from stocks on hand.

Coke By-Products

Coke By-Product Prices, Page 83

New York—Naphthalene prices, flakes and balls, have been reaffirmed for next quarter at 7.25c, eastern plants, in barrels to jobbers. Buying is seasonally light. Phenol is slightly less active at recently advanced prices with shipments under 1000-pound lots commanding a one-cent per pound premium. Distillates continue active, notably benzol for industrial and motor fuel uses. Sulphate of ammonia specifications are steady in equal monthly releases against contracts at unchanged prices through October with spot buying nil.

Shapes

Structural Shape Prices, Page 82

New York—A sheet viaduct section, Weehawken, New Jersey approach to the Lincoln tunnel, closes with the Port of New York authority Oct. 26, taking about 1600 tons of structurals. Awards are fewer with 1990 tons, Rikers Island-North Beach airport, New York, to Bethlehem Steel Co., outstanding.

American Bridge Co., now fabri-

cating 3025 tons for the framework, Trylon and Perisphere, New York World's Fair Inc. Will probably start erecting the material in December. This Pittsburgh fabricator has taken structural steel contract for Fair structures to be erected by the Fair organization, estimated at many thousand tons. Steel for buildings to be erected by private interests at the grounds will be placed by the holders of space or through the general contractors.

Shipments of fabricated structural steel during August, reached the high point for the year, according to the American Institute of Steel Construction, New York. Shipments were 67.6 per cent of normal (the yearly average of 1928-1931) as against a monthly average this year of 57.9 per cent. August bookings were 6 per cent greater than August, 1936. Totals were: Bookings, 117,612 tons; shipments, 158,228 tons.

Boston — Inquiries have declined with a moderate volume active, about 4000 tons. More small bridges, mostly stringer spans, are out, requiring a minimum of shop fabrication. Awards include 2250 tons for a power house, South Boston, Mass. This project takes some unusually heavy sections to house one of the largest electrical power generating plants in the country.

Philadelphia — The long-delayed Philadelphia courthouse job finally has been placed with McCloskey & Co., Philadelphia, general contractor. The job involves 4600 tons of structurals and 925 tons of reinforcing bars. A Presbyterian church at Germantown, Pa., and a group of buildings for the Arlingdon research station in Arlingdon county, Virginia, will be out for figures soon, but pending work otherwise has dwindled. Prices on plain shapes are steady but quotations on erected steel are extremely competitive.

Pittsburgh—Inquiries are light in this district, 300 tons for a power house for the Pittsburgh & Lake Erie railroad being the only sizable job to come out during the past week. American Bridge Co., Pittsburgh, has been awarded 1100 tons for a public school in Brooklyn, N. Y.

Cleveland—Awards are confined to small projects under 100 tons. However, considerable tonnage is pending from both private and public sources. Many private concerns are hesitating on expansion programs already on paper because of many adverse factors not immediately related to their business. Prices have held firm in many instances, although some irregularities are apparent.

Chicago — Fabricators are fairly busy on small jobs, but absence of larger projects hold production at a relatively low rate. Both inquiries and awards hold in the restricted volume of recent weeks, the largest of recent bookings being 920 tons for an industrial plant, Rockford, Ill.

Birmingham, Ala.—Several large orders for shapes for which specifications are not yet in lend an encouraging outlook. More than 10,000 tons for the Baton Rouge bridge are yet to be specified, and there is considerable other smaller business to be worked off.

San Francisco—Pending tonnage does not exceed 5000 and awards were extremely light during the week, aggregating only 352 tons and bringing the total for the year to 126,849 tons, compared with 137,836 tons in 1936. General contractors for the Mare Island drydock are expected to place 1500 tons of sheet steel piling and 1500 tons of shapes, within the next week or two. Largest new inquiry involves 522 tons for a crossing at East Forty-sixth avenue, Denver; bids Oct. 4.

Seattle—Local fabricating shops have backlogs of considerable size. New business is developing in normal volume, and several important bridge and viaduct projects are in prospect. Bids were opened Sept. 30 for 810 tons involved in the Sand Point, Seattle, naval air station hangar. Seattle is considering plans for a $200,000 bascule bridge over the Duwamish river and the Spokane street viaduct which may cost $2,665,000.

Shape Contracts Placed

4600 tons, courthouse, Philadelphia, to Fort Pitt Bridge Co., Pittsburgh; through McCloskey & Co., Philadelphia, general contractor.

2250 tons, power house station, Edison Electric Illuminating Co., South Boston, Mass., to New England Structural

Shape Awards Compared

	Tons
Week ended Oct. 2	17,638
Week ended Sept. 25	*10,014
Week ended Sept. 18	16,548
This week, 1936	19,345
Weekly average, 1936	16,332
Weekly average, 1937	24,839
Weekly average, September	18,073
Total to date, 1936	911,769
Total to date, 1937	993,569

*Revised.

Includes awards of 100 tons or more.

Co., Everett, Mass.; Thomas O'Connor & Co., Boston, general contractor.
1990 tons, trestle, North Beach airport-Rikers Island, New York, to Bethlehem Steel Co., Bethlehem, Pa. through procurement division, treasury, department, New York.
1310 tons, breaker, Maxwell, Pa., colliery, Glen Alden Coal Co. to Anthracite Bridge Co., Scranton, Pa.
1005 tons, blast furnace boiler house, blower house and addition, cold finishing and shipping building, Great Lakes Steel Co., Detroit, to Whitehead & Kales Co., Detroit.
920 tons, manufacturing plant, Rockford, Ill., to Mississippi Valley Structural Steel Co., Decatur, Ill.
500 tons, building, Continental Can Co., Stockton, Calif., to Moore Dry Dock Co., San Francisco.
420 tons, state highway bridge, WPGM-28-B, Windham, Conn., to American Bridge Co., Pittsburgh.
400 tons, state bridge, NRS-2690, Balls Ferry, Washington county, Georgia, to Nashville Bridge Co., Nashville, Tenn.
400 tons, state grade separation bridge, Detroit, to Bethlehem Steel Co., Bethlehem, Pa.
400 tons, building, Pullman-Standard Car Mfg. Co., Chicago, to Hansell-Elcock Co., Chicago.
375 tons, Nasel river state bridge, Wash., to Pacific Car & Foundry Co., Seattle.
285 tons, coal tipple addition, Holden, W. Va., to Guibert Steel Co., Pittsburgh.
280 tons, bridge FAP 356-A-B-C, Dewey county, Oklahoma, to Capitol Steel & Iron Co., Oklahoma City, Okla.
275 tons, bridge FAP 82-A-B, Mayes county, Oklahoma, to Capitol Steel & Iron Co., Oklahoma City; Pharah & Co., Henryetta, Okla., general contractor.
250 tons, building, Gold Seal Asphalt Roofing Co., Chicago, to Blaw-Knox Co., Pittsburgh.
245 tons, beams, channels, angles, tees and flat bars, navy yard, Portsmouth, N. H., to Bethlehem Steel Co., Bethlehem, Pa.; material is for two submarines now under construction.
240 tons, post office, West New York, N. J., to Selbach-Meyer Co., Union City, N. J.; through Auf Der Heide-Aragon Inc., West New York, general contractor.
200 tons, state overpass, WPGM-553-B, Atlantic Coast Line railroad, Brooks county, Georgia, to Bethlehem Steel Co., Bethlehem, Pa.
210 tons, biological sciences building, University of Kentucky, Lexington, Ky., to Louisville Bridge & Iron Co., Louisville.
175 tons, warehouse, Clifton Paperboard Co., Clifton, N. J., to Harris Structural Steel Co., New York; through Austin Co., Cleveland.
140 tons, state highway bridges, Norwalk and Westport, Conn., grade separations, Merritt parkway, to American Bridge Co., Pittsburgh; Paul Bacco, Stamford, Conn., general contractor; bids Sept. 13, Hartford.
135 tons, machine shop addition, Standard Stoker Co., Erie, Pa., to Rogers Structural Steel Co., Corry, Pa.
115 tons, hospital building, Glenfalls, N. Y., to Bethlehem Contracting Co., Bethlehem, Pa.; through Hegeman-Harris Co., New York, general contractor.
110 tons, factory addition, A. C. Gilbert Co., New Haven, Conn., to Connecticut Steel & Erecting Co., New Haven; Mott-Mohr Co., New Haven, general contractor.
108 tons, bridge, over Erie railroad near North Manchester, Ind., to Midland Structural Steel Co., Cicero, Ill., through Calumet Paving Co., Indianapolis.
100 tons, post office, Muskegon, Mich., to Hamilton Iron Works, Goshen, Ind.; J. I. Barnes Co., Culver, Ind., general contractor.

Shape Contracts Pending

1835 tons, including 1500 tons carbon and copper bearing and 335 tons silicon, viaduct, section New Jersey approach, Lincoln tunnel. Manhattan-Weehawken, N. J.; bids Oct. 26, Port of New York authority.
1600 tons, grade separation, Cypress avenue and Southern boulevard, Bronx, N. Y.; bids Oct. 13 to Borough president.
1600 tons, Panama, schedule 3292; bids Oct. 18.
1500 tons, building, Universal Atlas Cement Co., Leeds, Ala.
1200 tons, extension, Willets Point boulevard station, for Board of transportation, New York; Neade Engineering Co., New York, low, bids Oct. 1.
750 tons, highway bridge, Clinton county, Illinois; bids Oct. 1.
625 tons, seaplane hangar, naval air station, Seattle.
610 tons, 10-span I-beam bridge over Erie and Buffalo, Susquehanna & Western railroads, Chautaqua county, New York; bids Oct. 14, department of public works, division of highways, Albany, N. Y.
600 tons, coal tipple, Maidsville, W. Va.
525 tons, additions, Manual Training high school, Brooklyn, N. Y.; bids Oct. 11 on steel work direct, fabricating and erecting, board of education, New York.
522 tons, crossing, East Forty-sixth avenue, Denver, Colo.; bids Oct. 4.
500 tons, coffer dam, Mississippi river bridge, Baton Rouge, La.
360 tons, state highway bridge, Schoharie county, New York; bids Oct. 14, department of public works, highway division, Albany.
325 tons, warehouse, New York Central railroad, New York.
300 tons, power house, Pittsburgh & Lake Erie railroad, Pittsburgh.
275 tons, steel stringer bridge, Bridge street over Eastern canal, Lowell, Mass. on approaches to new Central bridge, contract 3; bids Oct. 8, department of public works, Boston, G. H. Delano, chief engineer.
185 tons, switch structure, Bonneville dam; bids in.
175 tons, building, General Electric Co., Decatur, Ind.
150 tons, shapes and bars, high school, Thomaston, Conn., bids in.
140 tons, Marine hospital, St. Louis; Foster & Creighton Co., Nashville, Tenn. low.
110 tons, school, Brookline, Mass.
108 tons, Garcia river bridge, Mendocino county, California; bids opened.
100 tons, state span, Whitman county, Washington; M. P. Munter, Seattle, general contractor.
Unstated, sluice and Taintor gates, etc., for Bellingham, Wash. water department; bids Oct. 14.
Unstated, 160 foot span, Mt. Baker National park, Wash.; bids to bureau of roads, Portland, Oreg., Oct. 13.

Metallurgical Coke

Coke Prices, Page 83

The easier tone which has been apparent in demand for coke continues without much change. Blast furnace operations are easier in the Pittsburgh district, the leading producer having shut down two furnaces in September. By-product coke production in the first eight

months of this year was 34,688,596 net tons, against 28,246,300 net tons in the comparable period of 1936. Beehive coke output in the eight months was 2,368,200 net tons, against only 858,400 tons in the corresponding 1936 period. In August, total beehive production of 258,800 tons was down 9.2 per cent from July. Stocks of coke at merchant plants increased 15.5 per cent in August from July, while at furnace plants stocks increased 5.2 per cent. The figures are supplied by the U. S. bureau of mines. At the rate of production in August, total by-product stocks were sufficient to last 15.2 days, compared to 14.2 days' supply at the close of July.

Reinforcing

Reinforcing Bar Prices, Page 83

Pittsburgh — Awards and inquiries continue in fair volume because projects now coming out were planned earlier this year. The uncertainties and hesitancy accompanying the stock market decline have not been seriously reflected in concrete reinforcing bars.

Cleveland—Both state and industrial requirements for reinforcing material remain disappointing. Backlogs have been seriously depleted to the extent deliveries can be made within a few days. Awards are few and generally well below 50 tons. Some do not anticipate much improvement over the next 30 days. Prices have held firm, but no real test has recently been offered.

Chicago — Bar shipments and backlogs are declining, though fair activity in new work appears likely to hold demand at a moderately active level. Several large jobs are pending, including 1500 tons for a rug factory. Several hundred tons have been placed for sanitary district construction. Prices are steadier following a recent period of unsettlement.

Boston—Removal of approximately 1600 tons, mesh and bars, placed for Connecticut highways, has reduced the volume of active reinforcing steel pending to about 1500 tons. H. L. Hauser Building Co. Inc., Boston, is low on the Gloucester, Mass. fish pier buildings, about 400 tons. Mesh requirements during the remainder of the year will be light. Prices are still erratic and soft.

New York — Highways and bridges, New York state, closing Oct. 14 at Albany, take approximately 1050 tons, mostly mesh. Contracts for sewers total close to 4420 tons. Awards outside of public work are light. Active pending tonnage is reduced by the closing of recent sewer requirements. Prices are soft with shading prevalent.

Philadelphia—With the exception of the local courthouse job involving 925 tons, the reinforcing bar market is practically devoid of major activity. Some state work still is before the trade but this tonnage has proved disappointing. Private work currently is of little consequence, most jobs involving 50 tons or less. Fabricators still have considerable stock on hand.

Birmingham, Ala.—Concrete bars have been conspicuously out of demand in recent weeks.

San Francisco—Reinforcing bar market was the most active, although awards totaled only 1191 tons. This brought the aggregate for the year to 76,610 tons, compared with 192,934 tons last year. Soule Steel Co. booked the outstanding business, 800 tons for a bridge at Soledad, Monterey county, California. New inquiries, with one exception, were limited to less than 100 tons.

Seattle—New business is confined to lots of less than 100 tons. Local mills have curtailed operations with backlogs out of the way and relatively small tonnages in hand. Bethlehem Steel Co., Seattle, has booked 400 tons for Seattle light department building. Reclamation department has opened bids for 1250 tons for the Roza project, Yakima county, Washington. Guthrie-McDougall Co., Portland, Oreg., is low for Ridge canal, same project, at $201,884 for schedule 1 and $285,561 for schedule 2.

Reinforcing Steel Awards

2250 tons, reported last week as 2000 tons, sewer, contract 2, project 2, to proposed bulkhead line of Flushing Bay, Queens, N. Y., to Jones & Laughlin Steel Service Corp., Long Island City, N. Y.; Tully & DiNapoli, New York, general contractors.

925 tons, courthouse, Philadelphia, to Sweet's Steel Co., St. Williamsport, Pa.; through McCloskey & Co., Philadelphia, general contractor.

800 tons, Soledad bridge, Monterey county, California, to Soule Steel Co., San Francisco.

400 tons, plant addition Puget Sound Pulp & Timber Co., Bellingham, Wash., to Bethlehem Steel Co., Seattle.

275 tons, highway widening, route 29, section 4A, Scotch Plains, N. J., to Stulz-Sickles Co., Newark, N. J.; through Lefara Grecco Contracting Co., Newark.

169 tons, building, Brinks Express Co., Chicago, to Joseph T. Ryerson & Son Inc., Chicago.

150 tons, high school, New London, Texas, to North Texas Iron & Steel Co., Austin, Tex.; Gurley Construction Co., Fort Worth, general contractor.

132 tons, mesh and bars, bridge and highway, Alexander avenue, between

Concrete Awards Compared

	Tons
Week ended Oct. 2	3,981
Week ended Sept. 25	7,621
Week ended Sept. 18	7,278
This week, 1936	3,258
Weekly average, 1936	6.005
Weekly average, 1937	6,367
Weekly average, September	8,084
Total to date, 1936	281,402
Total to date, 1937	*254,667

*Revised.

Includes awards of 100 tons or more.

East 134-135th streets, New York, to Joseph T. Ryerson & Son Inc., New York; Knight & Timmerly, New York, general contractors.
130 tons, sewer contract 7-A, Chicago, to Joseph T. Ryerson & Son Inc., Chicago.
120 tons, Seattle light department building, to Bethlehem Steel Co., Seattle.
119 tons, post office, Muskegon, Mich. to West Virginia Rail Co., Huntington, W. Va.; James I. Barnes Co., Culver, Ind., general contractor.
111 tons, bridges, Mendocino and Humboldt county, California, to unnamed interest.
100 tons, foundations, hangar and administration building, municipal airport, Baltimore, to National Building & Supply Co., Baltimore; Consolidated Engineering Co., Baltimore, general contractor. Superstructure, taking 1100 tons of structural steel pending.
100 tons, two state bridges Thurston and Pierce counties, Wash., to Bethlehem Steel Co., Seattle.
100 tons, polytechnic high school, Wilmington, Del., to Bethlehem Steel Co., Bethlehem, Pa.
100 tons, state span Franklin county, Idaho, to unnamed interest.
Unstated tonnage, 2,505,600 square feet galvanized welded wire fabric, U. S. engineer, 2d district, New Orleans, to Rosslyn Steel & Cement Co., Washington, at $1.62 per 100 square feet, bids Sept. 10.

Reinforcing Steel Pending

1600 tons, grade separation, Cypress avenue and Southern boulevard, Bronx, N. Y.; bids Oct. 13 to Borough president.
1125 tons, viaduct, section New Jersey approach, Lincoln tunnel, Manhattan-Weehawken, N. J. Also includes 60,000 linear feet reinforcing trusses about 5 pounds per foot.
1050 tons, mesh and bars, mostly former, highways and bridges, Chautagua Saratoga and Schoharie counties, New York; bids Oct. 14, department of public works, Albany.
875 tons, Wesley Memorial hospital, Chicago.
400 tons, stores and cold storage building, fish pier, Gloucester, Mass.; H. L. Hauser Building Co. Inc., Boston, low on general contract, $478,554, bids Sept. 27, department of public works, Boston.
325 tons, Marine hospital, St. Louis; Foster & Creighton Co., Nashville, Tenn., low.
306 tons, grading and paving Henry Hudson parkway, between bridge and West 239th street, New York; Arthur Gallow Co., Bronx, N. Y., low.
275 tons, grade separation on Seven Mile road and John R street, Detroit.
220 tons, Black Canyon, Boise project; Haas, Dougherty & Jones and Marshall & Stacy, San Francisco, joint low bid.
200 tons, Engineering building, Northeastern University, Boston; Sawyer Construction Co., Boston, low.
200 tons, crossing, Redmond, Alameda county, California; bids opened.
125 tons, girls' dormitory, Northwestern university, Evanston, Ill.
122 tons, crossing at Forty-sixth avenue, Denver, Colo.; bids Oct. 4.
100 tons, sewage regulation chambers, group No. 4, Detroit.
100 tons, court house, Waukesa, Wis.

Most of the objections to belt drives may be overcome by designing drives with bottom pull on the belts rather than top pull, and with ample belt area in contact with the pulley.

Pig Iron

Pig Iron Prices, Page 84

Pittsburgh — September shipments fell below August, and for the first month this year producers here were able to make good-sized additions to stocks. Blast furnace operations are easier, the leading producer having shut down two furnaces in September. Spot demand continues light. Releases against contracts are fairly well maintained, although some consumers have been using more iron than their recent shipments would indicate. An inquiry has been current for around 20,000 tons for export, the only large inquiry of this type recently. Pig iron railroad freight rates for export have not been canceled.

Cleveland—Little change has occurred in the pig iron market noted during the last 10 days, as consumers continue to specify for prompt deliveries only. Most foundries have substantial stocks and are generally in better condition in this respect than some producers. Auto foundries remain comparatively inactive, but this condition should reverse itself within the next two weeks as the automotive industry once more resumes normal operations. Recent downward trend in scrap market quotations has been an important adverse influence.

Chicago — September shipments were about 15 per cent ahead of August and despite slowness in operations of some foundries, pig iron shipments during fourth quarter are expected to be fairly heavy. Producers' backlogs are substantial, but some consumers show some caution in ordering fourth quarter needs. Expansion in production of automotive foundries is slow, with further gains looked for the next several weeks.

Boston—Pig iron sales are usually for prompt delivery in small or medium-size shipments to district foundries. Few consumers are adding to inventories, stocks of most being substantial. Shipments against old export orders hold moderately well. Considerable quiet business is being done with European countries. Some feelers by domestic users for lower prices are reported, but prospects of higher costs for coal and coke, increased freight rates and other underlying factors preclude the likelihood of such reductions, although talk of higher prices during the last three months of the year has disappeared.

New York — Specifications are spotty, with foundry operations here and Northern New Jersey down substantially from a month ago. In Northern New Jersey, two foundries continue down due to labor difficulties, but the drop in operations for the district as a whole is due chiefly to the falling off in demand from casting consumers. Particularly notable has been the drop in casting demand from textile consumers around Paterson, N. J. District foundrymen are studying outlook for next few weeks.

Inquiry from abroad continues limited and confined largely to demand from Europe. Despite sub-

stantial buying of scrap and finished and semifinished steel, European consumers have bought sparingly of pig iron over recent weeks.

Philadelphia—Pig iron sellers feel considerable buying remains ahead for fourth quarter. Foundries are showing little apprehension over coverage for that period. Foundry operations have eased moderately and shipments in September were somewhat under August. Some export inquiry is noted but prices are said to be less attractive. One furnace at Swedeland is scheduled to go down for relining about Nov. 1.

Buffalo—Demand remains at a low ebb with spot orders confined to restricted tonnage. Shipments against old contracts are holding up well, as foundry operations showed a slight increase in melt over the previous week. Situation among melters during September lacked a definite tone, with spasmodic improvement shown. Sellers report substantial bookings for fourth quarter requirements at current prices.

Cincinnati—Shipments of Northern pig iron, both on new buying and against old orders, has improved moderately. Many melters want rush deliveries. The district melt, however, is light, estimated about 50 per cent with jobbing foundries especially hard hit. Backlogs of machine tool builders are helping maintain demand.

St. Louis—Pig iron shipments are holding up well, forwardings during September, being slightly ahead of August and about 12 per cent over the September, 1936, total. Melt is steady. However, placement of orders for finished products lags.

Conditions in the jobbing foundry trade are spotted, but show some improvement over the first weeks of September. Demand for miscellaneous castings is broadening, but automotive business is below expectations. In the stove industry the melt has expanded moderately. In the Belleville area stove foundries are operating on a 5-day schedule, though not at full production rate. Farm implement and tractor industries continue the center of greatest activity. Backlogs have decreased in smaller degree than elsewhere, and the present rate of operations is likely for several weeks at least.

Birmingham, Ala.—Pig iron shipments in September held consistently well. Seventeen furnaces continue in production this week. Melters here are well booked on fourth quarter business, and there is no indication of recession. Less iron is moving for export than before, but considerable tonnage is going into domestic and local use. Operations include seven furnaces for Tennessee Coal, Iron & Railroad Co., four for Sloss-Sheffield, three for Woodward Iron Co., and three for Republic Steel Corp.

Toronto, Ont.—Demand for merchant pig iron is increasing steadily and spot sales are holding around 2000 tons per week. Inquiries are out from melters ready to place last quarter contracts. Some booking has been done, other awards will be completed within the next week or ten days. Local blast furnace representatives look for forward delivery booking for the last quarter to compare favorably with previous quarters. Daily melt is nearing the 70 per cent mark. Prices are firm and unchanged.

Scrap

Scrap Prices, Page 86

Pittsburgh — Buying has been light, with mills accepting scrap on a restricted basis, but enough material has changed hands recently to establish lower quotations on the entire market, No. 1 heavy melting being off $1 to $17.50 to $18 per ton. The current ranges are the lowest of the year. Railroad lists which will soon close are expected to determine whether the market has reached a temporary bottom. Effective Oct. 1 the special export rate to the seaboard was abolished by the railroads, all iron and steel scrap shipments carrying the regular domestic rates. This will tend to force exporters to further confine buying to the east.

Cleveland—Softening of the scrap markets in northern and eastern Ohio have followed recessions in the Pittsburgh and Chicago markets. The lower prices here have been confirmed by small lot sales, but important consumers do not appear interested sufficiently as yet to take hold at the new levels. The trade is awaiting results of the New York Central railroad's list closing next Tuesday as a further guide to the trend.

Chicago—Scrap prices have declined further under the influence of poor consumer demand and restricted buying on the part of sellers in covering old orders. Heavy melting steel is off $1 a ton at $15.50 to $16, while a number of other grades have weakened similarly. Offerings are moderate considering the stagnant condition of consumer buying but brokers and dealers are buying only small lots in view of the light volume of unfilled orders.

Boston—With heavy melting steel scrap down another $1 for dock delivery, to $16 for No. 1, this grade for export dropped $3 a ton in less than three weeks. For a brief period early last month $19 was paid. Available cargo space for scrap loading is slightly greater, the recent shortage being somewhat relieved. Several boats from other Atlantic coast ports have touched at Boston to complete loading. Domestic demand for scrap is dull, especially for Pennsylvania shipments. For a long period the Pittsburgh district has been taking reduced tonnage from New England due to the readjustment of the flow of material influenced by export buying. District foundries are doing

some buying with prices under pressure. Shafting, stove plate and several other grades are lower. One boat loading here within the week was destined for Japan despite reports movement of scrap to that country from the northern Atlantic ports had virtually ceased.

New York—Scrap prices continue to sag with domestic buying meager and boat loading less active. For dock delivery, $15.50 is being paid for No. 1 heavy melting steel, although $16.00 has not entirely disappeared. For car loading for domestic shipment dealers are offering $14.00 to $14.50. No. 2 heavy melting is lower in proportion, while cast grades for district delivery are $1.00 lower, also for shipment to Pennsylvania. Other grades are off 50 cents to $1.00 per ton. Handlers' strike at loading points along Hudson river has tied up yard activity at Schenectady, Troy, Albany and other upstate ports, but negotiations are underway for settlement. With award of contract for new U. S. liner to replace LEVIATHAN, maritime commission is asking bids on scrapping the LEVIATHAN.

Philadelphia — Additional weakness has developed in scrap with principal grades off 50 cents a ton. No. 1 heavy melting steel now is quoted $18 to $18.50. Top of this range is substantiated by a moderate sale to a district mill within the past few days. One large mill reports purchases of No. 1 steel at $16 for one point and at $16.50 for a second but these prices are understood to apply on material drawn from nearby areas. Philadelphia scrap yards are down for the second week due to strike but preliminary negotiations are underway for settlement. Southern New Jersey yards are not affected.

Buffalo—Weakness continued in the scrap markets as the leading consumer again withdrew bids and ordered shipments held up until October 15. A few 1000-ton sales were reported at $17.50 to $18 a ton for No. 1 heavy melting steel. The range is 50 cents below the previous sale and $4 to $4.50 below the peak levels of April.

Heavy shipments of scrap arriving here via the lakes, principally from Detroit, are having a depressing effect. Three more boats arrived last week. A congested situation prevails at the mills as water shipments and fulfilling of old contracts has added to stocks.

Detroit—Prices took a nosedive here last week, falling sharply from $1 to $2 per ton in practically every classification. Explanation for the sudden weakness is that it is a corrective movement to bring prices more in line with prevailing quotations in Pittsburgh. Apparently figures here were at an artificially high level, and following the recent break in Pittsburgh quotations, the market here plumbed to new low levels for the year.

Dealers have been out of the market or selling short for some time and were practically at a loss to know what prices to quote. With new figures, a trading level has been established and business should proceed, although prices may fall further, possibly $1 a ton.

St. Louis—Weakness still features scrap market. Buying is light. Additional price reductions of from 25 cents to $1.50 were general throughout the list. Where no reductions were made, quotations were nominal. Railroad specialties suffered the heaviest reductions. Angle bars dropped $1.50 per ton to $17.50. Malleable dropped $1 to $17.50, the lowest in a number of months. Shafting was marked down $1.50.

While not hopeful for the near future, dealers are loathe to sell short at present levels. The situation is somewhat mitigated by absence of distress scrap. Country offerings have subsided. No railroad lists were before the trade.

Cincinnati—The iron and steel scrap market has weakened further, prices on heavy melting steel being cut $1, to make dealers' offers $15 or less. Price weakness in nearby markets has affected this district where activity is limited to coverage on old contracts and these rapidly are dwindling. Failure of mill operations to show a decided trend also has been a depressing influence and mill operations are being watched closely in effort to determine the turning point in scrap.

Seattle—Situation is unchanged, volume of business being the smallest in months. Local mills are out of the market and no new export orders are being received. Old commitments for Japan have been shipped and dealers meanwhile are marking time. In the absence of sales, prices are nominal.

Until new model production resumes a normal pace and until bookings by steel sellers show a little more life, the scrap market will remain weak, despite reports of new and expanded capacity for steelmaking which are current here.

Sheet bundles suffered a decline of $2.25 per ton to mark the sharpest slump of any grade quoted here. Borings are off $1.50, forge flashings $2, loose clippings $2, and turnings $1.50.

Revised price on No. 1 heavy-melting steel, for example, $13.50-$14.00 per ton, now closely approximates the Pittsburgh figure of $17.50-$18.00, figuring a $3.50 freight charge on local prices.

Toronto, Ont. — Price revisions have become effective in some lines. No. 1 machinery cast has been marked down $2 per ton, and minor changes upward have become effective in some other lines. Local dealers state demand for steel grades continues and shipments are being made to the consumers in the

Hamilton field in good quantity. Machinery cast and stove plate have a good call, but supplies continue light and consumers are unable to fill all requirements. Mills will take most of railroads' offerings.

In laying out lineshafts, place shock loads as near as possible to the drive connection to avoid transmitting the twisting load the length of the lineshaft; otherwise power is transmitted unevenly and often results in whipping action of belts.

Warehouse

Warehouse Prices, Page 85

Cleveland—Both order volume and aggregate tonnage shipped out of warehouse failed to come up to expectations during September. Most distributors report little improvement over August and in some instances a slight decline. General outlook for October is mixed with many expecting a moderate improvement resulting from general increased fall activity.

Chicago — September sales were about a standoff compared with August in point of number. The trade is awaiting the October trend because of its value as an indicator of probable business during the succeeding year. In the past an upturn in October invariably has forecast favorable business during the ensuing 12 months. Warehouse prices are unchanged.

Boston — Volume bought from steel warehouses has been disappointing, September totals falling well behind estimates. Buying is generally in small lots with tonnage orders few. In several other New England districts, however, jobbers are doing relatively better business than those in the metropolitan area. Nail prices have been readjusted to $3.77 per 100-pound keg in 1000-pound and under lots from warehouse with quantity differentials downward for larger orders.

New York—With the exception of cold finished with some jobbers, warehouse sales continue below expectations and September tonnage about equaled that of August, a dull month. Higher prices for tungsten high speed steels, effective Oct. 1, resulted in considerable buying before the advance by users. Demand for most standard products is slow with a few specialties, moving in smaller lots, showing spotty gains.

Philadelphia—Sales of steel out of warehouse in September were approximately 15 per cent under August, one of the slowest months this year. Some warehouses experienced a slight spurt shortly after Labor day but volume generally was not sustained. Bulk of current business is in lots of a few tons, which reflects vastly improved mill deliveries. Stocks are relatively heavy. So far, no tendency to shade prices is noted.

Buffalo—Due to tapering in activity in other industrial lines, sales are reported fairly well sustained. Orders placed seem to be for immediate requirements. Volume sales for September were slightly above the previous month, although demand failed to materialize as expected, opinion continues to favor a pickup this month.

Cincinnati—Some seasonal improvement has appeared in warehouse sales, although volume continues disappointing.

St. Louis—Warehouse buying continues in fair volume, with moderate improvement in requirements of the general manufacturing trade. Specifications on stainless and other special steels are freer, with a good volume of new ordering in addition. Individual orders for practically all materials are small, car-lot purchasing being rare. As has been the case for a number of months, demand for oil country goods is active, and comes from a rather broad area, including Arkansas, Oklahoma and Illinois. While movement of wire and wire products to rural areas is in considerable volume, it is below expectations. Prices are firm throughout the list.

San Francisco—Demand is holding up well for this season and prices remain firm. Distributors of California met at Santa Barbara Sept. 24 to discuss problems.

Seattle—Business is slow. Fall upturn has not appeared and purchases are confined to small lots for immediate delivery. Lag is general and wholesalers are disappointed at the month's poor showing. Prices continue firm and no immediate changes are planned.

Tin Plate

Tin Plate Prices, Page 82

New York—Except for those seriously handicapped by labor troubles late last spring, tin plate producers are going into the new quarter with little of the cheaper priced material on their books. This gives soundness to the 5.35c, Pittsburgh, price, which now affects the large contract consumers as well as the spot buyer, the former having had protective contracts until the end of September. Some larger buyers were able to lay in extra stocks, but it is not believed these are heavy.

However, a lull in domestic buying is expected, for it usually comes at this season of the year, as canning requirements subside. This year, though, the lull may be less pronounced than usual, due to steady growth of specialty requirements and to a brisk export demand, particularly from Europe and South America. This foreign demand, generally speaking, specifies deliveries beginning late November and early December and continuing throughout the greater part of the winter. Export prices continue on a parity with the domestic market.

Preliminary estimates of beer can

production this year point to 805,000,000 cans, as compared with around 700,000,000 last year. On this basis tin plate consumption for this item should amount to more than 2,000,000 base boxes.

Pittsburgh—While most of the contract plate was cleared before the Sept. 30 deadline, some deliveries were unavoidably held up through lack of shipping instructions. Producers warned that if releases and instructions were not forthcoming the material might be billed at the higher price after Sept. 30, except in instances where delays were attributable to mills. Extra turns were in force during September, with hot mills working as high as 18 per week. From now on, operations will gradually decline. Schedules are being set up in some of the plants here to provide long-delayed summer vacations for tin mill workers.

Steel In Europe

Foreign Steel Prices, Page 85

London — (*By cable*) — Iron and steel markets are quieter, but all steelworks are busy with accumulated orders. It is almost impossible to place orders for delivery this year. Pig iron supplies are limited, except hematite. Sheetmakers' production schedules have been interrupted slightly owing to insufficient supply of sheet bars, although continental supplies are increasing. The Continent reports export trade quiet, with Scandinavia, Holland and Great Britain the most active markets for sheets. Galvanized sheets are stronger.

Iron Ore

Iron Ore Prices, Page 86

Baltimore—Arrivals here in September amounted to 107,213 tons of iron ore; 56,400 tons of manganese ore; and 11,172 tons of chrome ore. This compares with 157,172 tons of iron ore, including 39,401 tons of chrome bearing iron ore in the month of August, 88,500 tons of manganese ore and 13,720 tons of chrome ore. In July importations of iron ore amounted to 172,517 tons, of manganese ore, 81,150 tons and of chrome ore, more than 11,500 tons.

Iron ore arrivals last month comprised 1300 tons of chrome bearing iron ore from Masinloc Zambales, Sept. 2; 21,800 tons, iron ore, Cruz Grande, Chile, Sept. 6; 8513 tons, Narvik, Sweden, Sept. 8; 21,000 tons, Cruz Grande, Sept. 8; 10,500 tons, Daiquiri, Cuba, Sept. 10; and 21,800 tons, Cruz Grande, Sept. 16; and 22,300 tons, Cruz Grande, Sept. 20.

Manganese ore shipments included 1000 tons, Calcutta, Sept. 4; 9600 tons, Rio de Janeiro, Brazil, Sept. 5; 9200 tons, Poti, Russia, Sept. 9; 5800 tons, Abu Zenima, Sept. 12; 3950 tons, Durban, Sept. 17; 8250 tons, Takoradi, Gold Coast, West Africa, Sept. 18.

Manganese ore arrivals also include 2000 tons from Calcutta, India, Sept. 18; 5100 tons, Poti, Sept. 18; 8200 tons, Rio de Janeiro, Sept. 18; and 1800 tons from Calcutta, Sept. 21.

Chrome ore arrivals included 1500 tons from Madras, Spain, Sept. 4; 1513 tons, Lourinas Marques, Portuguese East Africa, Sept. 8; 2000 tons, Neuvitas, Sept. 6; 3727 tons, Lourinas Marques, Sept. 11; 1000 tons, Bolo, Greece, Sept. 16; 814 tons, Lourinas Marques, Sept. 17; and 1618 tons, Biera, Sept. 17.

Ferromanganese arrivals include 400 cases from Yokahoma, Sept. 6; 250 tons from Yokahoma, Sept. 20; and 300 cases from the same port, Sept. 23. Also 21,101 pieces of spelter came in from London Sept. 5.

Philadelphia — Importations here during the week ended Sept. 25 included 1500 tons of chrome ore from the Philippine Islands and 998 tons of pig iron from British India.

Other arrivals include 154 tons of sponge iron, 66 tons of steel tubes, 35 tons of steel forgings, 31 tons of steel bars and five tons of steel billets, from Sweden; 15 tons of steel bars, 45 tons of structural shapes and five tons of steel bands, from Belgium; and five tons of structural shapes from France.

Nonferrous Metals

Nonferrous Metal Prices, Page 84

New York — Nonferrous metals underwent major price revisions last week following a sharp break in the foreign market. A firmer tone developed late in the week, however, and a partial recovery was made in both tin and copper. Foreign producers of copper have agreed to curtail output immediately with a quota of 105 per cent of basic in full effect by Nov. 30.

Copper — Electrolytic dropped to 13.00c, Connecticut, on Monday and was cut to 12.00c by custom smelters on Wednesday, primary mine producers holding unchanged at 13.00c. Supplies available at the lower levels dwindled at steadily rising prices and at the close a flat 13-cent level was expected to be established on Monday, Oct. 4. Product prices were revised downward while brass ingot prices declined and then advanced Friday to the basis of 13.25c for 85-5-5-5. Refiners bid on the basis of 10.25c for No. 1 heavy at the close.

Lead — Prices dropped $5 per ton on Monday following a like decline on the preceding Friday. The market then held at 6.00c, New York, and 5.85c, East St. Louis, for the balance of the week. Little interest was shown in the opening of November books.

Zinc — Prime western declined $15 per ton to the basis of 6.50c, East St. Louis, although supplies continued limited. Pressure for shipments eased.

Tin — Straits spot dropped sharply to around 55.62½c at mid-week but advanced to 56.50c by the close on Friday. Consumers bought actively at the lower levels.

Antimony — Spot advanced ⅛-cent to 17.37½c for American metal and 18.62½c for Chinese metal.

Equipment

Pittsburgh — Improvements are being made to the rolling mill at the Carnegie-Illinois Steel Corp. plant, Sharon, Pa. The mill, now capable of rolling 12-inch bars, will be expanded to handle 14 to 16-inch bars.

West Virginia Pulp & Paper Co. has ordered from Hagan Corp., Pittsburgh, for its Piedmont, W. Va., works, a complete automatic combustion control system for a new 375,000-pound per hour pulverized coal fired boiler. Hagan Corp. also has been awarded a combustion control system by Public Service Co. of Colorado.

New York — Machinery orders continue brisk, the bulk being for one or two tools at a time for widely diversified uses. Incoming business is maintained without the placing of many large lists, although buying for the Frankford, Pa., arsenal has been heavy. Shop operations continue near capacity with most builders; some are booked into next year. Foreign orders are heavy for many types of production machinery. For the Brooklyn navy yard, Henry Prentiss & Co. was awarded a boring, milling and drilling unit at $37,763. For the 207th street yard shops, the New York board of transportation is closing on rail bending and associated equipment.

Chicago — While machine tool sales are more active in some directions, September business fell below some previous months this year. Small tool demand has revived in past 30 days and is relatively active. A number of inquiries for larger tools have appeared from railroads for budget-making purposes. Prospects continue poor for any substantial orders from the

carriers in the near future. Machinery shipments exceed new business, but backlogs in most instances remain heavy and builders appear assured of active production during balance of year.

Seattle — Materials required for rural electric lines are in active demand while roadbuilding and maintenance equipment is moving in better than normal volume. Labor troubles in shipping and lumbering industries have retarded business. Washington state has placed orders for 74 snowplows with Seattle machinery houses.

Construction and Enterprise

Michigan

DETROIT — Trippensee Mfg. Co. has been reorganized to produce a line of air conditioners, beer and water coolers and refrigerator compressors. The organization is composed of two units. The Trippensee division will produce the new line of products and the Standard Reamer & Tool division will continue manufacturing tools for various industries. Operations of both divisions will be carried on at 2620 Elmwood avenue.

DETROIT — Ford Motor Co. is extending its hot rolled steel mill facilities at the Dearborn plant. Giffels & Vallet Inc., L. Rossetti, Detroit, are associated architects and engineers.

DETROIT — Square Deal Brass Foundry Co. has been organized by Steven J. Gergely, 20181 Omira avenue, with 650 shares of no par value, to produce aluminum and bronze.

DETROIT — Roth Mfg. Corp. has been formed to deal in welding machinery, by Henry W. Roth, 13440 Klinger avenue.

DETROIT — Universal Conveyor Corp. has been organized to deal in conveyors, by John C. Emery, 1540 Longfellow avenue.

DETROIT—Fruehauf Trailer Co. will begin work shortly on construction of two buildings at its main plant which will provide 69,690 square feet of additional floor space. The larger building will be a modern paint shop and the smaller unit an improved shipping department with enclosed loading dock.

ESCANABA, MICH. — Alger-Delta Electric Co-operative has been allotted $123,000 REA funds for construction of 113 miles of rural electric transmission lines.

New York

ALBION, N. Y. — Snider Packing Corp. plans purchasing and installing new conveyor system at its warehouse to replace equipment destroyed by fire.

BUFFALO—Atlantic Refining Co. has purchased a site here for construction of $150,000 terminal pumping station.

BUFFALO — F. C. Backus, architect, 260 Delaware avenue, will soon let contract for altering and constructing additions to plant of Crane Co. here. Cost to exceed $40,000.

LONG ISLAND CITY, N. Y. — John Simmons Co., 47-09 Thirtieth street, is considering erection of one-story machine shop, costing close to $100,000 with equipment. Architects are Roche & Roche, 358 West Forty-fourth street, New York.

NEW YORK — Ruberoid Co., 500 Fifth avenue, roofing product manufacturer, has purchased the plant of the Gold Seal Asphalt Roofing Co., Minneapolis. The plant will be enlarged and additional equipment installed for production of roofing products.

OSWEGO, N. Y. — Niagara Hudson Power Co., Electric building, Buffalo, plans constructing steam generating plant with dock facilities on Lake Erie here. Total cost estimated at $10,000,000.

Maine

MILLINOCKET, ME.—Great Northern Paper Co. plans hydroelectric generating plant on Penobscot river. Hydraulic turbines and generator units for 18,000-horsepower capacity will be installed. Estimated cost of project $2,000,000.

Massachusetts

CHICOPEE, MASS.—Gosselin's Dairy Inc., 43 Sanford street, has revised plans by R. H. Parent, for erection of a two-story plant addition, 80 x 85 foot, costing $45,000.

GRAFTON, MASS.—Washington Mills Emery Mfg. Co., maker of abrasive products, will rebuild the portion of its plant recently destroyed by fire. Cost close to $35,000 with equipment.

New Jersey

JERSEY CITY, N. J. — Diamond Alkali Co., 630 Fifth avenue, New York, plans erection of plant addition for Standard Silicate division here. Mr. Clark is in charge. Cost to exceed $40,000.

WEEHAWKEN, N. J. — S. B. Penick & Co., 1819 Willow avenue, maker of industrial chemicals, will rebuild plant recently destroyed by fire. A. C. Curran is plant superintendent.

Pennsylvania

BRIDGEVILLE, PA. — American Cyanamid Co., 30 Rockefeller Plaza, New York, plans additions to branch factory here, including installation of new equipment. Cost over $100,000 with machinery.

ERIE, PA.—Standard Stoker Co. Inc., 1701 Gaskell avenue, is receiving bids for erection of one-story machine shop, 65 x 185 feet, costing about $50,000, including machinery.

MEADVILLE, PA.—Hookless Fastener Co. Inc. has plans for one-story addition to its plant. Estimated expenditure $100,000 with equipment.

Ohio

CLEVELAND—Ohio Electric Mfg. Co., 5900 Maurice avenue, Southeast, has begun construction of a two-story addition to its plant. Estimated cost $35,000.

CLEVELAND—John Harsch Bronze & Foundry Co., 11612 Madison avenue, has acquired the plant of Lakewood Engineering Co., 12502 Berea road, and is altering and remodeling it, including erection of one-story addition. Present plant will be removed to new location and additional equipment installed.

COLUMBUS GROVE, O.—Village, Roy N. McCullough, mayor, plans electric light and water plant expansion to cost approximately $66,000. Will install diesel equipment. Bond issue of $66,000 will come before voters Nov. 2.

PERRYSBURG, O.—Village, John W. Lyons, mayor, is having plans prepared by George Champe & Associates, 1025 Nicholas building, Toledo, O., for waterworks improvements. Bond issue of $25,000 has been approved. (Noted Aug. 9.)

Illinois

CHICAGO—C. S. Blakeslee & Co., Nineteenth street and Fifty-second avenue, has started construction of a two-story addition to its present plant, which will increase manufacturing floor space 50 per cent.

Indiana

WARSAW, IND.—Gatke Corp., maker of brake lining, plastic products, etc., is rebuilding the portion of its plant recently destroyed by fire.

Maryland

BALTIMORE—City plans $45,000 improvements to electric system; will erect a substation.

District of Columbia

WASHINGTON — Bureau of supplies and accounts, navy department, will take bids until Oct. 8, schedule 1728, for two motor-driven, light duty engine lathes; schedule 1781, one electric arc welding set and accessories, delivered Brooklyn, N. Y.; schedule 1801, high-tensile plate steel, delivered Washington; until Oct. 15, schedule 1804, steel packing boxes, delivered Portsmouth, Va., and Mare Island, Calif.

Kentucky

VANCEBURG, KY. — City will vote Nov. 2 on $148,000 electric light and power revenue bonds.

WILLIAMSTOWN, KY. — City votes Nov. 2 on $90,000 electric light and power revenue bonds.

Florida

PENSACOLA, FLA.—William Leonard, agent for Standard Oil Co., has permit for constructing $100,000 bulk storage and bunkering plant here as portion of proposed $250,000 development. Work on plant, which will have storage capacity of 5,000,000 gallons, with equipment for refueling vessels, will start soon.

Georgia

GAINESVILLE, GA.—Best Mfg. Co. has acquired a 17-acre site here for erection of silk yarn manufacturing plant. Cost of plant estimated at $50,000, and machinery $100,000.

North Carolina

WADESBORO, N. C.—Contract has been let to George W. Kane, Durham, N. C., for erection of one-story bottling plant, by Associated Bottlers Inc., Fred M. Mills, president. Estimated cost with equipment $75,000.

Louisiana

BOGALUSA, LA.—W. G. Avery has acquired the S. & A. Mfg. Co. plant here, and will convert it into a plywood

fabricating plant to cut pieces for automobile body parts.

Wisconsin

MILWAUKEE — Harnischfeger Corp., 6785 Greenfield avenue, is rebuilding its steel warehouse recently destroyed by fire at a total cost of $30,000.

MILWAUKEE—Koehring Co., manufacturing concrete mixers, pavers, shovels, drag lines and cranes, has authorized expenditure of $75,000 for new production equipment and other machinery to enable it to manufacture considerable parts work now done under contract with specialty plants. William J. Koehring is president.

MILWAUKEE—Sprinkmann Sons Corp., 116 South Second street, maker of industrial and domestic insulations, boiler coverings, fire brick, etc., has taken over adjoining four-story building to handle growing volume of business.

MILWAUKEE — Allis-Chalmers Mfg. Co. has received contract from Universal-Atlas Cement Co., subsidiary of United States Steel Corp., for $250,000 worth of raw material handling equipment with hourly capacity of about 280 barrels for re-equipping cement plant at Leeds, Ala.

MILWAUKEE — Milwaukee Gear Co., 3002 North Third street, has purchased one and two-story industrial building, 120 x 180 feet, at 3844 North Third street for $25,000 at receiver's sale and will equip it for manufacturing gears of all kinds. Ervin F. Borisch is vice president.

SUPERIOR, WIS.—American Shipbuilding Co. suffered severe damages to its yards here Sept. 22 by fire which began in the power plant.

Minnesota

MINNEAPOLIS — Pako Corp., G. M. Dye, president, maker of photographic appliances, 1006 Lyndale avenue, North, has awarded contract to Northwestern Construction Co., 1401 Third avenue, South, for construction of a one-story factory addition, 60 x 150 feet.

MINNEAPOLIS—Chicago, Milwaukee, St. Paul & Pacific Railroad Co. has let contract to James Leck Co., 211 South Eleventh street, for roundhouse alterations and improvements to cost about $100,000, including construction of a new 110-foot steel turntable to accommodate larger locomotives at South Minneapolis yards.

MINNEAPOLIS — Cornelius Co., manufacturer of beer pumps and air conditioning equipment, has acquired a two-story factory and will increase the floor space from 8000 to 30,000 square feet. Several thousand dollars will be spent in improving the new quarters and in installing additional machinery and equipment.

ST. PAUL — Ford Motor Co., Dearborn, Mich., has awarded contract for alterations and improvements to Twin Cities assembly plant here to cost about $60,000.

ST. PAUL — Jacob Schmidt Brewing Co. has awarded contract to W. W. Magee Co., 118 West Central avenue, for construction of a one-story keg storage addition to cost about $50,000, to include conveyors, racks, etc.

WINONA, MINN. — Winona Co. will soon take bids for a new or used crawler-type tractor of 80-horsepower or more.

Texas

AUSTIN, TEX. — Colorado River Authority, Roy Fry, chairman, will rebuild the Tom Miller dam and construct a power house. Budget allowance of $35,000 for preliminary engineering work has been provided.

DALLAS, TEX.—Kadane-Brown Creamery, H. E. Brown, secretary, 910 South Harwood street, will erect a creamery and ice plant. Modern equipment, including a refrigerating unit will be installed. Estimated cost $16,500.

Kansas

OSAWATOMIE, KANS. — Missouri-Pacific Railroad Co., St. Louis, is taking bids for extensions and improvements to its engine house and shop here. New equipment will be purchased.

North Dakota

ASHLEY, N. DAK.—PWA has allotted $35,730 to city for construction of a 50,000-gallon elevated water storage tank, distribution system and water supply. J. D. Stabler is city auditor.

South Dakota

JAVA, S. DAK.—City, Frank Heezen, city clerk, will vote on $18,000 bond issue to finance construction of new elevated tank, wells, installation of pumps and water mains costing $51,000. WPA project. Dakota Engineering Co., Western building, Mitchell, S. Dak., is consulting engineer.

Iowa

BLOOMFIELD, IOWA — City will take bids Oct. 18 for construction of a waterworks system, including pump house, two centrifugal pumps with motors, filter plant equipment, water mains, etc. Ira C. Baldridge is city clerk. Hall Engineering Co., Centerville, Iowa, is engineer.

CLINTON, IOWA—E. I. du Pont de Nemours & Co., Wilmington, Del., has plans for erection of a cellulose film plant here.

GREENFIELD, IOWA — City, C. L. Downing, city clerk, has rejected all bids opened Sept. 3 on one 400 to 450-horsepower diesel engine and contemplates advertising for bids again in the near future.

Nebraska

COLUMBUS, NEBR.—Loup River Public Power district, Harold Kramer, secretary, 2307 Thirteenth street, is taking bids to close Oct. 20 on furnishing switchboards, meters and relays as per specifications and plans obtainable from secretary. Harza Engineering Co., 205 West Wacker Drive, Chicago, is engineer.

MINATARE, NEBR.—City, W. C. Colson, mayor, is making a preliminary survey of the construction of an electric distribution system to cost about $46,000. Robert Fulton, Lincoln, Nebr., is consulting engineer.

Canada

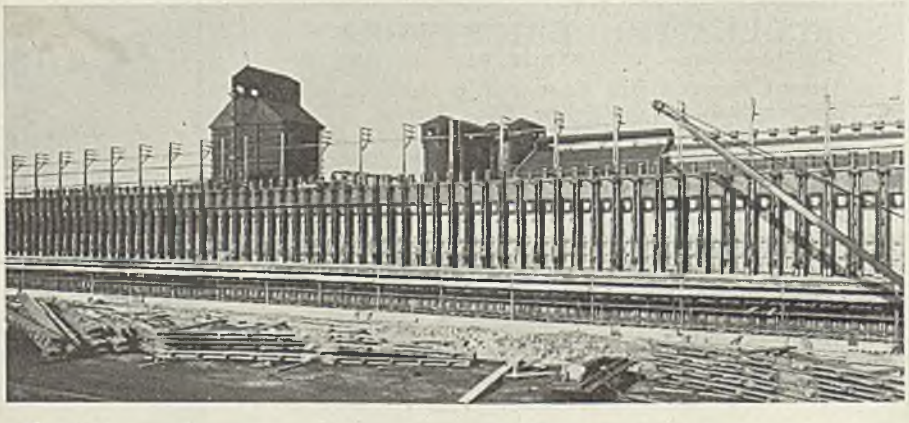
HAMILTON, ONT. — Steel Co. of Canada Ltd., Wilcox street, plans steel nail plant here to cost $100,000. Special equipment for manufacturing nails will be installed.

WALLACEBURG, ONT. — Schultz Die Casting Co., A. S. Gordon, general manager, plans one-story steel glass factory, costing $35,000. Special equipment will be installed.

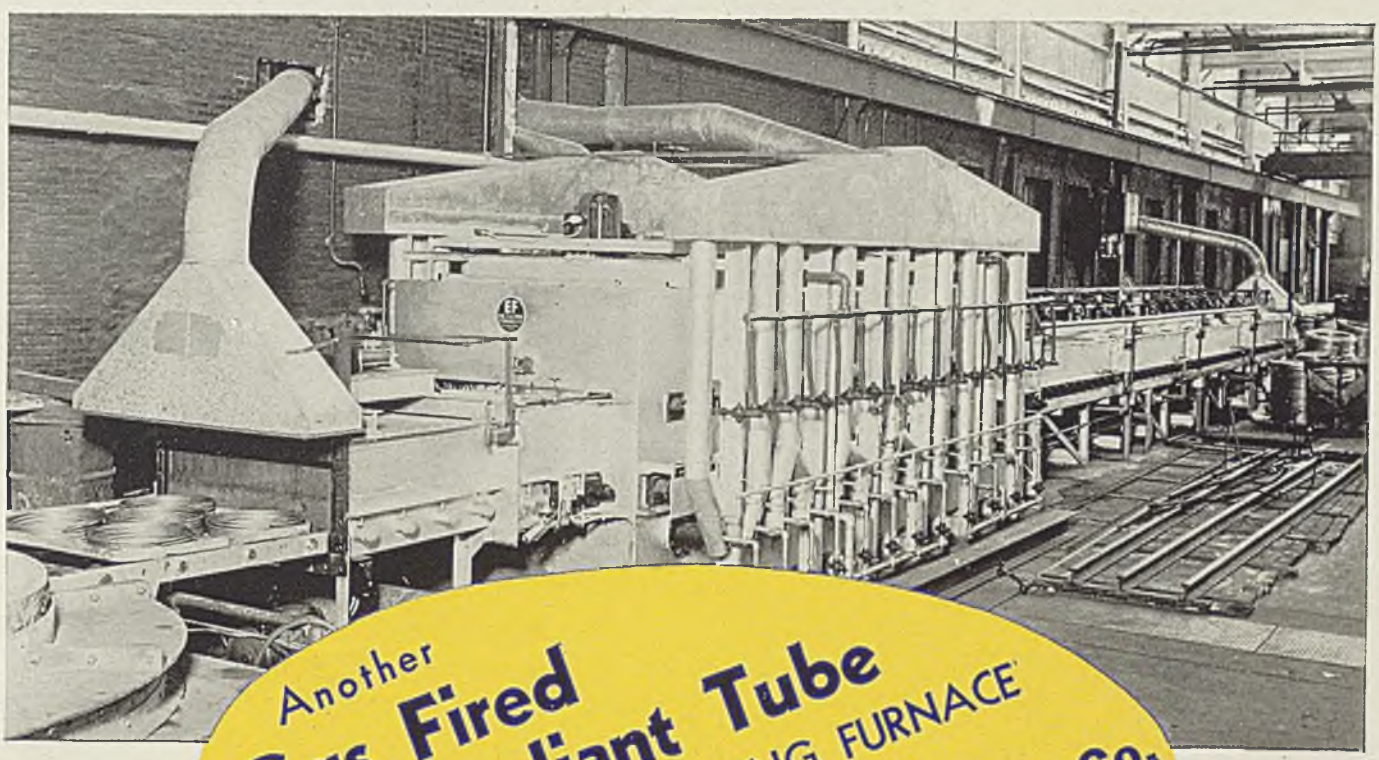
WINDSOR, ONT. — Essex county council will soon take bids for tractors and other road equipment. Total expenditure around $10,000. J. J. Newman is engineer.

QUEBEC, CAN.—Brown Corp., Quebec, subsidiary of Brown Co., Berlin, N. H., and the St. Maurice Power Corp. Ltd. plan a new power development, with capacity of 162,000-horsepower daily, on the upper St. Maurice river, near LaTuque. The project will cost approximately $15,000,000.

New Coke Ovens at Birmingham



A DAILY coal charge of 1590 tons to a new battery of 73 coke ovens recently placed in operation by the Tennessee Coal, Iron & Railroad Co., subsidiary of United States Steel Corp. at Birmingham, Ala., will produce 1110 tons of furnace coke; 20,263,000 cubic feet of gas; 14,771 gallons of tar; 17.7 tons of ammonium sulphate; 5207 gallons of light oil, and 3123 gallons of motor benzoil. It is No. 2 of the two new batteries and is the first unit completed in a broad expansion program of the Tennessee company which will be culminated by the completion of a new tin plate mill. Its companion, No. 1, is nearing completion. Each of these batteries consists of Becker type ovens and was erected by the Koppers Co., Pittsburgh. Each oven is 36 feet, 7 inches long, 18¼ inches wide and 12 feet high



The above continuous special atmosphere bright annealing furnace—one of several recently placed in operation—is equipped with The Electric Furnace Company's new Gas Fired

Recuperative Type Radiant Tubes

SAVES FUEL—This recuperative principle—exclusive with The Electric Furnace Co. radiant tubes—utilizes waste gases to preheat the incoming combustion air before it enters the combustion chamber—thus requiring less fuel and making it the most economically operated radiant tube yet developed. The products of combustion leave the furnace at very low temperature—there is practically no waste heat.

MORE UNIFORM TEMPERATURE—By admitting the necessary combustion air throughout the entire length of the burning chamber and thereby providing positive mixture of air and gas just where it is needed for perfect combustion, this provides an even temperature over the entire length of the tube, thus making it possible to maintain uniform temperature throughout the entire furnace chamber.

MORE CONVENIENT—These tubes are easy to adjust, install or to remove for maintenance—in fact, can be removed and replaced while the furnace is in operation.

INVESTIGATE the economy, uniformity, convenience and other advantages of The Electric Furnace Co's new gas fired—recuperative type radiant tube for your next fuel fired furnace installation or for modernizing your present furnace equipment.

Consult with us on any of your heating or heat treating problems. We specialize on building furnaces to fit the customer's specific requirements—for any process, product or production—either electrically heated or fuel fired, whichever best suits the particular plant, process, or problem—we solicit your furnace inquiries.

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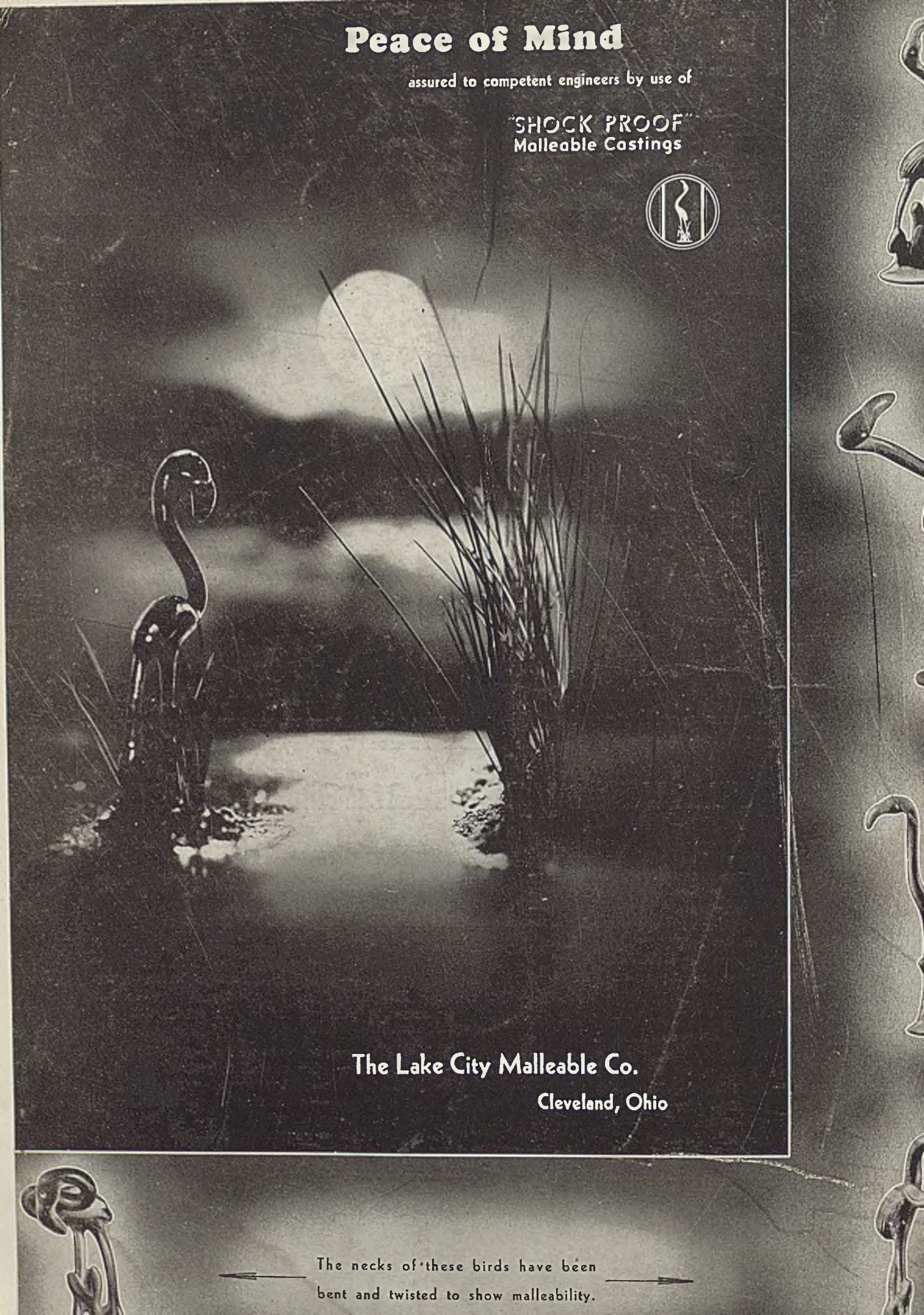


The Lake City Malleable Co.

Cleveland, Ohio

The necks of these birds have been bent and twisted to show malleability.

Comments

Readers are invited to comment upon articles, editorials, reports, prices or other editorial material appearing in STEEL. The editors cannot publish unsigned communications, but at their discretion may permit a writer to use a pseudonym when a bona fide reason exists for withholding his identity. Letters should be brief—preferably not exceeding 250 words.

Urges Practical Courses

To the Editor:

In his column in the Sept. 27 issue of STEEL Mr. Kinkead calls to attention the necessity for co-operation between industry and engineering schools in establishing suitable courses in welding for engineering professors.

Such a course undoubtedly would attract much interest in the teaching profession and would do much to keep welding instruction in engineering schools up-to-date. In the past, however, many such courses have failed to cover *all* phases of modern welding, and consequently have lacked a well rounded content.

If the industry co-operatively made all types of welding instruction available in a summer course, there would, in all probability, be several school laboratories ready and willing to provide the necessary collegiate housing and course requisites so that credit could be given for work done.

A live subject has been touched upon—let's hear more of it.

G. B. CARSON

Assistant Instructor Industrial Engineering
Case School of Applied Science
Cleveland

Make Service Reports

To the Editor:

In our operations for a long period we have utilized our salesmen to transmit to us reports of the operations of our equipment after it has been installed as well as suggestions for improvement and criticisms of the product made by the operating men at the plant where the equipment is installed. (This refers to the article in STEEL, Aug. 2, page 38.)

We also set up as a definite duty of our sales representatives to transmit to us all information that they are able to obtain regarding new developments or applications made by any of our competitors.

The principal value that we find from this procedure, which of course only supplements the studies of our engineers in the field, is that it makes available to us desirable information much quicker than if we placed our entire dependence upon the periodic follow-up and visits of our engineers.

G. A. MITCHELL

Sales Manager, Hoist Division,
Shaw-Box Crane & Hoist Division,
Manning, Maxwell & Moore Inc.,
Muskegon, Mich.

About Steel from STEEL

To the Editor:

I have often wondered what the exact procedure was in the production of stainless steel. Not being a technical man I hesitated to try gaining this knowledge from engineering texts. Now on page 54 of the Sept. 27 issue of STEEL I have found exactly what I was looking for expressed in terms which I as a layman could readily understand.

Not only that, the method of presenting the story in the form of a log beginning with the reception of an order specifying the analysis of the steel to be made and ending with the analysis of the heat when it was poured, gave me a graphic picture of the process which I could have obtained in no other way.

As a metal goods salesman I have sold many items manufactured from stainless steel but never until now have I been able to feel certain of my background when discussing the merits of stainless steel with a prospective buyer. Thanks.

METAL GOODS SALESMAN

Chicago

Factory Safer Than Home

To the Editor:

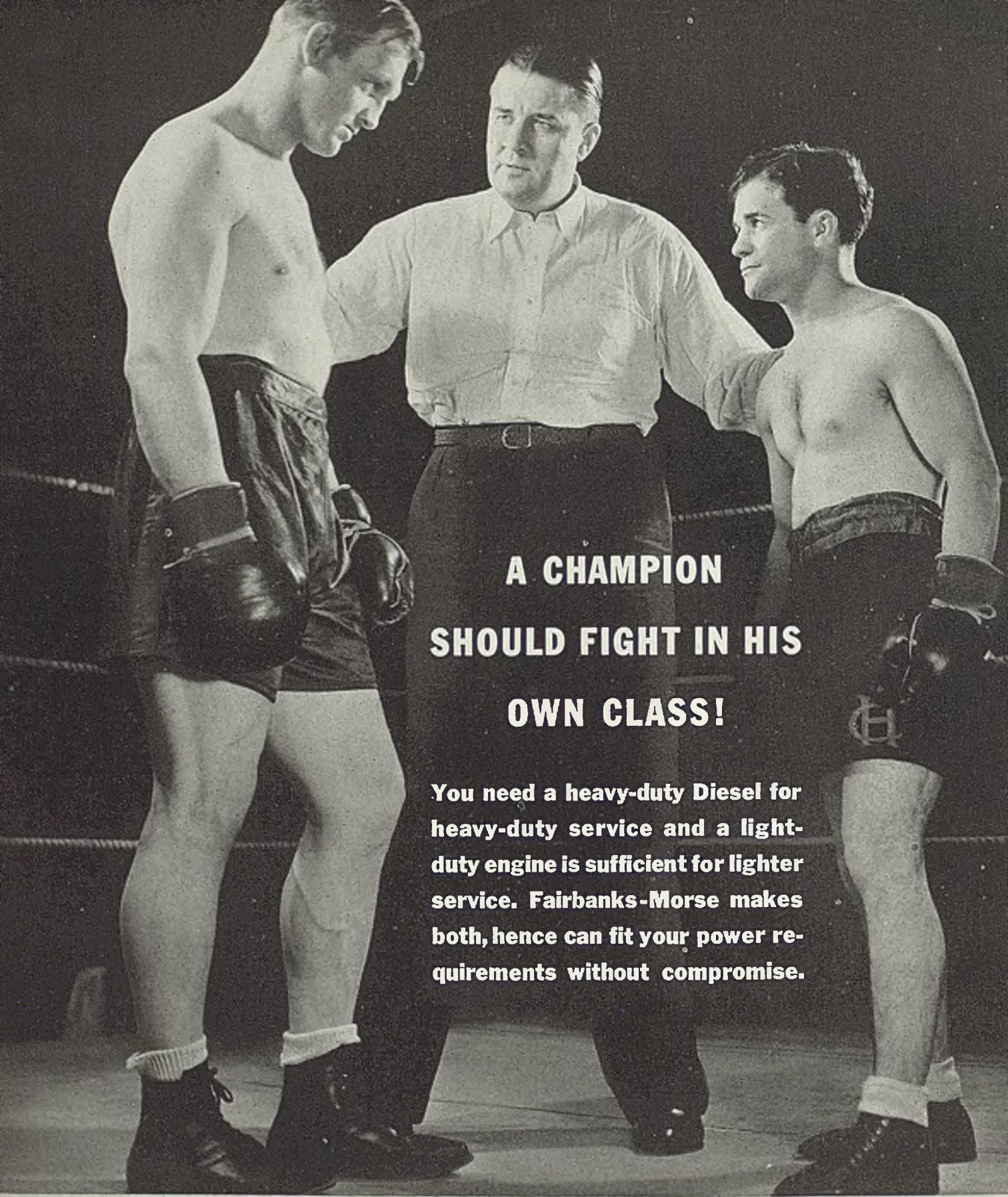
For several years I have clipped from STEEL and other sources articles relating to what industrialists were doing to safeguard their employes, references to new safety devices, drills, intraplant safety contests, first aid instruction, etc. This bulky volume of clippings tells an interesting story of industry's campaign to minimize occupational hazards.

Net result has been to make the modern factory a pretty safe place. It is much safer than the highway, our recreational centers—even our homes.

This is clearly illustrated in a paper by Samuel G. Hibben, director of applied lighting, lamp division, Westinghouse Electric & Mfg. Co. Mr. Hibben points out the Westinghouse lamp division employed 3650 persons in 1936. Total of disabling accidents was five, and the frequency rate of accidents was 0.87 per 1,000,000 hours worked. Thus an employe could expect to work more than 1,000,000 hours before experiencing a serious accident, about 550 years on basis of the present work week. In other words, 1385 of 1,000,000 employes would be injured in a year.

Mr. Hibben compares these figures with accident frequency outside the factory. In 1936, there occurred 10,-

(*Please turn to Page* 72)



A CHAMPION SHOULD FIGHT IN HIS OWN CLASS!

You need a heavy-duty Diesel for heavy-duty service and a light-duty engine is sufficient for lighter service. Fairbanks-Morse makes both, hence can fit your power requirements without compromise.

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