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STEEL

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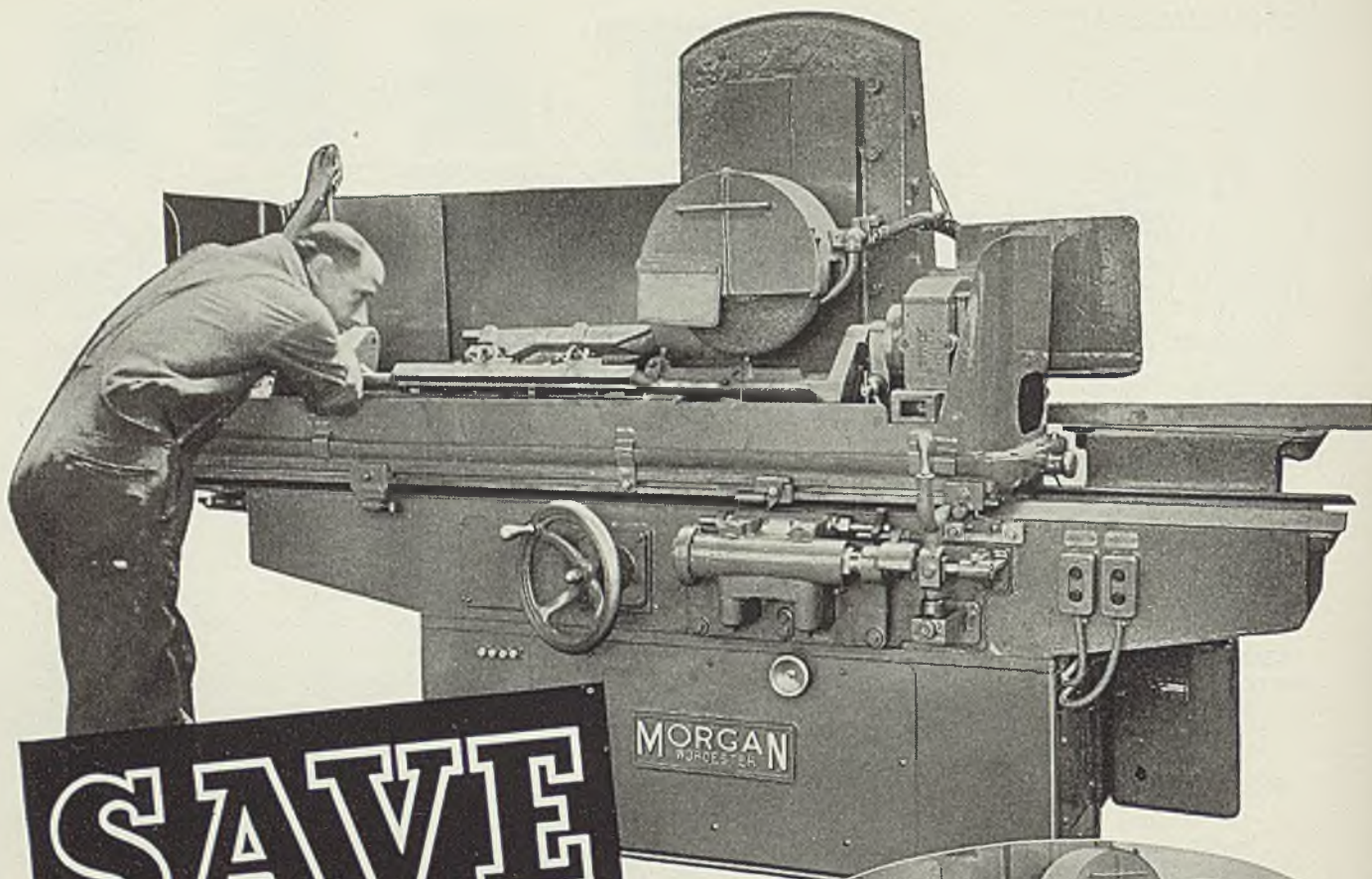
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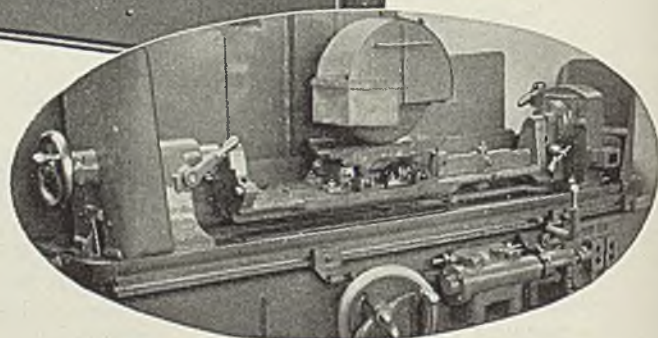


PRODUCTION • PROCESSING • DISTRIBUTION • USE

January 15, 1940



SAVE
"a mile a minute"
**New Morgan
 Guide Grinder**



The upper photographs show the operator making adjustments for grinding a twist guide, also details of cradle mounting with splash guard removed. Below is shown a view from the rear of the machine.

A mile of grooved section is too high a price to pay for "working in" a set of guides. Yet until now, there has been no single machine on which guides of all styles and sizes could be accurately ground.

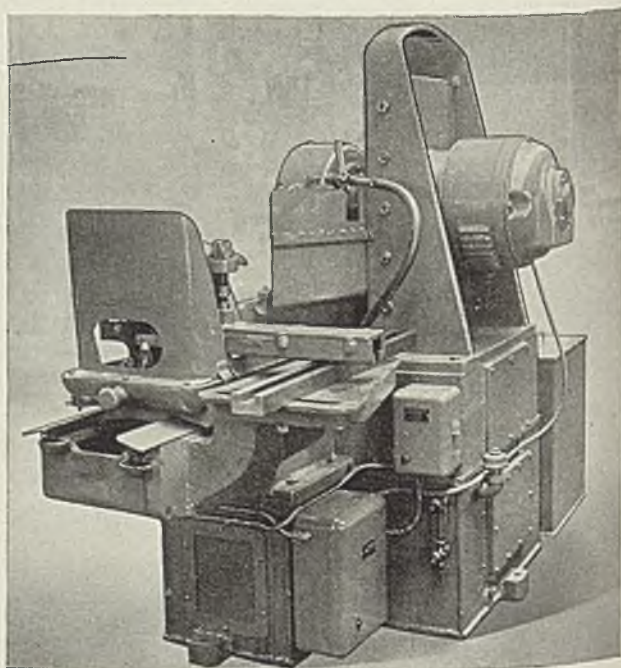
The Morgan Construction Company has developed a new Guide Grinder to meet every requirement of this important job. It will handle guides of all types and sizes required in a rod mill. Its manual and automatic controls provide for every adjustment—up, down, backward, forward, for straight or twist guides. It is compact and self-contained—can be set anywhere.

Here is an investment in equipment that will be worth miles of rod saved to you, in improved quality of finished section.

**MORGAN CONSTRUCTION COMPANY
 WORCESTER, MASSACHUSETTS, U. S. A.**

R62

LET MORGAN REMOVE THE LAGS
 ENGINEERS AND MANUFACTURERS



STEEL

STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

As the Editor Views

The News

■ STEEL production last week (p. 26) dropped $\frac{1}{2}$ point to 86 per cent of capacity. New orders (p. 79) averaged 40 to 60 per cent of current shipments. Backlogs on steel mill order books, however, remain large. Steel consumption is expected to continue heavy over the next 60 to 90 days. Railroad consumption this quarter may exceed that in the fourth quarter. Automobile production (p. 25) last week numbered 111,330 units, highest level in history for a January week. Airplane manufacturers (p. 33) have booked more orders since Jan. 1 than in any other similar period. Iron and steel product exports, not including scrap, were 30.5 per cent larger in November (p. 38) than in October.

...

NLRB last week (p. 21) sustained two adverse court decisions. On the whole, however, its court record is good. Before the Supreme Court it has won 18 out of 22 cases. Any real reform in the national labor relations act and its administration, it seems clear, must stem from congress. At Washington the

Buying Reform

special house committee investigating the board's conduct continued to reveal damaging evidence of bias and incompetence on the part of the board's staff. . . . Complete reform in buying attitude of iron and steel scrap consumers is needed, it was declared at meeting of the Institute of Scrap & Steel Inc. A plan (p. 24) to establish a futures market for scrap is under study.

...

After five years in bankruptcy, Follansbee Bros. (p. 77) has been reorganized as Follansbee Steel Corp. . . . Steel production at Chicago has gained ascendancy over meat packing and now rates (p. 77) as the first industry. . . . General Motors Corp. last Thursday (p. 35) rolled its 25,000,000th automobile off the Chevrolet assembly line. . . . Col. Charles Wright, retired British steelmaster (p. 39), is the new British con-

25,000,000
Automobiles

troller of iron and steel. . . . Approximately \$215,000,000 was spent for industrial research during 1939 by 2000 United States companies. About 250 manufacturing corporations (p. 33) are sustaining long-range investigations in research foundations.

...

A steel company employed panel-type construction in building 20 inside and outside utility structures. Advantages (p. 45) included a substantial saving in first cost. . . . A new electroplating system (p. 46) embodies a complete series of cleaning and electroplating tanks with cylinders, transfers and auxiliary, affording

Cuts Costs 60 Per Cent

maximum plating speed consistent with finish and efficiency of solution. . . . An electric motor manufacturer has improved on its former method of tack welding nuts to heavy sheet steel bases. The sheets now (p. 48) are pierced, forming extruded holes which are tapped. By this method appearance has been improved and costs have been cut 60 per cent.

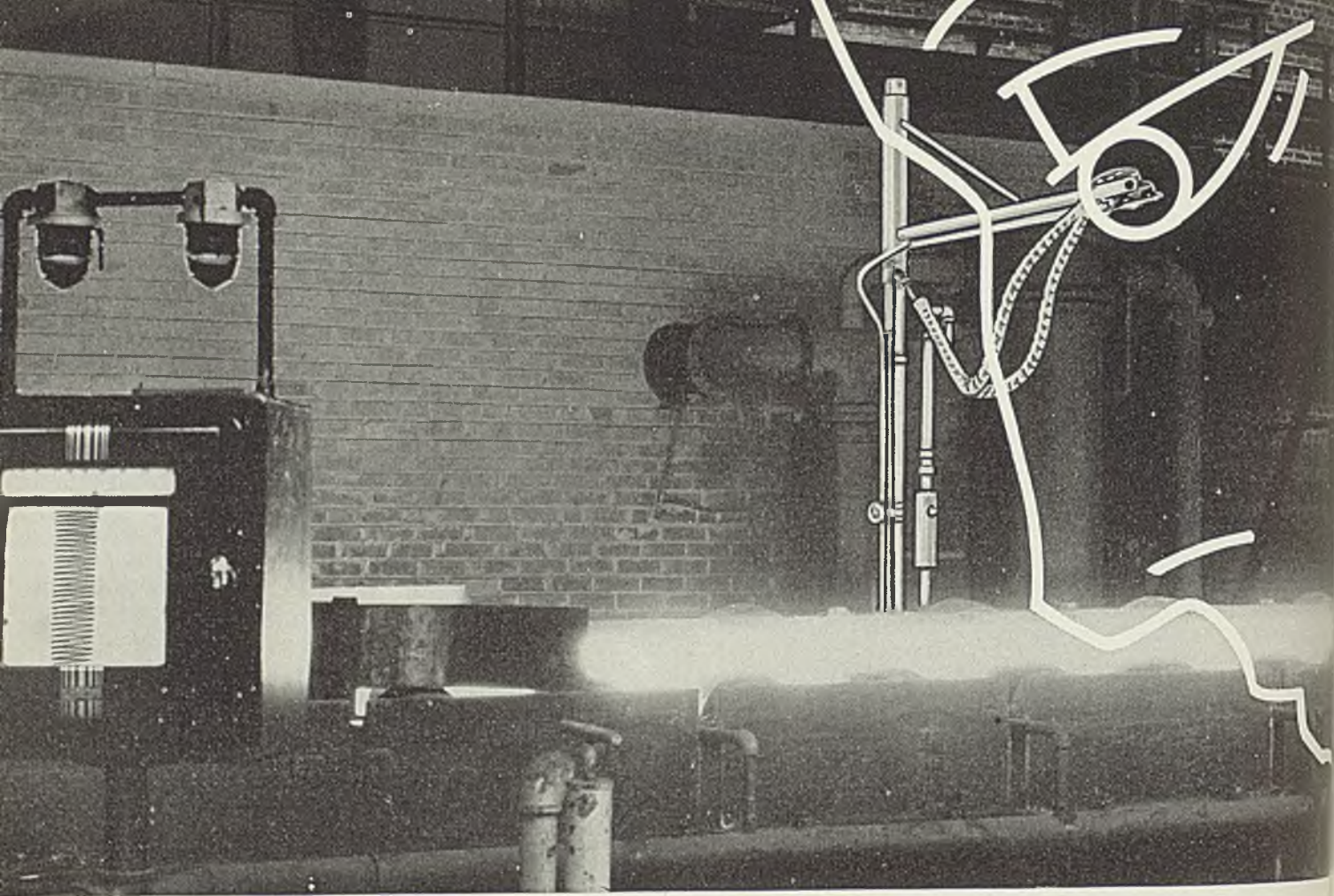
...

A new paddle-type reel winds hot strip and skelp into coils at mill delivery speeds up to 1500 feet per minute. A recent installation (p. 50) handles strip to 36 inches wide, in coils to 7000 pounds. . . . One of the important results of concentrating under one roof scale manufacturing operations formerly conducted in a

4 Miles to 400 Feet

number of separate plants (p. 54) is the shortening of the handling line from 4 miles to 400 feet. . . . High-strength and stainless steels and welded construction (p. 60) feature two new Southern Pacific passenger trains. . . . A new process is available (p. 66) for joining aluminum, aluminum alloys and stainless steel together and to other metals.

EC Krentzberg



THE MAGIC EYES OF INLAND'S CONTINUOUS STRIP MILLS

They "see" the temperature of the steel being rolled and keep records that aid in maintaining greater uniformity of quality.

It's true. Modern continuous strip mills can have eyes that see, and record what they see automatically.

These magic eyes *see heat*. Their vision includes every inch of hot strip that passes through Inland's 44" and 76" strip mills. Located both at the entering and finishing ends of each mill, these automatic pyrometers read and record the entering and finishing temperatures of all steel rolled, aiding skilled heaters and rollers to maintain proper temperature conditions so necessary to high quality strip production.

The extreme sensitivity of these electrical eyes is derived from the photo-electric cell . . . the nerve center of modern television, the photographer's light meter, the tireless night watchman that sets off an alarm when a thread of light is broken . . . and is constantly finding new uses in industry.

This application of the "electric eye" to modern steel making is typical of many important control devices now being used to assure higher quality and greater uniformity of all Inland sheets, strip and other rolled steel products. Whatever properties you may require of steel, you will find Inland men both well equipped and prompt to cooperate in securing them for you.

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

Court Condemns Labor Board. but Reform Must Come from Congress

Branded unfair in lower courts, board and Wagner act have record of 18 victories in 22 cases before Supreme Court. Judges say arguments should be directed to legislators

■ DISCOURAGING to the New Deal's notion that all industrial relations can be regimented under a Washington bureau was last week's news. The news:

A federal circuit court at Chicago unanimously held the national labor relations board does not require an employer to reduce to writing an oral agreement with employees. As the "written contract" issue was paramount in the 1937 "little steel" strike, the significance of the decision immediately becomes apparent.

A second federal court decision issued in San Francisco set aside a NLRB order directing employees of Sterling Electric Motors, Los Angeles, to disestablish a so-called company union. This decision should help to restore to standing company unions not controlled or dominated by employers and to clarify the Wagner act's original intentions.

At the Endicott-Johnson Shoe Corp., Binghamton, N. Y., employees voted overwhelmingly against any union affiliation.

At Washington, the special house committee investigating the Wagner act's administration continued to reveal damaging evidence of the bias and incompetence of the labor act's administrators.

"This record, as a whole, convincingly discloses the danger of imposing upon a single agency the multiple duties of prosecutor, judge, jury and executioner." So declared the federal court at Chicago in reversing a labor board ruling against Inland Steel Co. Court held Inland had been denied a fair and impartial hearing, due largely to the hostility of the board's trial examiner.

The decision, however, may be appealed to the Supreme Court.

The ruling establishes a precedent against compulsory signed contracts and throws considerable light on methods used by the labor board. However, the board has an impressive record of favorable court decisions. While a number of circuit

courts have undertaken to restrict its powers, the Supreme Court has upheld it in 18 of 22 cases.

Most important ruling against the board was that in the Fansteel Metallurgical Corp. case in which the sitdown strike was outlawed.

In other cases the Supreme Court established the board's jurisdiction, and gave the Wagner act a certificate of legitimacy.

Board's Powers Defined

Most serious threat to the board was the attack on the alleged lack of congress' power broadly to regulate the labor relations of business and industry—regardless of whether congress sought to act through the courts or through the labor board. A series of decisions, including that in the Jones & Laughlin Steel Corp. case, held the interstate commerce power of congress is broad enough to bring within the board's jurisdiction all manufacturing plants which ship across state lines, either before

or after sale, more than an insignificant volume of goods.

Next the jurisdictional battle waged over whether employers might go into federal courts and enjoin the board from hearing cases against them or hold elections on the ground the board lacked jurisdiction. Decision in the Bethlehem Shipbuilding case and others declared that original jurisdiction in cases arising under the Wagner act had been confided by congress exclusively to the labor board.

Within the past two weeks the Supreme Court has upheld the board's power to determine: Appropriate bargaining units; election procedure; and what labor unions may participate in employee elections.

The present picture, therefore, may be summarized as follows:

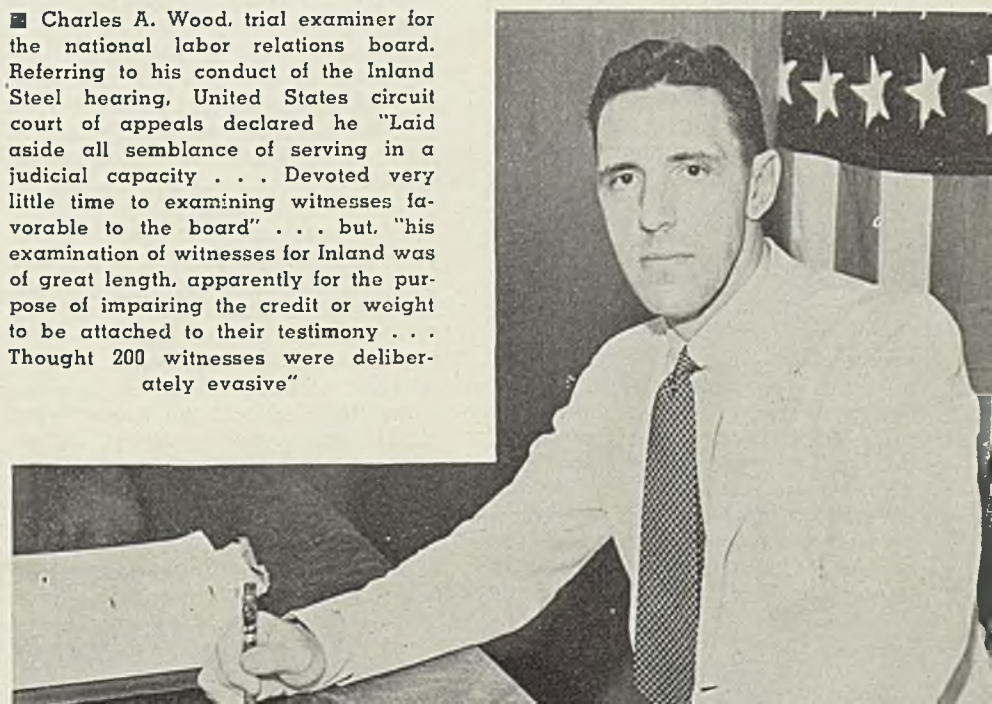
1—The act's coverage is tremendously broad.

2—Board's original jurisdiction is absolutely exclusive.

3—Board's determination of all

Rebuked for Hostile, Unjudicial Attitude

■ Charles A. Wood, trial examiner for the national labor relations board. Referring to his conduct of the Inland Steel hearing, United States circuit court of appeals declared he "Laid aside all semblance of serving in a judicial capacity . . . Devoted very little time to examining witnesses favorable to the board" . . . but, "his examination of witnesses for Inland was of great length, apparently for the purpose of impairing the credit or weight to be attached to their testimony . . . Thought 200 witnesses were deliberately evasive"



questions arising in representation cases is not only exclusive but also final in that type of case.

An outstanding fact in the development of the board's jurisdiction is that not once in nearly five years has the board lost a jurisdictional case in the Supreme Court. Predominant theme in the court's answer to jurisdictional attacks against the board: Congress has power to regu-

late the labor relations in question, and could have divided this power between the board and the courts, but under the Wagner act as written, it delegated the power to the labor board.

Significance of these decisions is that reform of the Wagner act and the national labor relations board must stem from congress and not from the courts.

Labor Board "Prosecutor, Judge, Jury, Executioner," Says Court

■ IN A precedent-setting decision the federal circuit court of appeals for the seventh district (Chicago), last week reversed "in its entirety" a national labor relations board order requiring Inland Steel Co. to bargain with the Steel Workers Organizing committee and to put any agreement reached into writing. Case was remanded to the board for a new hearing.

The court's 31-page decision was perhaps the most sharply critical analysis of labor board tactics yet issued by any tribunal.

It administered an especially severe rebuke to Charles A. Wood, trial examiner in the case. More than half of the long opinion was devoted to establishing the fact Wood had shown a hostile attitude toward the company and had conducted the case in a manner that did not allow Inland a fair and impartial hearing.

Court ruled the national labor relations act does not require any employer to sign a contract. The opinion held that only the process of collective bargaining is mandatory.

The question of signed agreements was the one paramount issue in the 1937 "little steel" strike. No real question of wages, hours or working conditions was raised.

While the larger independent steel companies successfully resisted efforts by the labor board and the SWOC to obtain signed contracts, numerous smaller metalworking companies, faced with threats of strikes by the union and by coercive action by the labor board, signed agreements.

Although the appellate court's decision may be appealed to the Supreme Court, its immediate effect may be to encourage smaller companies to negotiate with the unions and hand them a statement of policy, but refuse to enter into signed contracts.

"The statute is barren of any expressed language requiring a signed agreement," the opinion reads, "and it must be held no such agreement

is required unless we are authorized to read into the term 'collective bargaining' the condition that all agreements, not some, must be reduced to writing."

Because of its conclusion that Wood's conduct of the hearing was hostile and unfair, the court did not consider two other points: Whether Inland was guilty of unfair labor practices as charged by the board, and whether the board's action in certifying the SWOC as bargaining agent was valid.

"Examiner's Action Unwarranted"

"At the commencement of the hearing the trial examiner adopted the practice of interrupting counsel and witnesses, and compelling further argument or statements to be 'off the record'.

"The court reporter was forbidden to take notes of such 'off the record' matter. When back 'on the record', the trial examiner would summarize what had taken place 'off the record'."

This strange procedure, the court remarked, continued for five days over futile objections by Inland counsel. Climax came when the company, having prepared at its own expense and at request of the board, a list of the names and occupations of 6135 employees, sought to withdraw the list as an aid in preparing its case. No copy had been made. Mr. Wood refused its withdrawal.

"The next morning Inland brought to the hearing room its own reporter for the purpose of taking the 'off the record' proceedings which the examiner had directed the official reporter not to take."

The examiner, the court relates, ordered Inland's reporter not to transcribe any "off the record" material. When the reporter, at direction of Inland counsel, persisted, the reporter was ejected by the examiner's order.

"It is our opinion," wrote the court, "that the act of the examiner in refusing Inland's request to have

its own reporter present for the purpose of taking and transcribing the proceeding was unwarranted and inexcusable . . . A public hearing was in process in a room in a federal building with a seating capacity of 300 persons. It is inconceivable to us that any interested party should be refused the right to have present their own reporter for the purpose of making a record of everything said during the hearing."

Another attack on the examiner dealt with alleged hostile and coercive examination of witnesses.

"After reading and studying the instances specifically called to our attention, as well as other portions of the record, we are forced to the conclusion that the conduct of the examiner in this respect plainly discloses he laid aside all semblance of serving in a judicial capacity. It seems impossible, within the limitations at our disposal, to set forth the language of the examination of witnesses by the examiner from which our conclusion in this respect is reached. To obtain the complete picture requires a reading of the record (more than 5000 pages) . . .

"We think it can be stated as a general proposition (there may be exceptions) that the examiner devoted very little time to the examination of important witnesses favorable to the board, while on the other hand, his examination of important witnesses for Inland was of great length, indulged in apparently for the purpose of impairing the credit or weight to be attached to their testimony."

"Discriminated Against Witnesses"

Court specifically cited examples and in footnotes set forth excerpts from the record. One example included in the decision:

"The witness Cutting, one of the organizers of Independent (Steel Workers Independent Union Inc.), was interrogated by the examiner for more than six hours. This examination covers 130 pages of the record. At its conclusion, the examiner suggested the witness should be indicted for perjury.

"The testimony of this witness was material in behalf of the Independent, and it is a fair inference that the examiner was disappointed after his long and arduous examination in that he had been rather unsuccessful in impairing the effect of the testimony given by the witness . . .

"There was called by the board the witness James, recording secretary of Amalgamated lodge No. 1101, and following him, the witness Formentini, both of whom testified concerning a strike resolution appearing in the lodge record. It appears that the date of the meeting

at which this resolution was passed, as well as the phraseology of the resolution, was regarded as important by the board. Petitioner's counsel cross-examined these witnesses at some length and it was claimed the record had been intentionally altered shortly before the hearing for the express purpose of benefiting the board's case. A reading of the testimony of these witnesses convinces us the record had been tampered with and we think it is a reasonable inference it was done for the purpose charged. Notwithstanding this situation the trial examiner apparently was not concerned with the situation—at any rate he made no effort to discredit their testimony. His complacent attitude in this respect was in striking contrast to that exhibited by him with reference to petitioner's witnesses . . .

"We would assume that the witnesses for the board were encouraged and perhaps emboldened, while those for the petitioner (Inland) were discouraged, if not actually intimidated."

Records Reveal Prejudice

The judges decided that much of the examiner's cross-examination was calculated to draw forth improper evidence. Numerous examples are quoted to show how Wood took advantage of witnesses' limited knowledge of the English language and twisted questions and replies to embarrass them.

Wood, the court declared, "realized the record was subject to attack because of his biased conduct and sought to forestall such attack by threatening counsel (for Inland) with exposure or counterattack."

At the outset of the hearing, Wood ruled that witness subpoenas would be issued to Inland only upon written application containing specifications of the name of the witness and the nature of the facts to be proved. The same rule was not applied to the board's attorneys.

A labor board's attorney was quoted to the effect the board did not apply to itself for subpoenas.

This situation, the court declared, "discloses the unfairness of the procedure employed."

"It also illustrates, in a minor fashion, what this record, as a whole, convincingly discloses—that is, the danger of imposing upon a single agency the multiple duties of prosecutor, judge, jury and executioner . . .

"There is perhaps no more important right to which litigants are entitled than that they be given such (fair) trial. Its impairment, *ipso facto*, brings the court, and the administrative bodies as well into public disrepute, and destroys the esteem and confidence which they have enjoyed so generally.

"Time and experience have demonstrated that the public, as well as litigants, will tolerate the honest mistakes of those who pass judgment, but not the biased acts of those who would deprive litigants of a fair and impartial trial."

The Inland case originated at the time of the 1937 steel strike when the labor board filed a complaint on SWOC charges. How Nathan Witt, labor board secretary, advised SWOC leaders on the best procedure to obtain a labor board ruling

—before any charges had been filed—was disclosed at hearings of the special house committee investigating the labor act administration (STEEL, Dec. 25, p. 13).

The board issued a cease and desist order against the company April 5, 1938, but withdrew it afterward because a Supreme Court decision in another case cast doubts on technical aspects. Revising its procedure, the board issued a second order Nov. 12, 1938. Company meanwhile had appealed the case.

Tells Board He's "Pro-CIO"; Gets Job as Trial Examiner

WASHINGTON

■ FURTHER evidence of bias and incompetence in the national labor relations act's administration was unfolded last week by the special house investigating committee, which resumed hearings Monday after a holiday recess.

The investigators produced documents to prove that a man, who a board official said called himself "pro-CIO," was installed soon thereafter as a trial examiner in a labor dispute.

The man is Eugene P. Lacy, trial examiner in the Godchaux Sugar Co. case in Louisiana. When he applied for a job with the board, the board's assistant secretary reported on his application as follows:

"Believe he is very limited in viewpoint. Nice personality. He is all for New Deal, professes great sympathy with the act. His home town has a branch of the Tupelo garment shirt factory in it, but that is only industrial enterprise. He is anti-Rankin, anti-Harrison. When asked, he said with a gulp that 'he is pro-CIO.' He tried very hard to please me and says he has had all kinds of practice—civil and criminal, state and federal courts. He will not make a trial examiner."

The board hired Mr. Lacy.

The committee called several witnesses to show the board relied on young and inexperienced attorneys to read and digest evidence for it and to draft decisions ordered by the board. One young woman testified she was hired the same month she was admitted to law practice.

Committee counsel Edmund M. Toland said that witnesses in the American Radiator Co. case at Litchfield, Ill., had offered undenied testimony that a labor board field examiner, Jeff Davis, told workmen there that "of course you know that I am working for the CIO and CIO will benefit you by back pay."

Mr. Toland said the board's records did not show that Davis had

been disciplined. On the contrary he still works for the board and has received pay increases since the incident.

60,000 SUGGESTIONS FROM EMPLOYEES IN 29 YEARS

Thirty-six employees of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., were honored at luncheon recently for having made in the past six months more than 780 suggestions for improvement of the company's operations. Various amounts of money were awarded.

Nearly 60,000 suggestions, of which approximately 35 per cent were accepted, have been contributed by employees in the past 29 years.

EMPLOYEES TO RECEIVE MONTHLY "DIVIDENDS"

Kearney & Trecker Corp., Milwaukee, machine tool manufacturer, has inaugurated a monthly employee dividend program which calls for payments based on hours worked, rate of operations, and efficiency. The first payment Jan. 10 was based on December operations, and averaged 9 per cent of salaries and wages of 1268 shop and office employees totaling about \$18,000.

FERRO ENAMEL ADOPTS PROFIT SHARING PLAN

Ferro Enamel Corp., Cleveland, has adopted a profit incentive system under which a part of each \$25,000 profit in excess of \$200,000 for domestic companies will be distributed to employees. Employees' shares will be based on annual salaries and will grade down from 4 per cent for executives to 1½ per cent for clerks. About 150 employees will benefit.

In its furnace and allied engineering divisions each \$5000 in excess of \$40,000 will be divided similarly. Commissions received over a basic quota will be divided by field sales and service divisions.

Stabilization, Keynote of Scrap Convention; Record Attendance

PITTSBURGH

■ THAT a complete reform is needed in the buying attitude of iron and steel scrap consumers was emphasized by Joseph E. Jacobson, Luria Bros. & Co., Pittsburgh, and president, Institute of Scrap Iron and Steel Inc., speaking at the institute's twelfth annual convention here Jan. 9-11.

The convention, largest in the organization's history, attracted dealers and brokers from all parts of the country. Keynote was the need for stability in marketing scrap. Speakers pointed out difficulties encountered in the conduct of trading, especially in times of unusual demand.

Mr. Jacobson declared it has become necessary for the steel industry to correct its thinking on its method of buying scrap iron and steel.

"It is astonishing to hard-headed businessmen like ourselves that the steel industry feels that its supply of the one basic material over which it exercises no absolute control as to price and production can be regulated the same as the water from a tap—that its flow or stoppage can be started or stopped by the signing of a letter or by the picking up of a telephone," said Mr. Jacobson.

Other Supplies Constant

The speaker pointed out that necessary commodities in the making of steel are well known—coal, ore, limestone, and scrap. Major steel corporations acquire their ore supply through lease or purchase, assuring them of sufficient quantities of ore for years to come. In addition to unmined resources of ore, huge accumulations are held at lower lake ports for shipment as operations may dictate. Limestone quarries are acquired and supplies of this material are kept in constant readiness. Through lease or purchase coal supplies are assured for years to come, and only in the case of labor trouble is the coal supply affected.

Prices for these commodities fluctuate little. When it comes to scrap a different situation prevails. The steel industry does not control the sources of scrap, and a different method must be employed in obtaining it. To insure against violent fluctuations, it is necessary to purchase and accept delivery of scrap as it becomes available.

Mr. Jacobson believes a new deal in the buying of scrap cannot fail

to correct the marketing ills experienced in the past year. He suggested buyers place requirements for scrap iron in their proper field in their future economic planning; to increase the trinity of raw materials—ore, coal and limestone—to four by adding scrap; and to realize that violent price upheavals can be avoided by abolishing old methods and introducing a new method of classifying and buying scrap so as to keep larger supplies on hand.

"I firmly believe that this will bring about a new orderliness in our price structure and the processes of erosion, obsolescence, and wreckage can then be harnessed so that scrap iron will no longer be the problem child of the steel industry," he said.

Need More Technical Knowledge

Speaking on the "Economics and Technology of Steel Scrap," Clyde E. Williams, director, Battelle Memorial Institute, Columbus, O., told the delegates that collection and utilization of steel scrap is one of the most fascinating and vital activities of modern industry.

"The scrap industry provides a most useful service to our national economy by salvaging and giving value to a waste product," said Mr. Williams. "It also has accomplished wonders in collecting and classifying this widely scattered material at a reasonable cost. Many scrap dealers have satisfactorily solved the newer problem of maintaining quality. It is realized it will not be a simple matter to get all dealers to do so. The first step toward this goal is to acquaint the scrap man with the technical details of his business.

"The solution lies in a better understanding of the technology of steel scrap and in better co-operation between the steel and scrap industries. A program of education to instruct scrap dealers in the qualities of scrap and methods of its proper segregation and disposition should be instituted. Co-operation with the steel industry should be effected to the end that the real effects of impurities be understood, and that the less desirable scrap would be purchased and intelligently used. The fortunes of both industries are pretty much tied together by the bond of scrap quality."

Adoption of a uniform scrap contract and a code of trade customs for the scrap industry were proposed by Benjamin Schwartz, vice president, Schiavone-Bonomo Corp., Jersey City, N. J., in his paper entitled

"A Uniform Contract for the Scrap Industry." In connection with the stabilization of the industry, Mr. Schwartz said it is his understanding a program for listing scrap iron on the Commodities exchange now is under consideration.

Mr. Schwartz analyzed the scrap contract and made suggestions which he said should be taken under consideration by the industry. The proposal was to be submitted to a special committee to study. He directed attention to the hold-ups and suspensions of shipments which disorganize markets, make "options" out of valid orders, and is contrary to the vital concept that "time is of the essence" in a scrap contract.

In discussing the possibility of establishing a "futures" market for scrap, Mr. Schwartz said: "It is my understanding that a thorough study is being conducted by the Commodities exchange of a plan to establish a futures market for a few specific grades of scrap iron."

James S. Earle, supervising engineer, secondary metals section, metal economics division, bureau of mines, in a paper "Need for Factual Data on Supplies of Iron and Steel Scrap," described the aims of the bureau of mines in attempting to collect statistical data. Commenting on the bureau's recent compilation of scrap supply data, Mr. Earle said the survey shows 50 per cent of the raw materials charged into steelmaking furnaces consisted of scrap items, while 67 per cent of the material charged to iron furnaces consisted of scrap.

Data Valuable to Dealers

"Not all of this material was purchased or merchant scrap, but it is significant to note that purchased or merchant scrap accounted for 23 per cent of the total raw materials charged to steelmaking furnaces, while the same materials accounted for 34 per cent of that charged to the various types of iron furnaces," he said. "Home scrap accounted for 25 per cent of the charge to steel furnaces and 33 per cent of the charge to iron furnaces. Pig iron, which is competitive with iron and steel scrap, accounted for 50 per cent of the total charge to steel furnaces and 33 per cent of the charge to iron furnaces."

The speaker said that in so far as scrap iron dealers are concerned, data regarding stocks of iron and steel scrap at consumers' plants and dealers' yards are of outstanding value to their industry.

He asked for co-operation of the scrap iron industry in the gathering and dissemination of the vital statistical information which should aid buyer and seller.

Another speaker was Walter A. Janssen, chief, division of metals

and minerals, department of commerce, who spoke on "The Role of Iron and Steel Scrap in Our National Economy."

"Nobody deliberately 'makes' scrap," said Mr. Janssen. "That is to say—an increase in normal demand or price does not of itself bring about the wrecking of a railroad or the razing of a building or cause equipment to be discarded as being obsolete. Nor does it cause a manufacturer who produces scrap incidental to his manufacturing operations to speed up his operations for the express purpose of producing and selling more scrap."

Price Is Supply Factor

"Ultimately, more scrap will be produced or begin to come into the market in response to the stimulus of and the satiation of the demand-price rise factor, but it may be a matter of weeks, or even months, before this factor has reached a state of equilibrium, or a saturation point, and gives way to the supply-depressed price factor—which represents the beginning of maximum scrap production under conditions of the new factor and for the duration of the functioning of that factor."

Since 1900, according to Mr. Janssen, the amount of steel in use has increased 17 times as fast as the nation's population, now is 650 per cent above the 1900 level. Average life of steel in use has increased during recent years. At present the useful life of various steel products is 35½ years, he said, against an estimated 23 years in 1920.

Speaker said that studies of tonnages and classes of scrap exported do not indicate such exports have

been inimical to the public interest, either as to price or a depletion of national resources. He declared the steel production facilities and the domestic consumption are too great for this country to have to be concerned with a real shortage of scrap.

David Feinburg, David Feinburg Co., Medford, Mass., spoke on "Cost Accounting." He declared that each dealer by keeping an accurate account of what he buys and what he sells can work out his own system of cost accounting.

Edwin C. Barringer, executive secretary, submitted his annual report pointing out the various undertakings of the organization and the progress made during the past year.

Joseph E. Jacobson, Luria Bros. & Co., Pittsburgh, was re-elected president. Louis J. Borinstein, Indianapolis, was re-elected vice president.

Joseph A. Moskowitz, Samuel Sons Iron & Steel Co. Inc., Brooklyn, N. Y., was named secretary. Everett Michaels, Hyman-Michaels Co., Chicago, was elected treasurer, and Thomas Kelly, Brooklyn, N. Y., controller.

The board of directors-at-large was elected as follows: Harry Kiener, St. Louis; Max Schlossberg, Chicago; Benjamin Schwartz, New York; George L. Sturm, Middletown, O.; Darwin Luntz, Canton, O.; Abe Cohen, Lynchburg, Va.; Dave Feinburg, Boston; Barney Rubine, Bayonne, N. J.; Mather Moffett, Cincinnati.

Baltimore will be host to the 1941 convention.

More than 1000 members and guests attended the various sessions of the convention, with 523 registering. This was the largest official

registration ever reported for a meeting of the institute.

At the annual dinner Thursday evening the chief speaker was Dr. Solomon B. Freehof.

Auto Output Highest of Any Week in January

■ Automobile production, 111,330 in the week ended Jan. 13, was the highest for any week in January in the history of the industry. It compares with the previous January record, 110,550, in 1929.

As a result, estimates of total production this month are being revised to 470,000 units, up from 400,000. The record for total January production was set in 1929 with 422,538.

(Additional statistics relating to automobile production will be found on page 36.)

SKF President Heads Business Advisory Council

■ William L. Batt, president, SKF Industries Inc., Philadelphia, last week was elected chairman of the department of commerce's business advisory council, succeeding W. A. Harriman who had been chairman the past three years. Mr. Harriman will remain on the council as a member of the executive committee.

John D. Biggers, president, Libbey-Owens-Ford Glass Co., Toledo, O., and Harvey Couch, president, Arkansas Power & Light Co., Pine Bluff, Ark., were elected vice chairmen.

1939 Best Shipbuilding Year Since World War

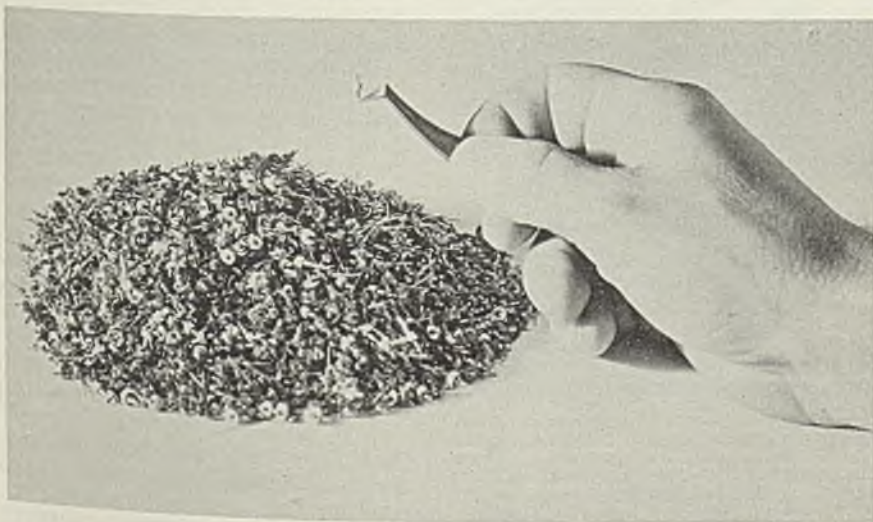
■ Forty seagoing steel merchant vessels, of 7400 or more gross tons, were launched in the United States last year, according to H. Gerrish Smith, president, National Council of American Shipbuilders, New York. Marking the most active shipbuilding year since World war days, 1939 was the first year of full-scale activity resulting from the new merchant marine act and the operation of the maritime commission.

It was a big navy year as well and 16 of the 38 naval vessels under construction when the year opened were delivered. Private shipyards received contracts for 14 additional ships.

SHIPBUILDING DECLINES SLIGHTLY IN DECEMBER

Ships being built to classification of the American Bureau of Shipping Jan. 1 totaled 238, aggregating 1,167,390 gross tons, compared with 240 vessels for 1,181,795 gross tons on Dec. 1 and 149 vessels, 583,830 gross tons on Jan. 1, 1939.

Little Steel, but a Lot of Work



■ This photo might be captioned "An Object Lesson on the Value of Machines." Illustrated is a half-pint of altimeter pinions made by the Kollsman Instrument division, Square D Co., Elmhurst, N. Y. The steel used cost exactly 80 cents. Its manufacture into pinions, however, required 8000 hours of precision work; 24 operations, using 11 machines for each pinion

PRODUCTION

STEEL RATE DROPS SLIGHTLY; VALLEY BLAST FURNACES OFF

■ STEELWORKS operations last week dropped $\frac{1}{2}$ -point to 86 per cent. Two districts made small advances and four registered declines, with six unchanged. A year ago the rate was 52 per cent; two years ago 29 per cent.

Youngstown, O. — Declined 5 points to 80 per cent for the week. Rate at the close was about 76 per cent, with 57 open hearths and three bessemer active. Carnegie-Illinois Steel Corp. took off four open hearths and banked two blast furnaces. Youngstown Sheet & Tube Co. suspended three open hearths and Republic Steel Corp. dropped one. Schedule for this week indicates about 74 per cent.

Chicago—Unchanged at 90.5 per cent, slight curtailment by two mills being balanced by increases by two others. Four mills now are operating above theoretical capacity.

Birmingham, Ala.—Steady at 94 per cent with 22 open hearths in production.

Central eastern seaboard — Continued at 82 per cent. One mill took off two open hearths but this was offset by others increasing output.

New England—Held at 83 per cent with indications of a slight increase this week.

Buffalo—Gained 5 points to 72 per cent as two open hearths were added.

Pittsburgh—Declined 1 point to 88 per cent on minor readjustments.

Wheeling—Remained at 89 per cent, highest since early December.

Detroit—Rose 3 points to 93 per cent, open hearth production being pushed to meet heavy demands. Active open hearths number 24 of the district's 26.

St. Louis—Lost 3.5 points to 75 per cent, three furnaces being off for repairs, to be restored at once. Another producer added one furnace last week.

Cincinnati—Down $16\frac{1}{2}$ points to $74\frac{1}{2}$ per cent, although some plants continued at practical capacity.

Cleveland—Maintained at 85 per cent, with little revision indicated this week.

■ New England business operated in November at the highest level attained in two and a quarter years, it was announced last week by the New England council, Boston. Its index of general business activity stood at 105.5 per cent of the estimated normal, compared with 100.9 per cent in October, and 90.1 per cent in November, 1938.

District Steel Rates

	Percentage of Ingot Capacity Engaged		in Leading Districts	
	Week ended Jan. 13	Change	1939	1938
Pittsburgh	88	— 1	44	24.5
Chicago	90.5	None	49	26.5
Eastern Pa.	82	None	34	31
Youngstown	80	— 5	55	25
Wheeling	89	None	64	35
Cleveland	85	None	56.5	24
Buffalo	72	+ 5	44	23
Birmingham	94	None	77	63
New England	83	None	75	26
Cincinnati	74.5	—16.5	65	28
St. Louis	75	— 3.5	40	21
Detroit	93	+ 3	87	52
Average	86	— .5	52	29

Gear Sales Decrease

■ Gear sales in December were 12 per cent below those for November, but 37 per cent larger than in December, 1938, according to the American Gear Manufacturers association, Wilkesburg, Pa. Sales in 1939 were 36 per cent higher than in 1938.

Association's index for December dropped to 111, from 126 in November and 141 for October. The latter was highest since 1937. Annual index for 1939, based on an average of 12 months, was $103\frac{1}{2}$.

Steel Corp. December Shipments Best of Year

■ Finished steel shipments by the United States Steel Corp. in December amounted to 1,304,284 tons, 33,390 tons, or 2.6 per cent, more than 1,270,894 tons in November. December's total was 610,080 tons greater than 694,204 tons shipped in the corresponding month, 1938, and was the highest since April, 1937, with 1,343,644 tons.

For 1939, shipments before year-end adjustment totaled 10,652,150 tons, compared with 6,655,749 tons after adjustments in 1938.

U. S. STEEL CORP. SHIPMENTS				
(Inter-company shipments not included)				
	1939	1938	1937	1936
Jan.	789,305	518,322	1,149,918	721,414
Feb.	677,994	474,723	1,133,724	676,315
March	767,910	572,199	1,414,399	783,552
April	701,459	501,972	1,343,644	979,907
May	723,165	465,081	1,304,039	984,097
June	733,433	478,057	1,268,550	886,065
July	676,309	441,570	1,186,752	950,851
Aug.	803,822	558,634	1,107,858	823,703
Sept.	985,050	577,666	1,047,962	961,803
Oct.	1,218,545	663,287	792,310	1,007,417
Nov.	1,270,894	679,653	587,241	882,643
Dec.	1,304,284	694,204	489,070	1,067,365
Adj.*		130,381	177,113	140,859
Ttl.	10,652,150	6,655,749	12,748,354	10,784,273

*Yearly adjustment. †Deduction. ‡Increase

Reviews Developments In Machine Tools

■ Guy Hubbard, machine tool editor, STEEL, addressed members of the Kansas City section, American Society of Mechanical Engineers, at University club, Kansas City, Mo., last Friday evening. This dinner meeting was attended by a large number of manufacturing executives and production engineers. Mr. Hubbard's subject was "Machine Tools of Today."

Many of those present had planned to attend the national machine tool show which was to have been held in Cleveland in October. Because of their keen interest in the latest metalworking equipment, Mr. Hubbard was called upon to give his impressions of what they might have seen in Cleveland if the show had not been canceled.

On the basis of his visits to more than 100 machine tool building establishments during the past year, which required several thousand miles of travel, the speaker reviewed some of the most significant developments in machines and tools, in terms of what they mean to the user. The formal paper, which was illustrated with slides, was followed by a question and discussion period.

Tin Output, Use and Stocks in Sharp Gain

■ World tin production, averaging 10,800 tons per month for the first eight months in 1939, increased to 23,800 tons in September and to 24,800 tons in October, with indications of somewhat smaller output in November, according to the International Tin Research and Development council, The Hague.

Deliveries in September were 11,272 tons, in October 20,050 tons and in November 13,500 tons, compared with an average of 11,959 tons for the first eight months. World apparent tin consumption averaged 12,800 tons for eight months, decreased to 11,300 tons in September and recovered to 13,400 tons in October and 17,500 tons in November.

Tin stocks, including tin in ore and intermediate products, decreased by 14,800 tons to 34,600 tons at the end of August and in the following three months increased by 16,100 tons to 50,700 tons.

■ No decision has been reached by the United States Steel Corp. relative to constructing an iron and steel works in Brazil. Several of the corporation's technical men returned to the United States late last year after studying the situation in Brazil and their report now is in the hands of executives.

MEN of INDUSTRY

DAVID W. THOMAS has been appointed manager of sales, tin mill products, Jones & Laughlin Steel Corp., Pittsburgh. He has been identified with the steel industry since 1913 when he started in the accounting department of American Sheet & Tin Plate Co. at Pittsburgh. In 1917 he joined the operating department of Bethlehem Steel Co. at Sparrows Point, Md., and following service in the World war returned to Bethlehem, advancing through various positions in the operating, order, schedule and sales departments. His predecessor, Philip Schaefer, will be special representative, with duties to be assigned.



David W. Thomas

Henry J. McAdams has become associated with the New York district sales staff of Jones & Laughlin, and will specialize in the sale of oil country tubular goods. He formerly was New York manager, Tokheim Oil Tank & Pump Co. since 1934.



Henry J. McAdams

C. H. McCollam, metallurgist, Steel & Tube division, Timken Roller Bearing Co., Canton, O., has been appointed assistant director of steel sales.

R. A. Cannon, heretofore vice president in charge of casting sales, has been appointed vice president in charge of sales, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.

Howard A. Flogaus, associated with J. G. Brill Co., New York, the past year as assistant to vice president, has been appointed chief engineer.

W. H. Melaney, sales manager, National Roll & Foundry Co., Avonmore, Pa., has retired after 60 years active service in the steel industry.

George C. Brainard, president, General Fireproofing Co., Youngstown, O., has been re-elected chairman, Cleveland Federal Reserve bank for 1940.

T. N. Wilder, formerly assistant to advertising manager, Carnegie-Illinois Steel Corp., Pittsburgh, has joined Ketchum, MacLeod & Grove Inc., Pittsburgh, as account executive.

Charles G. Williams, formerly vice president in charge of purchasing and manufacturing, American Chain & Cable Co. Inc., Bridgeport, Conn., has been appointed general manager, John A. Roebling's Sons Co.,



C. G. Williams

Trenton, N. J., effective March 1. Following graduation from Sheffield Scientific school, Yale university, he was employed by Terry Steam Turbine Co., Hartford, Conn. In January, 1913, he was made purchasing agent of the Oneida, N. Y., plant of

American Chain & Cable. After acquisition of Standard Chain Co. in 1916 he was appointed general purchasing agent of all the company's plants; in 1928 became general production manager; was made a director two years later and in 1936, vice president in charge of all manufacturing operations.

H. L. Joseph Humphrey has been made advertising manager, Ex-Cell-O Corp., Detroit. He succeeds Tom Moule, who is now with Seiler, Wolfe & Associates, Detroit.

George F. Bauer has resigned as secretary, export committee, Automobile Manufacturers association, to establish offices in New York as international trade counselor.

H. Kenneth Briggs, who resigned recently as metallurgist, Western Foundry Co., Chicago, is now a member of the sales staff of Miller & Co., Chicago, broker of pig irons, alloys and coke.

Colman Curtiss Jr. has been named assistant to the general sales manager, Buffalo Bolt Co., North Tonawanda, N. Y. A graduate of Yale university, he joined Buffalo Bolt in 1934.

Howard W. Teter has been appointed district manager, Edison Storage Battery Supply Co., Boston, succeeding P. F. Donovan, who has been granted leave of absence due to ill health.

Ray C. DuBrucq, associated with the woodworking machinery industry over 20 years, has been elected vice president in charge of sales, Crescent Machine Co., Leetonia, O., manufacturer of woodworking machinery.

Ralph J. Stayman, formerly manager of warehouses, Jones & Laughlin Steel Corp., Pittsburgh, and prior to that with Joseph T. Ryerson & Sons Inc., Chicago, has become associated with Pittsburgh Bridge & Iron Works, Pittsburgh, as manager of warehouse department.

H. W. Collinson, for many years Cleveland district sales manager, Carborundum Co., Niagara Falls, N. Y., has been transferred to Chicago as district sales manager. He succeeds F. E. Gridley, who has been granted an extended leave of absence. E. F. Konker, a member of the company's sales staff, succeeds Mr. Collinson as district sales manager.

at Cleveland. K. C. Woltz, heretofore a member of the sales engineering staff, has been assigned the territory vacated by Mr. Konker.

William L. Batt, president, SKF Industries Inc., Philadelphia, has been elected chairman of the board, American Management association, New York. He succeeds the late James O. McKinsey, chairman, Marshall Field & Co.

Arthur R. Tinnerholm has been named product engineer, plastics department, Fort Wayne, Ind., plant of General Electric Co., Schenectady, N. Y. He formerly was sales manager and factory superintendent, Specialty Insulation Mfg. Co., Hoosick Falls, N. Y.

James Tate, director of sales, Delta Mfg. Co., Milwaukee, has been elected a vice president. Robert P. Mc-



Harry Herron

ius has been appointed general sales manager, and Robert C. Beck, assistant sales manager. Frederick W. Vorck has been named sales manager, eastern division, and Jack Mather, sales manager, western division.

A. E. Johnson, vice president and general manager, Hastings Mfg. Co., Hastings, Mich., has been elected president. Hal R. Keeling, president, Keeling & Co., Indianapolis, advertising agency, has been named a director and vice president of the Hastings company.

E. R. Stettinius Jr., chairman of the board, United States Steel Corp., has been made a member, Corporation of Massachusetts Institute of Technology. Ralph E. Flanders, president, Jones & Lamson Machine Co., Springfield, Vt., for three years a term member, has been made a life member.

Clarence G. Fox has been ap-

pointed purchasing agent, Pump Engineering Service Corp., Cleveland, division of Borg-Warner Corp., Rockford, Ill. He formerly was purchasing agent, Marvel-Schebler Carburetor division of Borg-Warner at Flint, Mich.

Philip Sievering, president, Philip Sievering Inc., New York, was honored recently at a surprise party given by the Masters' Electroplating Association of New York, commemorating his fiftieth anniversary in the plating industry. He was presented a miniature gold-plated electroplating tank.

L. A. Mullen has been appointed assistant manager of sales, Pittsburgh Steel Co., Pittsburgh. He has been with the company since January, 1938, first as assistant district sales manager at New York, and later as district sales manager at Chicago. Before joining Pittsburgh Steel Mr. Mullen had been associated with Republic Steel Corp. ten years in various sales capacities.

Harry Herron, the past six years superintendent, sheet metal plant of Buick Motor division, Flint, Mich., has been appointed to special assignment in die design and manufacturing development. A. R. Middleton, formerly assistant superintendent, succeeds Mr. Herron as superintendent. Arthur W. Maves, formerly night superintendent, has been named assistant superintendent.

Harold Swanton has been elected vice president, Precision Bearings Inc., Los Angeles, succeeding Norman Bell, resigned. Mr. Swanton, sales manager for several years, will continue in that capacity. He has been with Precision Bearings and its predecessor companies about 15 years.

George A. Blackmore, president, Westinghouse Air Brake Co., Pittsburgh, and Union Switch & Signal Co., Swissvale, Pa., and Arthur W. Page, a vice president and director, American Telephone & Telegraph Co., New York, and a director, Continental Oil Co., have been elected directors, Westinghouse Electric & Mfg. Co.

Ellsworth F. Wilson has joined the engineering department, Hanson-Van Winkle-Munning Co., Matawan, N. J. Harvey K. Hunt, formerly with Crucible Steel Co. of America, has joined the company's laboratory staff. Other appointments include: W. W. Wieland, sales engineer; H. E. Moyer, sales representative, with headquarters at 4324 South Normandie avenue, Los Angeles; Jack D. Clayton, sales representative,

with headquarters at 2842 West Grand boulevard, Detroit; and Harold R. Smallman, western manager, with offices in Chicago.

Harvey King will be in charge of the Birmingham, Ala., branch sales office which Clark Controller Co., Cleveland, is to establish shortly. Mr. King has had many years experience in the electrical industry and the past 11 years has specialized in control application. He formerly was with Westinghouse Electric & Mfg. Co., and Electric Controller & Mfg. Co. The Birmingham office will cover Alabama, Tennessee and northern portion of Mississippi.

Stuart E. Lauer, heretofore vice president in charge of sales, has been elected president, York Ice Machinery Corp., York, Pa., succeeding William S. Shipley, who has become chairman of the board. Mr. Lauer has been with York Ice Machinery



A. R. Middleton

and its predecessor about 30 years. Other officers are: Executive vice president, Elmer A. Kleinschmidt; vice president in charge of engineering, L. Williams; vice president and treasurer, Samuel J. Shipley; secretary, Vincent K. Keesey.

R. L. Harter, who recently resigned as industrial engineer, Alemite division, Stewart-Warner Corp., Chicago, has been appointed chief engineer, Trabon Engineering Corp., Cleveland, manufacturer of lubricating equipment.

Edward I. Pfaff has been named sales manager of Trabon. He has been associated with the industrial lubricating field the past 12 years as a special industrial representative of the Alemite division of Stewart-Warner.

W. F. Schulten has been appointed to the newly created position of general traffic manager, Pittsburgh Coal Co., Pittsburgh, and its subsidiaries. W. P. Buffington, traffic

manager, will continue his present duties. Mr. Schulten served as traffic consultant for the former Illinois Steel Co., Universal Portland Cement Co., and as vice president, Chicago district, Electric Generating Corp. and Super Power Co. of Northern Illinois. He is a registered practitioner before the interstate commerce commission.

Henry C. Atkins, president, E. C. Atkins & Co., Indianapolis, saw manufacturer, has been named by officials of the Indianapolis chamber of commerce and other civic organizations as one of seven to be named to the Staff of Honor of Indianapolis. He has been president, Indianapolis community fund; treasurer, Young Men's Christian association 35 years, and has been active as a member of boards and committees of other civic and philanthropic organizations.

David K. Miller has been appointed manager, Baltimore branch, Crucible Steel Co. of America, New York. Mr. Miller, since 1937, had been district representative at Baltimore until its recent designation as a branch office.

J. S. Billingsley, associated with Crucible since 1923, has been named assistant manager at Pittsburgh. George Sharpe, formerly with Michigan Tool Co. and Hudson Motor Co., has joined Crucible in sales promotion.

J. F. Lincoln, president, Lincoln Electric Co., Cleveland, is making an extensive speaking tour in the southern, southwestern and western parts of the country. At the annual banquet of the Charlotte Engineers club, Charlotte, N. C., Jan. 11, he spoke on "Government is Made for Man, Not Man for Government." His itinerary includes Birmingham, Ala., New Orleans, Houston, Tex., Los Angeles, San Francisco, Portland, Oreg., Seattle, Pueblo and Denver, Colo., Chicago, and Salt Lake City, Utah.

Donald C. Bakewell, vice president, Union Steel Castings division, Blaw-Knox Co., Pittsburgh, was elected president, Steel Founders' Society of America, Cleveland, at a meeting of the society's new board of directors in Cleveland, Jan. 10. Arthur K. Reading, vice president, Zimmerman Steel Co., Bettendorf, Iowa, was elected vice president.

Messrs. Bakewell and Reading, with Charles P. Whitehead, vice president in charge of sales, General Steel Castings Corp., Eddystone, Pa., will comprise the society's executive committee. Other members of the board are: Arthur J. Westphal, Atlas Steel Casting Co., Buffalo; Franklin G. Russell,



Richard D. Baker

Who has been elected vice president and general manager of sales, Pittsburgh Screw & Bolt Corp., Pittsburgh, as noted in STEEL, Jan. 8, page 18. He succeeds John P. Hoelzel who has been elected president

Florida Machine & Foundry Co., Jacksonville, Fla.; F. Kermit Donaldson, Machined Steel Casting Co., Alliance, O.; Burtner Fleeger, Oklahoma Steel Castings Co., Tulsa, Okla.; Ernest R. Hinton, Olympic Steel Works, Seattle.

Died:

■ CHARLES A. FISHER, 64, former president, Jones & Laughlin Steel Corp., Pittsburgh, in Pittsburgh, Jan. 5. Since 1933 he had been president, Pitt National bank, Pittsburgh. Born in Union City, Pa., Mr. Fisher joined Jones & Laughlin as a bookkeeper. He was elected president in April, 1927, and retired the following year.

H. P. Treadway, president, Kansas City Bridge Co., Kansas City, Mo., in that city, Dec. 26.

Hans P. Jorgensen, 71, vice president, Jorgensen Engineering Co., Beloit, Wis., in Beloit, Jan. 6.

Hugh L. Warner, 73, founder, Warner Gear Co., Muncie, Ind., Dec. 28 in Highland, Mich.

Frederic K. Knowlton, 60, vice president, M. D. Knowlton Mfg. Co. and Auburn Ball Bearing Co., Auburn, N. Y., in New York, Dec. 15.

Robert S. Withington, 71, president, American Insulating Machinery Co., Philadelphia, Jan. 5 at his home in that city.

Jacob Brenner, 75, president, Jacob Brenner Co., sheet metal products manufacturer and the B-F

Blower Co., Fond du Lac, Wis., at his home in Fond du Lac, Jan. 1.

David H. Cohen, 56, head of D. H. Cohen & Co., scrap iron dealer, St. Louis, in that city, Dec. 19.

George W. Smith, 71, before his retirement in 1927, superintendent of production, I. Case Co., Racine, Wis., Dec. 23 in Seattle.

William L. MacRae, 47, president of Dalrae Tools Co. and MacRae Machinery Co., at his home in Syracuse, N. Y., Dec. 10.

Nelson M. McMurphy, 74, vice president and director, Illinois Steel Bridge Co., Jacksonville, Ill., at his home in that city, Jan. 1.

Henry L. Wratten, 79, an organizer and president, Racine Boiler & Tank Co., Racine, Wis., in Racine, recently.

W. A. Cramer, 52, vice president and treasurer, Wausau Iron Works, Wausau, Wis., in that city, Jan. 4. He had been with the company since 1916.

F. J. Shiring, 62, manager of factory service, East Pittsburgh works, Westinghouse Electric & Mfg. Co., Dec. 22. He was employed by Westinghouse 45 years.

Ralph N. Cogan, 34, sales engineer, Pennsylvania Iron & Steel Co., Los Angeles, in that city, Dec. 13. A native of Cleveland, he had lived in Los Angeles 19 years.

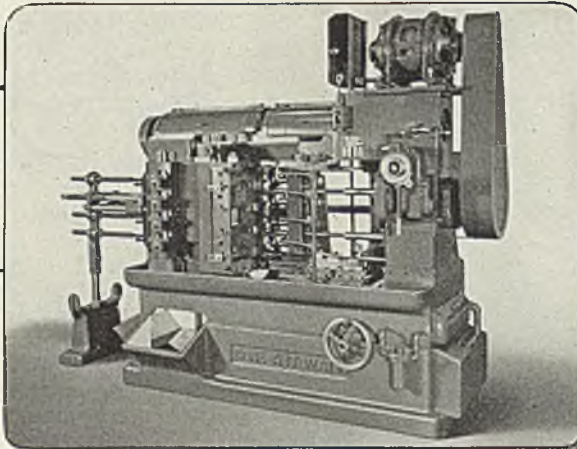
Jesse B. Whitnall, 79, an organizer, Northern Conveyor & Mfg. Co., Janesville, Wis., Dec. 27 in that city. He retired in 1931, after being identified with a number of industrial and financial organizations.

Boughton T. Noble, 71, factory manager, Clark Bros. Bolt Co., Milldale, Conn., Jan. 2. He had been with Clark Bros. 56 years, serving as superintendent 30 years and a director 20 years.

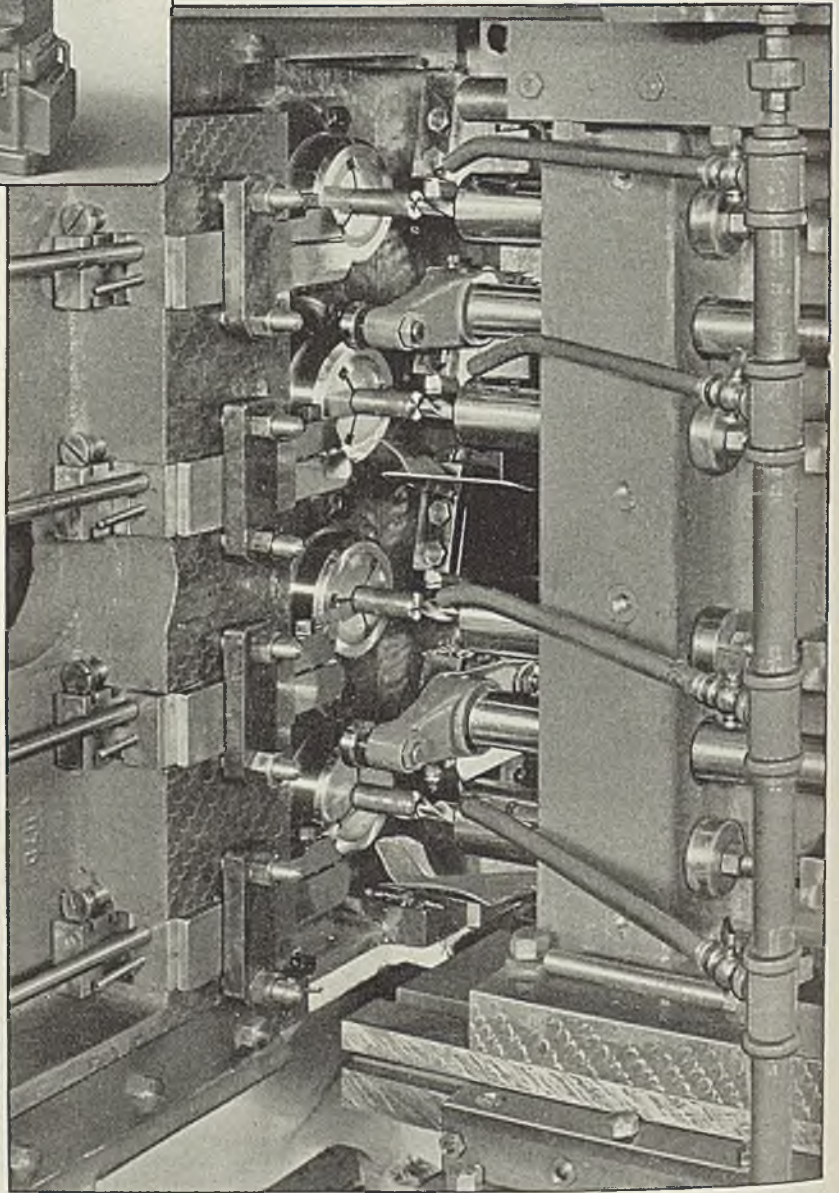
Charles K. Knickerbocker, 65, first vice president, Griffin Wheel Co., Chicago, in that city, Jan. 7. His entire business career was spent with Griffin Wheel. Joining the company in 1894, he served successively as shipping clerk, sales agent, general sales agent and vice president.

Alfred H. Swartz, 75, special representative, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., before his retirement in 1935, Jan. 6 in Grand Rapids, Mich. An associate member, Association of Iron and Steel Engineers, he was well known through his efforts in the founding of that organization.

4 PIECES *EVERY* 13 SECONDS



1 1/4", 4-Spindle Cone
Vertical Automatic



Close-up of tooling for pro-
ducing the parts shown above

THE job, shown above, is typical of the parts which can be produced exceptionally fast and economically on the 4-Spindle Cone Vertical. One part is finished on each spindle during every cycle of the machine. In this

case four parts are produced in 13 seconds—880 parts per hour at 80% production! If you manufacture parts of similar nature it will pay to learn more about the Cone 4-Spindle Vertical. A new catalog is yours for the asking.

CONE AUTOMATIC MACHINERY CO., INC., Windsor, Vt., U. S. A.

Windows of WASHINGTON



By L. M. LAMM
Washington Editor, STEEL

WASHINGTON
■ **SECRETARY** of State Cordell Hull, father of the trade agreement program, asked last week for a three-year extension of trade agreements. A resolution to this effect has been introduced in the house by Representative Doughton, chairman, ways and means committee.

Mr. Hull told the ways and means committee the original trade program was enacted to "expand our exports through reduction of trade barriers in other countries. I submit that it has been done."

The United States, he said, has concluded 22 reciprocal agreements representing about 60 per cent of our foreign trade. "In adjusting tariff rates," the secretary asserted, "we have kept well within the limits prescribed by congress. We have gone about the matter as objectively and scientifically as possible, always keeping in mind both the position of the particular branches of production affected and interests of the nation as a whole."

Trade agreements have expanded markets at home and abroad for all groups of producers, said Mr. Hull. This result has been due primarily to the method employed in carrying out the plan.

Association Opposes Program

"The trade agreements program," declared Secretary Hull, "has served us well during a period of national emergency. It has enabled us to expand our foreign trade without introducing far-reaching governmental controls, such as have been employed in many other countries."

In conclusion he said: "If there were any suspicion in my mind that the trade agreements program hurts rather than benefits our people, I would be the first to abandon it. I have searched diligently and painstakingly the mass of evidence on all phases of this vital question, and I am firmly convinced that it proves overwhelmingly the

beneficial nature of the trade agreements program and points unmistakably to the dangers inherent in an abandonment or weakening of that program."

Howard I. Young, St. Louis, president of American Zinc, Lead & Smelting Co., and chairman of the tariff committee, National Association of Manufacturers, has sent to Representative Doughton the text of a resolution dealing with reciprocal trade agreements adopted at the recent 1939 Congress of American Industry.

In his letter Mr. Young states the association is vitally interested in international trade, but is opposed to further negotiation of trade agreements. "Further expansion of this program," he says, "would not be in the interest of agriculture, industry, and labor."

SENATE PASSES RESOLUTION FOR 1940 BUDGET ANALYSIS

Senate last week passed the Harrison resolution providing for establishment of a joint congressional committee to make a "full and complete study and analysis" of the administration's budget for fiscal year ending June 30, 1941. Resolution has been referred to the house rules committee.

It provides for a 24-member committee composed of 12 members of the house and 12 of the senate, 6 each from the senate committees on finance and appropriations and a similar number from the ways and means and the appropriations committees of the house.

Committee is to formulate a fiscal program "which will tend ultimately and at the earliest practical date to bring revenues and expenditures into balance." Sixty days are allowed for the investigation.

Strong sentiment against additional taxes has developed on both sides of the Capitol. Many observers are of the opinion no legislation increasing taxes will be passed

at the present session of congress.

There is a feeling that congressmen, especially members of the house, would rather increase the public debt for national defense than increase taxes, which might result in lower income tax brackets.

Close observers feel congress will not support the President on his proposed defense expenditures. Legislators, it is believed, are wary of the defense program because it is thought too large an appropriation would create war psychology throughout the country.

ENGINEERING COUNCIL REVIEWS 1939 SURVEYS

Proposal that industrial concerns give summer employment to university students from Central and South America was advanced at the twentieth annual assembly of American Engineering council, meeting here Jan. 11-12. Plan was presented by Prof. F. N. Menefee, University of Michigan, who reported favorable reaction on the part of industrial and university officials with whom he had discussed the matter.

Other features of the two-day meeting included talks by John M. Carmody, federal works administrator; Arthur S. Flemming, United States civil service commission; Conway P. Coe, patents commissioner; Otto S. Beyer, chairman, national mediation board; A. C. Shire, technical director, United States housing authority; and Richard F. Pattee, assistant chief, division of cultural relations, state department.

Remainder of the meeting was devoted to consideration of work accomplished during the past year by committees in the fields of public affairs, patents, surveys and maps and public works.

New officers for 1940 are: President, Alonzo J. Hammond, consulting engineer, Chicago; vice presidents, William L. Batt, president SKF Industries, Philadelphia, and

Col. Donald H. Sawyer, federal works agency; treasurer, Leonard J. Fletcher, Caterpillar Tractor Co., Peoria, Ill.

ASSIGN 1940 TIN PLATE SCRAP EXPORT ALLOTMENTS

Allotments totaling 7263 gross tons of tin plate scrap have been assigned to 35 producers of that commodity for export during 1940, subject to license. Applications were received from 38 companies for allotments totaling 11,961 gross tons.

Three applicants failed to qualify because of failure to comply with regulations. Other applications were reduced to comply with requirements.

Requests for license to export tin plate scrap during 1940 may be submitted by any producer who has been assigned an allotment or by any person authorized by such producer to export tin plate scrap under his allotment.

Attention of producers to whom allotments have been assigned has been called to paragraph 7 of the rules of procedure which provides that licenses will not be issued during the first six months of this year for exportation of tin plate scrap in quantities in excess of 50 per cent of any allotment of 50 gross tons or more, and to paragraph 9 which states the national munitions control board may revoke, cancel or modify at any time allotments or licenses and may modify rules of procedure under which they have been issued whenever, in its opinion, such action is required in order to carry out the purposes of the act.

Allotments totaling 13,636 gross tons of tin plate scrap were assigned for export, subject to license, during 1939. One hundred and seventy-two licenses were issued, authorizing exportation of 10,699 gross tons of tin-plate scrap valued at \$200,497.52. All licenses issued during 1939 named Japan as the country of destination.

HULL APPOINTS ADVISORY FOREIGN RELATIONS BOARD

Special committee was set up last week by the secretary of state to gather and study data of overseas war measures and the manner in which problems arising from them may best be handled to avoid shock and to prevent undesirable enduring results. Undersecretary of State Sumner Welles is chairman, Hugh Wilson vice-chairman.

In announcing this new advisory committee on problems of foreign relations, Secretary of State Hull declared "the war has brought about, and is continuing to bring about, a series of measures and policies on the part of both belligerents and neutrals which immediately affect the United States and which

may have consequences of an enduring nature upon our country's foreign relations once peace is established.

"Some of the most important and immediate of these measures and policies are in the field of economic activity and relations. The war has absorbed the labor and production of much of the world in armament and military activity. When the war ends, problems of readjustment to peace-time production will be presented, which may gravely affect the United States."

NAVY OFFICIALS ASSERT FLEET EXPANSION ESSENTIAL

Navy department officials appeared last week before the house naval affairs committee urging expenditure of \$1,300,000,000 for naval expansion.

Secretary of the Navy Edison and Admiral Harold R. Stark, chief of naval operations, were principal witnesses. Mr. Edison told the committee he believed the proposed 25 per cent increase in the fleet's size is needed in view of the present situation.

Admiral Stark asserted that unless quick action toward increasing the strength of the fleet is taken, United States will be in a weak naval position by the end of the present European war. He indicated the navy's expansion program has been revised to provide for some larger ships than had been contemplated.

The present program calls for 77 combat ships and 30 auxiliaries. It was originally announced by Representative Vinson, chairman, house naval committee, that the proposed increase was for 95 warships and 31 auxiliaries.

Navy plans, Admiral Stark told the committee, provide for an approximate 25 per cent tonnage increase. It was not made plain whether the navy has definitely decided to include some battleships in the program previously omitted, or whether battleships larger than 45,000 tons, the current maximum, have been decided upon.

During the course of his testimony, it was revealed the two battleships for which President Roosevelt recently asked initial funds would probably be sister ships of the two 45,000-ton vessels for which funds were voted at the last session of congress.

"We are satisfied there is nothing on the ways superior to what we have building or in contemplation," he asserted. Admiral Stark's explanation of present construction plans made it plain the navy does not contemplate starting any 50,000 or 52,000-ton ships this year.

Comparing the advantages and disadvantages of super-battleships, Admiral Stark remarked that while

a bigger craft obviously would be superior to an individual smaller ship, it should also be remembered that there is some advantage in numbers.

Admiral Stark also told the committee the navy planned to obtain 200 more two-engine, long-range bombers of the type which flew in formation of 48 from San Diego, Calif., to the Panama Canal last year. Already 450 of these planes have been procured or ordered.

He reported, further, that the navy is experimenting with 18-inch guns for battleships. Its largest now are 16 inches.

TNEC REPORTS COMMODITIES PRICES REMAIN STABLE

Temporary national economics committee, conducting a price study at the request of President Roosevelt, reports no serious increase in the general level of commodity prices has taken place since outbreak of war in Europe. However, extensive rises in the price of certain imports and domestic products that have a direct war use have been noted. "The general trend of prices," the committee says, "is still upward."

Need for continued scouting of markets, the committee reports, is indicated by the fact that "raw materials prices have been rising sharply during recent weeks and are now more than 11 per cent higher than at the end of August, while semi-finished products are more than 12 per cent above their pre-war level. Finished products, as a group, have risen little, being but 3.4 per cent higher Dec. 30 than Aug. 26."

GOVERNMENT IRON AND STEEL PURCHASES TOTAL \$386,167

During the week ended Dec. 30, the government purchased \$386,167.01 worth of iron and steel products under the Walsh-Healey act, as follows: Bethlehem Steel Co., Bethlehem, Pa., \$10,732.02; United States Steel Products Co., Washington, \$11,462; J. C. Busch Co., Milwaukee, \$13,860; Wm. Scrimgeour, Washington, \$12,763.52; Patent Scaffolding Co. Inc., Philadelphia, \$20,207.10; Keystone Bolt & Nut Corp., New York, \$12,609.45; Phillips & Buttorff Mfg. Co., Nashville, Tenn., \$20,255.50; A. B. Murray Co. Inc., Brooklyn, N. Y., \$15,656.46.

Widin Metal Goods Co., Garwood, N. J., \$9,678 (estimated); National Electric Products Corp., Pittsburgh, \$25,000; Bethlehem Steel Co., San Francisco, \$160,422; Columbia Steel Co., Seattle, \$11,922.33; Lehigh Structural Steel Co., New York, \$13,796.36.

Garcia Hermanos Inc., Bayanen, P. R., \$13,618.30; Lalance & Grosjean Corp., Woodhaven, Brooklyn, N. Y., \$17,700; and American Locomotive Co., Railway Steel Spring division, New York, \$16,484.

AVIATION

AIRCRAFT BOOKINGS SINCE JAN. 1 ESTABLISHES NEW PEAK

■ ORDERS booked by aircraft manufacturers since Jan. 1 were the largest on record for the period. New business signed by 15 leading producers approximated \$75,000,000 while deliveries were about \$25,000,000.

Manufacturers sharing in the new orders, and estimated amounts added to their backlogs are as follows: Consolidated Aircraft Corp., San Diego, Calif., \$20,000,000; Curtiss-Wright Corp., Clifton, N. J., \$16,000,000; Lockheed Aircraft Corp., Burbank, Calif., \$20,000,000; Republic Aircraft Corp., Farmingdale, L. I., \$1,300,000 and United Aircraft Corp., East Hartford, Conn., \$15,000,000.

What is reported to be one of the largest orders ever placed for commercial craft was awarded Douglas Aircraft Co., Santa Monica, Calif. This called for forty DC-4, 4-engined transports, valued at \$14,000,000, for United, American, Eastern and Pan American airlines and Netherlands K.L.M. airline.

Contracts to be awarded shortly include: A British order to Douglas for attack bombers to cost \$30,000,000 to \$40,000,000; another British order to Consolidated for patrol bombers valued at about \$5,000,000; a French order to Glenn L. Martin, Baltimore; and one or more British orders for pursuit planes.

British plans for purchase of approximately 10,000 military airplanes in this country in the next 18 months were laid before government officials in Washington. This figure is based upon British estimates of amount of foreign assistance necessary to achieve air supremacy over Germany by June. It does not take into account the extent of possible French purchases.

Seeks 50-Passenger Plane

Early last week American Export Airlines contracted with Vought Sikorsky Aircraft Co., Stratford, Conn., for three 58,000-pound flying boats for nonstop service between United States and Europe.

While testifying before the Civil Aeronautics Authority last week, Juan T. Trippe, president of Pan American Airways, said his company intends to ask American airplane makers to submit designs for a 50-passenger plane capable of flying 5000 miles nonstop, 300 miles per hour.

Contracts for \$206,000 were received by Ryan Aeronautical Co., San Diego, Calif. According to T. Claude Ryan, president, these were from three aircraft producers for exhaust manifold systems to be

installed on United States army planes and for aircraft to be exported.

Last week CAA recommended in its first annual report to congress immediate allocation of \$100,000,000 in WPA funds and a \$25,000,000 special appropriation for airport development in this country. Increase in pilots has created a strong demand for civil aircraft engines and accessories as well as for the various maintenance and operations services.

Stockholders of Boeing Airplane Co., Seattle, have approved a proposed increase in authorized capital from 800,000 to 1,250,000 shares of \$5 par value. Second proposal, transferring \$3,471,686 to earned surplus from paid-in surplus also was approved, eliminating deficit from earned surplus account. Philip G. Johnson, president, reports no definite program has been adopted as yet for issuance of additional shares.

\$215,000,000 Spent for Industrial Research

■ Approximately \$215,000,000 was spent for industrial research during 1939 by 2000 United States companies, according to Dr. William A. Hamor, associate director, Mellon Institute of Industrial Research, Pittsburgh, in a report to American Chemical society, New York.

"About 250 manufacturing corporations are sustaining long-range investigations in research foundations," Dr. Hamor finds.

"A considerable number of companies, mostly small concerns that

have no laboratories of their own, or larger companies that encounter few problems or are engaging in research for the first time, are regular or occasional clients of consulting laboratories. There are said to be 250 of these commercial laboratories in the country.

The steel industry spent about \$10,000,000 for industrial research, Dr. Hamor found. "Nearly 2550 scientists are employed, while close to 1300 others devote part of their time to investigational activities.

"The steel industry has invested more than \$9,000,000 in providing facilities for these research workers. About 33 per cent of the expenditure is devoted to the improvement of the quality of products, and 19 per cent is spent in the betterment of manufacturing methods. The development of new products represents 20 per cent of the activities."

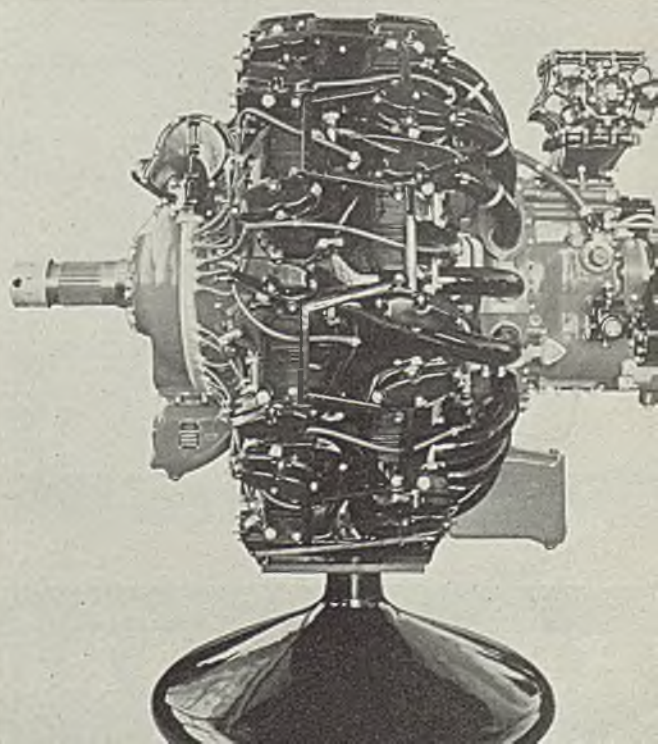
The automobile industry saved more than \$10,000,000 last year by salvaging waste materials, Dr. Hamor adds. The railroads estimate annual savings of \$2,000,000 would result from development of a chemical to inhibit corrosive effects of brine from refrigerator cars on equipment, track and bridges.

Nearly half the 32,000 scientists and engineers engaged in industrial research are employed by the chemical, petroleum and electrical laboratories, according to Dr. Hamor.

"A trend of vast purport during the year was toward the utilization of plastics by the armed forces of every major nation." In other countries, as well as the United States, he concludes, most impressive strides have occurred in plastics.

Eighteen-Cylinder Duplex-Cyclone Engine

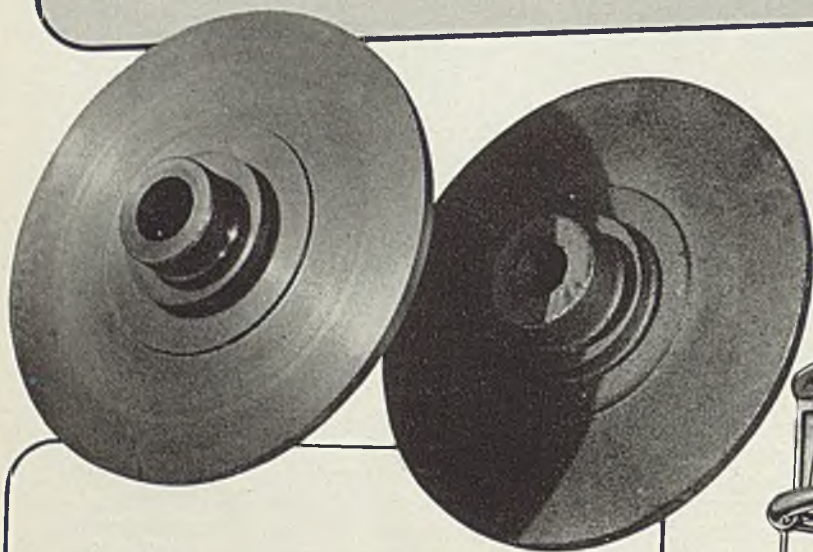
■ Developed by Wright Aeronautical Corp., Paterson, N. J., this Duplex-Cyclone, 2000-horsepower, commercial aircraft engine, is as the name implies, two 9-cylinder Cyclones built on one crankshaft. Staggered in construction, the cylinders in the rear row are arranged on the crankcase to fill in the gaps between those in the front row, providing an adequate flow of cooling air over both front and rear banks of cylinders



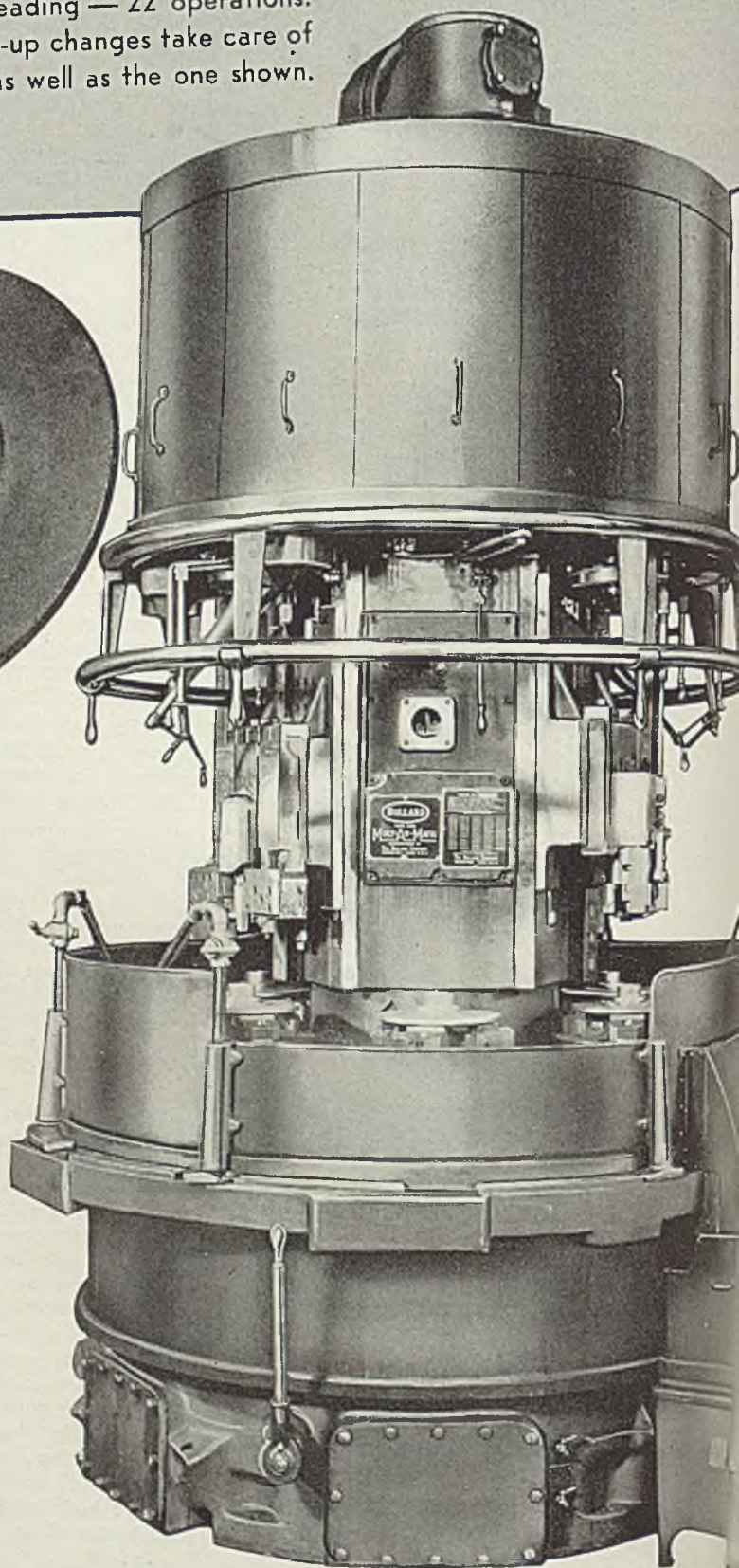
Floor to Floor - 58 Seconds

THE MULT-AU-MATIC WAY

This 58-second job is machining the hub and back-plate. It is handled on a 12" 6 spindle type D Mult-Au-Matic. The operations include boring, turning, facing, rough and finish reaming, facing, grooving and threading — 22 operations. An added advantage is that minimum set-up changes take care of two other sizes of hub and back-plates as well as the one shown. It pays to use Mult-Au-Matics.



The big reason for using the Mult-Au-Matic method is its extra speed and economy. The quickest way to find out whether it can be profitably applied in your shop is to ask for a Bullard Engineering Survey on your jobs. Do it now, there's no obligation incurred.



THE BULLARD COMPANY 

Mirrors of MOTORDOM

By A. H. ALLEN
Detroit Editor, STEEL



DETROIT
■ SHORTLY before noon last Thursday a shiny new Chevrolet wheeled to the end of a Flint, Mich., assembly line, looking no different from those which preceded it or those which followed after. But it was an epoch-making car—the 25,000,000th turned out by General Motors Corp.—and greeting it as it rolled off the line were Alfred P. Sloan Jr., chairman, W. S. Knudsen, president, and other high-ranking officials of the corporation and the Chevrolet division. Five hundred veteran employees from other plants in Lansing, Flint, Pontiac and Detroit watched the glittering 1940 model receive its finishing touches and their thoughts went back to the early days of automobile manufacturing, before 1910 when the corporation was embarking on its vast career.

Later in the day, the veteran employees and their wives attended a dinner with 50 executives of GM in Detroit and then journeyed to the Masonic temple here where a rousing musical and dramatic presentation was staged, commemorating the progress achieved in the past 30 years of automobile manufacturing.

Organizer Unsung but Present

An observer of all the fanfare incident to the occasion could not help but be impressed by the many "big names" in motordom who participated, but at the same time could not help wondering about one individual, unsung and aloof, who probably had as great a part, if not greater, than any of the others in building the colossal General Motors Corp.—W. C. Durant.

He it was who organized General Motors Co. in 1908, after reorganizing and expanding Buick; and by the end of 1909 had acquired 20

auto and accessory companies, had moved the Weston-Mott plant to Flint near Buick, had brought Albert Champion, a Frenchman, to Flint and induced him to start making the famous AC spark plugs there.

Durant even made overtures to acquire Ford and Willys-Overland, but could not get together enough cash to satisfy Mr. Ford. About this time, however, Durant had to retire from General Motors to satisfy the demands of New York bankers, but his great dreams of power went on nonetheless.

He backed the ideas of Louis Chevrolet who wanted to build a small car with beauty of design, ample power and moderate price. So in November, 1911, the Chevro-

let Motor Co. was organized under direction of Durant and in a few years the money began rolling in, public fancy captivated by the Chevrolet Baby Grand touring car and Royal Mail roadster.

Durant moved from Detroit to New York and started the machinery to regain control of General Motors. He offered five shares of Chevrolet stock for one of General Motors, and stockholders in the latter company flocked to his call. When he had control of a majority of GM stock, he offered to have his Chevrolet company taken into the GM organization. This was refused so at the stockholders' meeting on Sept. 16, 1915, Durant brought in basket after basket of certificates

"World's Largest Air-Conditioned Industrial Plant"



■ Largest air-conditioned industrial plant in the world is the claim made for this tool and die shop completed by Ford Motor Co., at its Rouge plant. Central bay is 1200 feet long and 300 feet wide. In background are large diecutting machines; in left foreground a collection of plaster patterns

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establishing his control of General Motors again on the seventh anniversary of its incorporation. He was in the saddle once more.

The business recession of 1921 and a declining stock market combined to put Durant in hot water again. He kept on buying General Motors stock to keep up the price and his street loans were said to have approached \$35,000,000. Public confidence was waning, earnings were falling and bankers were fearful of selling out Durant. The only organization powerful enough to help out was the DuPonts, so they finally took over his holdings and Durant resigned for the second and last time Nov. 30, 1920.

D in Stonework

Business men here who were active when Durant was on the local scene will tell you of the day when W. C. stood out in front of the General Motors building as it neared completion to watch workmen hoist stone blocks into position which would proclaim to the world that this great structure was the Durant building.

No sooner had this work started, it is said, than a wire came through from New York from the Morgan interests issuing instructions that the building was not to be called the Durant building and to take down the blocks. But even now, at the tops of certain columns on the front of the building the letter "D" can be seen in some of the stonework.

Durant is in his seventies and still "putters" around Flint, managing property of various sorts and occasionally frequenting the Durant hotel there. Often he must look back to those better days when he was manipulating millions of dollars and hundreds of companies with unbelievable facility and acumen. Certainly it seems W. C. should be near the end of the parade in the "March of Men and Motors."

■ THE BUICK division's share of General Motors 25,000,000 cars is announced as 3,747,347 or 14.8 per cent. Almost a third of these, or 1,098,063 have been made in the past five years. The first Buicks were built in 1904 when production totaled 37. Annual total did not exceed 100,000 until 1916 and with the exception of a couple of years has been above the 100,000-mark ever since that time.

A number of important improvements have been made in production facilities at the Buick foundry, under the supervision of the able B. H. Newell. This plant currently is melting about 800 tons of iron a day and turns out transmission cases, rear axle housings, cylinder blocks, heads, intake and exhaust manifolds, clutch plates, flywheels,

tappets, water pump and oil pump bodies, brackets and several other small parts for Buick and Olds requirements. Experiments now are being made in the centrifugal casting of brake drums in permanent molds.

Most recent innovation is the installation of two sprue mills for cleaning sand from all gates, risers, sprues and other scrap from castings.

Thus by cleaning off this sand it has been possible to reduce silicon in the charge by 10 points, reduce coke consumption by 20 pounds per charge and cut limestone from 80

on its way to the cupola charging floor.

Sand removed in the sprue mills falls through slots in the cylinder lining at the discharge end onto an apron conveyor which transfers it to a tailings conveyor which in turn passes over a magnetic pulley, removing any small pieces of iron still in the sand.

Buick also has installed at a cost of about \$250,000 drying and aerating cylinders for conditioning all core sand used by the foundry. This equipment, it is claimed, will pay for itself in two years by virtue of elimination of scrap cores and of making available a uniform, dry core sand which is essential for coreblowing machines. Practically all cores now are being made by coreblowing.

Device Developed by "Necessity"

Walking through the Buick foundry the other day, this observer came upon a gadget which appeared distinctly new and highly ingenious—an automatic, mechanical broom. The device was perfected by necessity, the well known mother of invention, and the story behind it is a funny one but illustrative of how new ideas originate. It seems that formerly negroes were hired to sweep sand from mold conveyors as they swung around from the shakeout and neared the point where new molds were set on them. One particular sweeper found it most difficult to keep awake on the job, a monotonous one at best, just sweeping sand off a conveyor and through a grating in the floor for eight hours a day. One day Sam, the sleepy one, actually did doze off and while slumbering slipped and fell through the grating onto the conveyor belt below the floor, receiving severe lacerations and well nigh breaking his leg.

Reasoning that such things just could not be tolerated, an ingenious mechanic took a broom, mounted the handle in a small air cylinder and built up a frame alongside the conveyor to hold it. By means of dogs and suitable valves, the broom was made to reciprocate through a stroke the width of the conveyor.

Chrysler has announced a newly styled model known as the Highlander and featuring brilliant Scotch tartan plaid upholstery and matching moleskin leather trim. Pleated seat cushions and backs are in plaid cloth; door panels, arm rests and the like are in leather. The car is built in convertible coupe and 6-passenger close coupled coupe styles.

Engineers are understood to be at work on a new engine for the Chrysler Royal model, patterned along conventional lines but showing additional power and having a number of minor refinements.

Automobile Production

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

	1937	1938	1939
Jan.....	399,186	226,952	356,950
Feb.....	383,900	202,597	317,517
March.....	519,022	238,447	389,489
April.....	553,231	237,929	354,263
May.....	540,377	210,174	313,214
June.....	521,153	189,402	324,235
July.....	456,909	150,450	218,478
Aug.....	405,072	96,946	103,343
Sept.....	175,630	89,623	192,672
Oct.....	337,979	215,286	323,017
Nov.....	376,629	390,405	370,194
11 mos....	4,669,088	2,248,211	3,263,372
Dec.....	347,349	406,960	.....

Year..... 5,016,437 2,655,171

Estimated by Ward's Reports

Week ended:	1940	1939†
Dec. 16	117,805	102,905
Dec. 23	117,705	92,890
Dec. 30	89,365	75,215
Jan. 6	87,510	76,685
Jan. 13	111,330	86,925

†Comparable week.

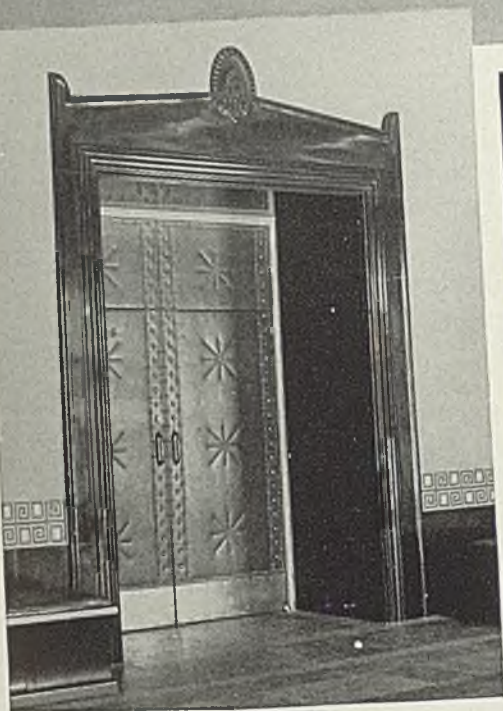
	Week Ended	
	Jan. 13	Jan. 6
General Motors	46,790	38,090
Chrysler	27,115	22,165
Ford	25,550	20,640
All others	11,875	6,615

pounds to 60 pounds. The sprue mills are horizontal cylinders of steel, 66 inches in diameter and 30 feet long.

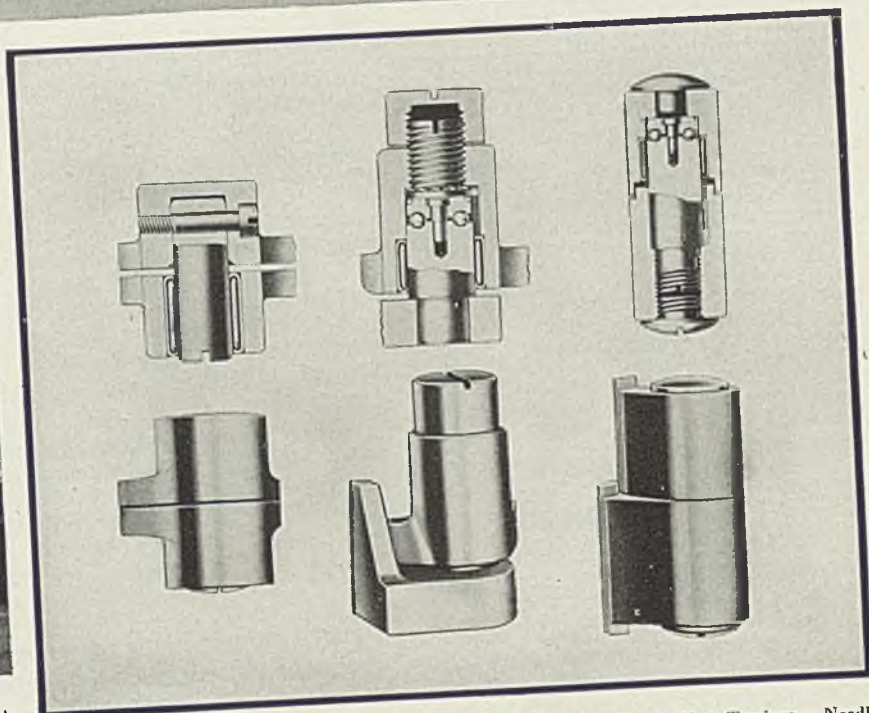
Scrap from castings is dumped into a skip at one end which raises and empties the material into the cylinder, the latter being rotated slowly through a 50-horsepower motor and speed reducer. When the skip returns to its lower position a limit switch stops rotation of the cylinder, so that it operates only while the skip is raising and lowering.

By the time four loads have been placed in the cylinder, the first load is beginning to drop out of the other end into the storage yard below. The yard is floored with railroad ties and the cleaned scrap is handled by a crane with magnet. Hence there is no chance for any sand to adhere to the scrap as it goes

RUSSWIN HINGES SWING FREELY ON TORRINGTON NEEDLE BEARINGS



Russwin Anti-friction Pivot Hinges are designed for just such jobs as carrying these heavy ornamental doors, weighing up to 1000 pounds each.



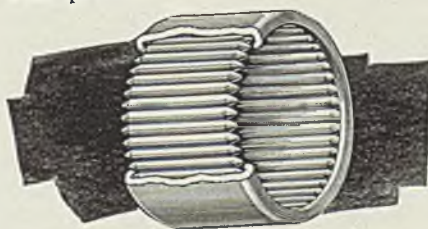
In these three types of pivot hinges, Russell & Erwin Manufacturing Co. combines Torrington Needle Bearings and ball bearings—the Needle Bearings to carry heavy radial loads in a limited space, the ball bearings to take the thrust. Note the compact designs obtained.

MINIMUM friction was the first requirement in the design of Russell & Erwin Manufacturing Company's Adjustable Ball Bearing Pivot Hinges. Because hinges involve both radial and thrust loads, the design utilizes both ball thrust and Torrington Needle Bearings—an interesting example of the adaptability of the Needle Bearing for use with other types of bearings.

"Torrington Needle Bearings were selected for the radial loads," say Russell & Erwin engineers, "because of their compactness, ease of assembly, lubricant retaining qualities, and their comparatively low cost. With them we were able to keep the knuckle diameters to an absolute minimum and to provide a truly anti-friction bearing capable of handling the heavy oscillating loads at very slow speeds, which the hinges are called upon to carry.

"We feel that Torrington Needle Bearings have assisted us materially in making a most distinct advance in pivot hinge design."

You can build better value into your own product by incorporating the



Torrington Needle Bearing—the bearing that gives anti-friction construction in small space at low cost, and needs little attention in service. The Torrington Engineering Department will be glad to cooperate with you in laying out appli-

cations for the Needle Bearing in your product. If you would like additional information on this unusual bearing, write for Catalog No. 10. For Needle Bearings to be used in heavier service, request Booklet 103X from our associate, the Bantam Bearings Corporation, South Bend, Indiana.

The Torrington Company
ESTABLISHED 1866
Torrington, Conn., U.S.A.

Makers of Ball and Needle Bearings

New York Boston Philadelphia Detroit
Cleveland Chicago London, England

TORRINGTON NEEDLE BEARING

November Exports Up 30.5%;

Most Countries Increase Tonnage

■ EXPORTS of steel and iron products from the United States in November, scrap excluded, totaled 332,899 gross tons valued at \$22,791,622, an increase of 30.5 per cent in quantity and 35.4 per cent in value over the October trade of 255,081 tons valued at \$16,835,795, according to the department of commerce. In

U. S. FOREIGN TRADE IN IRON AND STEEL, INCLUDING SCRAP

	1939		1938	
	Exports	Imports	Exports	Imports
Jan.	362,672	27,664	586,294	29,631
Feb.	359,690	19,149	460,640	19,589
March	474,360	25,369	526,883	11,827
April	394,008	44,083	489,202	21,237
May	532,641	28,142	540,639	20,814
June	588,856	32,587	312,021	15,887
July	513,664	30,851	263,699	14,728
Aug.	477,078	28,328	242,139	20,041
Sept.	575,613	29,874	346,068	27,958
Oct.	591,856	19,189	425,431	26,445
Nov.	605,555	15,216	469,596	27,627
Dec.	.....	.....	490,095	28,767
Total	.....	.....	5,152,707	264,551

November, 1938, exports were 196,185 tons valued at \$11,527,134.

The entire world, except Africa, figured in the gain, South America showing the largest increase, from 39,936 tons in October to 68,745 tons in November. The Far East was second, its trade expanding 23,073 tons to a total of 72,680 tons, with North and Central America and the West Indies gaining 19,141 tons to a total of 97,769 tons. Europe was fourth with an increase of 13,842 tons to 88,474 tons. Finland alone of the European belligerents took more steel in November than in October, 769 tons compared with 568 tons. African markets received only 5231 tons compared with 12,278 tons in October.

Tin plate was the leading product exported, 46,587 tons, about 20,000 tons more than in October. Leading purchasers of tin plate were: Brazil, 5260 tons; the Netherlands, 4967 tons; Canada 3912 tons; Belgium, 2521 tons; Argentina, 2520 tons; Chile, 2387 tons and China, 2386 tons.

Pig iron exports declined 14,000 tons from October, to 36,618 tons, which included 21,470 tons to Sweden and 12,230 tons to the United Kingdom. Ingots, blooms and other raw and semifinished steel exports totaled 28,464 tons, more than doubling October's total.

Canada was the leading market in point of tonnage, 66,140 tons, an in-

crease of 13,000 tons over October. The United Kingdom at 31,452 tons remained in second place despite a loss of about 15,000 tons. Sweden's total of 26,876 tons was 15,000 tons over October. Japan took 26,160 tons, about 10,000 tons above October.

For 11 months exports were 6.2 per cent greater in quantity and 17.8 per cent higher in value than in the corresponding period of 1938. Total for 11 months, 1939, was 2,104,967 tons valued at \$150,896,242, compared with 1,982,835 tons valued at \$128,082,608 in 11 months of 1938.

Scrap exports in November totaled 272,656 tons, valued at \$5,173,374, compared with 336,775 tons valued at \$5,730,606 in October. Japan took 180,538 tons, United Kingdom 30,960 tons, Canada 23,108 tons, Sweden 13,359 tons and Italy 11,252 tons.

For 11 months scrap exports totaled 3,371,025 tons valued at \$51,746,059, an increase of 26 per cent in quantity and value over 2,675,196 tons valued at \$41,034,463 in the same period of 1938.

UNITED STATES EXPORTS OF IRON AND STEEL PRODUCTS

	(Gross Tons)		Jan. thru	
	Nov. 1939	Oct. 1939	Nov. 1939	Nov. 1939
Articles	36,618	50,134	158,112	
Pig iron	1,065	251	1,857	
Ferromanganese and spiegelisen	555	861	3,194	
Other ferroalloys	28,464	13,633	119,176	
Ingots, blooms, etc.	16,809	5,004	36,575	
Not containing alloy	1,684	1,398	9,229	
Alloy, incl. stainless	202	56	746	
Steel bars, cold fin.	6,331	3,616	33,147	
Bars, iron	12,414	10,381	112,100	
Bars, concrete	5	6	246	
Other steel bars:	2,015	643	11,800	
Not containing alloy	4,236	2,779	24,630	
Stainless steel	1,298	672	8,001	
Wire rods	19,634	15,567	216,157	
Bolter plate	15	14	122	
Other plates, not fab.	94	83	2,043	
Not containing alloy	25,359	14,085	69,876	
Stainless steel	881	439	5,684	
Alloy, not stainless	10,203	11,310	92,613	
Skelp, iron or steel	19,585	19,562	237,688	
Sheets, gal. iron	202	103	970	
Sheets, gal. steel	229	502	3,324	
Sheets, "black" steel (ungalvanized)	1,409	1,293	8,087	
Strip steel, cold-rolled:	2,425	4,629	21,347	
Not containing alloy	71	66	631	
Stainless steel	19	19	389	
Alloys, not stainless	7,346	5,452	53,348	
Strip steel, hot-rolled:	1	71	300	
Not containing alloy	3	16	69	
Stainless steel	46,587	25,764	247,850	
Alloy, not stainless	454	1,133	5,045	
Tin plate, taggers' tin	2,619	2,330	23,737	
Terneplate	12,999	10,201	103,127	
Tanks, except lined	3,078	2,523	29,085	
Shapes, not fabricated	537	380	4,174	
Shapes, fabricated	213	183	1,229	
Plates, fabricated	87	164	1,024	
Metal lath	89	752	7,085	
Frames and sashes				
Sheet piling				

	Nov. 1939		Oct. 1939		Jan. thru 1939	
	Nov. 1939	Oct. 1939	Nov. 1939	Oct. 1939	Nov. 1939	Nov. 1939
Articles	2,080	1,887	32,918			
Rails, 60 lbs.	1,067	125	4,447			
Rails, under 60 lbs.	1,127	1,541	15,286			
Rails, relaying	556	381	8,358			
Rail fastenings	147	34	1,822			
Switches, frogs, crsgs.	518	204	2,984			
Railroad spikes	382	229	1,744			
R.R. bolts, nuts, etc.	2,715	2,162	10,280			
Boiler tubes, seamless	120	31	616			
Boiler tubes, welded.						
Pipe:						
Seamless casing, oil-line	10,907	6,759	64,117			
Do., welded	2,893	2,058	8,096			
Seamless black	1,443	917	7,991			
Pipe fittings:						
Mall. iron screwed.	452	665	3,975			
Cast-iron screwed.	154	189	2,101			
Pipe and fittings for:						
Cast-iron pressure.	4,123	1,961	26,554			
Cast-iron soil	1,596	1,530	9,904			
Pipe, welded:						
Black steel	2,725	1,185	16,168			
Black wrought-iron	718	214	3,711			
Galvanized steel	4,565	2,786	23,645			
Galv. wrought-iron	343	363	2,932			
*All other pipe, figs.	971	746	5,444			
Wire:						
Plain iron or steel.	4,673	2,362	27,321			
Galvanized	2,301	2,909	23,659			
Barbed	6,604	6,800	46,261			
Woven-wire fencing	257	367	3,033			
Woven-wire sc'n cloth:						
Insect	61	47	427			
Other	185	205	1,330			
Wire rope and cable.	548	741	4,072			
Wire strand	26	168	931			
Electric welding rods	162	181	1,418			
Card clothing	1	1	30			
Other wire	1,195	1,140	8,185			
Wire nails	4,210	2,720	21,278			
Horseshoe nails	137	73	864			
Tacks	33	37	272			
Other nails, staples.	826	586	4,582			
Bolts, mach. screws.	963	814	7,729			
Castings:						
Gray iron (incl. semisteel)	271	316	3,084			
Malleable iron	115	194	983			
Steel, not alloy	185	91	1,120			
Alloy, incl. stainless	67	149	1,330			
Car wheels, tires, axles:						
†Wheels and tires.	1,218	914	10,003			
†Axles, no wheels.	1,269	70	8,616			
†Axles with wheels	29	2	7,075			
Horseshoes and calks	40	4	196			
Forgings, n.e.s.:						
Not containing alloy	1,908	2,027	12,582			
Alloy, incl. stainless	173	121	1,726			
Total	332,899	255,081	2,104,967			
Scrap, iron and steel	271,293	334,664	3,347,291			
Scrap, tin plate	476	760	9,411			
Tin plate circles, strips, cobbles, etc.	199	340	5,764			
Waste-waste tin plate	688	1,011	8,559			
Total scrap	272,656	336,775	3,371,025			
GRAND TOTAL	605,555	591,856	5,475,992			
Iron ore	210,780	221,676	1,088,218			

* New class. Includes flanged malleable cast-iron fittings, expansion joints, and riveted pipe and fittings.
† New class.

Ratio of Nonbessemer Ore Slightly Higher

■ In the total 44,552,103 gross tons of Lake Superior iron ore shipped in 1939, 34,064,988 tons, or 76.46 per cent, was nonbessemer. In 1938 nonbessemer represented 72.8 per cent, and in 1937, 74.2 per cent.

Bessemer ore in 1939 amounted to 8,528,470 tons, 19.14 per cent of the total, compared with 22.1 per cent in 1938, and 20.9 per cent in 1937. Manganiferous ore represented 2.86 per cent and siliceous ore 1.51 per cent in 1939, approximately the same as in preceding year.

Faster Pace, Broader Scope In Canadian War Orders Promised

TORONTO, ONT.

■ IMMEDIATE and sharp increases in awards for war materials are promised in announcements by government officials. Orders for ships, airplanes, guns, shells and other equipment will be made without further delay. In addition large expenditures have been authorized, or are planned, for building construction on war account.

C. D. Howe, Canadian transport minister, has announced 72 boats, ranging from 18-foot dinghies to steel ships of the "whale-catcher" design soon will be awarded. Tenders for some already have been received. Practically all Canadian yards will participate in the business.

The shipbuilding program, estimated to cost \$17,000,000, includes 30 "whale-catchers" which will cost about \$400,000 each. Imminence of awards is quickening interest in plates and structural steel. Canadian plate capacity, however, is booked to May for railway rolling stock and shipbuilding requirements likely will be placed in the United States.

While this program was getting under way, it was reported the British ministry of shipping has opened

negotiations in Washington for the purchase of "a quantity" of American merchant vessels made idle by United States neutrality legislation.

Canada, it is said, is aiding in the negotiations by offering to earmark large sums of American currency held in this country for part payment on the ships. If deal is completed, the ships would be placed under British registry and would be used to transport war materials from Canada to England.

(Simultaneously with the arrival of the British delegation in Washington, a bill was introduced in the senate to prohibit transfer, sale or loan of American vessels to foreign registry during the neutrality period.)

Canada To Build Planes

Mr. Howe has announced the Canadian airplane industry will share in contracts in connection with the commonwealth air training plan. He said orders will be placed for 4367 planes, of which 1282 will be built in Canada, except engines, which will be obtained in United States and England.

The minister stated large British orders for munitions expected by Canadian manufacturers have not

appeared yet "for the obvious reason that the tempo of war activity has not been as rapid as anticipated."

Government officials in Ottawa promise Canadian war orders will mount rapidly from now on. Large expansion of munitions making is expected although in the first four months of the war orders did not exceed \$90,000,000, including the \$25,000,000 for railroad equipment. During the past week orders placed by the Canadian war supply board totaled \$1,300,000.

Awards for the week included: North American Aviation Inc., Inglewood, Calif., \$34,741; Douglas Aircraft Co. Inc., Santa Monica, Calif., \$21,152; Northern Electric Co. Ltd., Ottawa, Ont., \$67,401; British air ministry, \$25,000; Noordduyn Aviation Ltd., \$18,218; Canadian Marconi Co. Ltd., Montreal, Que., \$8196; Aviation Electric Ltd., Montreal, Que., \$7465; Fleet Aircraft Ltd., Fort Erie, Ont., \$6420. Marine equipment orders went to the British admiralty at \$133,739 and Halifax Shipyards Ltd., Halifax, N. S., \$95,832.

Officials of Dominion Steel & Coal Corp., Sydney, N. S., state the com-

■ Additional news of the steel and metalworking industries will be found on pages 76, 77 and 78.

Ready for the Next Stage



■ Thousands of steel "blanks" stacked "somewhere in England," to be transported to a munitions factory where they will be used in making projectiles. These billets are next forged to form a cavity which will contain the bursting charge. They are then machined, heat treated, fitted with fuse timer, and assembled with brass case containing a projecting charge and detonator. NEA photo

pany's position in secondary steel production activities, which were strengthened by acquisition in 1937 of units at Ojibway, Ont., from United States Steel Corp., have contributed materially to both business and earnings during the past year and appear likely to increase in importance and value.

Most steel products plants are operating at or around capacity, and have been at this rate for about six months. Such units include the wire and nail plants, the fence companies and Peck Rolling mills. Canadian Bridge Co. has been doing relatively well.

COLONEL WRIGHT APPOINTED BRITISH STEEL CONTROLLER

LONDON

Col. Charles Wright has been appointed British controller of iron and steel, succeeding Sir Andrew Duncan, new board of trade president. Colonel Wright has been deputy iron and steel controller since the war, and was iron and steel controller of production in the ministry of munitions from 1917 to 1919. Recently resigned as chairman of Guest Keen Baldwin's Iron & Steel Co. Ltd. and of Baldwins Ltd., Colonel Wright was president, British Iron and Steel institute from 1931 to 1933, and president, British Iron and Steel federation from 1937 to 1938.

Government and Business

■ THE FOREMOST lesson of the past decade, according to the summary of the annual report of the secretary of commerce, is that deflation generates cumulative forces which may completely shatter the productive mechanism. To prevent these disastrous deflations is a fundamental responsibility of government. The second conclusion is that the tremendous wastes involved in continued deflation are entirely unnecessary. In recent years, says the report, we have developed the techniques necessary to halt a deflationary process and to secure recovery. The aggressive economic expansion of the past century was nourished by the vigorous optimism of a nation expanding its geographical frontiers and exploiting its resources. Today the federal government can restore that optimism through a guaranty that the risks of periodic economic breakdowns will be eliminated, that the consumers' market will expand, that the process of intensive exploitation of new industries and new products can be safely undertaken.

Says Vast Potential Market Depends On Lowering of Commodity Prices

The vast potential expansion that awaits us, says the report, may be illustrated by the fact that in 1935-36 more than 12 million families had incomes below \$1000 a year. If the incomes of all these families had averaged \$1000 a year, their annual expenditures would have been greater by about 4 billion dollars. Looking at the problem from the point of view of prices rather than income, a vast potential market awaits further progress in the application of mass-production techniques. A reduction of construction costs, for example, to make houses available at \$2500 would tap a substantial fraction of this potential market. TVA is cited to show

how reduction in rates on electricity has led to an increase of 88 per cent in its use.

On every side, says the report, there exist deep-seated and long-standing arrangements to freeze prices, restrict markets and resist technological changes. On the part of business a general readjustment of pricing policies to the requirements of modern mass consumption is necessary. Many businesses now operate on the basis of a break-even point placed at a low proportion of capacity.

Suggested Remedies Do Not Place Emphasis on Sound Principles

During our earlier history, high prices and high profits diverted employment of money from consumption to investment. Today high prices discourage consumption but fail to expand investment. Modern production techniques and full utilization of resources today demand broad markets. Such markets can be obtained only through prices which fully reflect the efficiency of these techniques. While the federal government, the report continues, encourages private investment by every means in its power, the government must help provide the necessary jobs that cannot be found in private employment and support the nation's buying power through public action.

Businessmen perusing the report will be struck by its lofty and dispassionate tenor. However, it contains no recognition of the basic law that deflation at times becomes essential and desirable as a cure for economic ills. It places emphasis on increased production through increased purchasing power rather than the other way around. It sees low prices rather than profit opportunities as necessary for business expansion and widespread employment. Suggesting as it does more control rather than less, it will not encourage business.

The BUSINESS TREND

Business Activity Back Near Pre-Holiday Level



■ HOLIDAY influences tended to disrupt the record of business during the week ended Jan. 6, thus making it difficult to determine the immediate trend. There are no indications of a sharp contraction in business for the near future, although it appears that industrial activity has opened the new year at a somewhat slower pace than prevailed during the latter part of 1939. However, the current rate of

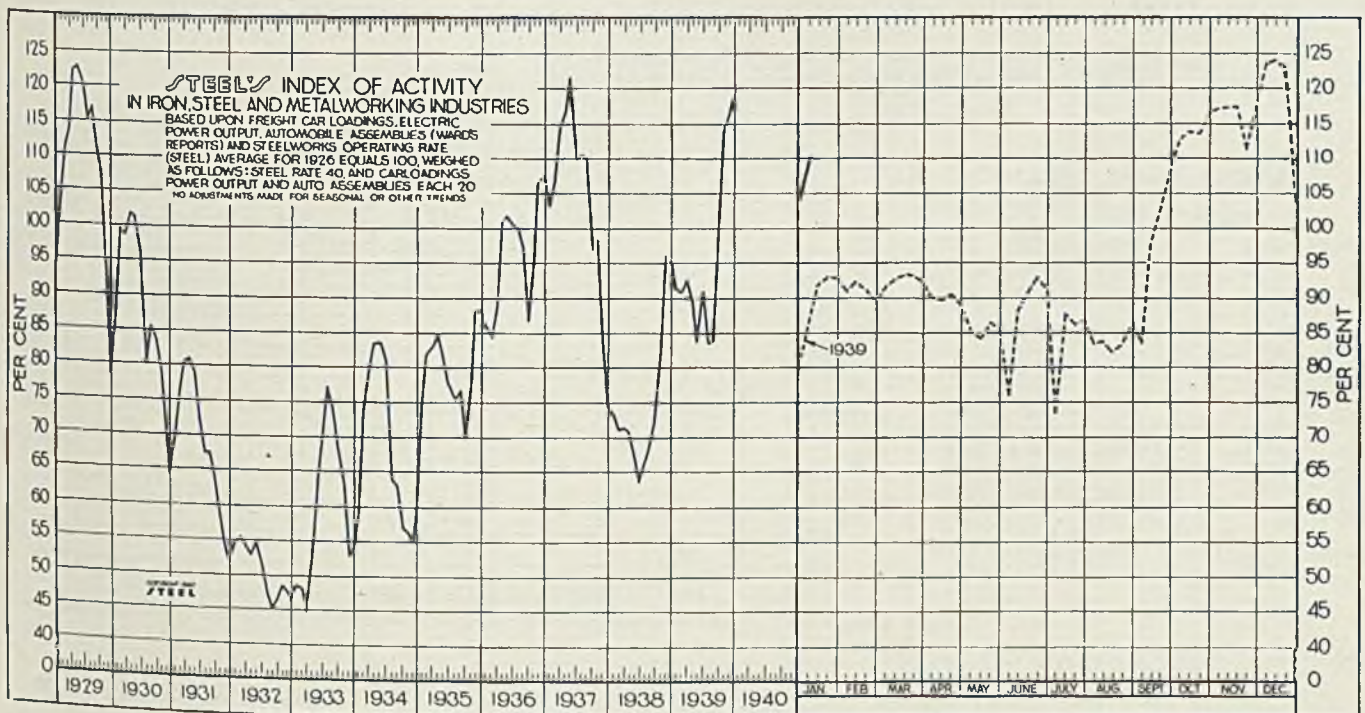
activity is well above that recorded in the corresponding period last year and is slightly better than registered early in 1937.

During the week ended Jan. 6, STEEL'S index of activity regained a portion of the ground lost in the previous holiday period. The index now stands at 110.3, compared with 104 in the week ended Dec. 30 and 70.1 in the same week last year.

Steelmaking operations rebound-

ed to 86.5 per cent during the week ended Jan. 6. This represents an encouraging gain from the 75.5 per cent rate recorded during Christmas week, but remains below the pre-holiday levels. Indications point to a leveling off in steelworks operations through the remainder of this month.

A high rate of activity for some weeks is indicated among the major steel consuming groups.



STEEL'S index of activity gained 6.3 points to 110.3 in the week ended Jan. 6:

Week ending	1939	1938	Mo. Data	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929
Nov. 4.....	117.1	93.4	Jan.....	91.1	73.3	102.9	85.9	74.2	58.8	48.6	54.6	69.1	87.6	104.1
Nov. 11.....	117.2	95.9	Feb.....	90.8	71.1	106.8	84.3	82.0	73.9	48.2	55.3	75.5	99.2	111.2
Nov. 18.....	117.3	100.4	March.....	92.6	71.2	114.4	88.7	83.1	78.9	44.5	54.2	80.4	98.6	114.0
Nov. 25.....	111.4	93.9	April.....	89.8	70.8	116.6	100.8	85.0	83.6	52.4	52.8	81.0	101.7	122.5
Dec. 2.....	117.9	100.1	May.....	83.4	67.4	121.7	101.8	81.8	83.7	63.5	54.8	78.6	101.2	122.9
Dec. 9.....	123.9	100.7	June.....	90.9	63.4	109.9	100.3	77.4	80.6	70.3	51.4	72.1	95.8	120.3
Dec. 16.....	124.2	99.8	July.....	83.5	66.2	110.4	100.1	75.3	63.7	77.1	47.1	67.3	79.9	115.2
Dec. 23.....	123.4	94.8	Aug.....	83.9	68.7	110.0	97.1	76.7	63.0	74.1	45.0	67.4	85.4	116.9
Dec. 30.....	104.0†	79.9	Sept.....	98.0	72.5	96.8	86.7	69.7	56.9	68.0	46.5	64.3	83.7	110.8
Week ending	1940	1939	Oct.....	114.0	83.6	98.1	94.8	77.0	56.4	63.1	48.4	59.2	78.8	107.1
Jan. 6.....	110.3	70.1	Nov.....	116.2	95.9	84.1	106.4	88.1	54.9	52.8	47.5	54.4	71.0	92.2
			Dec.....	118.9	95.1	74.7	107.6	88.2	58.9	54.0	46.2	51.3	64.3	78.3

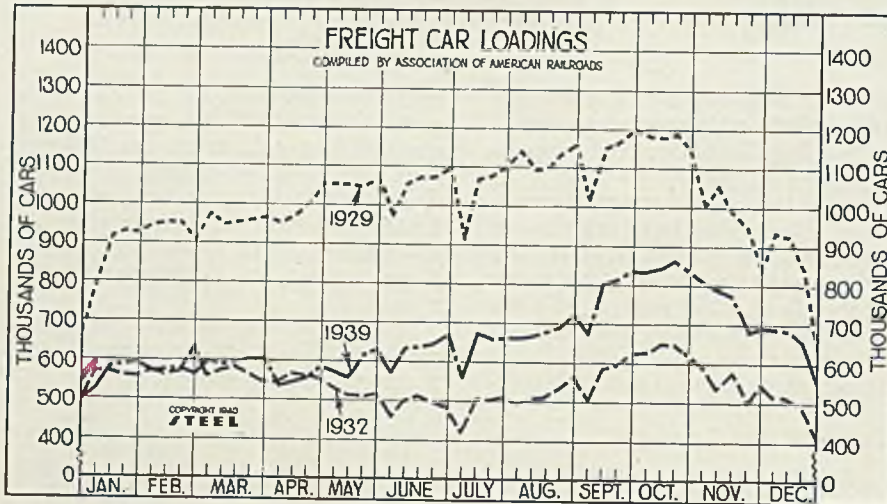
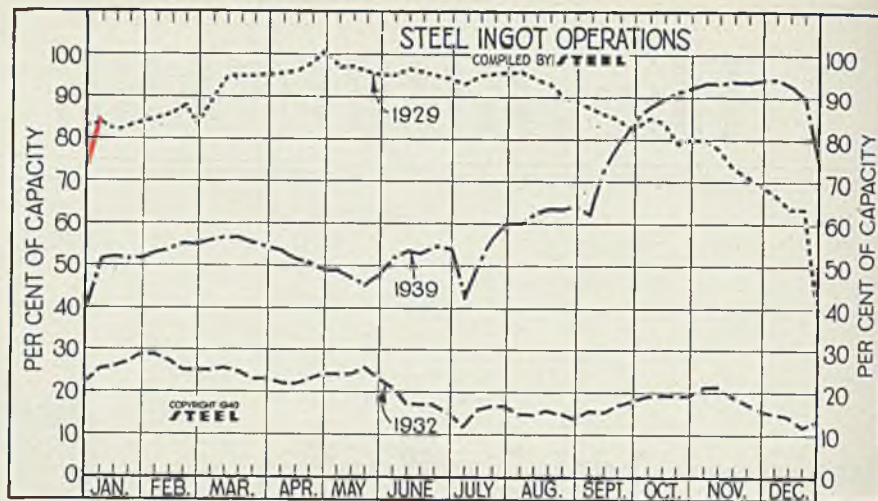
† Revised.

Steel Ingot Operations

(Per Cent)

Week ended	1939	1938	1937
Oct. 7.....	87.5	48.5	66.0
Oct. 14.....	89.5	51.5	63.0
Oct. 21.....	91.0	51.5	53.0
Oct. 28.....	92.0	54.5	51.0
Nov. 4.....	93.0	57.5	47.0
Nov. 11.....	93.0	61.5	39.0
Nov. 18.....	93.5	63.0	35.0
Nov. 25.....	93.5	62.0	31.5
Dec. 2.....	94.0	61.0	30.5
Dec. 9.....	94.0	61.0	27.0
Dec. 16.....	92.5	58.0	27.0
Dec. 23.....	90.5	52.0	23.0
Dec. 30.....	75.5	40.0	21.0

Week ended	1940	1939	1938	1937
Jan. 6.....	86.5	51.5	26.0	79.5



Freight Car Loadings

(1000 Cars)

Week ended	1939	1938	1937
Oct. 7.....	835	703	815
Oct. 14.....	845	727	810
Oct. 21.....	861	706	773
Oct. 28.....	834	709	772
Nov. 4.....	806	673	732
Nov. 11.....	786	637	690
Nov. 18.....	771	657	647
Nov. 25.....	677	562	559
Dec. 2.....	689	649	623
Dec. 9.....	687	619	622
Dec. 16.....	681	606	603
Dec. 23.....	655	574	460
Dec. 30.....	550	500	457

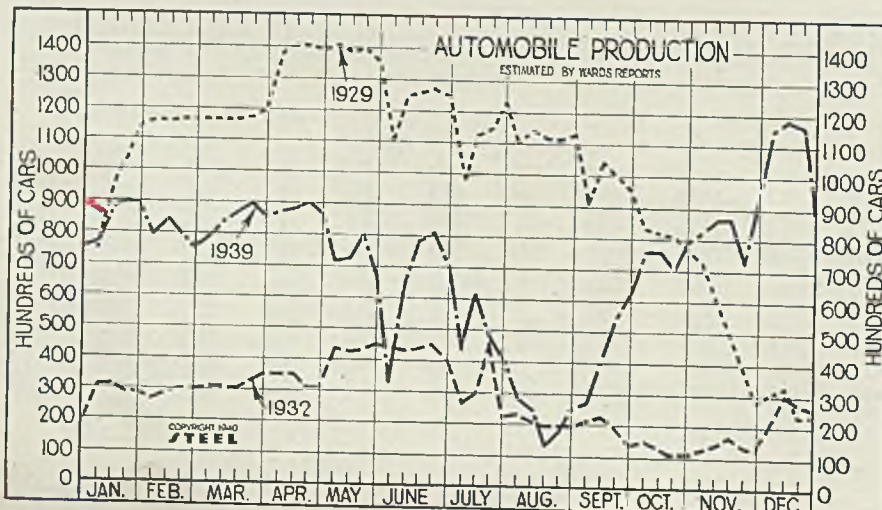
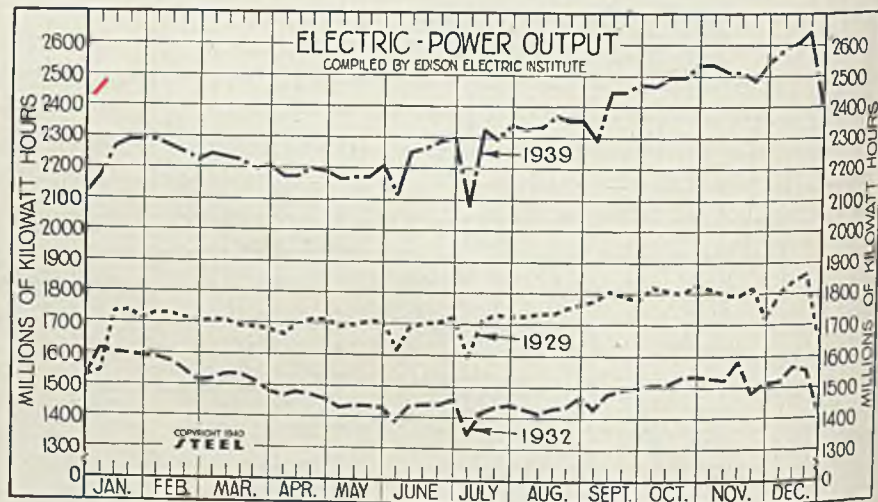
Week ended	1940	1939	1938	1937
Jan. 6.....	592	531	552	699

Electric Power Output

(Million KWH)

Week ended	1939	1938	1937
Oct. 7.....	2,465	2,154	2,280
Oct. 14.....	2,495	2,183	2,276
Oct. 21.....	2,494	2,214	2,282
Oct. 28.....	2,539	2,226	2,255
Nov. 4.....	2,537	2,207	2,202
Nov. 11.....	2,514	2,209	2,176
Nov. 18.....	2,514	2,270	2,224
Nov. 25.....	2,482	2,184	2,065
Dec. 2.....	2,539	2,286	2,153
Dec. 9.....	2,586	2,319	2,196
Dec. 16.....	2,605	2,333	2,202
Dec. 23.....	2,641	2,363	2,085
Dec. 30.....	89.4	75.2	49.6

Week ended	1940	1939	1938	1937
Jan. 6.....	2,473	2,169	2,140	2,244

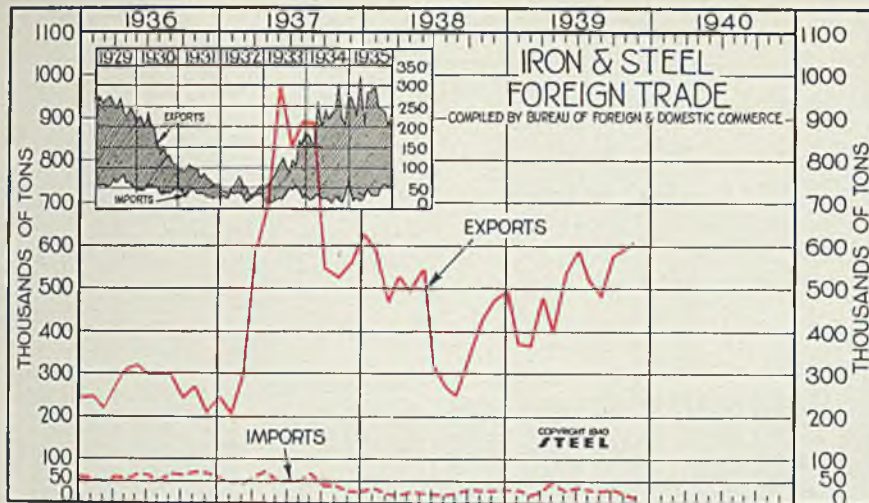


Auto Production

(1000 Units)

Week ended	1939	1938	1937
Oct. 7.....	76.1	37.7	72.0
Oct. 14.....	75.9	50.5	89.7
Oct. 21.....	70.1	68.4	91.9
Oct. 28.....	78.2	73.3	90.2
Nov. 4.....	82.7	80.0	89.8
Nov. 11.....	86.2	86.3	85.3
Nov. 18.....	86.7	96.7	85.8
Nov. 25.....	72.5	84.9	59.0
Dec. 2.....	93.6	97.8	86.2
Dec. 9.....	115.5	100.7	85.8
Dec. 16.....	118.4	102.9	82.0
Dec. 23.....	117.7	92.9	67.2
Dec. 30.....	2,404	2,121	1,908

Week ended	1940	1939	1938	1937
Jan. 6.....	87.5	76.7	54.1	96.8



Iron and Steel Foreign Trade

	(Thousands of Tons)					
	Exports			Imports		
	1939	1938	1937	1939	1938	1937
Jan.	362.7	586.3	201.5	27.7	29.6	43.1
Feb.	359.7	460.6	291.0	19.1	19.6	41.6
Mar.	474.4	526.9	570.6	25.4	11.8	51.8
April	394.0	489.2	683.7	44.1	21.2	68.2
May	532.6	540.6	969.2	28.1	20.8	49.1
June	588.9	312.0	826.6	32.6	15.9	44.8
July	513.7	263.7	889.4	30.8	14.7	47.0
Aug.	477.1	242.1	836.3	28.3	20.0	61.5
Sept.	575.6	346.1	542.7	29.9	28.0	37.1
Oct.	591.9	425.4	522.6	19.2	26.4	37.2
Nov.	605.6	646.2	556.6	15.2	27.6	27.0
Dec.	...	490.1	625.4	...	28.8	25.1

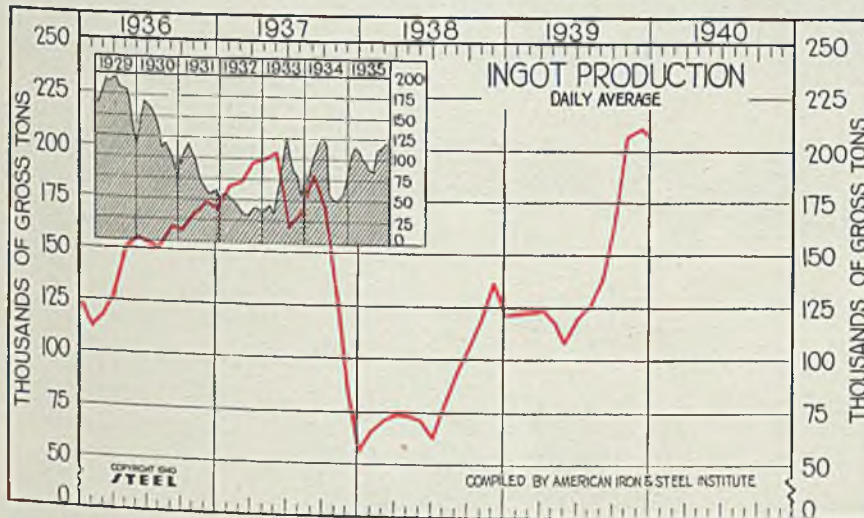
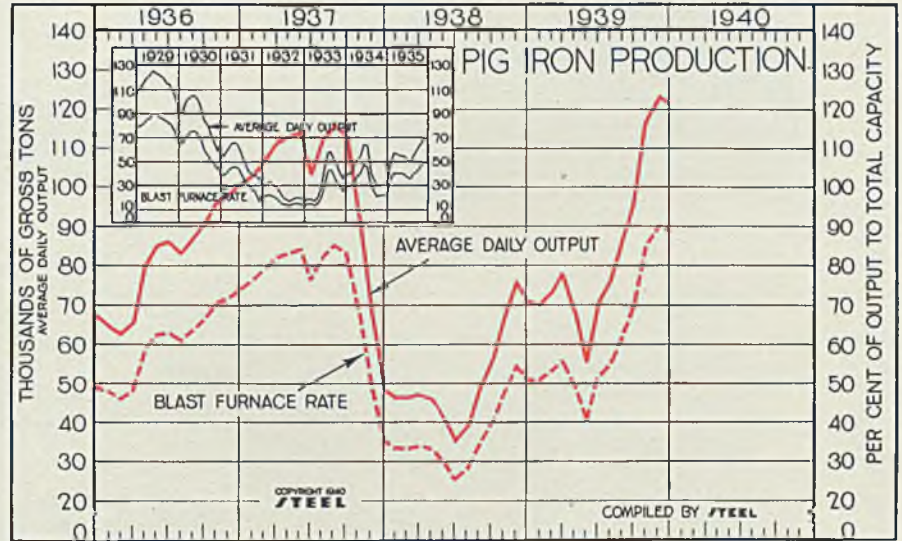
Tot'l ... 5152.7 7567.9 ... 264.6 533.4

Pig Iron Production

Daily average Blast furnace

	gross tons		rate (%)		
	1939	1938	1937	1939	1938
Jan.	70,175	46,608	103,863	51.0	33.6
Feb.	73,578	46,655	107,857	53.5	33.6
Mar.	77,201	47,426	111,951	56.1	34.2
April	68,511	46,267	113,354	49.8	33.4
May	55,404	40,675	114,360	40.2	29.4
June	70,647	35,358	103,843	51.4	25.5
July	76,001	39,131	112,947	55.0	28.2
Aug.	85,823	48,242	116,676	62.4	34.8
Sept.	95,802	56,103	113,932	69.7	40.5
Oct.	117,012	66,694	93,259	85.2	48.0
Nov.	124,003	76,222	66,901	90.3	55.0
Dec.	121,535	71,378	48,499	88.5	51.4

Av'ge 86,375 51,752 100,573 62.8 37.3 74.1



Steel Ingot Production Daily Average

(Hundreds of Tons)

	1939	1938	1937	1936
Jan.	122.6	66.6	182.2	112.8
Feb.	123.1	71.0	184.4	118.6
Mar.	124.6	74.5	193.5	128.6
April	119.5	74.0	195.1	151.6
May	108.1	72.3	198.2	155.6
June	120.4	63.0	160.9	153.3
July	126.5	79.3	168.8	150.9
Aug.	139.4	94.3	187.0	161.4
Sept.	169.2	106.3	172.1	160.0
Oct.	207.5	119.9	130.5	168.3
Nov.	210.1	137.4	86.2	173.5
Dec.	206.6	120.9	56.6	170.4

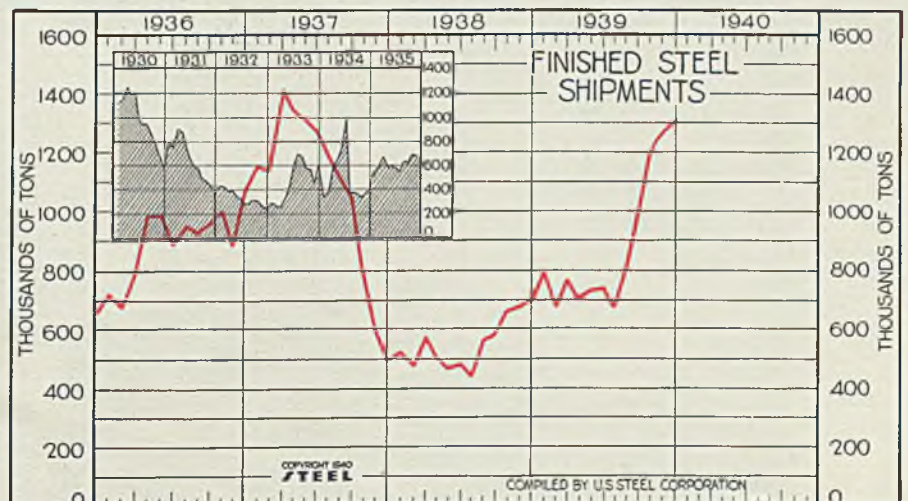
Average 148.1 90.4 159.6 150.4

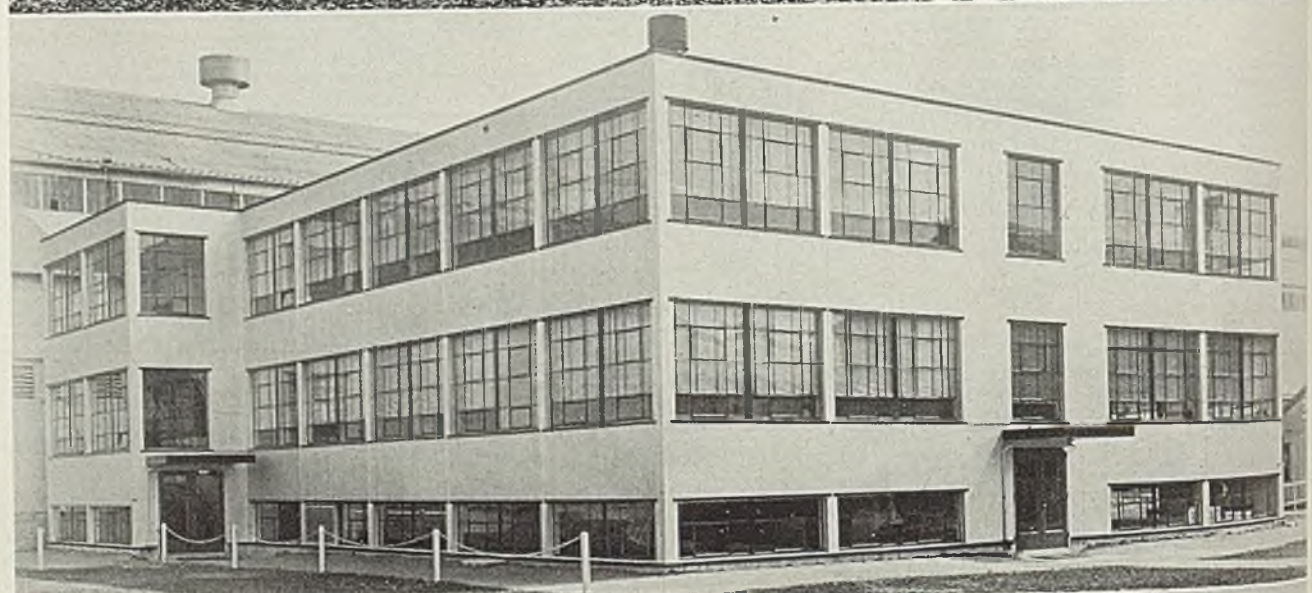
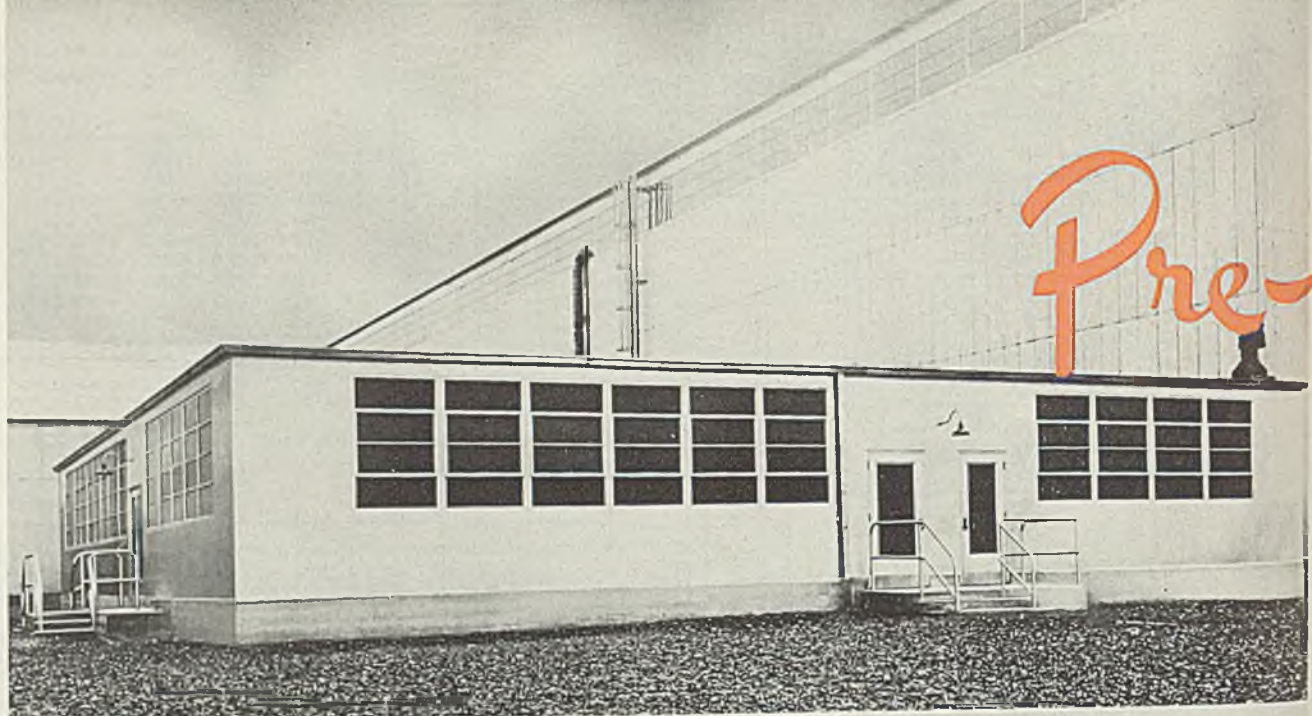
Finished Steel Shipments U. S. Steel Corp.

(Unit: 1000 Gross Tons)

	1939	1938	1937	1936
Jan.	789.3	518.3	1150.0	721.4
Feb.	678.0	474.7	1134.0	676.3
March	767.9	572.2	1414.0	783.6
April	701.5	502.0	1344.0	979.9
May	723.2	465.1	1304.0	984.1
June	733.4	478.1	1260.0	886.1
July	676.3	441.6	1187.0	950.9
Aug.	803.8	558.6	1108.0	923.7
Sept.	985.0	577.7	1048.0	961.8
Oct.	1219.0	663.3	792.3	1007.0
Nov.	1270.1	679.7	587.2	882.6
Dec.	1304.3	694.2	489.1	1067.0

Average.. 887.7 552.1 1069.0 902.1





Fabricated Buildings

Panel type construction cuts first cost \$12 per employee, offers reduced and simplified maintenance. Walls are insulated and comfortable to the touch at all times

RECENT erection of 20 panel-type inside and outside utility structures and buildings at Irvin Works of Carnegie-Illinois Steel Corp., Carnegie building, Pittsburgh, demonstrate that industrial offices, wash and locker rooms of prefabricated sheet metal offer substantial economies in first cost. Additional advantages noted are: Ease in plumbing and steam fitting, control of temperature and ventilation, improved working conditions, facility in installation of electrical lines and fixtures, elimination of fire hazards, reduced and simplified maintenance, insulated inside wall surfaces comfortable to the touch at all times, and surfaces easily kept sanitary.

Previous experience indicated a cost of \$75 per employee to provide wash, locker and toilet facilities. New type of prefabricated buildings, installed in most cases after main mill buildings were erected, provide better facilities at \$63 per employee.

Wide Range of Sizes

The various prefabricated structures cover a wide range of sizes and shapes. Three are two-story units, with offices on first floor and wash and locker rooms on the second. Other units serve exclusively as offices. Most units, however, are wash and locker rooms which include shower and toilet facilities.

Orderliness and rapidity are featured in the erection of these pre-

fabricated units. On single-story structures, two men with an occasional helper are sufficient. Exterior walls, roof, partitions, pipe closets, etc., of all buildings are constructed from prefabricated light-gage flat-rolled sheets, formed into various shapes and sections to provide for connecting panels and for structural strength. Wall and roof sections for these buildings were delivered cut to size by supplier.

Floor and 8-inch curb are concrete cast integrally with foundation bolts in place. After foundation hardens, a felt mastic strip is laid and metal sill pieces are fastened on it. Wall sections are erected on curbing.

Assembly methods vary according to type and design of building. Tack and seam welding, self-tapping screws and concealed bolts and clips are used. Doors are formed steel of hollow metal or kalemene construction and have stainless steel kick plates full width of door and 8 inches high. Windows are all rolled steel sections, commercial projected type.

Metal sections are delivered finished with a shop coat of baked-on lacquer or leaded paint. In most buildings, interior surfaces are further finished with two coats of brushed-on enamel and exterior surfaces with two of aluminum paint.

All of these buildings have flat roofs. Ceilings are about 11 feet above floor for good ventilation. Roof decks are prefabricated flat-rolled light-gage steel shaped for strength. Roofs for outside buildings are 1-inch insulating board finished with a four-ply built-up composition roofing.

Several insulating materials are used in the walls, according to type of structure: Granular material sealed in place, insulating board of

various materials incorporated into basic design, and paper-covered rock-wool bats installed as construction advances. In installing, bats are compressed to fit the 3-inch partitions to hold themselves in place when inner surface plates are attached. Upper ends of cellular walls are sealed. Main partitions around office units are insulated to eliminate mill noises.

All inside structures have exhaust-fan ventilators in roofs, exterior structures have natural-draft ventilators.

Units erected outside of main mill buildings have gutters extending all around structure, flashed integrally with roof covering. Downspouts extend to yard level or connect to storm sewer.

Some shower rooms are faced entirely with porcelain enameled sheets while others are porcelain enameled to a height of 8 feet, the facing extending out from shower sections to avoid splashing of painted surfaces.

Germicidal Floor Surfaces

Women's showers are porcelain enameled individual cabinets with dressing compartments on sides. Floors in showers, locker rooms adjoining showers, wash rooms and toilets are finished with a germicidal floor surface, troweled on the concrete, which has a permanently inhibitive effect on organisms responsible for athlete's foot and other fungus growths.

These prefabricated buildings make possible quick and easy plumbing work. Toilet piping is concealed in 2-foot 6-inch pipe spaces with access doors for ease in maintenance and periodical valve adjustments.

Several different types of wash fixtures are used, including porcelain enameled circular wash fountains and wall-hung trays. To eliminate danger from broken glass, mirrors are highly polished stainless steel sheets. Washstands, trays and kickplates on doors also are stainless steel.

Men's lockers are 12 x 18 inches x 6 feet with sloping tops to facilitate dusting and discourage accumulation of odds and ends. Women's lockers are 15 x 18 inches by 6 feet.

Heating installations depend on size of rooms and use. Large locker rooms and wash rooms have unit heaters suspended from ceiling. Shower and wash rooms use ceiling or wall-hung steel radiators of the fin type. Offices are heated by similar wall-type radiators. Steam comes from 200-pound pressure main plant lines and is reduced to 10 pounds outside of each building through reducing valves protected by safety valves and special explosion heads on low pressure side. All steam lines are insulated.

Top—Exterior view, girls' welfare building which has a through corridor with wash and locker facilities on one side and kitchen, dining room and recreation quarters on the other
Center—Main mill office
Below—Weigh and traffic office



Speed-Plating System

Highly integrated system affords maximum plating speed consistent with finish, efficiency of solution and other factors. Mechanical handling devices provided to cut nonproductive time to a minimum

By H. J. STRUCKHOFF

Lasalco Inc.
St. Louis

■ A RECENTLY developed electroplating system embodies a complete series of cleaning and electroplating tanks with cylinders, transfers and auxiliary equipment forming a highly integrated system, notable for the

high speed at which work can be handled.

Accompanying illustrations, Figs. 1 and 2, show a typical arrangement of equipment developed by Lasalco Inc., 2822 LaSalle street, St. Louis. To see how high speeds and outputs of these units are obtained, let us follow through the various operations involved.

Parts first are loaded into cleaning cylinders made of steel or monel

metal which burnish the work while cleaning. Other cylinders of insulated construction are used in the plating baths. The extreme left tank in Fig. 1 is a double-station unit containing a hot alkali cleaning solution. The metal cylinder loaded with parts is submerged in this cleaning tank. Provision is made for revolving the cylinder through a series of gears, thus thoroughly agitating the work while immersed in the bath.

Automatic Drive

One end of the container, as seen in upper center of Fig. 2, has teeth around its outer periphery. These engage with a small gear carried on a countershaft immediately above the drum. Countershaft also carries a second small gear on its outer end. This gear in turn meshes with a gear on end of the tank when cylinder is placed in tank. Motor and gear drives are permanently mounted on the outside of tanks. Where cylinder is to be rotated in more than one tank, the individual tank drives are connected in multiple as shown at right in Fig. 2. Thus, no matter in which tank the cylinder is placed, it is connected automatically to a gear drive to rotate the cylinder and agitate the work.

For single tank, the drive is fur-

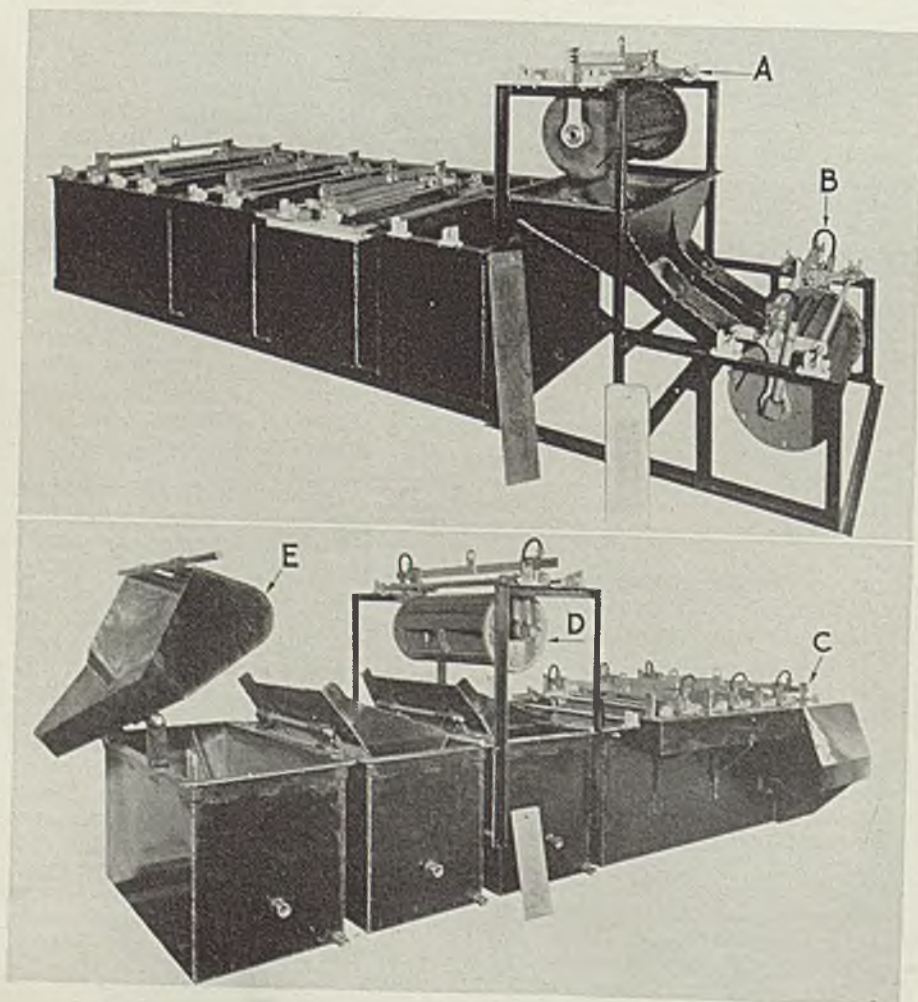


Fig. 1. (Upper)—Electrocleaning line with station at position A for unloading cylinders used in cleaning. Work runs down double hopper to be loaded automatically into the plating cylinder at B

Fig. 2. (Lower)—At C is 3-station electroplating tank. From here, work is dumped from unloading station D to first of three rinse tanks, each of which is provided with a hopper E for depositing work into next tank

nished with $\frac{1}{4}$ -horsepower motor, three speeds being available, ranging from 2 to 6 revolutions per minute. Where a number of tanks are driven in multiple, of course a large motor is necessary.

As will be seen in the illustrations, provision is made for conducting current through the work while in the cleaning baths if this is desired to accelerate cleaning operations. In most instances, electrocleaning is much faster than other methods and so is employed where speed is paramount.

From the double-station hot-alkali cleaning tank at extreme left in Fig. 1, an overhead hoist is employed to pick up the cylinder and place it in the second tank, which is a cold water rinse. This is followed by immersing in a third tank, an acid dip. The fourth is another cold water rinse.

From the fourth and last tank shown in Fig. 1, the cylinder is hoisted to top of transfer station marked A. Here the doors in the cylinder are removed and the cylinder revolved to drop the parts into the hopper, which in turn discharges into the plating cylinder at station B. Plating cylinders differ from cleaning cylinders as they are made of extra-heavy specially cured hard bronze rubber. This material is strong without being brittle. At the same time it is highly resistant to corrosion and abrasion in all cyanide solutions at temperatures not in excess of 150 degrees Fahr. For acid plating solutions the cylinders are constructed of heavy laminated bakelite which is practically impervious to these solutions.

No Deposit Out of Solution

In any case, the cylinders themselves are furnished with nonconducting surfaces so nothing is deposited out of the solution onto the cylinders. Inside dimensions of cylinders vary from 24 to 42 inches in length, all being 12 inches in diameter. These hold loads from 150 to 300 pounds, equivalent to 24 to 42 quarts, and are used in tanks from 140 to 200-gallon capacity. For cyanide cadmium, zinc, copper, brass and tin plating, steel tanks are employed. For nickel-plating work, wood tanks or steel tanks lined with lead or rubber are employed.

After the plating cylinder is loaded at station B, it is picked up by an overhead hoist and placed in the 3-station electroplating tank marked C in Fig. 2. Three stations are made available in this tank to permit work to remain in the bath for a period of time sufficient to give the coating desired. By providing multiple stations, it is possible to assure continuous flow of work through the equipment without holding up operations at this point.

After the desired period of time

in electroplating bath at C has elapsed, the cylinder with its work is removed by the overhead hoist and placed in position D over the first cold water hopper tank. After the slide door in the cylinder has been removed, cylinder is revolved to discharge work into the cold water rinse immediately below. From here the empty cylinder is returned to the loading position at station B in Fig. 1 ready to receive the next batch of parts.

With work discharged into the first cold water hopper tank, the overhead hoist is hooked into the hopper. Lifting the hopper then discharges the work into the second cold water hopper tank. From here parts are again hopped over into the final tank by use of the hoist. This last tank is equipped with steam coils which materially aid drying of the plated parts. As an added precaution, the final hot-water hopper is usually made of stainless metal.

Fig. 2 shows discharge hopper for last tank, (E), raised into the discharge position to illustrate how parts are hopped over from one tank to the next without rehandling. The last hopper or chute is placed so the work automatically falls into a centrifugal drier which is placed at the end of the line.

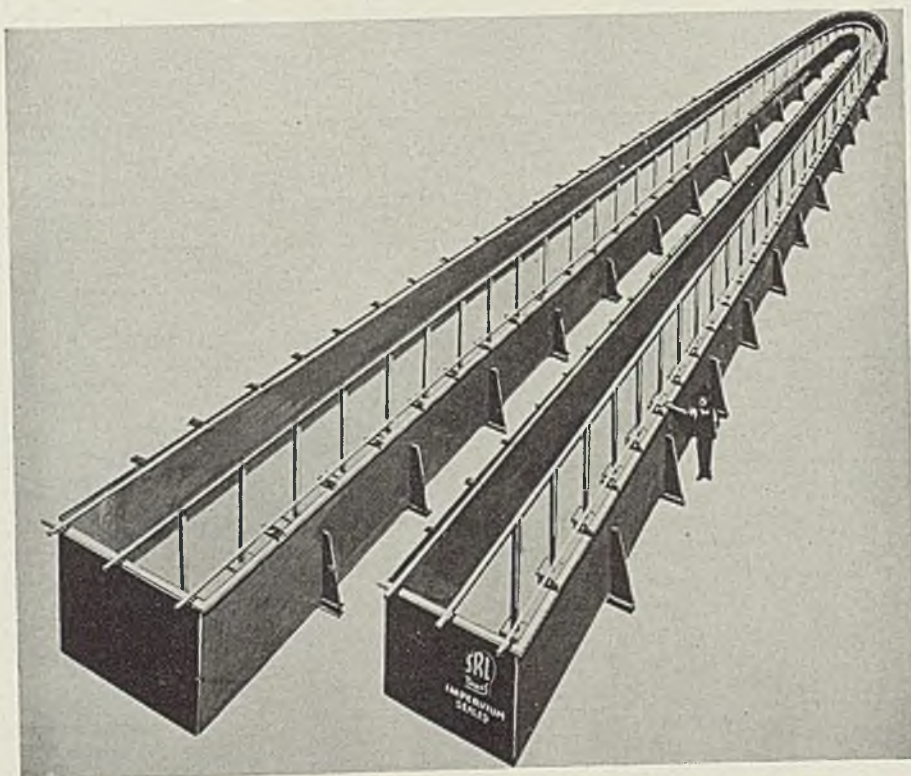
From the above description it can

be seen that facilities are provided for moving work down the processing line at maximum speed and with minimum amount of effort on the part of the operator. With mechanical handling aids provided at each step, with revolving cylinders to agitate the work and obtain maximum speed of deposition in the bath, with high current densities and other adjuncts of modern speed plating, such a setup is hard to excel. While new, this equipment already has demonstrated its value in many installations.

Liquid Metal Cleaner

■ A metal cleaner, Liquid NuSteel, developed by Scully Steel Products Co., 1319 Wabansia avenue, Chicago, is a highly concentrated nonpoisonous, nonflammable cleaning agent for use on all metals, particularly stainless steel. Harmlessness of cleaner was indicated by tests in which removal of cleaner after one week showed no attack on stainless steel. The surface was polished easily. No hard rubbing was necessary when tried on a No. 4 finish sheet of stainless steel. Cleaner is claimed not to require any washing when being removed, thus avoiding danger of smearing or spotting surrounding material.

Large Bright-Nickel Plating Tank



■ This U-shaped plating tank is 162 feet long and was built by Paramount Rubber Service Inc., 1430 Rosedale court, Detroit, for bright-nickel work. Tank is lined with rubber of high dielectric strength to reduce electrolysis and is claimed to be immune to oils, acids, alkalis and other reagents. Note size of tank compared to man standing slightly below middle right of illustration



Extruding Holes

Nuts tack welded to heavy sheet steel motor conduit base are replaced by tapped extruded holes. Number of operations are reduced from five to three, appearance is improved, costs cut 60 per cent.

■BY USE of single operation dies which pierce and extrude holes in heavy steel sheets, Reliance Electric & Engineering Co., 1090 Ivanhoe road, Cleveland, has improved the appearance, simplified manufacture and considerably reduced the cost of conduit bases for its line of electric motors.

The conduit base, made from

heavy sheet formed into a U-shaped, lies between the bands of the motor stator. Its function is to protect the winding leads and to provide a flat surface on which the conduit box housing the leads may be bolted. The conduit box itself is comparatively light and imposes no great strain on the bolts holding it.

In the old construction conduit

base, shown to the right in Fig. 5, the conduit box was attached to the base by means of bolts which were screwed into nuts tack welded to the underside of the base. To make this base, five operations were necessary: Blanking the large hole for the leads, drilling the four holes for the bolts, forming the U-shape, tack welding the nuts to the underside of the base and retapping the nuts to repair the damage done to the threads in the welding operation. The nuts had to be screwed on, positioned bolt and held in place during welding. Often the distorting effect of the heat on the threads made it difficult to remove the positioning bolt. Then to insure all threads being in order, all holes were retapped on a single-spindle tapping machine one at a time.

Manufacture Simplified

To reduce costs and simplify manufacturing procedure on this base, dies were made to produce the new base shown to the left in Fig. 5. The tack welded nuts were replaced by extruded and tapped holes and the number of operations reduced from five to three. These now are: Blanking the large lead hole and piercing and extruding simultaneously the four bolt holes by a single operation die, making the U-shape with a forming die and tapping the four holes at one time in a multiple-tapping machine.

The dies, made by Barth Stamping & Machine Works, 3815 West Thirty-fourth street, Cleveland, follow standard design practice except for the extruding features. In Fig.

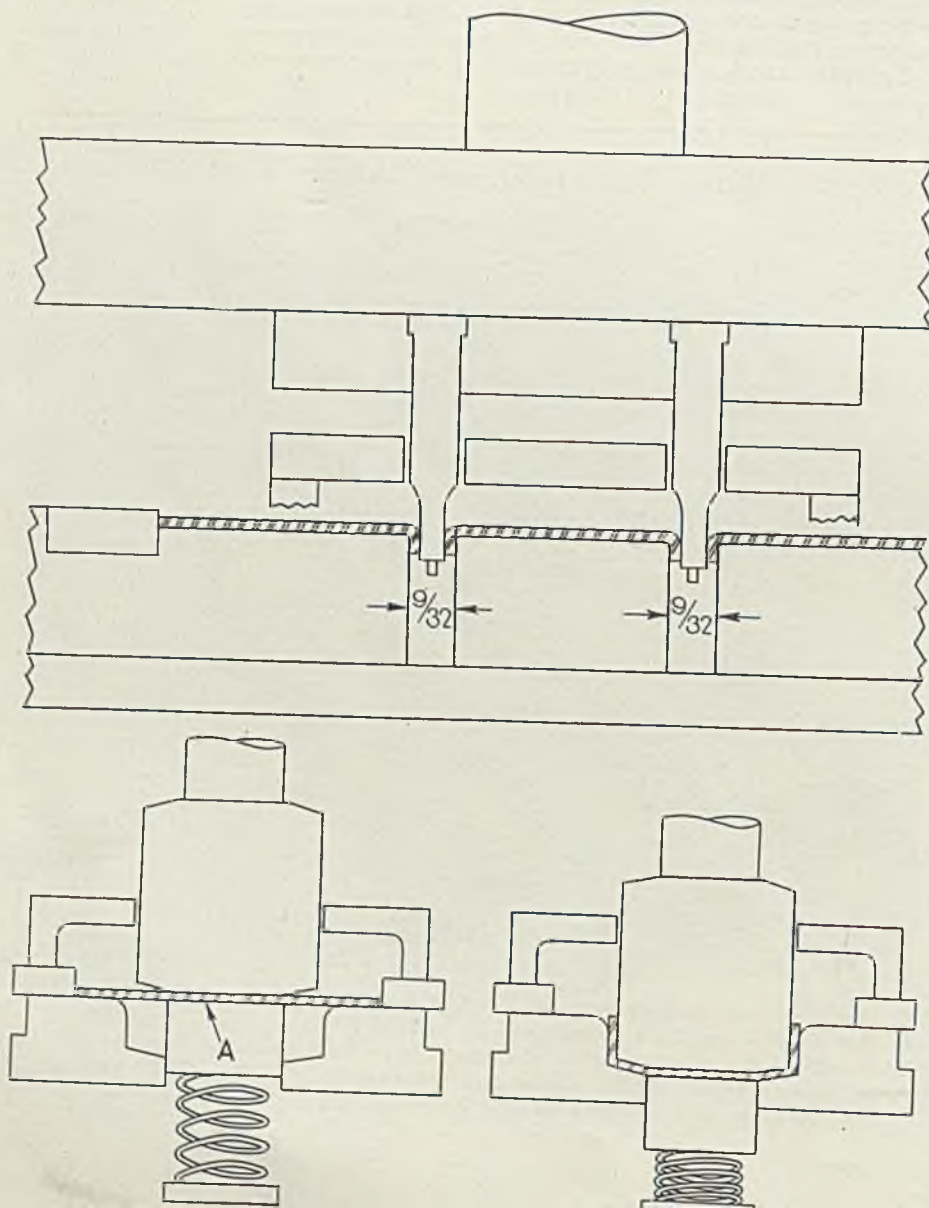


Fig. 1 (Top)—Extruding punch at end of stroke having pierced and extended four holes in sheet metal and blanked a large hole simultaneously. Fig. 2 (Left below)—Conduit base in forming die ready for forming stroke. Fig. 3 (Right below)—Forming die with punch at end of stroke

4 are shown the dimensions worked out on a punch for extruding a hole in 13-gage (0.093-inch) sheet steel to be tapped for $\frac{1}{4}$ -inch 20-thread U. S. standard machine screw. Not enough difference in the diameters of the punch and die will obviously result in a long thin collar; too great a difference, in a short thick collar. Best results are obtained with the dimensions indicated. To aid in piercing the metal, the punch is pro-

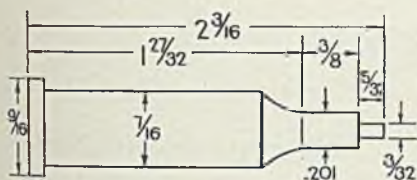


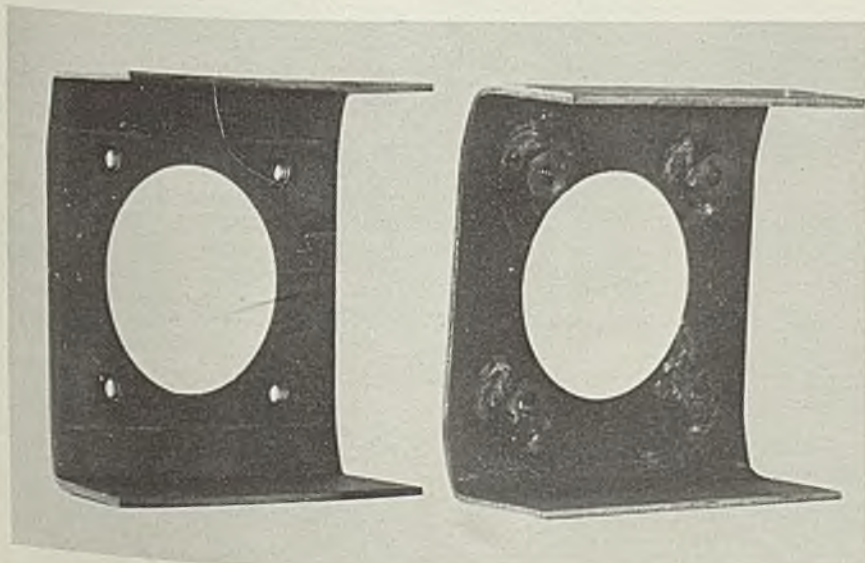
Fig. 4—Dimensions of a piercing and extruding punch for a $\frac{1}{4}$ inch-20 thread U. S. standard machine screw

vided with a leading nose of a smaller diameter.

Fig. 1 shows the extruding punch at the end of its stroke with the collar extruded. Working the metal in this way seems to have no noticeable effect on the ease of tapping, although deep-drawing steel is specified for this use. The edge of the collar sometimes has slight cracks in its from the force of extrusion, but this has been of no consequence. In operation, the die is fixed to an inclined press and the sheet, already trimmed to proper size, is held in place by a stop on the side and another at the bottom or rear. A positive stripper plate automatically removes the work from the punches on the upstroke.

The piece with the one large lead hole and the four small extruded

Fig. 5—Underside of new motor conduit base with tapped extruded holes, at left. Old type conduit base with tack welded nuts, at right



holes then is placed in the forming die as in Fig. 2. Besides forming the U-shape, this die also will impart a slight curvature to the face of the base so the base will conform more closely to the circumference of the stator bands. The top surface "A" of the die is that of a gripper plate which rests on a strong spring. Before the forming stroke, surface "A" of the die is flush with the rest of the die face, but when the forming punch descends the spring is compressed and holds the work against the flat surface of the punch while the sides are being formed.

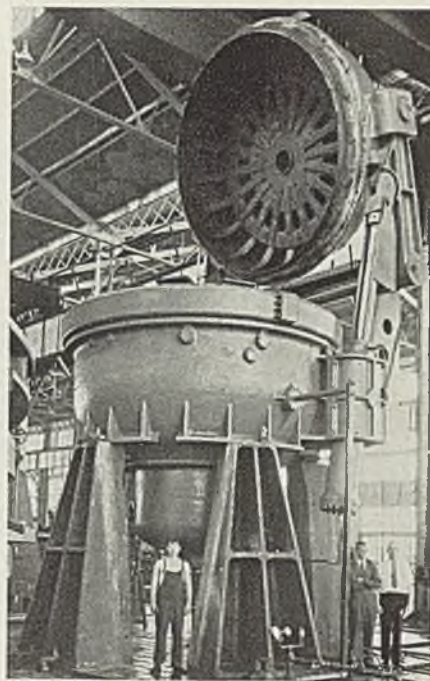
End of the forming stroke is shown in Fig. 3. The angle on the forming sides, in this case 15 degrees, varies with the springiness of the sheet used. The springier the sheet, the less the angle. A positive stripper plate automatically removes work from punch face on return stroke of punch. Die is on an inclined press with conventional side and back stops. The work falls into container with no further handling.

By use of these dies the company claims the manufacturing costs have been cut 55 to 60 per cent, while maintenance cost of the dies has been no more than usual. The extruding punches, made from ordinary nonshrink oil-hardening tool steel, are still in good condition after many months of service.

While originally confined to the lighter-gage open-motor bases, the extruded holes are now being applied with equal satisfaction to heavier sheet steel conduit bases replacing the cast type conduit bases of larger size fan-cooled and fully-enclosed motors. Since the strength of the extruded tapped holes compares favorably with that of the tack welded nuts and the cost of production is considerably lower, there seems to be an open field for this type of construction in sheet metal work.

Vulcanizing Press for 10-Foot Diameter Tires

■ A vulcanizer capable of curing tires 10 feet in diameter has been built by Baldwin-Southwark Corp., Paschall post office, Philadelphia, for Firestone Tire and Rubber Co., Akron, O. Standing 18 feet high with the lid closed and 30 feet high with the lid open this press, which has a clear inside diameter of 150 inches and a 5-foot mold space, is



Capable of curing 10-foot diameter rubber tires, this vulcanizing press exerts a pressure of 2000 tons on the tire molds and a total of 2500 tons on the lid-locking device

believed to be the largest of its type ever built. When installed, however, only 7 feet 6 inches of the press will be above floor with lid closed.

Operating at 1000 pounds per square inch hydraulic pressure, the press is capable of exerting a 2000-ton pressure on the molds. With the 100-pound steam pressure inside, a total load of 2500 tons is exerted upon the lid locking device. The main ram, 68 inches in diameter with 40-inch stroke, is cast iron alloy of chromium and nickel and operates in a bronze bushed cylinder.

Two copper-lined lid-lifting cylinders with stainless steel piston rods are operated by an equalizing mechanism. A hydraulic cylinder actuates the locking ring for securing the lid to the main shell during the processing period and a safety mechanism locks the lid when it is in the open position to prevent its dropping in event of power failure. The lid lifted by this mechanism, complete with top mold, weighs over 115,000 pounds.



New Reel for Strip

Open-vane reel winds hot strip and skelp into neatly formed coils at mill delivery speeds up to 1500 feet per minute. Recent installation handles strip to 36 inches wide, 7000 pounds maximum

By W. W. McBANE

United Engineering & Foundry Co.
Pittsburgh

■ Recently a new type of horizontal reel for coiling hot strip and skelp was developed at the Riverdale, Ill., plant of Acme Steel Co. It was especially designed for coiling narrow and medium-wide hot strip into neatly formed coils at mill speeds, and doing this in such a manner as to avoid surface scratches, etc., as far as possible. Accompanying illustrations show views of a unit which

United recently furnished the Warren, O., plant of Republic Steel Corp.

Known as a "paddle" type, the new reel consists principally of a motor-driven rotating drum made up of heavy turbine blades or paddle sec-

tions extending from an inner flange which in turn is bolted securely to a second flange mounted on a large main shaft revolving in bearings. This shaft also carries the main reduction gear as shown in accompanying illustration.

The drum is provided with a stripper plate which fits around and between the vanes on which the strip is wound. The stripper plate is actuated by an air cylinder with air connected through the center of the main shaft. Drive is enclosed entirely in an oil tight case with motor and brake mounted on the main frame above the stripper cylinder.

This reel is suitable for coiling strip up to 36 inches wide with a maximum weight of 7000 pounds and in various thicknesses from 0.0625 to 0.156-inch at mill delivery speeds up to 1500 feet per minute. Reel may be located at a distance from the mill so it will start coiling the strip before the last end has left the mill. Or it may be located at the end of a sufficiently long run-out table so strip is entirely free from the mill before coiling starts. For the Republic installation, the strip is free from the mill before the front end reaches the reel.

Operation of reel in general is as follows: Rotation of the reel head is started in the coiling direction indicated by dotted lines in Fig. 1. Peripheral speed of the outside of the vanes is brought up to a point where it is slightly higher than speed of the strip coming to the reel. At this stage the top and bottom entry guides are set automatically

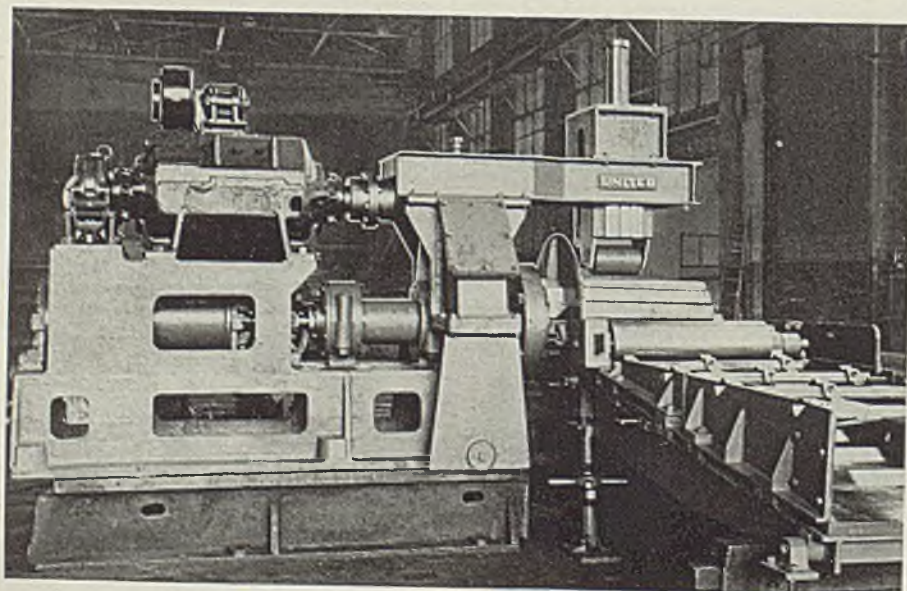
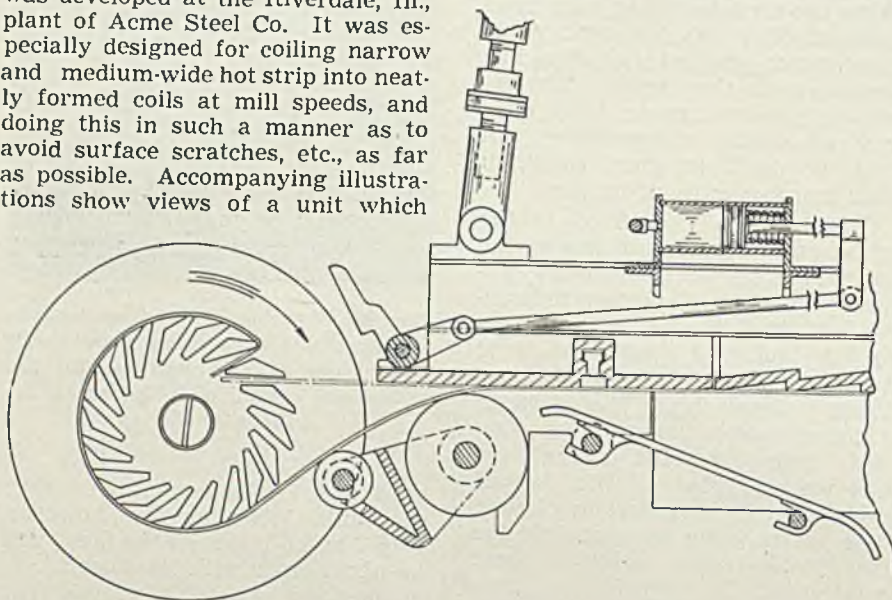


Fig. 1. (Upper)—This diagram shows operation of new "paddle" reel. On-coming strip is caught between vanes of revolving reel, pulled into coil. Fig. 2. (Lower)—Shop view of complete reel and drive with entry chute assembly. Note arrangement of stripper plate, its mounting on drum, method of securing drum flange to flange on main shaft

Where to look for INCREASED PLANT CAPACITY...

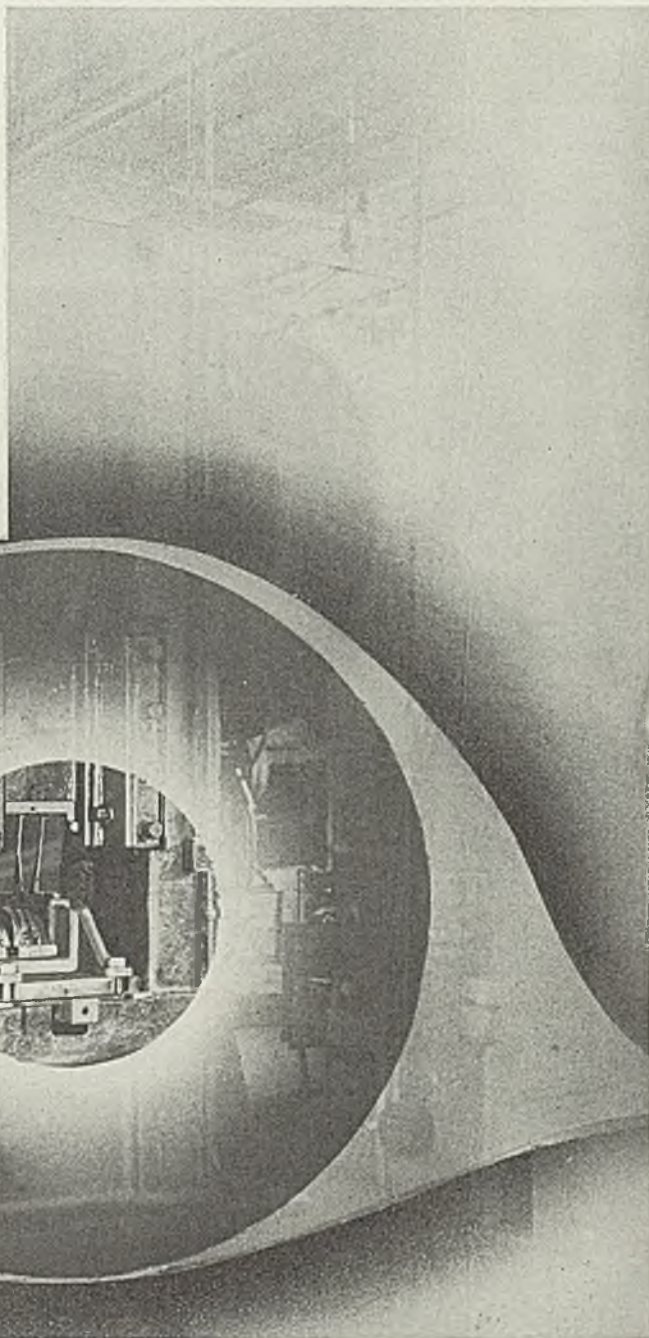
Here's a *new* place to find increased capacity in a hurry.

Check your dies and tools! Surveys show that in seven out of ten plants, the *actual* output of machines and presses falls far short of *rated* capacity.

The difference lies in frequent press shut-downs for "touching up" the tools, re-grinding and replacing prematurely worn tools and dies. *There* is your extra capacity—tied up by tools that were "good enough" when the plant was idling along—but certainly no match for today's driving demand.

The time has come to use *better* tool steels—and improved methods. Send for the Carpenter Booklet that shows the modern time-saving way to improve tool and die performance—get fewer shut-downs and higher output.

THE CARPENTER STEEL COMPANY, Reading, Pa.



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TIME TO CHECK UP!

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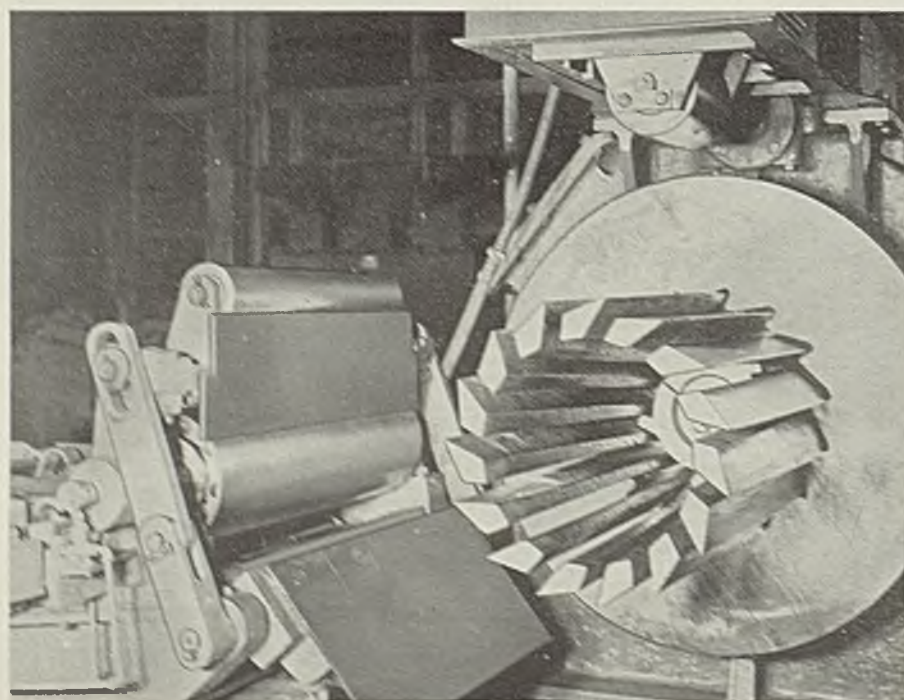
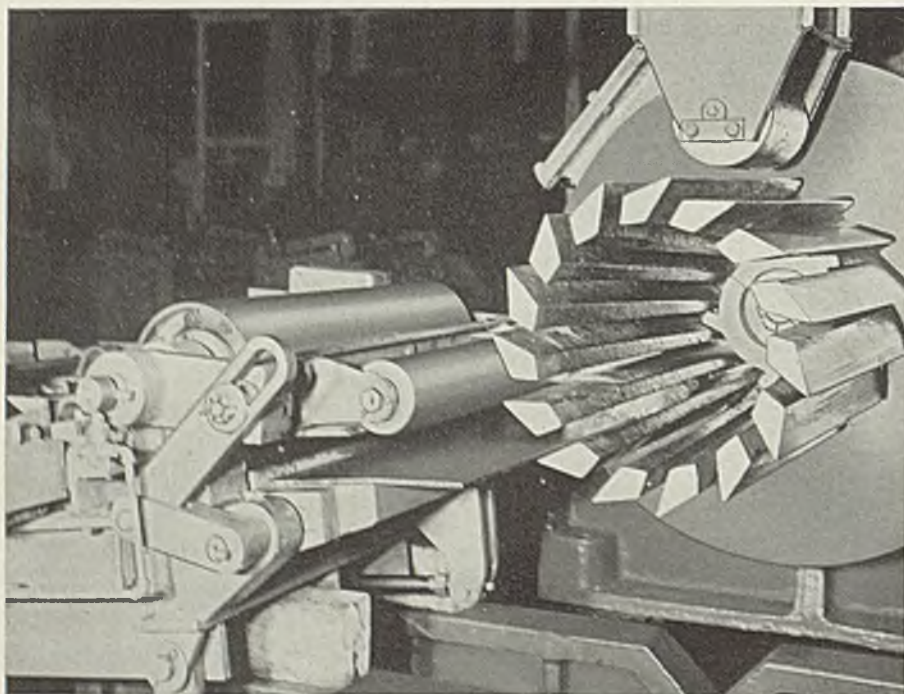
Without obligation, send me your 60-page booklet
that shows how to improve tool and die performance
to get higher output.

Name _____ Title _____
Firm _____
(Firm name must be given)
Address _____
City _____ State _____

In a position to guide the strip directly between vanes of the reel slightly below reel center as shown by dotted lines in Fig. 1 and in Fig. 3. The reel now is ready to receive an oncoming strip.

When the entering strip passes through the entry guides and the opening between coiling vanes, the

Fig. 3. (Upper)—Closeup showing general construction of drum and shape of vanes, or paddles. Here entering guides are in position for oncoming strip to start a coil. Fig. 4. (Lower)—Entry guides take this position after coiling has started. Top holddown roller, shown in down position in Fig. 3, is raised out of way of stripper plate in Fig. 4



front end is carried around as shown in Fig. 1. Then top and bottom guides automatically are moved completely away from the strip as in Fig. 4. This leaves only the top deflector roll in contact with the strip and coiling then proceeds until the entire length of strip is coiled. The complete coil subsequently is tripped off the drum onto a coil conveyor by the air operated stripper disc shown fitting closely around the blades of the reel in Fig. 3 and Fig. 4.

An air-actuated holddown roller is provided over the top of the reel drum to keep the last end of hard stainless or high-carbon strip close to the body of the coil. This greatly facilitates banding the coils be-

fore stripping. After banding is completed, the holddown roller is raised clear of the coils, Fig. 4.

When production of the mill is greater than can be handled by one reel, two reels may be arranged in tandem with suitable chutes so one strip may be in process of coiling while the preceding coil is being banded, stripped and the reel put in operation ready for next coiling.

This equipment also has been developed for coiling and handling narrow strip and skelp into large, neatly formed coils. For this work, coiling is done between two rotating discs to insure true size. The completed coil is placed on a mechanically operated cradle which places it on a roller chain conveyor without any sliding on the side of the coil. This protects the coil edges. Where sharp corners or beveled edges are required on the strip or skelp, this method of coiling completely eliminates the possibility of damage to the edges which may occur with vertical method of coiling.

This unit is being built under an exclusive license agreement with holder of patent covering this equipment.

Textbook on Patents in Nontechnical Language

■ *Patent Fundamentals*; by Adelbert Schapp; 176 pages, 5½ x 8½ inches; published by the Industrial Press, New York; supplied by STEEL, Cleveland, for \$2.

This is a textbook for inventors, executives and students which explains in nontechnical language and demonstrates by practical examples the underlying principles of true invention, procedure in obtaining patent protection, drafting effective claims, making assignments, issuing licenses and how to protect both invention and inventor.

The treatise includes information on trademarks and copyrights, design patents, prints and labels, and illustrates the conditions under which these protective measures become available.

Simplified Practice

■ A proposed simplified practice recommendation covering sizes, dimensions and ratings of large tube cast iron radiators has been submitted to all interests for consideration and approval, by division of simplified practice, national bureau of standards, Washington. Proposed recommendation would reduce varieties of large tube radiator sections from 33 to 17.

The recommendation will constitute a basis for concentration of production on a minimum number of sizes and its general adoption would reduce production costs by eliminating varieties slow to move.

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New Scale Plant

More efficient layout cuts interplant trucking of heavy castings from 4 miles to 400 feet; five receiving departments replaced by one; four shipping floors merged into one; usable space is increased

■ AS IS THE case with many other national organizations, Toledo Scale Co., Toledo, O., in the face of continuous product development and sales growth, has been forced to have many individual machine parts made in separate buildings, built or purchased as the occasion arose. Because of surrounding conditions these have been separate units in many cases, often located in different parts of the city and even in other cities.

Ultimately it was realized that centralization of these efforts would bring about a more efficient control of inspection and production. This would improve the product both from a quality and a price point of view. Also it would increase operating efficiency and raise the morale of personnel in turn leading to further improvements.

A study of the problems entering

into manufacturing processes, transportation of raw and finished materials, and personnel indicated the new plant should be located in the vicinity of Toledo, and on a site where both ample railroad and highway facilities were available for transportation of raw, semifinished and finished products. Much thought was given to the actual area of ground required to accommodate the future development of the scale plant itself and also facilities for making new materials and parts which might be added.

The first unit constructed takes care of manufactured parts and assembly of scales and is located on a site where ample expansion can take place either directly to the north or south. All utilities such as receiving and dispatching space, boiler house and flammable storage space are located on the west side of

the building and can be augmented in any direction and to any size without interfering with the main manufacturing building.

The main structure is 420 feet wide by 440 feet long. It consists of a 2-story portion in the front 240 x 64 feet for administration offices with the remainder of the building 1-story and devoted to manufacturing. Building is steel-frame type with special steel roof trusses. Walls are of common brick.

No "Mass Production"

There is one basic point to consider in studying manufacturing facilities of Toledo Scale. It is not a "mass production" operation. For example, upward of 45,000 standard variations of basic models are built in the industrial scale line alone. The line of retail scales also is varied widely to meet individual requirements. This means that each scale or device is assembled as an individual unit rather than simply as one of many like units. Automatic conveyor lines and other evidences of high speed mass production are impractical under such conditions.

However, the flow of materials through the plant has been planned most carefully. The accompanying production flow diagram, Fig. 1, gives the general pattern.

The receiving department is located at the rear of the plant. It is accessible either from a railroad siding or from a large covered receiving dock where motor trucks are unloaded. Material received is chiefly castings, stampings, bar stock and molded plastic scale covers—plus, of course, hundreds of miscellaneous supply items.

All of the machine departments are located on the north side of the plant (at the right in the production

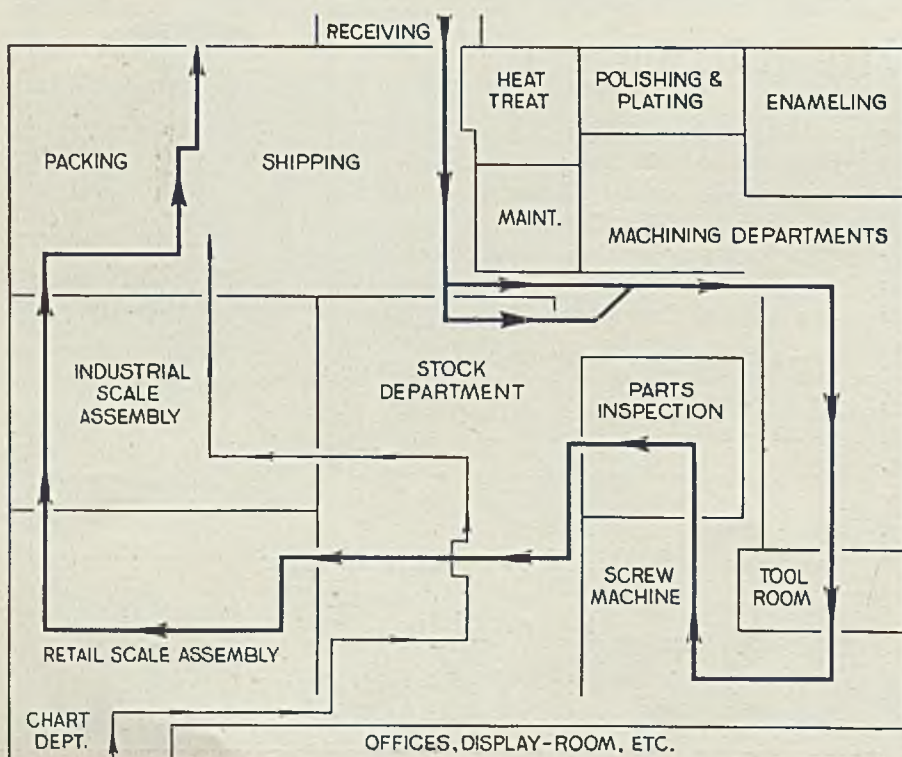


Fig. 1—Layout diagram of new plant of Toledo Scale Co., Toledo, O. Not complete or to scale



Youngstown

★
CARBON AND ALLOY STEEL BARS

From the charging of the blast furnace with specially selected high grade ore to the last inspector's approval, the making of Youngstown Carbon and Alloyed Steel Bars is under constant scientific control. We know that your main interest in bars is accurate rollings, uniform quality and analysis. You can count on these essential qualities in every bar we sell.

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AND TUBE COMPANY**

Manufacturers of Carbon and Alloy Steels

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Bars - Sheets - Plates - Pipe and Tubular
Products - Conduit - Tin Plate - Rods -
Wire - Nails - Tie Plates and Spikes

15-1B



YOUNGSTOWN

chart, Fig. 1). These departments are served easily with incoming material as broad aisles permit ready access either directly from the receiving department or through the general stock department. This general stock department occupies the entire central portion of the plant. Steel shelves, bins, and racks, Fig. 3, provide ample and convenient storage facilities both for materials and finished parts. In fact, all except stationery and advertising supplies are stored here.

Plant departments are divided into the following main divisions: Standard production machines, automatic screw machines, tool department, enameling department, heat treat, plating and polishing, and special machine. From the various machine operations, the finished parts go to the inspection department.

Inspection is unusually thorough and exacting. Unlike almost any other equipment built to stand up under rigorous service, a scale must be precisely right every time. Gages used include such instruments as

Johansson blocks, Rockwell hardness testers, comparators and the like. Because of special requirements, many special gages are designed and manufactured by Toledo engineers and toolmakers.

Once approved, finished parts go into finished-parts stock or direct to the assembly departments. The latter are located along the south side of the plant (at the left in the diagram, Fig. 1).

One manufacturing department is isolated from the rest—the chart department (lower left in the diagram). The highly specialized work of producing the cylinder computing charts, fan charts and dial charts is done best under carefully controlled conditions rather than as part of the general manufacturing setup. For that reason, this one department has what amounts to a miniature plant of its own. The completed charts go either into stock or directly to assembly departments.

There are two major divisions of the assembly departments. One of these handles the retail store scales,

the other builds up industrial dial scales and testing devices. In assembling retail store scales, the parts are light in weight so no special handling equipment is required. In working on the larger industrial types, however, overhead monorails with hand-operated lifts are used in handling the major castings.

All completed scales next must pass a rigid final inspection made within the assembly departments, but by men under the sole jurisdiction of the chief inspector.

Directly to the rear of the assembly and final inspection departments are packing and warehousing areas. Much attention has been given to development of efficient packing methods. Unless scales reach the ultimate user in the same condition as approved by the final inspector, much of the care used in their manufacture would be in vain. Thus packing is of utmost importance. All scales are shipped completely assembled, except the so-called built-in types (motor truck scales and overhead track scales). Containers are used for the smaller types, wood shipping cases for the larger.

Outgoing shipments are made either through loading exits leading directly from the warehouse department or over the receiving dock to the railroad siding platform.

"Production Circle"

Thus flow of material through the plant amounts roughly to a "production circle" with materials being received at the rear of the plant, passing through machining operations at one side of the plant, next through the general stock room at the center, then to the assembly and final inspection on the opposite side of the plant, finally back again to the rear of the plant for packing and shipping.

This is far different from what was necessary with separate (and obsolete) plants. Reduction of much interplant trucking was the first and most obvious saving made in the new plant. Trucking of heavy castings reduced from 4 miles to 400 feet. All manufacturing operations are now on a single ground.

(Please turn to Page 75)

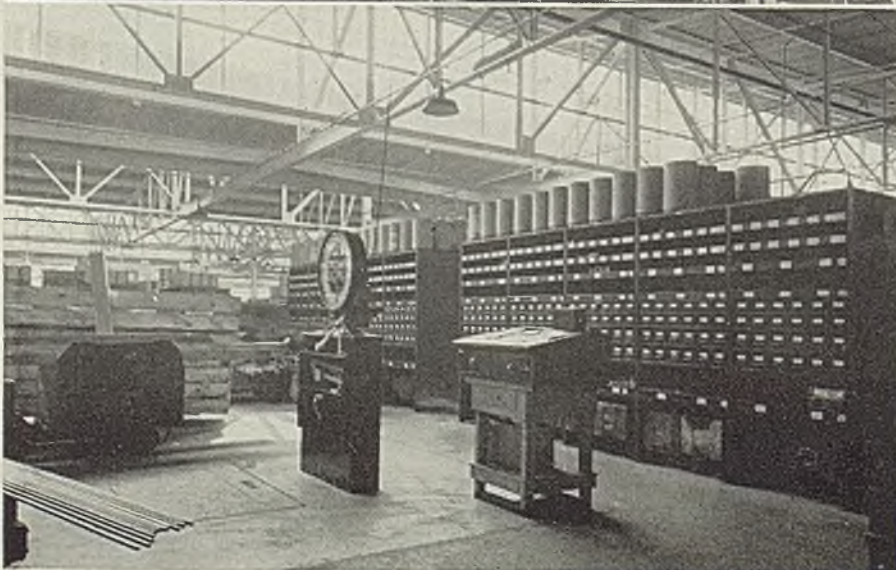
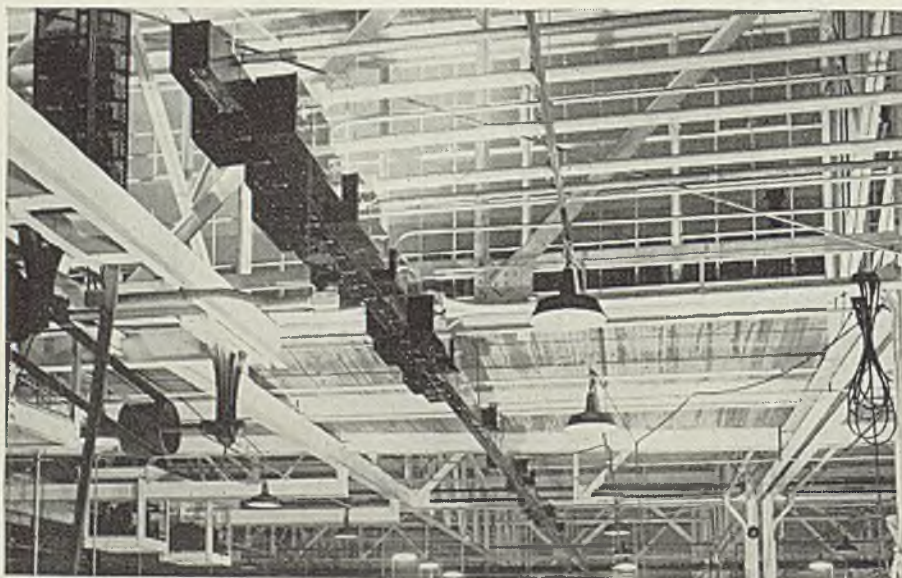


Fig. 2. (Upper)—This 440-volt metal-clad busbar is part of system traversing entire area of plant. It can be tapped anywhere for leads to motors. Current for lighting transformers taken from this bus is reduced to 110 volts for lamps

Fig. 3. (Lower)—Finished parts are stored in bins in stockroom occupying portion of central area of plant. Scale here weighs bar stock being issued to screw machine department

"Largest" Conveyor System For Shasta Dam

■ BUREAU of reclamation will use a sequence of motor-driven conveyor belts ten miles long in constructing the new Shasta dam at Redding, Calif. According to R. H. Rogers, industrial department, General Electric Co., Schenectady, N. Y., this will be the longest conveyor system in the world. Belt will bring gravel and sand to the concrete mixing plant near the dam site, from which point electrically driven cableways will pick up the concrete and dump it in the forms of the dam walls and foundation.

Shasta dam is part of a program to supply water for irrigation, flood control and power to California's semiarid central valley. When completed, dam will be second only to Boulder dam in height and to Grand Coulee dam in length. Enough concrete will be used in its construction to make a solid monument a city block square and slightly higher than the Empire State building.

Because of the immense amount of material needed for this work, it was decided to use a conveyor system instead of trucks or a railroad. The material will travel at a speed of 1250 feet per minute on a conveyor system which consists of twenty-five 36-inch belts, each averaging 0.4 mile in length.

Powered by Electricity

Power will be supplied by twenty-five 200-horsepower, 1880 revolutions per minute, 4000-volt, wound-rotor induction motors and one 75-horsepower, 1800 revolutions per minute, 4000-volt motor. Control for this system will consist of 26 nonreversing magnetic control panels and five thruster brakes and accessories. This conveyor system will be twice as long as any previous installation of this type. It is estimated that 7,600,000 tons of gravel and 2,800,000 tons of sand will be moved at the rate of 22,500 tons every 24 hours.

Three cableways for the new dam will be powered by three 500-horsepower General Electric variable-voltage equipments. These cableways will pick up the 5,610,000 cubic yards of concrete needed to fill the gap in the canyon across the Sacramento river. Time is saved by such an installation because the empty buckets will be returned to the mixer at high speed. Considerable time can be lost in a conventional, alternating current, direct drive where the motor cannot be speeded up above synchronous

speed on return trips. However, by use of the variable-voltage drive, rapid return of the bucket is assured, permitting large savings in interest, wages, power bills, maintenance and overhead as well as obtaining the additional advantages of faster jogging operations and increased flexibility.

Shasta dam when completed in 1943 will impound 4,500,000 acre-feet of water.

RLM Standard For Fluorescent Light Unit

■ RLM Standards institute, 20 North Wacker drive, Chicago, announces establishment of RLM specifications for the new 48-inch fluorescent twin-lamp porcelain-enamel reflector unit. Features included are: Porcelain enamel reflecting surface for diffusion and durability; light output efficiency of 78 per cent; cut-off angle of 17½ degrees and closed ends to minimize glare; use of two 48-inch Mazda fluorescent lamps correctly spaced to insure comfortable and efficient

light; new type Underwriter's laboratory approved auxiliary which corrects lamps for power factor and flicker; removable and renewable starting switches in socket to facilitate inspection and maintenance of the units.

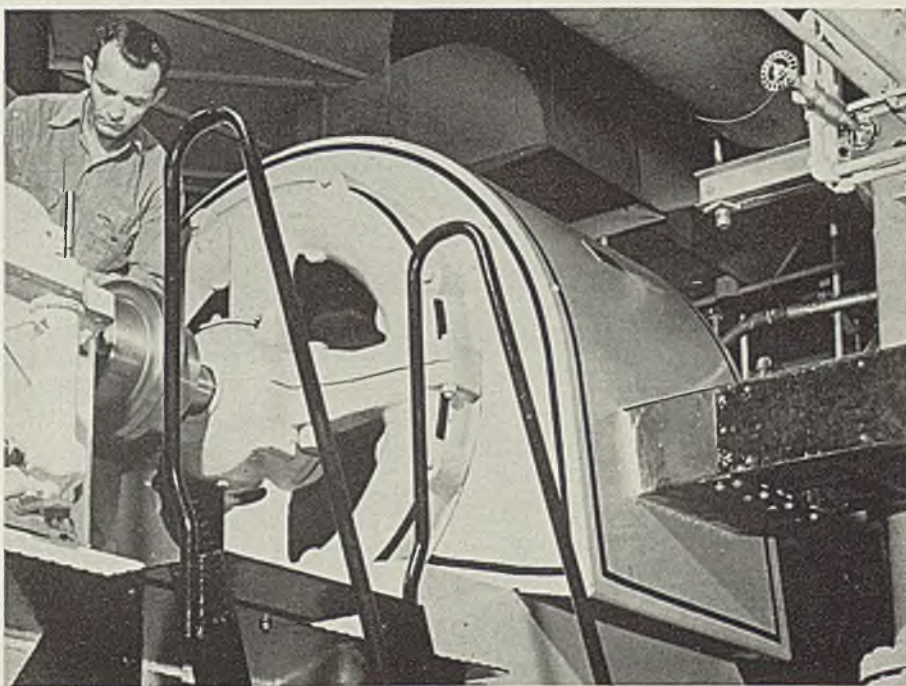
These new units are available from manufacturers of RLM lighting equipment.

Paint Withstands Corrosive Conditions

■ A new Koroseal paint, No. 495 Korolac, and primer, developed by B. F. Goodrich Co., Akron, O., are said to result in a semiglossy black finish resistant to acids, alkalis and salts in concentrations common to industry up to temperatures of 150 degrees Fahr. It is said not to be affected by chromium, nickel, cadmium, zinc, copper, brass, silver or tin plating solutions nor to contaminate such solutions.

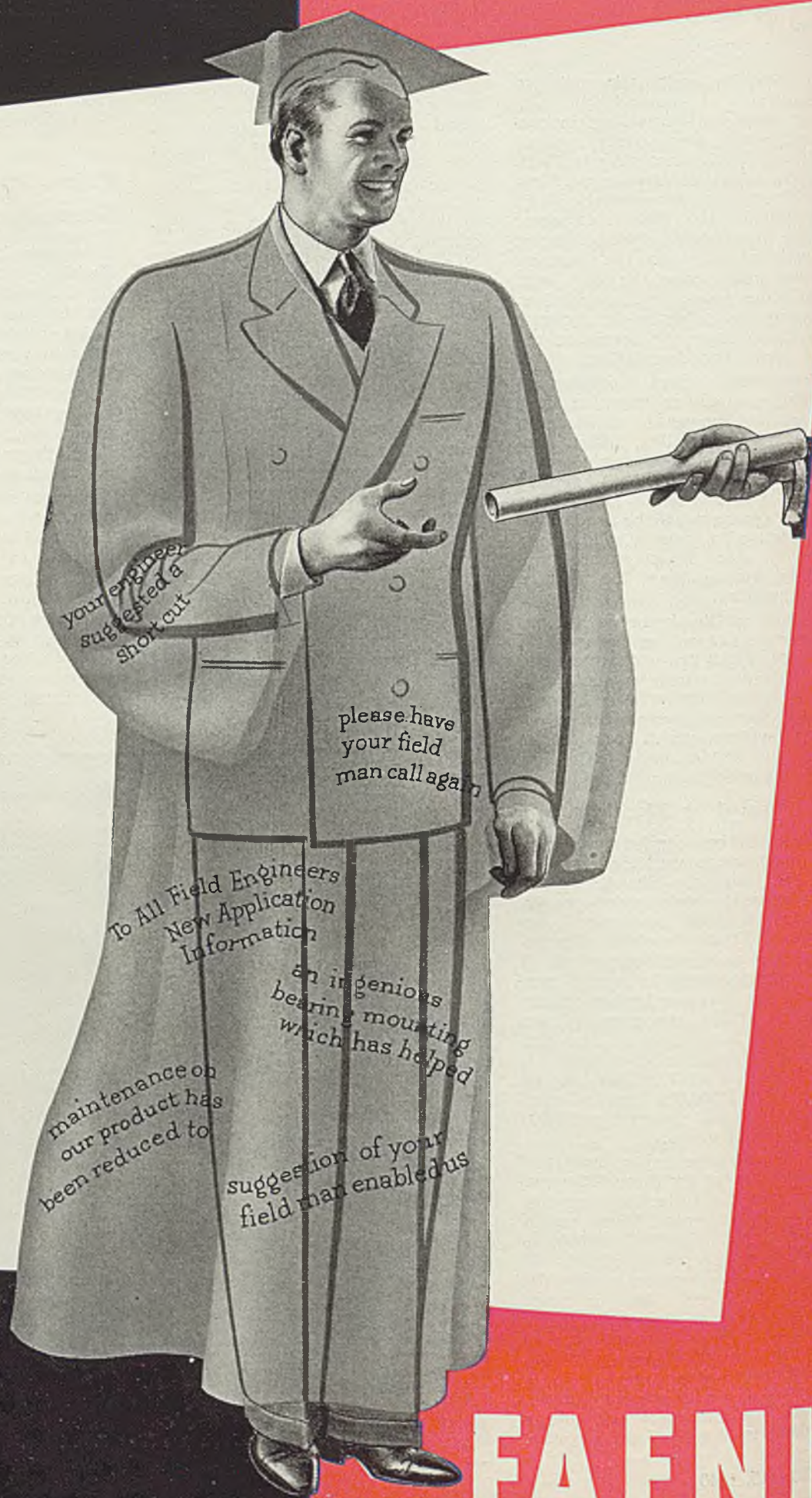
Paint is resistant to moisture and ordinary atmospheric conditions. The dried film, although hard and resistant to abrasion, is sufficiently elastic to provide for contraction and expansion of support. Both primer and paint can be applied by brushing or spraying. Applied to metal surfaces after preparation, primer forms a strong bond between paint and metal.

Large Quiet-Operating Synchronous Motor



■ Operating at unity power factor, this 1000-horsepower, 1200-revolutions-per-minute, 3-phase, 208-volt synchronous motor drives the centrifugal compressor of an air conditioning system through a flexible coupling at a noise level of 83 1/3 decibels. A steel hood over the motor frame helps to reduce the motor noise. Photo courtesy Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

AFTER 342 YEARS



FAFNIR

In the School of Experience.

Graduating? No, his course is never finished. *What about the gown he wears?* That's Experience – he wears that all the time. *But isn't that the dean's hand, extending a diploma?* No, that's your hand, passing him a blue-print of your machine-drive; you know, the one that's never worked just right. *What will he do?* He'll make it work.



He'll make it work because, like all other Fafnir Sales Engineers, he can draw upon his own unusual record of practical field experience. He and his associates on the Fafnir Sales Engineering staff have each spent an average of fourteen years (a combined total of 342 years!) saving money for ball bearing users – not in a distant

"home office," but right in the plants where the problems are! Still, these field men with ten, fifteen, nineteen, or twenty-three years' experience may not mean much to you, until you think how much their combination of



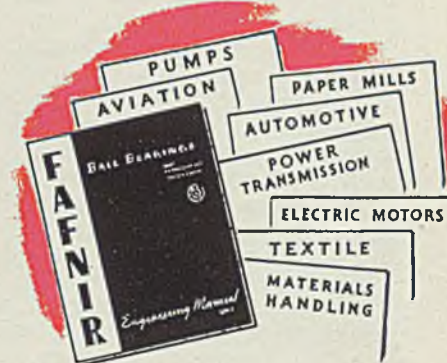
wide knowledge and seasoned judgment may save you in dollars and cents. For instance:

It may save you money outright, by recommending substitution of a bearing less costly to use than one now in your product. . . .

It may save you time, by reaching into the wide Fafnir Standard Bearing Line for one exactly suited to your needs and ready for delivery, avoiding the delays and grief that go with development of a "special." . . .

It may boost your product's performance, or the performance of bearings within your plant, by recommending the right retainer, the right seals or shields, the right lubricant for your specific application. . . .

Textiles? Machine Tools? Aircraft? Automobiles? Paper-making? Mining? . . . it doesn't matter what your business is, for your Fafnir Engineer will be one who has specialized in that industry's problems.



Best of all, you'll like your Fafnir representative. You'll find him as easy to work with, as friendly and obliging as the "friendly factory" that keeps him in the field. The Fafnir Bearing Company, New Britain, Conn.

BALANCE IN INDUSTRIES SERVED

Fafnir serves an extremely broad group of diversified industries. The breadth of this customer-list is important in your consideration of a bearing source. It means that Fafnir's production and engineering staffs are conversant with the bearing problems of industry as a whole.

It means, too, that either a recession or a sudden boom in any industry will in no way affect Fafnir's ability to serve the remainder. The balance maintained between these customers is such that The Fafnir Bearing Company is at all times serving many industries well; never one at the sacrifice of others.

Ball Bearings

THE BALANCED LINE

MOST COMPLETE IN AMERICA

Articulated Train of 14 Cars

Features Welding, Stainless Steel

■ TWO NEW 14-car trains, now being built by Pullman-Standard Car Mfg. Co., 79 East Adams street, Chicago, are to be placed in service as "Daylight" trains operated by the Southern Pacific company between San Francisco and Los Angeles.

Trains are identical and each consists of a combination baggage-chair car, a full chair car, six chair cars articulated in units of two, one tavern car, one special car consisting of three car bodies articulated to form one unit, one parlor car and one parlor-observation car. Total seating capacity of the train is 639. Total length of the 14 cars is 1015 feet.

These new cars are of usual width outside, the inside width being $5\frac{1}{4}$ inches wider than standard of the older conventional equipment. Car body framing is made principally of Cor-Ten steel, with pullman welded truss-type side frames and stainless steel exterior side sheets finished in an attractive wide, orange, red and black stripe color scheme. The underframes are of the welded type throughout, with castings confined for structural utility to the assembly of bolsters and buffers. The center sills of special center-sill steel are of the inverted U-type, extending the full length of the cars, with a spread effect at the ends, terminating at diaphragm posts. All floor supports and side sills are pressed Z-members of nominally light gage metal bound crosswise of the car, with uniformly spaced sheet steel pressed members, all welded together. Below the side sill, a semi-elliptic apron sheet is secured, effectively obscuring the underneath equipment.

Pressed Steel Frame

The truss-type side framing is constructed of vertical and diagonal pressed-steel members, principally channel shaped, all securely welded into a unit. Side sheathing is of stainless steel corrugated, except for the window stretch which is flat.

The ends of the cars are pressed-steel members, with center and outer diaphragms to close the openings between the car bodies. The roofs are oval in shape, constructed of U-type carlines, with several pressed Z-shaped purlins and flat

roof sheets, all made of light-gage alloy steel, fabricated by spot-welding, and thus affording a light but rigid roof structure.

The flooring, except for the conventional wood floor in the baggage room, is composed of a specially-pressed aluminum sheet, with top depressions filled with cork strips, above which is applied cork-board insulation, covered with either rubber tiling or carpet. In the kitchens and pantry, the cork is covered with Monel metal. The superstructure is thoroughly insulated with insulation 2 inches thick. One train is insulated with Fiberglas and the other with Stonefelt.

Titelock Type-E head couplers are used at all ends not having the articulated feature, except the rear-end observation car which is equipped with a light-weight A.A.R. coupler. Waughmat rubber draft gears are installed. Passenger entrances are at one end only of each coach and the parlor car, with steps of folding type operating in conjunction with trap doors and invisible when the vestibule doors are in closed position.

Protective Coating

■ A liquid to protect metals against rust and corrosion, "Metaseal 494," has been put on the market by Estox Products Co., New Haven, Conn. The liquid is claimed to be effective on steel, brass, aluminum

and practically all other metals for periods of 9 to 12 months. It can be applied by dipping, brushing or spraying and forms a thin, tough film.

Knurled parts, threaded pieces and pieces with or without holes can be handled with equal facility. The protective coating can be removed by any standard alkali cleaner, but it is claimed this should not be necessary as the coating is said to make a good priming coat and to improve the adhesion of the finish to the metal.

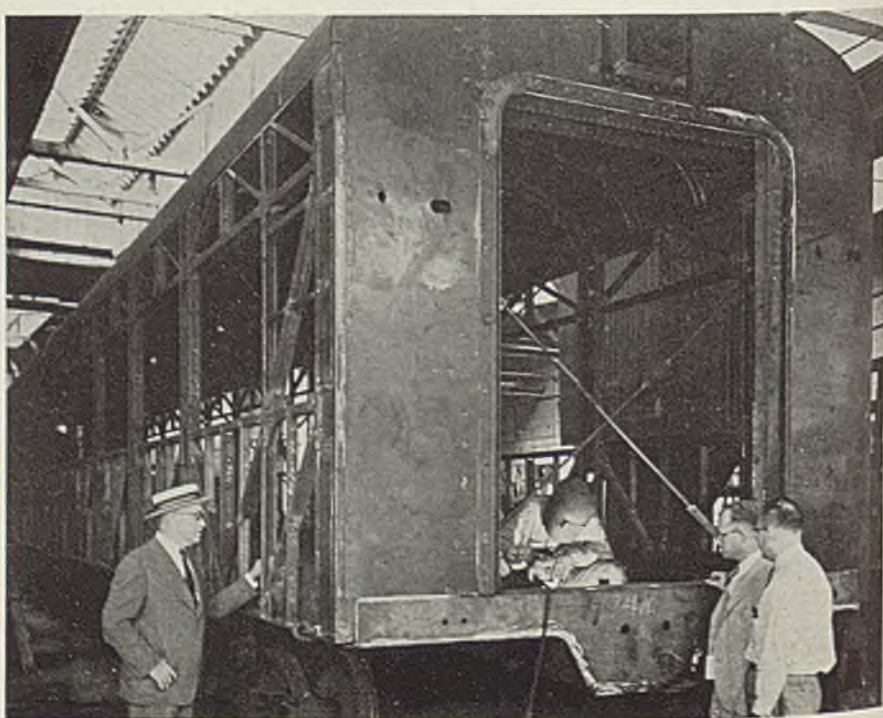
Metallography Manual In Fourth Edition

■ *Principles of Metallography*, by Robert S. Williams and Victor O. Homerberg; cloth, 339 pages, $5\frac{1}{2}$ x 8 inches; published by McGraw-Hill Book Co. Inc., New York; supplied by STEEL, Cleveland, for \$3.50.

In this fourth edition, the purpose of the authors remains unchanged, the general reader being given the fundamentals of physical metallurgy. It serves as an introduction to larger and more specialized books.

The text has been revised extensively to include new material appearing since the previous edition. A new chapter on plastic deformation and annealing of metals has been added, written by Morris Cohen.

In the appendix are included a few of the tables most commonly used by the metallographist and a descriptive list of the more important books and journals dealing with the subject.



Important weight economies are effected by use of low-alloy high tensile steels in this streamlined railroad passenger car. New type welded construction allows more room inside of car



THE
"HORNET"*
 IS A
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...but **AS EASY TO OPERATE AS AN AUTOMOBILE**

There is nothing delicate about the new Wilson "Hornet", all parts are sturdily built to withstand the tough going that it will meet in the average shop — yet its simple controls make it as easy to operate as an automobile. Once the large, sturdy handwheel on the top of the machine has been set,

a constant arc is maintained and the operator is free to apply himself to making . . . better welds.

For further information about the new "Hornet" write for your copy of the "Hornet" bulletin featuring the latest of the line of Wilson machines . . . "the machines that make the arc behave." *TRADE MARK

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January 15, 1940

New Departure in Barges

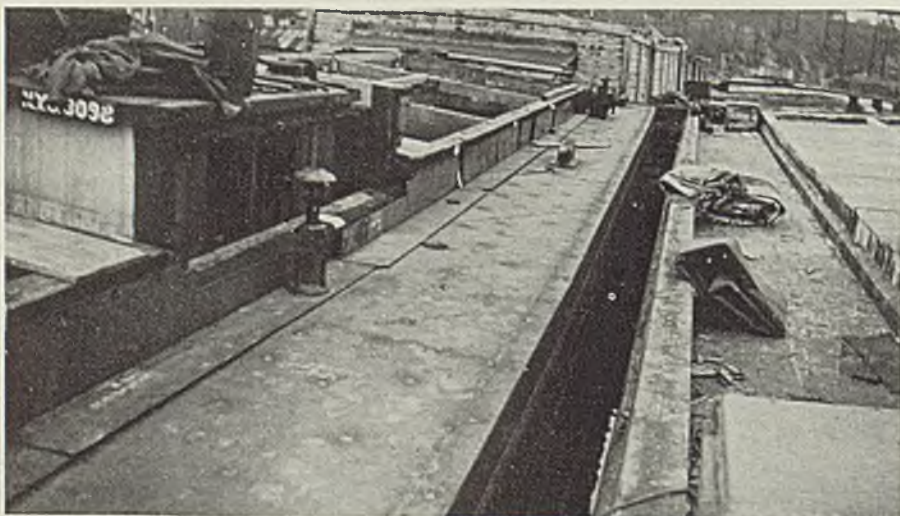
■ A NEW departure in barge construction which already has received the approval of waterway shippers has been perfected by Reliance Marine Transportation & Construction Corp. and Ashley Welding Machine & Iron Co. Inc., both of Kingston, N. Y.

The innovation consists of laying lap-welded iron sheeting over the decks of the "boxes" to prevent chemical action of the cargoes carried from rotting the wood decking. Seven of the Reliance fleet of 18 boats already have been equipped in this manner by the Ashley firm in what is possibly the first time electric welding has been combined with wood barge construction.

It was found that chemical cargoes carried in these boats caused the decks and other exposed woodwork to become spongy. Towing bitts turned in the softened wood and considerable loss was occasioned by leakage. Application of iron sheathing over the decks eliminated these difficulties and in addition insurance rates on cargoes have been decreased.

The seven barges already equipped range from 750 to 1000 tons capacity. Covering decks of each boat require nearly 9 tons of iron and approximately 1000 feet of arc welding. Workmen first removed the old spongy decking and wooden rails. After deck was smoothed off, felt was laid over the deck boards for insulation. Then prefabricated 3/16-inch iron plates were bolted through the decks and lap welded to 9 x 7-inch angles mounted over the edges of the decks and extending down the sides. Coaming angles for

Long deck seam is welded here and coaming is to be done next. Photo courtesy Air Reduction Sales Co., 60 East Forty-second street, New York



hatches were lap welded to the sheet iron plates.

Every precaution was taken to make the decks watertight. Towing bitts were mounted on 1/2-inch reinforcing plate and bolted through the deck with the bolts set in oakum and lead. All bolts extending through the deck were welded. Canvas hatch covers were fastened to wire running through angle irons clip welded to the coaming pieces. Cabins were covered with 14-gage iron, all-welded. New rails were supported on Z-irons which were welded to the deck plating. Asbestos paper was laid under all joints to prevent the felt from burning during the welding process.

To Estimate Length of Material In Any Roll

■ In metal-producing and fabricating plants, it often is desirable to estimate quickly the length of material in rolls of any sheet material such as wire cloth, paper, hose, felting, insulating material, roofing, etc. as well as coils of cable, chain, rope and wire.

While there are various formulas for computing lengths in rolls and coils, most of them are more or less complicated, says W. F. Schaphorst, mechanical engineer, Newark, N. J. He suggests a simple rule to give the length in the shortest time as follows: Make the one measurement S shown in accompanying sketch. Then count the number of turns of material. In the roll, this can be done easily by examining the end. This number then is multiplied by the measurement S in inches and the result multiplied by 0.2618. The length of the roll in feet is obtained.

For example, if the distance S is 10 inches and the number of turns

is 10, the roll contains 26.18 feet. This is true regardless of whether the material is paper, leather, strip, wire cloth or other material as thickness of the material makes no difference.

To check the rule, take an instance of where only one turn of material is involved with the distance S being 10 inches. The roll then is a true circle and the distance S is the diameter of that circle so length of



The measurement S is all necessary to determine length of material if you know the number of turns in the roll

material is equal to the diameter times 3.1416 or 31.416 inches. Dividing by 12, result is 2.618 feet as per the above rule.

Even where the roll is so tightly wound that there is no visible hole through it, the rule still holds. Likewise, it is true if roll is loosely wound.

Simplified Practice

■ The division of simplified practice of the national bureau of standards announces that simplified practice recommendation R28-29, sheet steel, covering stock sizes of galvanized flat sheets, one pass cold-rolled box annealed sheets and blue annealed sheets in various gages, has been reaffirmed by the standing committee of the industry for the fifth time.

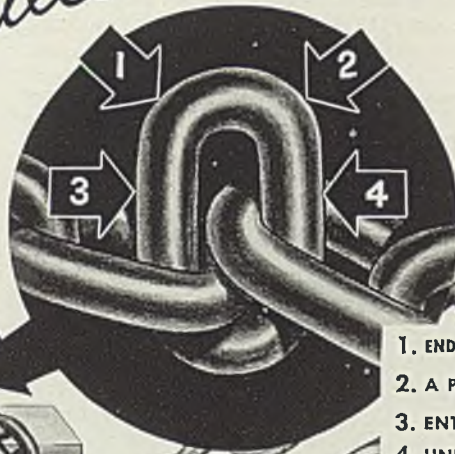
This recommendation became effective originally in January, 1925, and was twice revised. It lists 200 sizes of sheet steel for regular stock purposes, this figure representing only 13 per cent of the 1630 sizes formerly manufactured.

Copies of the recommendation may be obtained for 10 cents each from the superintendent of documents, government printing office, Washington, D. C.

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● True to the traditions which have contributed to American Chain leadership—our engineers have developed a new and far better sling chain. They used a new alloy—they welded the ends of the links instead of the sides. The result—users say

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also Chain, Chain Fittings and Attachments For Every Purpose

We are sometimes spoken of as the world's largest manufacturers of welded and weldless chains for all purposes. If that is our position, it may be attributed to the completeness of the line, quite as well as to the character of American Chain. For the chain you use *must be built for the job you have for it*—if it is to give you lasting satisfaction.

Proper chain fittings and attachments are of great importance, for they complete the service of the chain. Very often a simple chain accessory will increase the usefulness of the chain and save both money and time. American Chain offers every conceivable type of fitting, designed for convenience and safety, and pre-tested in our laboratories.

SUMMARIZED: American Chain offers a full line of welded and weldless chain—also cotter pins, eye bolts, cold shuts, lap links, repair links, round eyes, malleable castings, grab hooks, slip hooks, sash chain fixtures, screw hook hangers, shackles, S hooks, sling chain hooks, snaps, special attachments, swivels, toggles, utility jacks, welded rings, etc.

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Castings Finish Speeds Foundry Work

■ A casting finish known as the "New Wrinkle Dip-Process of Castings Finishing" which is claimed to eliminate costly mechanical casting finishing operations in the foundry has been developed by New Wrinkle, Inc., Dayton, O. Effects achieved with the process range from small fine-textured fish-eye wrinkle to pine tree wrinkle. The process is patented and may be applied only in connection with Wrinkle finishes.

The new finish is said to hide surface flaws in castings and to seal pores against rust. It is claimed 25

to 40 per cent is saved in finishing materials and rejects averaging 20 per cent under ordinary finishing conditions are eliminated.

Paste Cleans Metal

■ A soft paste metal cleaner, Nu-Steel, said to contain no acid, caustic or harsh abrasives or substances injurious to metal, or painted surfaces, has been developed by Scully Steel Products Co., 1319 Wabansia avenue, Chicago. Cleaner is claimed to remove stain film and deposits and, with the aid of a few differing methods of application, restore stainless steel to its original finish.

Cleaner also removes heat stains, except those of a low heat oxide,

reddish brown in color, which may be removed by adding small amount of pumice to the NuSteel when using. Heat tint from fabrication also is removed.

A protective film is left on the metal after cleaning, which tends to retard further stain. Cleaner is packed in 1 and 5-pound tins.

Insulating Firebrick

■ A new insulating firebrick K-16 developed by Babcock & Wilcox Co., 85 Liberty street, New York, is said to have the stability of a fired-clay refractory, although weighing less, and insulating values comparable to unfired insulating materials.

Made of special Georgia kaolin, this firebrick is said to retain its structure, show negligible shrinkage and withstand loading without deformation at temperatures up to 1600 Fahr. for direct exposure and 2000 degrees Fahr. (interface) for backing up. Average weight is 1.1 pounds per 9-inch straight or about 19 pounds per cubic foot. Effectiveness of insulation is indicated by a 76 per cent reduction in heat flow loss when a 9-inch wall of dense firebrick was backed with 4½ inches of K-16 firebrick.

Selling Methods That Have Been Successful

■ *Step Out and Sell*, by William E. Holler; cloth, 96 pages, 6 x 9 inches; published by Dartnell Corp., Chicago, supplied by STEEL, Cleveland, for \$1.50.

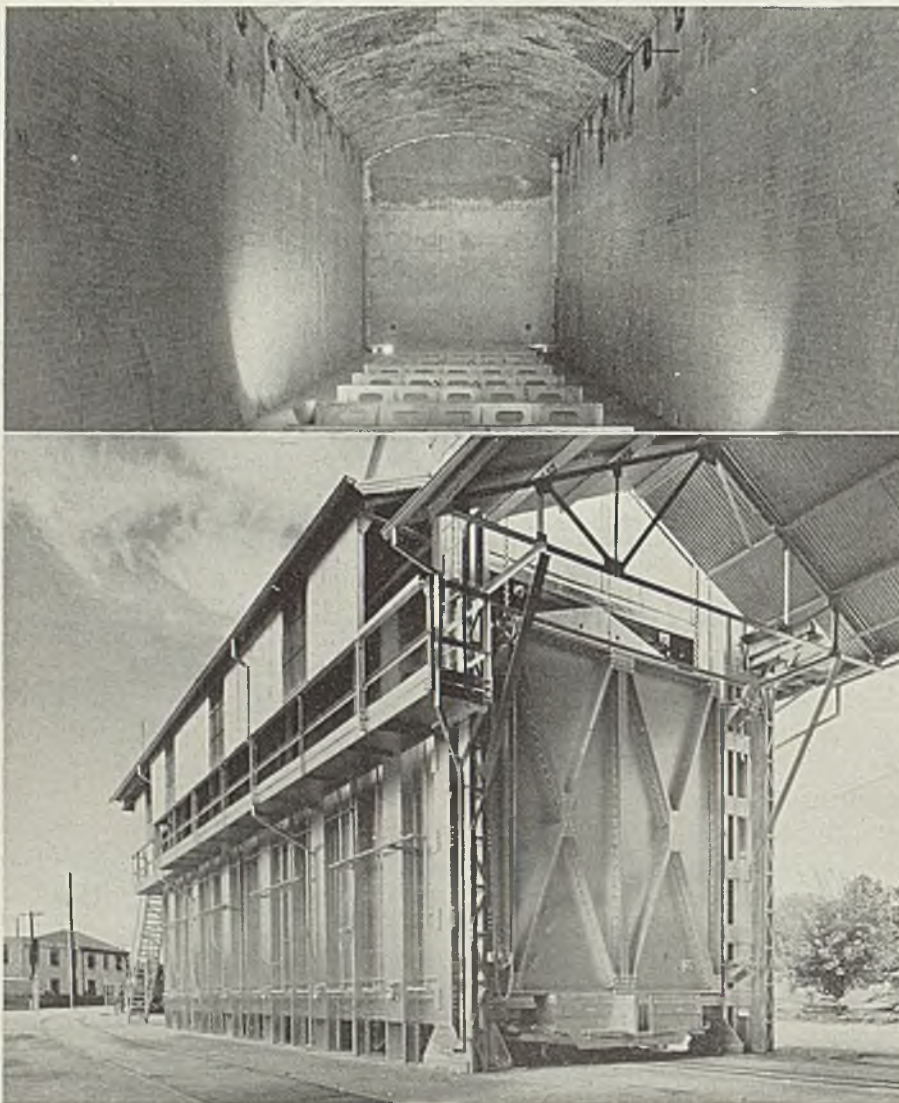
Basing his work on the experience of several years at the head of the selling organization of Chevrolet division of General Motors, Mr. Holler presents in this small volume a series of man-to-man talks on the problem of selling.

They contain the stories and anecdotes which he has used in talks to dealers' meetings, which inspired salesmen to successful effort. The volume points the way for salesmen to put their dormant capacity to work and does it in an interesting way.

One-Coat Process Of Vitreous Enameling

■ The Hommelaya process of vitreous enameling developed by O. Hommel Co., 209 Fourth avenue, Pittsburgh, is said to eliminate the conventional blue ground coat and one or more cover coats. It is claimed to result in a superior enamel having a satisfactory finish in only one fire. Elimination of several plant operations, according to the company, makes it possible to increase production by at least one-third.

Large Stress-Relieving Furnace



■ Wyatt Metal & Boiler Works, Houston, Tex., has installed this stress-relieving furnace to handle vessels up to 15 feet 6 inches in diameter. To get permanent records of actual stress-relieving operations, furnace employs strip-chart recorder controllers having a range of 200 to 2000 degrees Fahr. and Chromel-Alumel thermocouples mounted in drawn chrome iron tubes. Two-stage, high-pressure inspiriting-type burners (see upper view) are arranged in two rows on each side top and bottom to aid in maintaining uniform temperatures horizontally as well as vertically

NEW METAL PRODUCTS

■ The "Streamliner" desk with 2-drawer desk-height file, posture chair and wastebasket is offered by Globe-Wernicke Co., 2600 Carthage avenue, Cincinnati. "Clemco" type-writer pedestal permits full top working surface on the desk while typewriter is in use. Door clamps



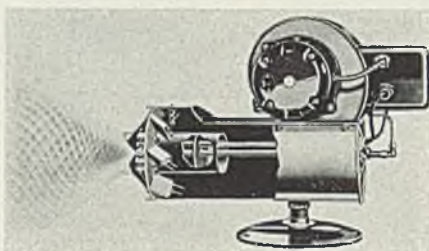
on typewriter platform to form solid support without vibration and also acts as shield for legs of person using machine.

■ The table-top electric cooker introduced by Samson-United Corp., Rochester, N. Y., is patterned after the conventional kitchen range and has heating coils embedded in solid Steel Rock with nickel-chromium element wire, steel casing and Chemi-rock encasement to eliminate danger from shock or burns from accidental contact. The body is high-tempered alloy steel finished in heat-resisting



enamel and top is easy to clean, sanitary and eye-appealing, made from Enduro stainless steel, product of Republic Steel Corp., Cleveland. Eight models are available: Four with two burners and four with one burner. Heat stages range from one to four.

■ Model O conversion oil burner for new or existing steam, hot water and warm air home heating plants is announced by air conditioning division



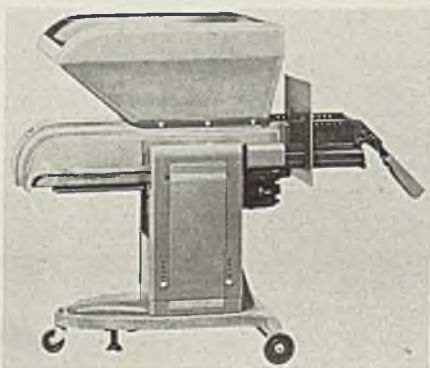
of Gar Wood Industries, 7924 Riopelle avenue, Detroit. Air passes across the end of the tube (not through it) and spreads out in a fan-shape in exactly the same manner as the conical oil spray leaving the jet. This results in a mixture of oil and air in a sunflower-shaped fire.

■ IRC Type FL resistors, listed under the Underwriters Laboratory Re-examination Service and specifically designed for fluorescent lamps, have been developed by International Resistance Co., 401 North



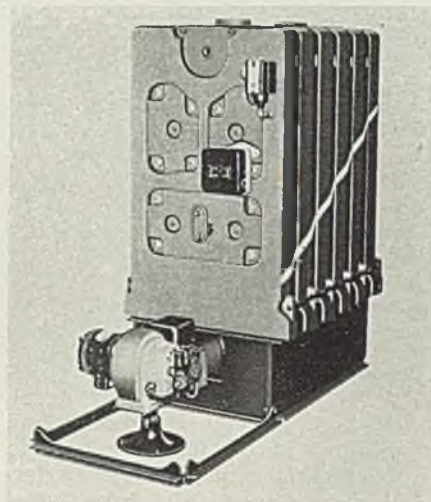
Broad street, Philadelphia. Resistors are of the insulated wire-wound type to provide maximum heat dissipation in minimum space and will operate at a temperature rise of from approximately 40 to 50 degrees Cent. The resistors are encased in ventilated metal boxes with dimensions of 1¼ x 1¾ x 6¾ inches—sufficiently small to fit in any fixture channel.

■ Murray Corp. of America, 7700 Russell avenue, Detroit, has placed on the market a portable electric stoker for burning coke and hard or soft coal. Stoker may be wheeled from furnace and fuel control is automatic with the aid of a mercury tube switch. Unit fits all types of



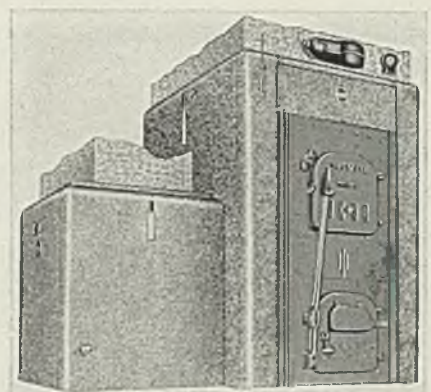
furnaces and boilers, making unnecessary any changes in present heating plant when installing. Size of stoker overall with lowest and shortest adjustment is: height 40¼ inches, length 44¼ inches, width 26¼ inches.

■ An oil burning boiler is latest addition to the line of hot water and steam boilers of the Utica Radiator Corp., Utica, N. Y. Boiler sections have finned surfaces which extend heating contact, providing a



rapid and efficient heat transfer. Controls are accessible for making electrical connections with oil burner. Being raised above floor, jacket is easily cleaned and edges are protected from rust.

■ Steel coal-heat winter air-conditioning systems are announced by Rudy Furnace Co., Dowagiac, Mich. Rudisteel units are enclosed in Rudy



baked green Satin-Krack enamel casings and are equipped with standard Rudy blowers. Vaporator humidifier is optional equipment. These units have direct fire dampers, dual flue outlets, steel air baffles and diffusers and triple layer air cell asbestos insulation to protect cabinet where baffles end. Blowers are constructed to permit circulation of cool, filtered basement air in summer. Rudico units are smaller in size and have single flue outlets.



"Atomic" Welding

High strength joints are produced between aluminum and aluminum alloys or between ferrous metals at temperature of only 450 degrees Fahr., reducing warpage and distortion on thin sheet

By JOSEPH STEEL

Research Director
Colonial Alloys Co.
Philadelphia

■ A NEW process has been developed for joining aluminum and aluminum alloys together and to other metals; and for joining ferrous metals such as stainless steel and steel to each other and to other metals. The first employs Colaweld paste and rod, the second Colaweld liquid and rod. These methods are used most readily when joining sheets from 0.005 to 0.050-inch in thickness. Developed by Colonial

Alloys Co., East Somerset and Trenton avenues, Philadelphia, the process is known as "Colaweld Atomic" welding. Atomic refers particularly to the action that takes place in the paste method of joining where the metal to be joined actually flows into the other metal.

The method appears to combine some of the characteristics of brazing and soldering to give a truly atomic bond and not just an adhesive connection. It has a number of advantages: The joints produced have high corrosion resistance as evidenced by survival of 800 hours in salt spray tests. Many corrosive materials which usually attack soldered joints severely have no

effect on joints made by this method.

Possibly greatest advantage is the high tensile strength obtained. Tests have indicated 10,000 pounds per inch tensile strength, which in many cases is equal to or only slightly less than that of the metals joined.

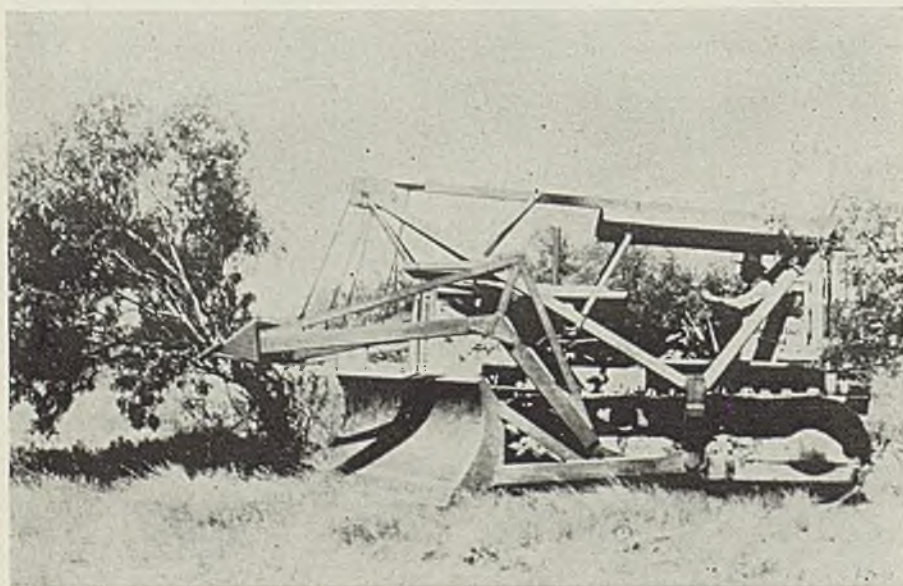
Possibly of equal importance are the low temperatures involved as the joints can be produced at about 450 degrees Fahr. in the base metal. Such a low temperature avoids burning of low-melting-point materials and prevents warping of metals having a high melting point. In handling light-gage metals, such as the thin sheet down to 0.005-inch with which this process can be used, the avoidance of warping and distortion often may be a most important advantage.

Another important advantage is excellent machining qualities. Metal in a Colaweld joint will not chunk out. Also the metal is quite ductile, easily withstanding bending and flexing at the joint which ordinarily is quite brittle. Joints can easily be polished and electroplated, and have extremely low resistance to passage of electric current.

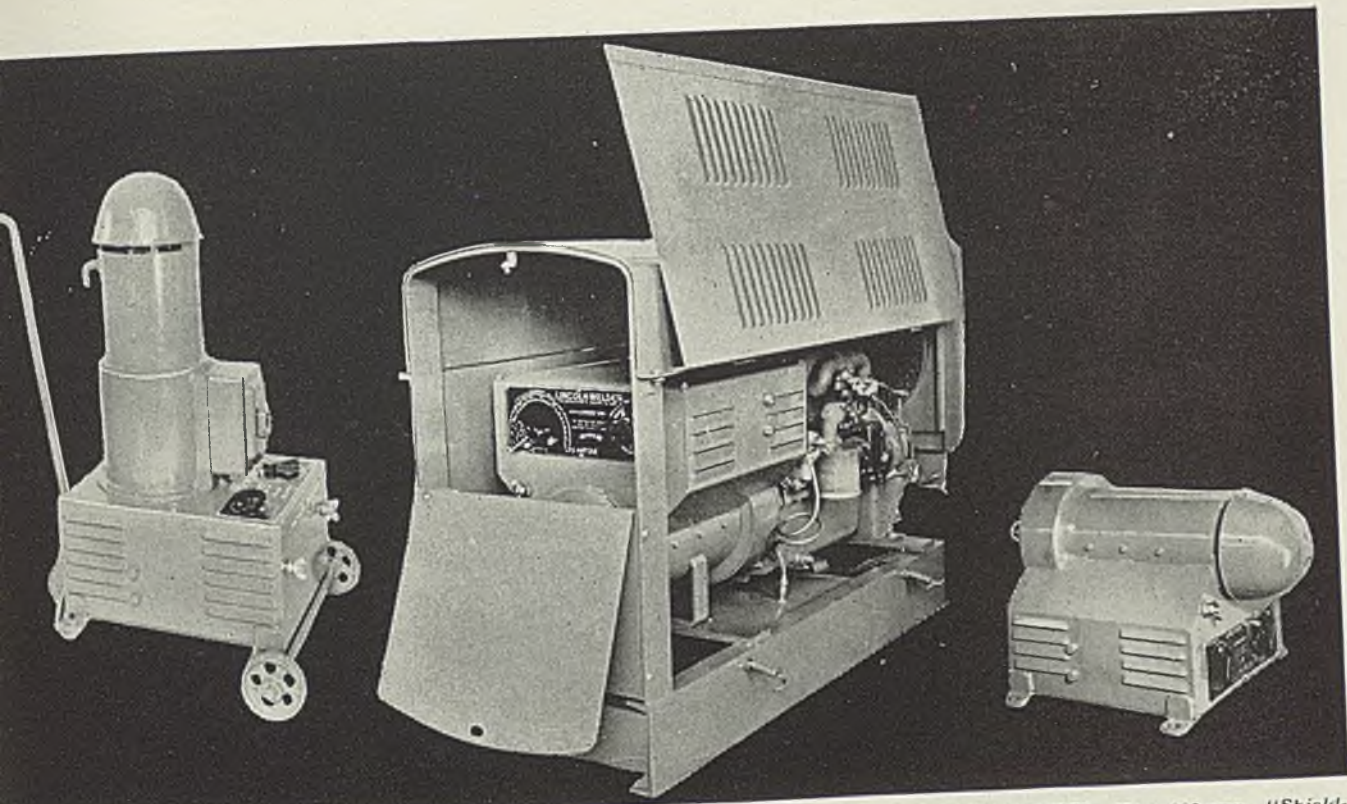
Helps Light-Gage Work

This atomic welding process is especially recommended for all light-gage metals as in most cases it will do a satisfactory job without drawbacks of excessive heat and warping accompanying use of other methods. At the same time it should not be compared with soldering because of its high tensile strength, corrosion resistance, ductility and ease of polishing, plating and machining, coupled with the high tensile strengths produced. While not offered as a substitute for welding by regular methods now in use, this process can be used most effectively in many applications which heretofore have presented a difficult problem in joining of metals other

Flame-Cut Heavy Steel in Tree-dozer



■ Most of the heavy steel parts in this tree-dozer attachment mounted on a Caterpillar diesel tractor were flame-cut from a templet and arc-welded by R. G. Tourneau Inc., Peoria, Ill. Larger trees are uprooted by extension arms of attachment and small trees, tall mesquite and brush are cleared by the large steel curved brush plow. Photo courtesy International Acetylene association, 205 East Forty-second street, New York



ELECTRIC DRIVE "Shield-Arc Jr."—world's most popular low-priced d.c. welder. For a wide range of welding and hard-facing applications. Uses as little as 5c worth of power per hour. In ratings of 75, 100, 150 and 200 amps. Price \$158 to \$243 F.O.B. Cleveland, freight prepaid.

ENGINE DRIVE—200-amp "Shield-Arc Jr." The new welder with a multitude of profitable uses in shop and field. Weighs less than 900 lbs., occupies floor space of less than 8 sq. ft., is little more than a yard high. Dependable industrial type engine. Price \$450 F.O.B. Cleveland, freight prepaid.

COUPLED MODEL—New 200-amp. "Shield-Arc Jr.", operating at 1800 r.p.m., for "build-your-own" engine driven or motor-driven welders. Complete with Self-Indicating Dual Continuous Control. Lincoln's large-scale production makes this an unusually good buy. Price \$235 F.O.B. Cleveland, freight prepaid.

NOW—A Complete Line of 200-AMP. "JUNIORS"

to give you D. C. WELDING at lower cost

PROFITABLE—Rated 40 to 250 amps. *direct current* gives you advantage of wide range of application including speedy welding of all common metals and alloys and hard-facing work of all types and sizes.

EXACT ARC CONTROL—"Job Selector" and current control—both continuous and self-indicating—give you the ideal TYPE of arc and arc INTENSITY for every job. No guessing. No compromise settings. You get the proper setting for highest weld quality and highest welding speed every time.

FOR SUSTAINED WELDING—Non-inflammable insulation at proper points permits sustained welding with relatively large size electrodes for faster work and lower cost.

Consult The Nearest Lincoln Office Or Mail The Coupon
For Data On These New Profit-Making Welders



Largest Manufacturers of Arc Welding Equipment in the World
THE LINCOLN ELECTRIC CO.
CLEVELAND, OHIO

THE LINCOLN ELECTRIC CO., Dept. Y-658, Cleveland, Ohio
☐ 200-amp. Electric Driven "Junior."
☐ 200 amp. Engine Driven "Junior."
☐ 200 amp. Coupled Model "Junior."

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than by ordinary mechanical means.

Ease of application is another feature as the method does not involve a difficult procedure and thus can be done by inexperienced operators. In addition, the method is suitable for high-production operations where the work can be done in a continuous furnace on a moving alloy-chain hearth, similar to copper brazing on a production basis.

Application is quite similar to soldering methods. Colaweld paste first is applied as an ordinary soldering flux, using a small brush to cover the area to be joined.

Similar To Soldering

Parts to be joined next are clamped into position and heat applied to raise the metal to a temperature of about 450 degrees Fahr. Heating may be done by use of an ordinary soldering iron or by heating the metal with a torch. In this case, however, the flames should not be applied directly to the paste. In all cases where a direct flame is used, it must be applied to the metals either on the opposite side or on nearby area. For production work, the parts are usually placed on a moving chain which carries them through an oven in which the desired temperature is reached.

At about 450 degrees Fahr., the paste begins to smoke, which indicates starting of fusion at the joint.

The action which takes place is that the heat so affects the paste as to raise the temperature of the metal where it contacts the paste to its melting or flowing point, thus causing one metal to flow into or onto the other. In all cases of joining either similar or dissimilar metals, one of the metals must be Colalloy, aluminum or an aluminum alloy where the paste is used, but this is not the case with the liquid. In this latter instance the metals can be almost any metal except aluminum and its alloys. Colalloy may be applied to the joint in the form of Colaweld rod, which melts at 450 degrees Fahr. and has a remelt point at about 550 degrees Fahr. This material is a special alloy, composition of which is not revealed. However, it has unusually high tensile strength, tests showing 10,000 pounds per square inch.

Thus, to complete a joint after the paste has been applied and temperature raised to 450 degrees Fahr., the alloy rod is flowed on like solder and allowed to follow or run through the joint. Sufficient material usually is applied to form a small fillet. Heat should be removed immediately after the smoking stops, as this indicates action of flux has ceased. Excess metal may be removed by smoothing over the joint using a sharp metal edge.

After the metal has cooled, the

excess paste can be cleaned and neutralized by use of a warm 10 per cent solution of sodium bicarbonate. Rinsing then is accomplished in clear water, after which the metal should be dried.

In production operations the paste may be applied to the joint and the alloy metal either placed in a V-groove or wrapped around the joint in such a manner that it will flow into the joint upon melting. From this standpoint, the method is quite similar to brazing except, of course, that it is done at much lower temperatures. Usual copper brazing involves temperatures around 1900 to 2000 degrees in the metals to be joined compared with 450 degrees with this method.

Two Distinct Types of Bond

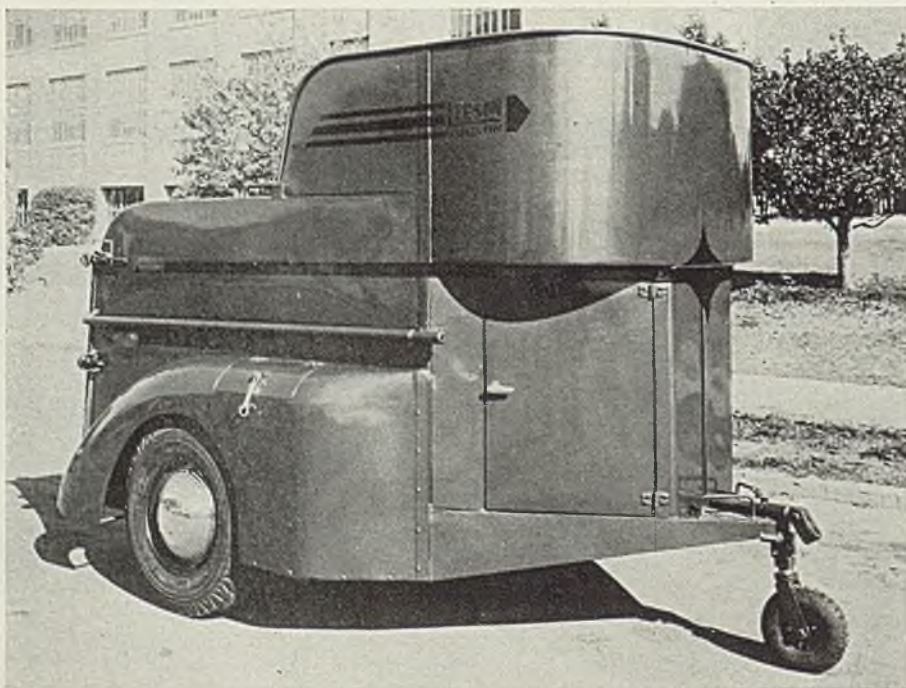
When using the paste and alloy rod, there are two distinct types of bond created. At the time the paste smokes, causing the metal to flow, a weld is produced. Addition of alloy rod at the same time increases the weld strength and seals the joint against air, liquid, etc. Even if the alloy rod is not used, a series of tack welds and in many cases full-fusion welds occur with the paste only. In all cases of welding with the paste or with the paste and rod, metal-to-metal contacts are urged. There should be no gap where the joint is to be made; the base metals should actually contact each other. Joining of Colalloy or aluminum to Colalloy or aluminum is stronger than joining Colalloy or aluminum to other metals, although the latter joints also exhibit high strength. When using the paste, the metal surfaces need no precleaning as the paste does its own preparing of the surfaces.

Colalloy surfaces can be tinned with the alloy rod without the paste. Also on other metals Colaweld rod will do a good job of tinning without the paste if the surfaces first are thoroughly cleaned by wire brushing or sandpapering. However, use of the paste in tinning is recommended.

The flux for making joints by this process also is available as a liquid. The liquid flux was developed especially for stainless steels and ferrous metals. It must be used with the alloy rod and is applied much the same as in ordinary soldering. It is not necessary to preclean the metal surfaces of oil, rust, dirt or oxidation. Galvanic or electrolytic action are negligible in Colaweld joints in any case.

The new development thus appears to offer a satisfactory method for joining stainless steels aluminum, aluminum alloys and other metals. It probably will be found most useful in joining the thinner sheets.

All-Welded Construction Reduces Trailer Cost



■ Fenders of this trailer made by Leeson Trailer Co., Tucson, Ariz., consist of 17 preshaped sections of steel sheet welded together. Since each piece fits readily into place without additional trimming, scrap loss is reduced. Cost of trailer, all-welded, is 20 per cent below former wood construction. Photo courtesy Lincoln Electric Co., 12818 Coit road, Cleveland

Vertical Air Grinder

■ Rotor Tool Co., 17325 Euclid avenue, Cleveland, offers B-1X and B-3X vertical air grinders with power increased 40 per cent over preceding types. Maximum power is said to be developed with less than 10 per cent drop in the free

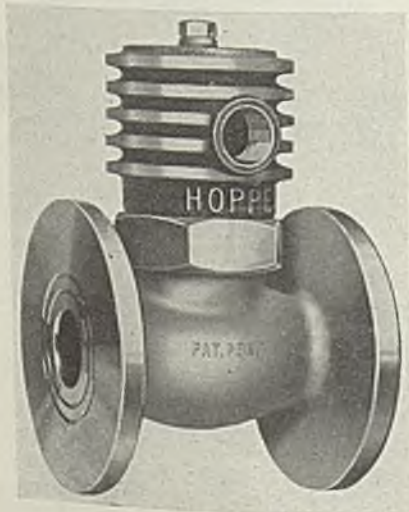


speed. New balanced multiport rotor governor M-8001 controls maximum speed within limits of Safety code by compressed spring action. External-blade type motor requires only two blades and can be inspected by removal of cover plate without disassembly of entire tool.

It is claimed these tools are well balanced, with two handles 90 degrees apart for easy control. B-3X can be used for grinding with 6 x 4 x 5/8-inch cup wheels for welds, castings, etc., as shown at left in illustration, and the B-1X can be used with a 9-inch flexible pad for disk sanding as illustrated at right. Six-inch cup brushes for wire brushing also may be attached.

Solenoid Valve

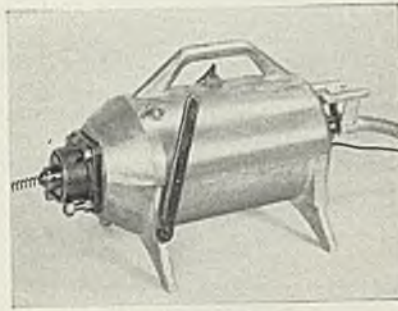
■ Hoppe Engineering Co., Indianapolis, has developed Type D solenoid valve for Freon, methyl chloride, sulphur dioxide, brine, air, oil, water, steam and ammonia. Body designed to give full-way areas and offer a minimum of restriction to flow, is steam bronze with glass insulation suitable for high-pressure and high-temperature service, is well proportioned and has uniform metal sections. Seats are nickel alloy with renewable disk. Working pressures are 250 pounds steam, 400 pounds gas and liquid. Test pressure is 650 pounds hydrostatic. Coil is impregnated to resist moisture and is designed for constant



service. Coil shield dissipates heat. When electric pilot valve is closed, line pressure forces piston down, closing valve. When pilot valve is electrically energized, it opens and releases pressure above piston permitting line pressure to open valve.

Pipe Cleaning Tool

■ Pittsburgh Pipe Cleaner Co., Oliver building, Pittsburgh, has developed a cutting tool to fit on rotating cable of its "A" model electrically driven pipe cleaning machines to open and clean clogged water lines and fittings 1/2-inch in diameter



passing through 90-degree ells and either direction in tees.

"A" machine illustrated weighs 45 pounds and has overall length of 17 1/2 inches. Operation consists of fitting required length of coiled cable and cutter into pipe and rotating cable by machine at 1100 revolutions per minute and feeding more into line by hand until obstruction is cleared.

Blueprint Machine

■ Vandenwood Co., 2900 Euclid avenue, Cleveland, offers Baby Blue Desk Unit which prints black, white and blueprints 10 x 18 inches. Source of light, a tubular lamp to



insure even distribution of light, is guaranteed for 1500 hours and is said to remain cool.

Machine is 8 x 34 inches and weighs 15 pounds. Finish is natural polished gum wood. Time switch is built in, and unit can be plugged into any lighting circuit.

Acetylene Generator

■ Sight Feed Generator Co., Richmond, Ind., offers portable acetylene generators for pressures from 2 to 15 pounds permitting use of any type or size oxyacetylene welding or cutting torch. Large effective surface of diaphragm which controls carbide feed and rapid slaking of No. 14 N. D. carbide are claimed to result in close control of pressure. Opening for an extra outlet valve



permits use of two torches from one generator. Breech-lock method of attaching carbide hopper to generator tank reduces time required to recharge. One-sixth turn of hopper permits quick detachment and exposes the feeding mechanism for easy cleaning. Generators used intermittently in subzero temperatures are claimed not to freeze in operation.

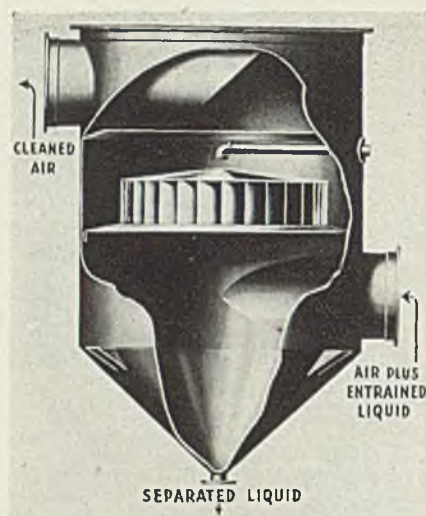
Generator consists of carbide hopper, tank and flashback arrester. Hopper is a Pyrex glass cylinder (holding the carbide) and feeding



mechanism which works by spring pressure opposed to gas pressure. Generator is mounted on any of three trucks. Model TS truck, recommended for use on fairly even floor and furnished unless other type specified, has swivel casters for easy moving in small space. Model PRT truck is easiest to move, having ball bearing wheels, and is recommended for industrial plants. For use on ground or very uneven floor, model TR truck with rigid wheels front and rear is recommended.

Entrainment Separator

■ Claude B. Schneible Co., 3951 West Lawrence avenue, Chicago, has introduced an entrainment separator claimed to recover atomized or entrained liquids drawn into a ventilating system. Separator has no moving parts and nothing to regulate or adjust. Connected into air intake duct, air with liquid is passed through an impingement unit consisting of curved vanes vertically imposed upon a shelf with a central opening and with a conical section on top of the vanes,



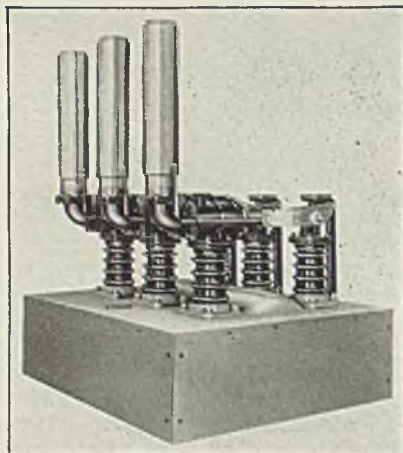
point upward. Air or gas entering unit is rotated, separating larger liquid particles, and then passed through the turbine-like vanes to increase the centrifugal action and impingement growth of minute liquid particles. Anticreep ring prevents creeping of oil, etc. Clean air passes out into duct. Separated liquid drips down into hopper at bottom of unit to be drawn off.

Separator is recommended for washing, pickling, plating and spraying processes, and is available of suitable material and in sizes and types to meet requirements including vacuum, atmospheric or plus pressures.

Circuit Breaker

■ Oilless circuit breaker type AB-15-500 of Allis-Chalmers Mfg. Co., 1126 South Seventieth street, Milwaukee, uses compressed air for breaker operation and arc interruption. Breaker consists of an air storage tank, main air-blast valve, three interrupting chambers mounted upon hollow insulator supports, three exhaust mufflers or coolers integrally mounted with the interrupting chambers, and isolating contacts connected in series with the interrupting chambers, also mounted on insulator supports.

Compressed air, admitted to in-

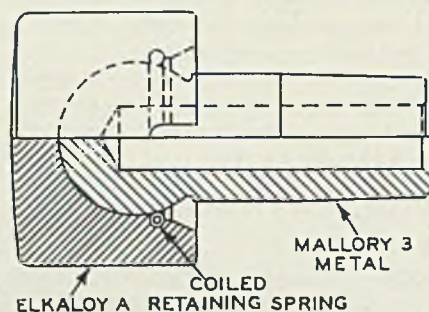


terrupting chamber through air-blast valve operates piston attached to movable contact, causing contacts to separate, thereby providing an outlet for air into cooling chamber. As contacts separate, arc is drawn, which is immediately enveloped and centralized by air blast. Extension and centralization of arc automatically connect a resistor in parallel with a portion of arc, thereby eliminating high-frequency transients.

Breaker is rated 600 and 1200 amperes at 15 kilovolts with 23-kilowatt insulation and interrupting-capacity rating of 500,000 kilovolt amperes. Special features claimed include: Elimination of oil, short arcing time and fast closing with little or no contact burning and resultant low maintenance; extremely rapid dielectric recovery; power factor correction with elimination of high-frequency transients and low rate of rise of recovery voltage; and low air consumption.

Welding Tip

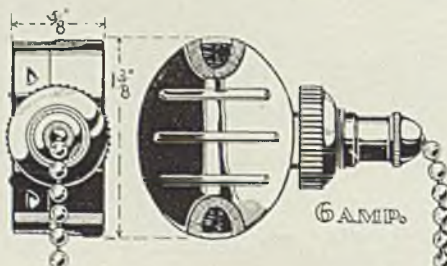
■ A self-aligning or swivel-type welding tip offered by P. R. Mallory & Co. Inc., 3029 East Washington street, Indianapolis, is said to avoid



electrode marks on sheets or parts difficult to align in ordinary welding machine. It saves cost of special jigs or fixtures and is recommended in place of smaller pointed, domed or offset tip which cannot seat itself on the work.

Levolier Switch

■ McGill Mfg. Co., Valparaiso, Ind., announces an improved thin model



Levolver switch No. 41 listed by Underwriters' Laboratories under the "T" rating—6 amperes, "T", 125 volts; or 3 amperes, 250 volts.

Switch is suitable for use on small power apparatus and for individual control of lighting fixtures in indus-

trial plants, commercial institutions and public buildings. Although only $\frac{3}{8}$ -inch thick, it will take an initial surge of 48 amperes from a cold, type "C" lamp eight times its rated capacity.

Heavy-Duty Sander

■ The heavy-duty sander known as Mallsander introduced by Mall Tool Co., 7740 South Chicago avenue, Chi-

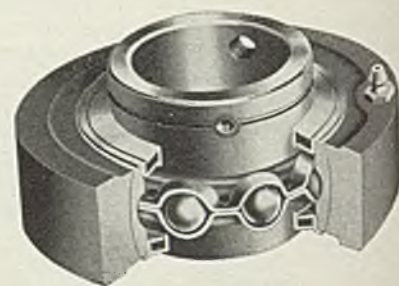


cago, is light in weight and balanced for easy operation with right or left hand. It has a high-torque, high-powered motor, spiral bevel chrome nickel alloy steel gears and a lightweight housing.

Standard equipment includes 15 feet of cord and plug, 7-inch backing pad and abrasive and a special spindle lock that fastens the spindle when removing or applying the abrasive disc. This eliminates the use of loose wrenches that are easily lost or misplaced. Price is \$48 f.o.b. Chicago.

Labyrinth Seal

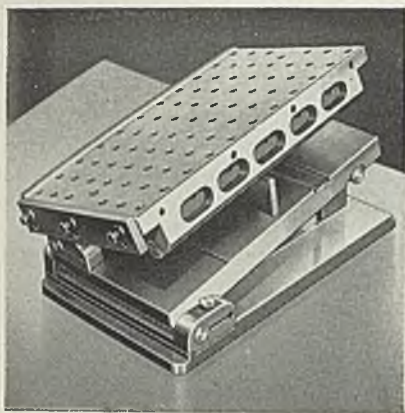
■ The patented Sealmaster centrifugal labyrinth seal of Stephens-Adamson Mfg. Co., Aurora, Ill., is said effectively to seal bearing from all foreign materials and to retain lubricant. Misalignment of



shaft cannot interfere with seal, for bearing's outer race is ground on radius and locked in ground housing socket with locking nipple which permits 2 to 4 degrees misalignment in any direction. Wear or glazing of felts is claimed to be positively avoided as they are assembled without pressure.

Sine Plate

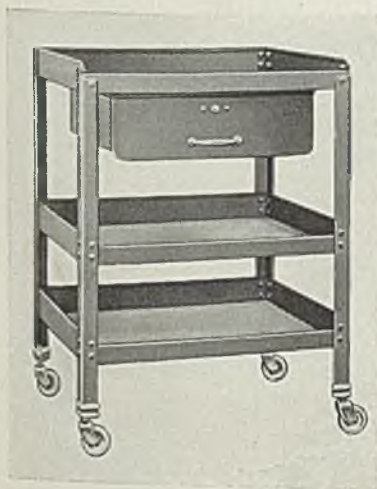
■ Robbins Engineering Co., 633 Mt. Elliott avenue, Detroit, has developed a new nonmagnetic sine plate for use in inspection departments for accurate checking of angular ma-



chining work. The new plate is built on the same principle as the Magna-Sine and utilizes standard gage blocks for adjusting the plate to the required angle or combination of angles. Both compound and single angle types are furnished. Because this sine plate incorporates no magnetic coils, its cost is lower than the magnetic Magna-Sine.

Portable Tool Stand

■ A portable metal tool stand 18 x 24 x 32 inches is announced by Metal Products division, Electric Service Supplies Co., Seventeenth and Cambria streets, Philadelphia.



Shelves, which have hemmed edges, drawer and pan are No. 18 U. S. Ga. Drawer is 17 x 15 1/4 x 5 inches and has flat key lock. Stand is finished in baked-on olive green enamel. Bolts and nuts are cadmium plated. Casters are 2 1/2-inch swivel type.

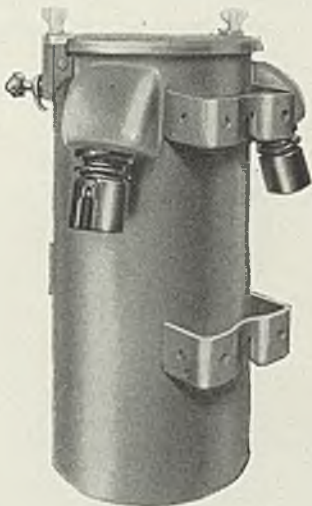
Turbine Well Pump

■ Worthington Pump & Machinery Corp., Harrison, N. J., offers a new line of turbine pumps for bored wells. Pumps have balanced vacuum-molded bronze impellers to reduce wear and abrasion to a minimum. Smoothness of blade surfaces and uniformity of castings are claimed to result in high efficiency and certainty of perform-

ance. Pumps are available with either enclosed oil-lubricated or open water-lubricated shaft bearings.

Distribution Transformer

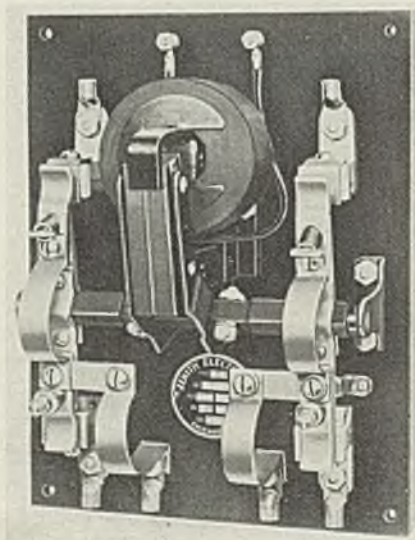
■ Wagner Electric Corp., 6400 Plymouth avenue, St. Louis, announces HEX transformer of primary pocket stud-bushing type having copper-bearing steel pockets electrically



welded to tank to give streamlined appearance. Solderless connectors are set within bushing so a portion of bushing covers bared end of connecting lead, providing added safety for linemen.

Transfer Switch

■ Zenith Electric Co., 845 South Wabash avenue, Chicago, announces spring gravity drop-out type automatic transfer switch which connects lighting or power load to an emergency source when voltage of circuit drops to 70 per cent or less and restores load to normal source when voltage reaches 90 per cent. No neutral position is possible. One, two, three and four-pole construction is available. Three and four-pole

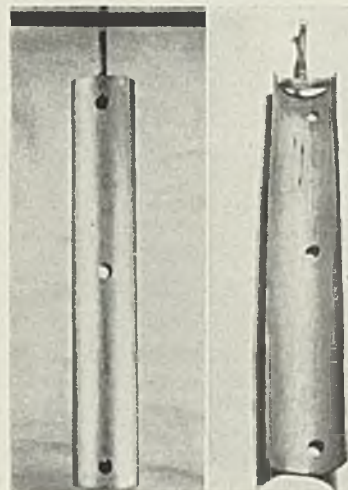


switches are protected on all phases with relays.

Contacts are copper-to-copper and operate with a rolling and wiping action. Compression springs provide contact pressure and permit quick opening. Any part can be inspected or replaced without disturbing other parts in the assembly. Switches are mounted in any position on dead back ebony asbestos panels with or without cabinet. Back-connected switches can be supplied. Switches are available for standard voltages 110 to 120 or 208 to 240 volts, 25, 50, or 60 cycles, 115 or 230 volts direct current. The 75-ampere, 2-pole alternating-current model illustrated is 6 x 9 x 12 inches and lists at \$7.

Tubular Lead Anode

■ A tubular lead plating anode, claimed to give unusually even throwing power and low resistance for the current discharge surface available, is announced by Acme Lead-Burning Co., 3726 West Sev-

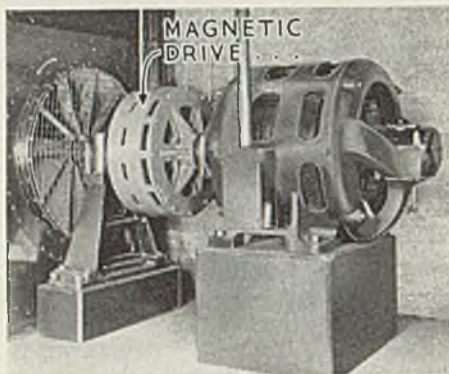


enty-third street, Cleveland. Available in either pure lead or 6 per cent antimonial, this type is particularly recommended for center anode bus-bars of tank because of equal current distribution on all sides. Because of their simpler design and less lead needed, these anodes are reported to cost less than flat ones.

Magnetic Drive

■ Electric Machinery Mfg. Co., 1331 Tyler street Southeast, Minneapolis, offers its Magnetic Drive, a variable-speed drive using electromagnetic principles for torque transmission, said to be particularly suited to centrifugal pumps and to boiler draft fans requiring an accurately controllable wide range of variable speed.

Drive consists of two simple, compact rotating parts, a flux linkage ring and a magnetic flux producer or "magnet." Ring is driven by driving motor, and magnet revolving within ring drives the load



shaft. There is no mechanical connection between ring and magnet, torque being transmitted by electromagnetic forces. Torque and speed of load shaft, depending on magnetic flux in air-gap, can be adjusted through a rheostat controlling current to magnet.

Genemotor

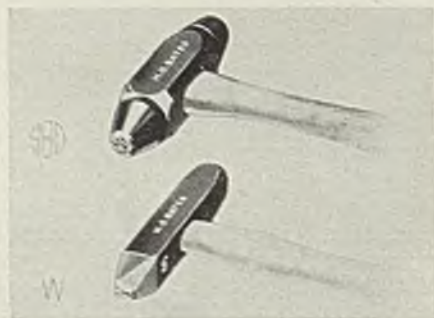
■ Genemotor, for use on aircraft, marine and police radio, is offered by Carter Motor Co., 1608 Milwaukee avenue, Chicago. One-piece field ring and armature design eliminates many parts and makes for small size, high efficiency, light weight and rigidity. Double-sealed grease-packed ball bearings require no oiling or attention. Two sizes, 150 and 250 watts, are available. The 150-watt size weighs 13½ pounds, 250-watt size 18½ pounds.

A new heavy-duty 4-pole rotary converter changing 110-115-volt direct current to 110-115 volt 60-cycle alternating current also is announced by this company. Dynamic balancing of armature, grease-packed double-sealed ball bearings and removable end covers are features. Converter is rated for continuous duty.

Inspectors' Hammers

■ Two new marking hammers of H. O. Bates, Elizabeth, N. J., Styles B and C, are made of selected alloy tool steel, machine engraved, hand finished, hardened and tempered for long service even on alloy steel parts, castings, stainless steel, aluminum and other materials.

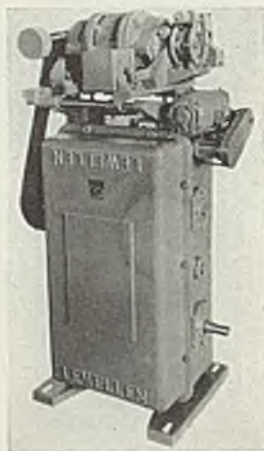
Style B has one or more characters or symbols engraved on one or both sides. If only one end is engraved, hammer is struck with



sledge or another hammer to make mark. Plain end can be used for inspection tapping to locate defective spots in materials. Style C is simple and cheapest, carrying only one letter, symbol or number and being lighter in weight.

Variable-Speed Unit

■ A variable-speed transmission with an electric control is offered by Lewellen Mfg. Co., Columbus, Ind., to maintain automatically uni-



form tension in winding strip metal.

Winding reel starts at its highest speed, and as strip of material on spool increases in diameter, control accurately reduces speed of reel to maintain uniform tension on strip as it is wound. After reel has filled and unit stopped for removing and replacing with a new core, control reverses its position to allow new reel to start again at maximum speed.

Sight Oil Window

■ Bijur Lubricating Corp., 43-01 Twenty-second street, Long Island City, N. Y., has developed a sight oil window including ring, window, gasket and cup fitted into a metal



pocket to be mounted flush in bored opening in oil reservoirs, containers and lubricators. Bright aluminum background of cup acts as reflector to give sharp visibility of oil level even with imperfect lighting. Drilled openings at top and bottom of cup permit free passage of oil.

Standard sizes of window, speci-

fied according to diameter of aluminum reflector face, are ¼, 11/16 and 15/16 inches. Special assembly tool is provided.

Low-Base Lathe

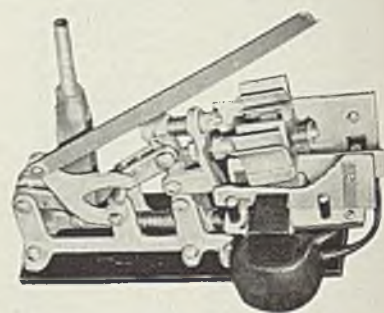
■ Hammond Machinery Builders, Kalamazoo, Mich., announces addition of model 3-RR—27-inch Low Base lathe to its line of Rite-Speed



and Vari-Speed polishing and buffing lathes. Distance from center of spindle to floor is 27 inches, and each of the two spindles is independent of the other, having its own magnetic starter, control, switch and brake and motor. Standard lathe measures 63 inches from one end of the spindle to the other and is fitted with two 3-horsepower motors.

Spot Welder Contactor

■ Pier Equipment Mfg. Co., Benton Harbor, Mich., has incorporated a three element "knee action" or toggle in its new trip switch. Contact or is closed until the knee joint pushes against trip control lever.



when knee bends and opens contactor. By changing the position of the trip control lever, period of welding stroke during which current flows and amount of contact are determined. A welding time as short as 2 or 3 cycles can be obtained.

Nozzle for Gouging

■ The Linde Air Products Co., unit of Union Carbide & Carbon Co., 30 East Forty-second street, New York, offers a series of acetylene gouging nozzles in three sizes delivering a relatively large jet of oxygen at low velocity. Nozzles fit Oxweld C-32 cutting blowpipe or other standard hand-cutting blowpipe and can be used for gouging

the underside of electric welds, removal of weld metal such as temporary tack-welds and defective welds, preparation of plate edges for welding and maintenance operations.

Air-Line Lubricator

■ Ingersoll-Rand Co., Phillipsburg, N. J., announces "OIL-IR" air-line lubricator operating in any position. Designed for rock drill lubrication, it can be used on other air-operated tools. Body consists of heavy steel



tubing and forgings. Adjustment of oil feed can be made without interrupting work. Lubricator will not "siphon back" or leak when air pressure is released. It can be filled in either vertical or horizontal position.

Developing Unit

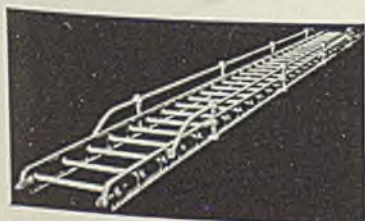
■ Photographic plate or film-developing unit of Harry W. Dietert Co., 9330 Roselawn avenue, Detroit, has a pivoted-top table rocked by a motor-driven cam. Developing, stop, hardening and fixing solutions are



kept automatically at 70 degrees Fahr. by water passed through a chamber containing an electric heater and a 70-degree Fahr. thermostat and then circulated through a copper coil attached to bottom of rocking table. It is said plate or film may be processed within two minutes uniformly without grain growth. Unit is suitable for processing work in spectrographic and metallographic laboratories.

Aluminum Ladder

■ Aluminum Ladder Co., Tarentum, Pa., has developed Type 800 aluminum ladder with handrails on both sides and steel or aluminum spikes

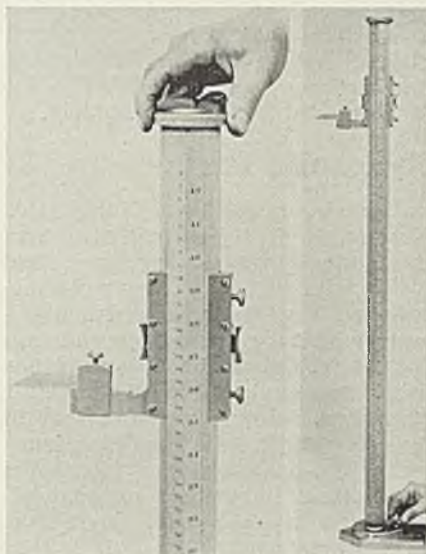


on bottom which do not throw a spark and therefore are suitable for use where flammable materials are being handled. Lengths to 36 feet and various widths are available. Rungs are corrugated to prevent slipping. Ladder is made entirely of aluminum.

Height Gage

■ George Scherr Co. Inc., 128 Lafayette street, New York, announces 40-inch model of Chesterman height gage having a triangular beam, quick-locking fine knurled knob at head and superfine adjustment at base.

Tool is graduated in both English



and metric scales to 1/1000-inch and 1/50-millimeter and comes with extra large vernier about 2½ inches long. Gage is also available in 12, 18 and 24-inch models.

Power Transformer

■ Aircooled power transformers of 15 and 25-kilovolt-ampere ratings are being made by Acme Electric & Mfg. Co., 1440 Hamilton avenue, Cleveland. Transformers can be supplied in insulated types with primary voltages of 575, 230/115 or 460/230 and secondary voltages of 230/115. Manufacturer claims high full load operating efficiency due to full air draft ventilation; specially wound and hand-finished coils.

Grinder Shield

■ Boyer-Campbell Co., 6540 St. Antoine street, Detroit, offers Marvel adjustable grinder shield, complete with pushbutton, switch and light, to protect face and eyes from flying particles. Frame is molded, high impact resisting plastic with electrical parts in an insulated chamber. Light is focused on work and not mirrored into the eyes.

Window is nonshatterable glass, and vibration-resisting bayonet-type

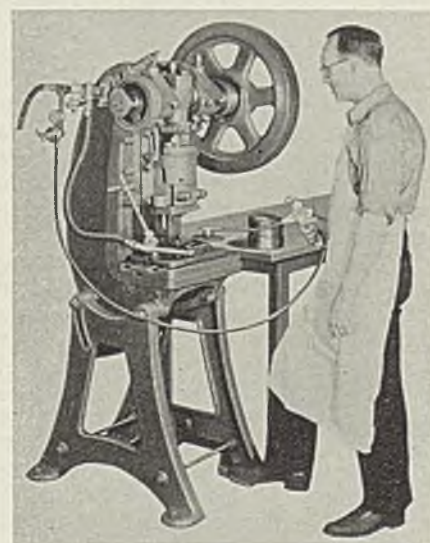


lamps are set in flush with frame. Magnifying lenses of any focal length are available, a glass cover-plate protecting lens from pitting.

Safety Feeders, Pickers

■ F. J. Littell Machine Co., 4125 Ravenswood avenue, Chicago, has introduced a new line of safety feeders and pickers said to simplify and accelerate production through faster, more efficient handling. Pres-Vac patented safety feeder is used for picking up flat-surface materials such as wet, dry or oily sheet steel, brass, aluminum and glass and feeding them into presses.

Device consists of pistol-grip handle and single or double vacuum cup attached to extension long enough to permit feeding materials into press and to protect hands of operator. Method of obtaining vacuum is new, picker being attached to compressed air line and only re-



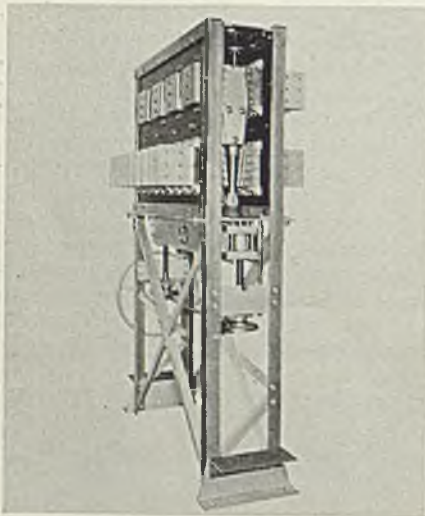
quiring pressure of from 20 to 45 pounds. Reducing valve and gage are supplied. Little air is used as aperture is small.

To operate, cup is placed on work, trigger is pulled and vacuum is formed in cup, picking up and holding material. For material with a hole in center, double-cup feeder is used. Exhaust air coming from tip of feeder can be utilized to blow out dirt or chips from die.

Air-operated mechanical pickers with various types of jaws are also available. Aluminum jaws protect dies in case picker is caught between punch and die. Fig. 40 shows No. 2 single-cup feeder; Fig. 50, No. 2 double-cup feeder; Fig. 60, No. 1 single-cup feeder; Fig. 70, pressure regulator; Figs. 80 and 90, mechanical pickers.

Transformer Switch

■ High-ampere switch for electric furnace transformer, developed by Delta-Star Electric Co., 2400 Block Fulton street, Chicago, is double-throw, permitting rapid switching



of an 8-coil furnace transformer without changing cables. Series-parallel interconnections are factory assembled so switch can be connected directly to transformer leads.

Filter Paper

■ Enthone Co., New Haven, Conn., announces a new high-strength paper for filter presses which is claimed to possess unusually high wet strength. Paper has exceptionally long fibres and is given a wet-strength treatment.

Paper is placed against filtering canvas or screen and receives filter cake, thus permitting rapid cleaning of canvas by removing filter paper. Tight locking of plates and frames to prevent leakage is possible, paper being only a few mills thick. High strength was shown by this paper in acid solutions with pH values as low as 2.0 and in strong caustic solutions up to 15 ounces per gallon of caustic soda.

Graph Paper

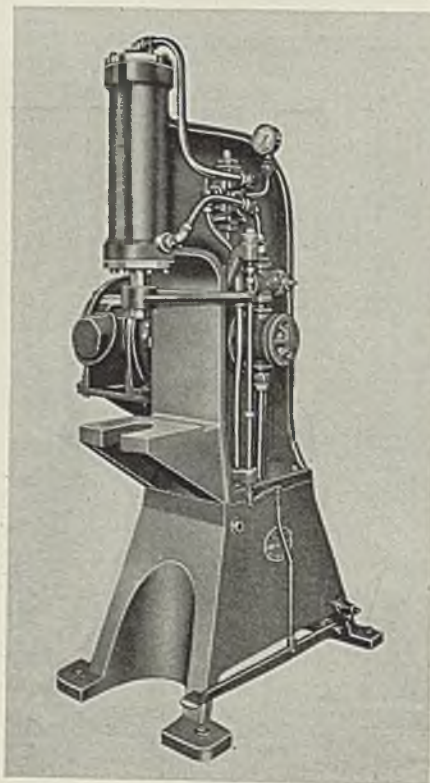
■ Eugene Dietzgen Co., 2425 Sheffield avenue, Chicago, announces a broad line of graph papers for mathematical, commercial and industrial uses including: "Same division" and "different division" sheets, with a wide range of divisions; security price sheets; logarithmic and semi-logarithmic sheets in varying divisions, sizes and weights; mathematical sheets in circular percentage, isometric, polar and triangular co-ordinates; time element sheets for periods from one day to five years.

Papers are high-grade rag content bond, tough, transparent and light in weight. Some are available in medium weight drawing paper. Sheets are printed in olive-green ink and are punched with 5 holes for standard 2 or 3-ring binders.

Hydraulic Press

■ Greenerd Arbor Press Co., Nashua, N. H., offers self-contained hydraulic press having bar steel piston with cast iron rings and chevron-type packings; 2 7/16-inch diameter heat-treated and ground ram with 1-inch diameter hole 2 inches deep, and equipped with hardened ram nose. Ram is put into motion by pressure on foot pedal, pressure remaining on work until foot pedal is released. Ram then automatically returns up to power stop, set at any predetermined point within stroke of ram, which is adjustable from 1 to 16 inches. Pressure may be set at any point between 2½ tons and full capacity of press.

Press can be equipped with: 10-



horsepower motor to give constant speed of ram, under full 10 tons pressure, of 208 inches per minute, with a return speed of 280 inches per minute; 5-horsepower motor to give constant speed of 88 inches per minute; 5-horsepower motor and double pump, which will give a rapid traverse up to 4 tons pressure at rate of 222 inches per minute, with working speed from 4 to 10 tons at rate of 88 inches per minute. Pressures can be predetermined and set on any combination.

Photoelectric Relay

■ Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., has developed a compact photoelectric relay for counting, sorting, weighing, measuring, signaling, etc. Known



as type RQ Photo-Troller, device features low operating expense, low initial cost and ease of installation. It has two normally open and two normally closed contacts, rated 10 amperes on 115-volt alternating current circuits. Relay operates on a change of 40 foot-candles if not more than 15 foot-candles of extraneous light are present.

Increased sensitivity is obtainable by means of a condensing lens. Unit may be wall or bench mounted with open wiring or with concealed or exposed conduit. It has a gray die-cast chassis with a block-molded cover removable without tools.

Welding Set

■ General Electric Co., Schenectady, N. Y., announces redesign of its 1500-ampere constant-potential arc-welding sets for multiple-operator and machine welding to achieve more compact construction, lighter weight and improved appearance. Control for motor and generator is mounted on base.

Sets are suitable for supplying heavy current demands of automatic welding and production hand welding by a number of operators. Diversity factor of welding load allows use of a smaller-capacity set in supplying a given connected load than would be required if each operator were supplied by a separate set.

New Scale Plant

(Concluded from Page 56)

floor level. Previously use of eight elevators not only took time but ate heavily into available manufacturing and storage space.

Much unnecessary duplication of facilities has been eliminated. Five separate plant receiving departments have been replaced by a single large one; four shipping departments have become one; six stockrooms have been combined into two. While the total floor space of the new plant is actually about 7 per cent less than combined totals of old plants, there is much more usable space available.

In designing the new building, the architects, Albert Kahn Inc., 345 New Center building, Detroit, gave considerable thought to obtaining an economical structural steel truss-and-roof design which would allow for uniform daylighting and multiple live-load requirements for carrying monorails, heating and power lines, and manufacturing and materials handling devices.

Roof Allows Uniform Lighting

While the complete exterior of the building is daylighted with glazed steel windows, the roof monitors have been designed to allow for uniform light of correct working intensity in every part of this building, which is 400 feet at its narrowest point. Locations, widths and heights of the monitor windows are based on actual results obtained from many similar plants in different parts of the country.

No provision for air conditioning has been made as it is felt this feature would not be required here. However, considerable thought was given to assure ample natural ventilation throughout the building. The design allows for the entrance and movement of air to be taken care of by ventilators located in the lower portions of the sidewall sash. Air then is discharged through window ventilators placed in the monitor sash. Ventilators are grouped so various air movements may be obtained in any part of the building.

Main bay of the plant is heated by new projection-type unit heaters. Direct horizontal suspended blower-type unit heaters are located at all large outside door openings. The projection-type unit heaters located in the trusses have an electric motor-driven fan which blows heated air directly down onto the floor in such manner and at such velocity as to assure an even distribution of heat. Each unit is controlled by a 3-position magnetic starter located in a convenient position.

The system of power distribution

for general lighting is by means of trolley ducts located at truss height throughout the manufacturing area. From these ducts, individual lamp fixtures are connected at any desired location. This system also allows for the introduction of an electric light on a suspension cord which can be moved inside the trolley ducts so temporary lights can be placed as the production operations may require.

Another feature is use of a steel-enclosed busbar system which makes 440 volts directly available throughout all of the working area. This system can be tapped at any point for short leads to motors. Lighting power at 110 volts also is taken from the 440-volt bus, using several transformers distributed throughout the plant to step down the voltage.

Joins Rubber To Metal

■ Vulcalock cements for making strong, waterproof, chemically resistant joints between rubber and metals have been released for sale on a restricted basis by B. F. Goodrich Co., Akron, O. The cements consist of Thermoprene solutions and when dried form tough, horny films.

According to manufacturer, strength of bond ranges from 10 to 500 pounds per square inch, depending upon method of application and materials joined. The cements are said to resist cracking by bending, shock, or variations in temperature, to have chemical resistance better than rubber itself and not to absorb moisture or swell in water.

All-Welded Unfired Creosoting Cylinder

■ A large all-welded unfired creosoting cylinder fabricated by Treadwell Construction Co., Midland, Pa., for a timber processing company meets ASME and ASTM requirements, is 160 feet long and 6 feet 1 inch in diameter. Close-up of a welded seam is shown in left insert of illustration. Four railroad flat cars were required for shipment.

Shell of cylinder is of $\frac{3}{8}$ -inch steel, has a $\frac{1}{2}$ -inch head and weighs 111,000 pounds. Cylinder is anchored in the middle and supported longitudinally by saddles equipped with rollers to allow free expansion and contraction of tank with



Long timber products ride on rails into this large creosoting cylinder

changes in temperature. Timber products banded on small cars enter chamber through patented quick-opening door, shown in right insert of illustration and ride on tracks in cylinder. Guide rails hold cars in position during creosoting process. Creosote is heated by two banks of steam coils within cylinder and agitated by air.



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Activities of Steel Users, Makers

■ IN CONJUNCTION with completion of its new million-dollar fine-wire mill at Buffalo, Wickwire Spencer Steel Co., New York, has completed enlargement and modernization of production facilities at its Palmer mill, Palmer, Mass., and its Morgan mill, Worcester, Mass., to supply New England and eastern trade with specialty wires and formed wire products.

Mahl Taylor Steel Corp. has moved its office and warehouse to 3081 East Slauson avenue, Huntington Park, Calif.

Dreier Structural Steel Co. Inc., New York, has moved its plant and offices from Harlem river and West Tremont avenue, to 33-53 Tenth street, Long Island City, N. Y.

Orders booked by York Ice Machinery Corp., York, Pa., in the three months ending Dec. 31 were \$3,588,629, against \$2,438,946 in the same period in 1938.

Square D Co., Milwaukee, maker of motor control and switch equipment, has acquired the Kollsman Instrument Co., Elmhurst, N. Y., which specializes in precision instruments for the aviation industry.

Rheem Mfg. Co., Richmond, Calif., maker of steel containers, has acquired a 6½-acre site in New Orleans, and plans to establish a plant there, to cost over \$300,000, including equipment. About 150 men will be employed.

Steel Buildings Inc., heretofore a wholly owned subsidiary of American Rolling Mill Co., Middletown, O., was dissolved Jan. 1, and its business is now conducted by the company's building sections department.

Sales of covered wagon trailers in 1939 were 58 per cent ahead of 1938, according to Arthur G. Sherman, president, Covered Wagon Co., Mount Clemens, Mich. He says indications are that 1940 business will be at least 50 per cent ahead of 1939.

Pennsylvania Salt Mfg. Co., Philadelphia, has purchased 50 acres on the Delaware river at Cornwells Heights, Bucks county, Pennsylvania, as a site for its new \$2,000,000 plant. The plant will replace present Philadelphia operations at Delaware and Oregon avenues.

Vance Iron & Steel Co., steel jobbing firm, Chattanooga, Tenn., subsidiary of Republic Steel Corp., Cleveland, has purchased the former Chattanooga plant of Lucey Mfg.

Co., which it will use for warehouse purposes, replacing its former warehouse facilities.

Allis-Chalmers Mfg. Co., Milwaukee, has moved its Richmond, Va., district office to new quarters in the Richmond Trust building. C. L. Crosby is manager. The company's Rockford, Ill., district office, with John Breutzman in charge, will hereafter be located in the Gas-Electric building.

Orders booked by General Electric Co., Schenectady, N. Y., in the fourth quarter of 1939 amounted to \$112,166,535, compared with \$63,419,265 in the final quarter of 1938, an increase of 77 per cent. Orders for the year 1939 were \$360,748,386, compared with \$252,176,223 in 1938, a gain of 43 per cent.

Open house held recently by Young Radiator Co., Racine, Wis., attracted more than 1500 visitors. Processes and steps in manufacture were explained. A pamphlet distributed to visitors illustrated salient features of the business. The company employs about 300, has 60 field offices.

Auburn Automobile Co., Connersville, Ind., which ceased building motor cars in 1937, has converted its plant to production of numerous new products since that time, to utilize plant and equipment. The company offers its facilities to manufacturers of various equipment lines for supplying parts or complete assemblies.

In recognition of 25 or more years of service, Reliance Electric & Engineering Co., Cleveland, recently presented 12 employees with gold watches. Clarence L. Collens, who as president of Reliance since 1907, made the presentation, declined the honor for himself, but was surprised with a desk and chair, a gift from employees in all departments.

R. E. Dietz Co., maker of portable lighting equipment, New York, and Syracuse, N. Y., this year is celebrating its one hundredth anniversary. Founded by Robert E. Dietz in 1840, the company has maintained an unbroken record of solvency under the management of three generations of the Dietz family.

Darwin & Milner Inc., 1260 West Fourth street, Cleveland, specialist in high-quality steels for tools and dies, has developed a full line of electrodes for use in welding these steels. The purpose is to enable users to further extend the useful life of dies and tools through build-

ing up worn surfaces and repairing breakage. Researches solved some of the hitherto unknown reactions between the base and welding materials so that when the nature of the former is known, the proper quality of welding rods can be suggested.

Receipt of the largest single order for power station auxiliary equipment awarded during the past two years was announced recently by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The contract, for 18 auxiliary motors with a combined output of 14,800-horsepower, costing approximately \$121,000, was awarded by Public Service Electric & Gas Co., Newark, N. J.

Boston Wire Stitcher Co., East Greenwich, R. I., has been awarded the 1939 Industrial Research citation for its metals stitching machine by the Engineering Societies of New England, in recognition of its development of new stapling equipment. The company recently purchased an additional 25,000 square feet of floor space for manufacturing and shipping facilities.

Completion of automatic handling and storage equipment resulting in volume production of porcelain enamel frits is announced by Porcelain Enamel & Mfg. Co., Baltimore. Richard H. Turk, executive vice president, says operation of the entire plant now is automatic, from the handling of raw materials to storage of the finished product. The equipment was designed and developed in the company's research and engineering departments.

Patents and interest of the T. A. Gillespie Co., New York, in the Perkins process have been acquired by the Centriline Corp., 90 West street, New York, a new firm representing the Gillespie company, Lock Joint Pipe Co., East Orange, N. J., and Raymond Concrete Pipe Co. H. Seaver Jones, formerly vice president of Gillespie company, heads the new organization. The Perkins process covers a centrifugal method for lining pipe with cement.

Tinnerman Stove & Range Co., Cleveland, has found it necessary to discontinue the manufacture of stoves and ranges after 70 years of continuous business operations, due to rapid growth of its speed nut division. All factory space, including new additions, personnel and facilities are being devoted to the manufacture of speed nuts and clips. To align the corporate structure with products now produced, a new corporation, Tinnerman Products Inc., has been formed. Albert H. Tinnerman is president and treasurer, and George A. Tinnerman, vice president and general manager.

What's New at Pittsburgh . . .

By R. L. HARTFORD, Pittsburgh Editor, STEEL

■ LAST WEEK in federal district court here came a turning point in the five-year-old Follansbee Bros. bankruptcy and reorganization. It came in the person of W. T. Brownscombe, long time operating man with antecedents in Jones & Laughlin Steel Corp., and McKeesport Tin Plate Co., who was selected as president of the Follansbee Steel Corp., the reorganized company.

Federal Judge R. M. Gibson, in approving the modified organization plan, took the final step in the job which was begun by bankruptcy proceedings in May, 1935. Plan after plan has been proposed and failed, largely because of attempts to insert a new continuous wide hot strip mill as one of the provisions.

It was not until the summer of 1939 that all parties were able to get together on a plan which eliminated this costly feature. Under the plan as finally approved, a bank loan of \$2,100,000 in Pittsburgh and New York banks as well as the RFC will be supplemented by funds arising from the sale of common stock in the Follansbee Steel Corp. at \$15 per share. Commitments on the

man was found in the person of Mr. Brownscombe, as announced last week.

Board of directors of the new company will include besides Mr. Brownscombe Frank F. Brooks, president, First National Bank of Pittsburgh; David L. Frawley, Pittsburgh tax authority; John Follansbee, trustee and head of Follansbee Bros., who will serve as chairman; Marcus A. Follansbee, sales manager of the company; George T. Ladd, president, United Engineering & Foundry Co., and trustee; William B. Paul, counsel for the company; Lloyd W. Smith, president, Union National Bank of Pittsburgh; Lawson Stone, assistant to president, Jones & Laughlin Steel Corp.; John

H. McCoy, president, City National Bank & Trust Co., Columbus, O., who will represent the RFC.

Under the plan, coiled strip will be purchased from Jones & Laughlin and processed by Follansbee, whose principal products are to be sheet specialties.

One local event which has become national in scope and prominence is the annual dinner of the Pittsburgh Traffic club. Every year hundreds of men prominent in all phases of the nation's traffic and transportation work gather in Pittsburgh to hear speakers of national prominence. This year's plans, which have just been announced, include as guest speaker T. L. Parkinson, president, Equitable Assurance Society, New York. J. L. Perry, president, Carnegie-Illinois Steel Corp., will act as toastmaster. Nearly 2000 executives are expected to attend the thirty-ninth meeting, Jan. 26.

Current Events In Chicago . . .

By J. F. POWELL, Chicago Editor, STEEL

■ ILLINOIS Manufacturers' association has forwarded to Representative Howard H. Smith, chairman of the special house committee investigating the national labor relations board, a request the committee make interim reports on its findings, instead of withholding information until its work is finished.

The association feels such reports would aid congress in earlier action on labor legislation, and stated, "From day to day it is convincingly demonstrated that stability essential to sound and lasting industrial recovery cannot be expected until the national labor relations act has been substantially amended."

The manufacturers state that in similar investigations interim reports have been issued without waiting until a lengthy investigation is terminated. They feel several months will elapse before the investigation is completed.

The association also advocates: Revision of the preamble of the labor relations act, amendment to require fair and impartial trials by the board and to give full power of review to the courts, repeal of provisions encouraging closed shop or so-called majority rule, and prohibiting board members or their agents from being mediators and conciliators in labor disputes.

CIO's Steel Workers' Organizing committee is having more success getting "lodges" started than in signing new contracts with steel com-

panies in this district, although it recently claimed numerous contracts in the Chicago-Calumet area. A list of 1939 contracts with SWOC carries only one Chicago plant, having 50 employees. Nationally, SWOC reports 73 new contracts signed last year against 508 in 1937.

Meanwhile, in its latest discourse on the state of the union, the committee states: "While peaceful industrial relations exist in mills of 638 major companies, union campaigns are moving ahead at full speed at plants of the 'little steel' segment of the industry, with these important developments . . ." Included was the case of Inland Steel Co., Chicago, in which the appellate court last week ruled in favor of Inland (page 21).

Chicago's outstanding industry today is production of steel, which several years ago displaced meat packing. In 1939 the steel industry became increasingly more important than packing. It is estimated 70,000 now are employed in the Chicago district steel mills and allied plants. Packing companies in second place, followed by petroleum refining and electrical equipment manufacturing.

According to Chicago Association of Commerce estimates, industrial production in the district last year exceeded \$5,700,000,000, compared with \$5,553,000,000 in 1929. Number of industrial plants operating in the district last year was 9200, against 11,744 estimated for 1929.



W. T. Brownscombe

stock sale have already been made by the Follansbee family, by creditors and by citizens of Toronto, O., and Follansbee, W. Va.

The funds will provide for modernization of present facilities and the construction of a new cold mill, presumably at the Follansbee plant although no definite announcement has as yet been made. The plan was approved last summer, but continuations have been granted several times since by the court while the parties concerned were hunting for an administrative officer who would be acceptable to all. This

MEETINGS

A. I. E. E MEETING SCHEDULES ELECTRIC WELDING SESSION

■ ONE session of the annual winter convention of the American Institute of Electrical Engineers to be held at the Engineering Societies building, New York, Jan. 22-26, will deal with theoretical aspects of electric welding. Time of this session is Monday morning, Jan. 22.

Three papers and a committee report are scheduled as follows: "Power Factor Correction of Resistance Welding Machines by Series Capacitors," by L. G. Levoy Jr., General Electric Co.; "Measurement of Spot Welding Current," by W. F. Hess, R. A. Wyant and Albert Muller, Rensselaer Polytechnic Institute; "Resistance of the Spot Weld," by Ladislav Ciganek, Cechy-Moravia; and "Power Supply for Resistance Welding Machines—II, Resistance Welder Installations," subcommittee on power supply for welding operations.

This session will be followed by a conference at which the same committee will present a second report, "Power Supply for Resistance Welding Machines—I, Guide to Resistance Welding Machines."

FOUNDRY MEETING PART OF DEL MONTE CONFERENCE

Sixteenth annual conference of the Iron, Steel and Allied Industries of California will be held at Hotel Del Monte, Del Monte, Calif., Feb. 8-10. This year's conference, for the first time, will embrace a two-day foundry meeting under sponsorship of the Northern California and Southern California chapters of the American Foundrymen's association. This will take place Feb. 8-9.

Among addresses at the steel meeting will be: "Government Is Made for Man—Not Man for Government," by James F. Lincoln, president, Lincoln Electric Co., Cleveland; "Outlook for the Steel Industry," by B. F. Fairless, president, United States Steel Corp., Pittsburgh; "Meeting California Problems," by James Mussatti, general manager, California State chamber of commerce; "Relationship Existing Between Industry and Government," by W. C. Mullendore, executive vice president, Southern California Edison Co. Inc., Los Angeles; "Industrial Co-operation with United States Army to Build Up Our Own Defense," by Col. W. G. Caples, corps of engineers, San Francisco; "Meeting the Market Needs of Metals," by J. P. Gill, chief metallurgist, Vanadium-Alloys Steel Co., Latrobe, Pa.; "Procedures Under the Wagner Labor Relations Act and Their Relationship to In-

dustry," by Paul Watkins, Lathem, Watkins & Bouchard, Los Angeles; "Changes in Unemployment Insurance Act and Effects on California Industry," by A. K. Salz, A. K. Salz Co., San Francisco.

Speakers on foundry topics will include "Planning for Tomorrow," by H. S. Washburn, president, Plainville Casting Co., Plainville, Conn.; "Hygiene in the Foundry," by D. E. Cummings, director, division of industrial hygiene, University of Colorado, Boulder, Colo.; "Cupola Operations," by D. J. Reese, director, development and research division, International Nickel Co. Inc., New York; "Activities of the American Foundrymen's Association," by C. E. Hoyt, executive vice president of the association, Chicago; "Use of Castings in Ship Construction," by J. D. Fenstermacher, Columbia Steel Co., San Francisco.

FINANCING OF INDUSTRY IS CONFERENCE SUBJECT

Financial problems facing management of the average American company, such as financing new issues, budgeting, inventory control, etc., will be discussed at a finance conference at Hotel New Yorker, New York, Jan. 24-25, under sponsorship of the American Management association. Corporation presidents, treasurers, controllers, and tax experts will attend. Subjects of special interest will be those pertaining to financial problems arising out of social legislation.

Papers and authors representing the metal-working industries include: "Effect of Social Legislation on Production and Operating Costs," by P. F. Boyer, comptroller, Republic Steel Corp., Cleveland; "Flexible Budgeting of Expense," by S. R. Shave, director of budgets, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; "Budgeting Sales and Selling Costs," by E. S. LaRose, controller, Bausch & Lomb Optical Co., Rochester, N. Y.; "Financial Problems Arising from Social Legislation," by M. B. Folsom, treasurer, Eastman Kodak Co., Rochester, N. Y.

Jerome N. Frank, chairman, securities and exchange commission, will speak at luncheon, Jan. 25.

TEXAS COLLEGE SPONSORING FOURTH WELDING MEETING

Texas Technological college, Lubbock, Tex., announces its fourth biennial welding conference, Feb. 2-3. Sponsored by the department of mechanical engineering, Prof. J. C. Hardgrave is in charge. Lectures, technical papers and demonstrations will deal with all type of electric and oxyacetylene welding. A number of manufacturers will exhibit and demonstrate welding equipment. Attendance is open and without registration fee.

PLANS FOR FOUNDRY SHOW AND CONVENTION OUTLINED

Present indications are that the Foundry and Allied Industries Show to be held in Chicago, May 4-10, in connection with the forty-fourth annual convention of the American Foundrymen's association, will be the most extensive and interesting which the organization has sponsored. C. E. Hoyt, executive vice president of the association and exhibit manager, believes that interest being manifested is attributable to the unusual exhibit facilities of the International Amphitheatre, central location of Chicago as a foundry center, improved business conditions and numerous developments in foundry equipment since the show in Cleveland in 1938.

With appointment of chairman of committees, plans for the convention are well under way. C. E. Westover, superintendent, Burnside Steel Foundry Co., heads the Chicago chapter general committee, and G. P. Phillips, foundry metallurgist, International Harvester Co., is vice chairman. C. C. Kawin, president, Charles C. Kawin Co., is treasurer, and L. L. Henkel, metallurgist, Interlake Iron Corp., is secretary.

Opening Monday, May 6, convention sessions, shop practice courses and division roundtable luncheons will continue through the week. In addition to the regular sessions of the steel, malleable, gray iron and nonferrous divisions, sessions of more general interest will be scheduled on sand research, apprentice and foreman training, plant equipment, costs, refractories, safety methods, patternmaking and time study.

A feature of the technical meetings will be a demonstration, "Close-Ups of Crystal Behavior Illustrated by Microprojections," by Dr. C. W. Mason, Cornell university, Ithaca, N. Y. Dr. Mason has developed a spectacular demonstration showing how metals act when cooling from liquid to solid state, forming crystals, grain boundaries, eutectics and inclusions.

Following a plan initiated in 1925, the association through its apprentice committee is sponsoring an apprentice molding and patternmaking contest. Last year 150 foundries and pattern shops participated.

The foundry show will open Saturday noon, May 4, this being a preview for foundry workers in the Chicago territory. Plant visits will start Monday afternoon, May 6, with a trip to mills and blast furnaces of Wisconsin Steel Works, International Harvester Co. During the week many foundries and industrial plants of the district will be open for visits.

Shrinkage in Steel Backlogs Continues

Shipments Double Rate Of New Business; Output Steady

■ FINISHED steel backlogs are declining more rapidly under the influence of heavy shipments and a lag in new buying. So far this is reflected but slightly in steel ingot production, the national rate last week being off only $\frac{1}{2}$ -point to 86 per cent.

Orders currently average 40 to 60 per cent of shipments, the consequent shrinkage in unfilled business being most pronounced in heavier products. Tin plate buying also is quiet, this being to a large extent a seasonal trend.

Deliveries are improving steadily on a number of products, although in the aggregate backlogs remain substantial. Consumers' inventories, while not regarded as excessive, have been increased sufficiently to make extensive forward buying less necessary so long as tonnage still is due against old orders.

Continued active steel consumption is indicated the next 60 to 90 days, but the trend of steelmaking later this quarter is somewhat indefinite, depending as it does on the rapidity with which buyers re-enter the market after absorbing previous commitments.

The automobile industry still is working against backlogs in attempts to stock dealers, but with a slower period in retail sales at hand a dip in assemblies and steel needs will appear within a few weeks. Motorcar production last week recovered sharply from the depressed level of the holiday period, rising 23,820 units to 111,330. This is 28 per cent higher than a year ago.

Railroads' requirements promise continued strong support to steel production this quarter, possibly exceeding last quarter's volume. Freight car building programs are under way, and rolling of rails and accessories will be increased. Some additional car buying is under consideration, although few inquiries currently are active. The future trend of traffic and earnings will be a deciding factor in whether or not some contemplated purchases materialize. More rail orders may develop from some inquiries now pending.

Structural shapes and concrete reinforcing bars are affected adversely by the season, inquiries and awards being moderate. Concrete bar producers are maintaining fairly heavy shipments, but backlogs are declining. Orders include 3900 tons for three housing projects. Unfilled business in structural shapes

is light, with early delivery available. The outlook for building construction is fairly encouraging, following an upturn in December contracting.

Pig iron shipments in some districts are falling moderately below the December rate. Larger consumers are well covered two to three months ahead, and orders are small. The trend of coke shipments indicates a slower rate of melt this month.

Scrap demand is marking time in most areas. Prices are stronger at Chicago, but are no more than steady elsewhere, and the composite is off 4 cents to \$17.46. England is reported inquiring for 60,000 tons of No. 1 heavy melting steel.

Steel warehouses have had the expected seasonal recovery in sales after the holiday letdown, but January business may fall slightly below that of December.

Pipe demand is lighter, particularly in oil country products. One exception is line pipe, bolstered by the placing of 11,000 tons by Stanolind Pipe Line Co. for laying in Kansas. In addition, prospects are favorable for heavier consumption of tubular products by the oil industry this year than in 1939.

Finished steel prices generally are steady, but the strength prevailing during the recent period of heaviest buying appears to have gone out of the market. The composite is unchanged at \$56.10.

Export steel buying holds at recent levels but is improved compared with a year ago. Latest figures on foreign shipments—those for November—show a tonnage gain of 30.5 per cent over the year before.

Operating trends were mixed in leading steel centers last week. Pittsburgh was off 1 point to 88 per cent, with Chicago unchanged at 90½. Youngstown, off 5 points to 80, will go lower this week. Gains of 3 points to 93 at Detroit and 5 points to 72 at Buffalo also were countered by losses of 3½ points to 75 at St. Louis and 16½ points to 74½ at Cincinnati. Unchanged were eastern Pennsylvania at 82, Wheeling at 89, Cleveland at 85, Birmingham at 94 and New England at 83. Two blast furnaces have been banked in the Youngstown district. One of these is scheduled to resume this week, accompanied by the banking of a third stack.

MARKET IN TABLOID ★

Demand

Sustained in releases but slow in buying.

Prices

Generally holding; scrap lacks strength.

Production

Down $\frac{1}{2}$ -point to 86 per cent.

COMPOSITE MARKET AVERAGES

	Jan. 13	Jan. 6	Dec. 30	One Month Ago Dec., 1939	Three Months Ago Oct., 1939	One Year Ago Jan., 1939	Five Years Ago Jan., 1935
Iron and Steel	\$37.09	\$37.09	\$37.10	\$37.18	\$37.62	\$36.36	\$32.58
Finished Steel	56.10	56.10	56.10	56.10	55.90	56.50	54.00
Steelworks Scrap..	17.46	17.50	17.58	13.88	21.45	14.77	12.03

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

COMPARISON OF PRICES

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

Finished Material	Jan. 13, 1940	Dec. 1939	Oct. 1939	Jan. 1939	Pig Iron	Jan. 13, 1940	Dec. 1939	Oct. 1939	Jan. 1939
Steel bars, Pittsburgh	2.15c	2.15c	2.15c	2.25c	Bessemer, del. Pittsburgh	\$24.34	\$24.34	\$24.34	\$22.34
Steel bars, Chicago	2.15	2.15	2.15	2.25	Basic, Valley	22.50	22.50	22.50	20.50
Steel bars, Philadelphia	2.47	2.47	2.47	2.57	Basic, eastern, del. Philadelphia	24.34	24.34	24.34	22.34
Iron bars, Terre Haute, Ind.	2.15	2.15	2.13	2.15	No. 2 foundry, Pittsburgh	24.21	24.21	24.21	22.21
Shapes, Pittsburgh	2.10	2.10	2.10	2.10	No. 2 foundry, Chicago	23.00	23.00	23.00	21.00
Shapes, Philadelphia	2.215	2.215	2.215	2.215	Southern No. 2, Birmingham ...	19.38	19.38	19.38	17.38
Shapes, Chicago	2.10	2.10	2.10	2.10	Southern No. 2, del. Cincinnati..	22.89	22.89	22.89	20.89
Plates, Pittsburgh	2.10	2.10	2.10	2.10	No. 2X, del. Phila. (differ. av.)...	25.215	25.215	25.215	23.215
Plates, Philadelphia	2.15	2.225	2.275	2.15	Malleable, Valley	23.00	23.00	23.00	21.00
Plates, Chicago	2.10	2.10	2.10	2.10	Malleable, Chicago	23.00	23.00	23.00	21.00
Sheets, hot-rolled, Pittsburgh...	2.10	2.10	2.00	2.15	Lake Sup., charcoal, del. Chicago	30.34	30.34	30.34	28.34
Sheets, cold-rolled, Pittsburgh...	3.05	3.05	3.05	3.20	Gray forge, del. Pittsburgh	23.17	23.17	23.17	21.17
Sheets, No. 24 galv., Pittsburgh...	3.50	3.50	3.50	3.50	Ferromanganese, del. Pittsburgh	105.33	105.33	105.33	90.25
Sheets, hot-rolled, Gary	2.10	2.10	2.00	2.15					
Sheets, cold-rolled, Gary	3.05	3.05	3.05	3.20					
Sheets, No. 24 galv., Gary	3.50	3.50	3.50	3.50					
Bright bess., basic wire, Pitts...	2.60	2.60	2.60	2.60					
Tin plate, per base box, Pitts...	\$5.00	\$5.00	\$5.00	\$5.00					
Wire nails, Pittsburgh	2.55	2.55	2.50	2.45					

Semifinished Material

Sheet bars, Pittsburgh, Chicago.	\$34.00	\$34.00	\$34.00	\$34.00
Slabs, Pittsburgh, Chicago	34.00	34.00	34.00	34.00
Rerolling billets, Pittsburgh...	34.00	34.00	34.00	34.00
Wire rods, No. 5 to 3/4-inch, Pitts.	2.00	1.98	1.92	1.92

STEEL, IRON, RAW MATERIAL, FUEL AND METALS PRICES

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

Sheet Steel

Hot Rolled	
Pittsburgh	2.10c
Chicago, Gary	2.10c
Cleveland	2.10c
Detroit, del.	2.20c
Buffalo	2.10c
Sparrows Point, Md.	2.10c
New York, del.	2.34c
Philadelphia, del.	2.27c
Granite City, Ill.	2.20c
Middletown, O.	2.10c
Youngstown, O.	2.10c
Birmingham	2.10c
Pacific Coast points...	2.60c

Cold Rolled	
Pittsburgh	3.05c
Chicago, Gary	3.05c
Buffalo	3.05c
Cleveland	3.05c
Detroit, delivered	3.15c
Philadelphia, del.	3.37c
New York, del.	3.39c
Granite City, Ill.	3.15c
Middletown, O.	3.05c
Youngstown, O.	3.05c
Pacific Coast points...	3.65c

Galvanized No. 24	
Pittsburgh	3.50c
Chicago, Gary	3.50c
Buffalo	3.50c
Sparrows Point, Md.	3.50c
Philadelphia, del.	3.67c
New York, delivered	3.74c
Birmingham	3.50c

Granite City, Ill.	3.60c
Middletown, O.	3.50c
Youngstown, O.	3.50c
Pacific Coast points...	4.00c
Black Plate, No. 29 and Lighter	
Pittsburgh	3.05c
Chicago, Gary	3.05c
Granite City, Ill.	3.15c
Long Ternes No. 24 Unassorted	
Pittsburgh, Gary	3.80c
Pacific Coast	4.50c

Enameling Sheets		
	No. 10	No. 20
Pittsburgh	2.75c	3.35c
Chicago, Gary	2.75c	3.35c
Granite City, Ill.	2.85c	3.45c
Youngstown, O.	2.75c	3.35c
Cleveland	2.75c	3.35c
Middletown, O.	2.75c	3.35c
Pacific Coast	3.35c	3.95c

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.	No.	No.	No.
	410	430	442	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	24.00	35.00
Cold stp. ..	22.00	22.50	32.00	52.00

Steel Plate

Pittsburgh	2.10c
New York, del.	2.29c
Philadelphia, del.	2.15c
Boston, delivered	2.46c
Buffalo, delivered	2.33c
Chicago or Gary	2.10c
Cleveland	2.10c
Birmingham	2.10c
Coatesville, Pa.	2.10c
Sparrows Point, Md.	2.10c
Claymont, Del.	2.10c
Youngstown	2.10c
Gulf ports	2.45c
Pacific Coast points...	2.60c

Steel Floor Plates

Pittsburgh	3.35c
Chicago	3.35c
Gulf ports	3.70c
Pacific Coast ports ...	3.95c

Standard Shapes

Pittsburgh	2.10c
Philadelphia, del.	2.21 1/2c
New York, del.	2.27c
Boston, delivered	2.41c
Bethlehem	2.10c
Chicago	2.10c
Cleveland, del.	2.30c

Buffalo	2.10c
Gulf ports	2.45c
Birmingham	2.10c
St. Louis, del.	2.34c
Pacific Coast points...	2.70c

Tin and Terne Plate

Tin Plate, Coke (base box)	
Pittsburgh, Gary, Chicago	\$5.00
Granite City, Ill.	5.10
Mfg. Terne Plate (base box)	
Pittsburgh, Gary, Chicago	\$4.30
Granite City, Ill.	4.40

Bars

Soft Steel	
(Base, 20 tons or over)	
Pittsburgh	2.15c
Chicago or Gary	2.15c
Duluth	2.25c
Birmingham	2.15c
Cleveland	2.15c
Buffalo	2.15c
Detroit, delivered	2.25c
Philadelphia, del.	2.47c
Boston, delivered	2.52c
New York, del.	2.49c
Gulf ports	2.50c
Pacific Coast points...	2.75c

Rail Steel	
(Base, 5 tons or over)	
Pittsburgh	2.15c
Chicago or Gary	2.15c
Detroit, delivered	2.25c
Cleveland	2.15c

Buffalo	2.15c
Birmingham	2.15c
Gulf ports	2.50c
Pacific Coast points	2.75c

Iron

Chicago, Terre Haute	2.15c
Philadelphia	2.37c
Pittsburgh, refined	3.50-8.00c

Reinforcing

New Billet Bars, Base*	
Chicago, Gary, Buffalo,	
Cleve., Birm., Young.,	
Sparrows Pt., Pitts.	2.15c
Gulf ports	2.50c
Pacific Coast ports	2.60c

Rail Steel Bars, Base*

Pittsburgh, Gary Chi-	
cago, Buffalo, Cleve-	
land, Birm.	2.15c
Gulf ports	2.50c
Pacific Coast ports	2.60c

*Subject to a deduction of 25 cents per 100 lbs. in lots of 20 tons or over of one size, in lengths of 30 feet or over, for shipment at one time to one destination.

Wire Products

Pitts.-Cleve.-Chicago-Birm. base	
per 100 lb. keg in carloads	
Standard and cement	
coated wire nails	\$2.55
(Per pound)	

Polished fence staples	2.55c
Galv. barbed wire, stand-	
ard 12½ gage two-	
point hog, 80-rod spool	
\$2.88; two-point cattle,	
80-rod spool	\$2.70
Annealed fence wire	2.90c
Galv. fence wire	3.30c
Woven wire fencing (base	
C. L. column)	67.00
Single loop bale tier	
(base C. L. column)	56.00

To Manufacturing Trade

Base, Pitts., - Cleve., - Chicago-	
Birmingham (except spring	
wire)	
Bright bess., basic wire	2.60c
Galvanized wire	2.65c
Spring wire	3.20c
Worcester, Mass., \$2 higher on	
bright basic and spring wire.	

Cut Nails

Carload, Pittsburgh	\$3.85
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Cold-Finished Bars

	Carbon	Alloy
Pittsburgh	2.65c	3.35c
Chicago	2.65c	3.35c
Gary, Ind.	2.65c	3.35c
Detroit	2.70c	3.45c
Cleveland	2.65c	3.35c
Buffalo	2.65c	3.35c
* Delivered.		

Alloy Bars (Hot)

(Base, 20 tons or over)	
Pittsburgh, Buffalo, Chi-	
cago, Massillon, Can-	
ton, Bethlehem	2.70c
Detroit, delivered	2.80c
Alloy	
S.A.E.	Diff.
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 flats	0.15
6100 bars	1.20
6100 spring flats	0.85
Cr. N., Van.	1.50
Carbon Van.	0.85
9200 spring flats	0.15
9200 spring rounds, squares	0.40
Electric furnace up 50 cents.	

Strip and Hoops

(Base, hot strip, 1 ton or over; cold, 3 tons or over)

Hot Strip, 12-inch and less	
Pittsburgh, Chicago,	
Gary, Cleveland,	
Youngstown, Middle-	
town, Birmingham	2.10c
Detroit, del.	2.20c
Philadelphia, del.	2.42c
New York, del.	2.46c
Pacific Coast points	2.70c
Cooperage hoop, Youngs,	
Pitts.; Chicago, Birm.	2.20c
Cold strip, 0.25 carbon	
and under, Pittsburgh,	
Cleveland, Youngstown	2.80c
Chicago	2.90c
Detroit, del.	2.90c
Worcester, Mass.	3.00c
Carbon	Cleve., Pitts.
0.26—0.50	2.80c
0.51—0.75	4.30c
0.76—1.00	6.15c
Over 1.00	8.35c
Worcester, Mass. \$4 higher.	

Commodity Cold-Rolled Strip	
Pitts.-Cleve.-Youngstown	2.95c
Chicago	3.05c
Detroit, del.	3.05c
Worcester, Mass.	3.35c
Lamp stock up 10 cents.	

Rails, Fastenings

(Gross Tons)	
Standard rails, mill	\$40.00
Relay rails, Pittsburgh	
20—100 lbs.	\$32.50-35.50
Light rails, billet qual.,	
Pitts., Chicago, B'ham.	\$40.00
Do., rerolling quality	39.00
Cents per pound	
Angle bars, billet, mills.	2.70c
Do., axle steel	2.35c
Spikes, R. R. base	3.00c
Track bolts, base	4.15c
Car axles forged, Pitts.,	
Chicago, Birmingham.	3.15c
Tie plates, base	2.15c
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 plates 20 tons.	

Bolts and Nuts

F.o.b. Pittsburgh, Cleveland, Birmingham, Chicago. Discounts for carloads additional 5%, for full containers additional 10%.

Carriage and Machine	
½ x 6 and smaller	68.5 off
Do. larger, to 1-in.	66 off
Do. 1½ and larger	64 off
Tire bolts	52.5 off

Stove Bolts	
In packages with nuts separate	
72.5 off; with nuts attached	
add 15%; bulk 83.5 off on	
15,000 of 3-inch and shorter,	
or 5000 over 3-in.	

Step bolts	60 off
Plow bolts	68.5 off

Nuts	
Semifinished hex. U.S.S. S.A.E.	
6-inch and less	67 70
¾-1-inch	64 65
1½ and larger	62 62

Hexagon Cap Screws	
Upset, 1-in., smaller	70.0 off
Square Head Set Screws	
Upset, 1-in., smaller	75.0 off
Headless set screws	64.0 off

Piling

Pitts., Chgo., Buffalo	2.40c
Gulf ports	2.85c
Pacific coast ports	2.90c

Rivets, Washers

Structural, Pittsburgh,	
Cleveland, Chicago	3.40c
¾-inch and smaller,	

Pitts., Chi., Cleve.	65-10 off
Wrought washers, Pitts.,	
Chi., Phila., to jobbers	
and large nut, bolt	
mfrs. l.c.l.	\$5.40; c.l. \$5.75 off

Welded Iron, Steel Pipe

Base discounts on steel pipe. Pitts., Lorain, O., to consumers in carloads. Gary, Ind., 2 points less on lap weld, 1 point less on butt weld. Chicago delivery 2½ and 1½ less, respectively. Wrought pipe, Pittsburgh base.

Butt Weld	
Steel	
In.	Blk. Galv.
½	63½ 54
¾	66½ 58
1—3	68½ 60½
Iron	
¾	30 13
1—1¼	34 19
1½	38 21½
2	37½ 21

Lap Weld	
Steel	
2	61 52½
2½—3	64 55½
3½—6	66 57½
7 and 8	65 55½
9 and 10	64½ 55
11 and 12	63½ 54
Iron	
2	30½ 15
2½—3½	31½ 17½
4	33½ 21
4½—8	32½ 20
9—12	28½ 15

Line Pipe	
Steel	
1 to 3, butt weld	67½
2, lap weld	60
2½ to 3, lap weld	63
3½ to 6, lap weld	65
7 and 8, lap weld	64
10-inch lap weld	63½
12-inch, lap weld	62½
Iron	
¾ butt weld	25 7
1 and 1½ butt weld	29 13
1½ butt weld	33 15½
2 butt weld	32½ 15
1½ lap weld	23½ 7
2 lap weld	25½ 9
2½ to 3½ lap weld	26½ 11½
4 lap weld	28½ 15
4½ to 8 lap weld	27½ 14
9 to 12 lap weld	23½ 9

Boiler Tubes	
Carloads minimum wall seam-	
less steel boiler tubes, cut	
lengths 4 to 24 feet; f.o.b. Pitts-	
burgh, base price per 100 feet	
subject to usual extras.	

Lap Welded	
Sizes	
1½ "O.D.	13 \$ 9.72
1¾ "O.D.	13 11.06
2" O.D.	13 12.38
2¼ "O.D.	13 13.79
2½ "O.D.	12 15.16
2¾ "O.D.	12 16.58
3" O.D.	12 17.54
3½ "O.D.	12 18.35
4" O.D.	11 23.15
5" O.D.	10 28.66
6" O.D.	9 44.25
	7 68.14

Seamless	
Gage	
Hot	Cold
13	\$ 7.82
13	\$ 9.01
13	9.26
13	10.23
13	11.64

Char-	
coal	
Iron	
\$23.71	
22.93	
19.35	
21.68	
26.57	
29.00	
31.36	
39.81	
49.90	
73.93	
68.14	

Boiler Tubes	
Carloads minimum wall seam-	
less steel boiler tubes, cut	
lengths 4 to 24 feet; f.o.b. Pitts-	
burgh, base price per 100 feet	
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burgh, base price per 100 feet	
subject to usual extras.	

2" O.D.	13	13.04	15.03
2½ "O.D.	13	14.54	16.76
2¾ "O.D.	12	16.01	18.45
2½ "O.D.	12	17.54	20.21
2¾ "O.D.	12	18.59	21.42
3" O.D.	12	19.50	22.48
3½ "O.D.	11	24.62	28.37
4" O.D.	10	30.54	35.20
4½ "O.D.	10	37.35	43.04
5" O.D.	9	46.87	54.01
6" O.D.	7	71.96	82.93

Cast Iron Pipe

Class B Pipe—Per Net Ton	
6-in., & over, Birm.	\$45.00-46.00
4-in., Birmingham	48.00-49.00
4-in., Chicago	56.80-57.80
6-in. & over, Chicago	53.80-54.80
6-in. & over, east fdy.	49.00
Do., 4-in.	52.00

Class A Pipe \$3 over Class B	
Std. fltgs., Birm., base	\$100.00

Semifinished Steel

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||
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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 sil.; 50c diff. below 1.75 sil. Gross tons.

Basing Points:	No. 2 Fdry.	Malle- able	Basic	Besse- mer
Bethlehem, Pa.	\$24.00	\$24.50	\$23.50	\$25.00
Birdsboro, Pa.	24.00	24.50	23.50	25.00
Birmingham, Ala. \$	19.38	.....	18.38	24.00
Buffalo	23.00	23.50	22.00	24.00
Chicago	23.00	23.00	22.50	23.50
Cleveland	23.00	23.00	22.50	23.50
Detroit	23.00	23.00	22.50	23.50
Duluth	23.50	23.50	.....	24.00
Erie, Pa.	23.00	23.50	22.50	24.00
Everett, Mass.	24.00	24.50	23.50	25.00
Granite City, Ill.	23.00	23.00	22.50	23.50
Hamilton, O.	23.00	23.00	22.50	.....
Neville Island, Pa.	23.00	23.00	22.50	23.50
Provo, Utah	21.00	.....	.....	.....
Sharpsville, Pa.	23.00	23.00	22.50	23.50
Sparrow's Point, Md.	24.00	.....	23.50	.....
Swedeland, Pa.	24.00	24.50	23.50	25.00
Toledo, O.	23.00	23.00	22.50	23.50
Youngstown, O.	23.00	23.00	22.50	23.50

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

Delivered from Basing Points:

Akron, O., from Cleveland.	24.39	24.39	23.89	24.89
Baltimore from Birmingham.	24.78	.....	23.66	.....
Boston from Birmingham.	24.12	.....	.....	.....
Boston from Everett, Mass.	24.50	25.00	24.00	25.50
Boston from Buffalo	24.50	25.00	24.00	25.50
Brooklyn, N. Y., from Bethlehem	26.50	27.00	.....	.....
Canton, O., from Cleveland.	24.39	24.39	23.89	24.89
Chicago from Birmingham.	†23.22	.....	.....	.....
Cincinnati from Hamilton, O.	23.24	24.11	23.61	.....
Cincinnati from Birmingham.	23.06	.....	22.06	.....
Cleveland from Birmingham.	23.32	.....	22.82	.....
Mansfield, O., from Toledo, O.	24.94	24.94	24.44	24.44
Milwaukee from Chicago.	24.10	24.10	23.60	24.60
Muskegon, Mich., from Chicago,	.....	.....	.....	.....
Toledo or Detroit	26.19	26.19	25.69	26.69
Newark, N. J., from Birmingham	25.15	.....	.....	.....
Newark, N. J., from Bethlehem	25.53	26.03	.....	.....
Philadelphia from Birmingham	24.46	.....	23.96	.....
Philadelphia from Swedeland, Pa.	24.84	25.34	24.34	.....
Pittsburgh district from Neville	.....	.....	.....	.....
Island .....	.....	.....	.....	.....
Saginaw, Mich., from Detroit.	25.45	25.45	24.95	24.95

	No. 2 Fdry.	Malle- able	Basic	Besse- mer
St. Louis, northern	23.50	23.50	23.00	.....
St. Louis from Birmingham	†23.12	.....	22.62	.....
St. Paul from Duluth	25.63	25.63	.....	26.13
†Over 0.70 phos.				

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Buffalo, N. Y., \$28.50, base; \$29.74 delivered Philadelphia.

Gray Forge

Valley furnace	\$22.50	Lake Superior fur.	\$27.00
Pitts. dist. fur.	22.50	do., del. Chicago	30.34
		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		Dry press	\$28.00
<i>Super Quality</i>		Wire cut	\$26.00
Pa., Mo., Ky.	\$60.80	Magnesite	
<i>First Quality</i>		Domestic dead - burned	
Pa., Ill., Md., Mo., Ky...	47.50	grains, net ton f.o.b.	
Alabama, Georgia	47.50	Chewelah, Wash., net	
New Jersey	52.50	ton, bulk.	22.00
<i>Second Quality</i>		net ton, bags	26.00
Pa., Ill., Ky., Md., Mo...	42.75	Basic Brick	
Georgia, Alabama	34.20	<i>Net ton, f.o.b. Baltimore, Ply-</i>	
New Jersey	49.00	<i>mouth Meeting, Chester, Pa.</i>	
Ohio		Chrome brick	\$50.00
First quality	39.90	Chem. bonded chrome...	50.00
Intermediate	36.10	Magnesite brick	72.00
Second quality	31.35	Chem. bonded magnesite	61.00
Malleable Bung Brick		Fluorspar	
All bases	\$56.05	Washed gravel, duty	
Silica Brick		pd., tide, net ton.	\$25.00-\$26.00
Pennsylvania	\$47.50	Washed gravel, f.o.b.	
Joliet, E. Chicago	55.10	Ill., Ky., net ton,	
Birmingham, Ala.	47.50	carloads, all rail.	22.00
		Do, barge	22.00
		No. 2 lump	22.00

Ferroalloy Prices

Ferromanganese, 78-82%,	carlots	11.00c	Do, spot	145.00	¾-in., lb.	14.00c
lump and bulk, carlots	Do., ton lots	11.75c	Do, contract, ton lots	145.00	Do., 2%	12.50c
tide., duty pd.	Do., less-ton lots	12.00c	Do, spot, ton lots.	150.00	Spot ¼c higher	
Ton lots	67-72% low carbon:		15-18% ti., 3-5% carbon,		Silicon Briquets, contract	
Less ton lots	Car- Ton Less		carlots, contr., net ton	157.50	carloads, bulk, freight	
Less 200 lb. lots.	loads lots ton		Do, spot	160.00	allowed, ton	\$69.50
Do., carlots del. Pitts. 105.33	2% carb.	17.50c 18.25c 18.75c	Do, contract, ton lots.	160.00	Ton lots	79.50
Spiegelisen, 19-21% dom.	1% carb.	18.50c 19.25c 19.75c	Do, spot, ton lots	165.00	Less-ton lots, lb.	3.75c
Palmerton, Pa., spot.	0.10% carb.	20.50c 21.25c 21.75c	Alsifer, contract carlots,		Less 200 lb. lots, lb.	4.00c
Do., 26-28%	0.20% carb.	19.50c 20.25c 20.75c	f.o.b. Niagara Falls, lb.	7.50c	Spot ¼-cent higher.	
Ferrosilicon, 50% freight	Spot ¼c higher		Do, ton lots	8.00c	Manganese Briquets,	
allowed, c.l.	Ferromolybdenum, 55-		Do, less-ton lots	8.50c	contract carloads,	
Do., ton lot	65% molyb. cont., f.o.b.		Spot ¼c lb. higher		bulk freight allowed,	
Do., 75 per cent.	mill, lb.	0.95	Chromium Briquets, con-		lb.	5.00c
Do, ton lots	Calcium molybdate, lb.		tract, freight allowed,		Ton lots	5.50c
Spot, \$5 a ton higher.	molyb. cont., f.o.b. mill	0.80	lb. spot carlots, bulk	7.00c	Less-ton lots	5.75c
Silicomanganese, 2½ c. 103.00	Ferrotitanium, 40-45%,		Do., ton lots	7.50c	Spot ¼c higher	
2% carbon, 108.00; 1% 118.00	lb., con. ti., f.o.b. Niag-		Do., less-ton lots	7.75c	Zirconium Alloy, 12-15%,	
Contract ton price	ara Falls, ton lots.	\$1.23	Do., less 200 lbs.	8.00c	contract carloads,	
\$12.50 higher; spot \$5	Do., less-ton lots	1.25	Spot, ¼c higher.		bulk, gross ton	\$97.50
over contract.	20-25% carbon, 0.10		Tungsten Metal Powder,		Do, spot	102.50
Ferrotungsten, stand., lb.	max., ton lots, lb.	1.35	according to grade,		34-40%, contract, car-	
con. del. cars	Do, less-ton lots	1.40	spot shipment, 200-lb.		loads, lb., alloy	14.00c
Ferrovanadium, 35 to	Spot 5c higher		drum lots, lb.	\$2.50	Do, ton lots	15.00c
40%, lb., cont.	Ferrocolumbium, 50-60%,		Do., smaller lots	2.60	Do, less-ton lots	16.00c
2.70-2.80-2.90	contract, lb. con. col.		Vanadium Pentoxide,		Spot ¼c higher	
Ferrophosphorus, gr. ton,	f.o.b. Niagara Falls.	\$2.25	contract, lb. contained	\$1.10	Molybdenum Powder,	
c.l., 17-18% Rockdale,	Do., less-ton lots	2.30	Do, spot	1.15	99%, f.o.b. York, Pa.	
Tenn., basis, 18%, \$3	Spot is 10c higher		Chromium Metal, 98%		200-lb. kegs, lb.	\$2.60
unitage, 58.50; electro-	Technical molybdenum		cr., 0.50 carbon max.,		Do, 100-200 lb. lots.	2.75
lytic, per ton, c. l., 23-	trioxide, 53 to 60% moly-		contract, lb. con.		Do, under 100-lb. lots	3.00
26% f.o.b. Monsanto,	lybdenum, lb. molyb.		chrome	\$4.00c	Molybdenum Oxide	
Tenn., 24% \$3 unitage	cont., f.o.b. mill.	0.80	Do, spot	\$9.00c	Briquets, 48-52% mo-	
Ferrochrome, 66-70 chro-	Ferro-carbon-titanium, 15-		88% chrome, contract.	\$3.00c	lybdenum, per pound	
mium, 4-6 carbon, cts.	18%, ti., 6-8% carb.,		Do, spot	\$8.00c	contained, f.o.b. pro-	
lb., contained cr., del.	carlots, contr., net ton.	\$142.50	Silicon Metal, 1% iron,		ducers' plant	\$0.00c
			contract, carlots, 2 x			

WAREHOUSE STEEL PRICES

Base Prices in Cents Per Pound, Delivered Locally, Subject to Prevailing Differentials

	Soft Bars	Bands	Hoops	Plates ½-in. & Over	Struc- tural Shapes	Floor Plates	Hot Rolled	Sheets— Cold Rolled	Galv. No. 24	Cold Rolled Strip	— Cold Drawn Bars — Carbon	SAE 2300	SAE 3100
Boston	3.98	4.16	5.16	3.85	3.85	5.66	3.81	4.78	4.86	3.46	4.13	8.63	7.23
New York (Met.)...	3.84	3.96	3.96	3.76	3.75	5.56	3.58	4.60	5.23	3.51	4.09	8.59	7.19
Philadelphia	3.85	3.85	4.35	3.55	3.55	5.25	3.55	4.55	4.93	3.51	4.06	8.56	7.16
Baltimore	3.95	4.05	4.45	3.70	3.70	5.25	3.55	....	5.05	....	4.05	....	....
Norfolk, Va.	4.15	4.25	....	3.90	3.90	5.45	3.75	....	5.40	....	4.15	....	....
Buffalo	3.35	3.82	3.82	3.62	3.40	6.40	4.20	4.40	4.50	3.42	3.75	8.15	6.75
Pittsburgh	3.35	3.60	3.60	3.40	3.40	5.00	3.35	....	4.75	3.35	3.65	8.35	6.95
Cleveland	3.25	3.50	3.50	3.40	3.58	5.18	3.35	4.05	4.72	3.20	3.75	8.15	6.75
Detroit	3.43	3.43	3.68	3.60	3.65	5.27	3.43	4.50	4.84	3.40	3.80	8.45	7.05
Cincinnati	3.60	3.67	3.67	3.65	3.68	5.28	3.42	4.37	4.67	3.45	4.00	8.50	7.10
Chicago	3.50	3.60	3.60	3.55	3.55	5.15	3.35	4.30	4.85	3.50	3.75	8.15	6.75
Twin Cities	3.75	3.85	3.85	3.80	3.80	5.40	3.60	4.95	5.00	3.83	4.34	8.84	7.44
Milwaukee	3.63	3.73	3.73	3.68	3.68	5.28	3.48	4.43	4.98	3.54	3.88	8.38	6.98
St. Louis	3.62	3.72	3.72	3.47	3.47	5.07	3.38	4.32	4.95	3.61	4.02	8.52	7.12
Kansas City	4.05	4.15	4.15	4.00	4.00	5.60	3.90	....	5.00	....	4.30	....	....
Memphis	3.90	4.00	4.00	3.95	3.95	5.71	3.85	....	5.25	....	4.31	....	....
Chattanooga	3.80	3.90	3.90	3.85	3.85	5.68	3.65	....	4.40	....	4.39	....	....
Tulsa, Okla.	4.44	4.54	4.54	4.33	4.33	5.93	4.24	....	5.71	....	4.69	....	....
Birmingham	3.50	3.70	3.70	3.55	3.55	5.88	3.43	....	4.75	....	4.43	....	....
New Orleans	4.00	4.10	4.10	3.80	3.80	5.75	3.85	....	4.80	5.00	4.60	....	....
Houston, Tex.	4.05	6.20	6.20	4.05	4.05	5.75	4.20	....	5.25	....	....	....	....
Seattle	4.00	4.00	5.35	3.40	3.50	5.75	3.95	6.50	4.75	....	5.75	....	....
Portland, Oreg.	4.25	4.50	6.10	4.00	4.00	5.75	3.95	6.50	4.75	....	5.75	....	....
Los Angeles	4.15	4.65	6.45	4.00	4.00	6.40	4.30	6.50	5.25	....	6.60	10.65	9.80
San Francisco	4.00	4.45	6.00	4.00	4.00	5.60	3.85	6.40	5.15	....	6.80	10.65	9.80

	—SAE Hot-rolled Bars (Unannealed)—				
	1035-1050	2300 Series	3100 Series	4100 Series	6100 Series
Boston	4.18	7.50	6.05	5.80	7.90
New York (Met.)...	4.04	7.35	5.90	5.65	....
Philadelphia	4.10	7.31	5.86	5.61	8.56
Baltimore	4.10	....	....	....	....
Norfolk, Va. ....	....	....	....	....	....
Buffalo	3.55	7.10	5.65	5.40	7.50
Pittsburgh	3.40	7.35	5.95	5.50	7.60
Cleveland	3.30	7.30	5.85	5.85	7.70
Detroit	3.48	7.42	5.97	5.72	7.19
Cincinnati	3.65	7.44	5.99	5.74	7.84
Chicago	3.70	7.10	5.65	5.40	7.50
Twin Cities	3.95	7.45	6.00	6.09	8.19
Milwaukee	3.83	7.33	5.88	5.63	7.73
St. Louis	3.82	7.47	6.02	5.77	7.87
Seattle	3.85	....	8.00	7.85	8.65
Portland, Oreg.	5.70	8.85	8.00	7.85	8.65
Los Angeles	4.80	9.40	8.55	8.40	9.05
San Francisco	5.00	9.65	8.80	8.65	9.30

BASE QUANTITIES

Soft Bars, Bands, Hoops, Plates, Shapes, Floor Plates, Hot Rolled Sheets and SAE 1035-1050 Bars: Base, 400-1999 pounds, except 0-1999 pounds (hot rolled sheets only) in New York; 300-1999 pounds in Los Angeles; 400-39,999 (hoops, 0-299) in San Francisco; 300-4999 pounds in Portland, Seattle; 400-14,999 pounds in Twin Cities; 400-3999 pounds in Birmingham.

Cold Rolled Sheets: Base, 400-1499 pounds in Chicago, Cincinnati, Cleveland, Detroit, New York, Kansas City and St. Louis; 450-3749 in Boston; 500-1499 in Buffalo; 1000-1999 in Philadelphia, Baltimore; 300-4999 in San Francisco, Portland; any quantity in Twin Cities; 300-1999 in Los Angeles.

Galvanized Sheets: Base, 0-1499 pounds in New York, 150-1499 pounds in Cleveland, Milwaukee, Pittsburgh, Baltimore, Norfolk; 150-1049 in Los Angeles; 300-4999 in Portland, Seattle, San Francisco; 450-3749 in Boston; 500-1499 in Birmingham, Buffalo, Chicago, Cincinnati, Detroit, St. Louis, Tulsa; 1500 and over in Chattanooga, Philadelphia; any quantity in Twin Cities; 750-1500 in Kansas City; 150 and over in Memphis.

Cold Rolled Strip: No base quantity; extras apply on lots of all size.

Cold Finished Bars: Base, 1500 pounds and over on carbon, except 0-299 in San Francisco, 1000 and over in Portland, Seattle; 1000 pounds and over on alloy, except 0-4999 in San Francisco.

SAE Hot Rolled Alloy Bars: Base, 1000 or 2000 pounds and over, except 0-4999, San Francisco; 0-1999, Portland, Seattle.

CURRENT IRON AND STEEL PRICES OF EUROPE

Dollars at Rates of Exchange, Jan. 11

Export Prices f.o.b. Port of Dispatch—

By Cable or Radio

Domestic Prices at Works or Furnace—

Last Reported

	British gross tons U. K. ports		Continental Channel or North Sea ports, gross tons		Fdy. pig iron, Si. 2.5.		French Francs		Belgian Francs		Reich \$&Mark		
	£ s d		Quoted in dollars at current value	**Quoted in gold pounds sterling £ s d	£ s d								
Foundry, 2.50-3.00 Si...	\$23.64	6 0 0	\$30.89	3 12 6	21.28	5 8 0 (a)	\$17.42	781	\$24.43	725	\$25.33	63	
Basic bessemer...			19.59	2 6 0	20.00	5 1 6 (a)			23.93	710	27.94 (b)	69.50	
Hematite, Phos. .03-.05	24.63	6 5 0			5.76	1 9 2	5.04	225	10.45	310	7.64	19	
Billets.....	\$29.06	7 7 6	\$31.95	3 15 0	33.00	8 7 6	25.36	1,132	28.98	860	38.79	96.50	
Wire rods, No. 5 gage..	44.82	11 7 6	60.71	7 2 6	Standard rails.....	1.79c	10 3 0	1.55c	1,545	2.06c	1,375	2.38c	132
					Merchant bars.....	2.25c	12 16 0††	1.43c	1,434	2.06c	1,375	1.98c	110
Standard rails.....	\$37.43	9 10 0	\$48.99	5 15 0	Structural shapes...	2.01c	11 8 0††	1.40c	1,395	2.06c	1,375	1.93c	107
Merchant bars.....	2.16c	12 5 0	2.97c	7 16 6	Plates, ½-in. or 5 mm.....	2.03c	11 10 6††	1.82c	1,815	2.42c	1,610	2.29c	127
Structural shapes.....	1.96c	11 2 6	2.92c	7 13 6	Sheets, black.....	2.84c	16 2 6‡	2.15c	2,154‡	2.85c	1,900‡	2.59c	144‡
Plates, ½ in. or 5 mm.	2.09c	11 17 6	3.75c	9 17 6	Sheets, galv., corr., 24 ga. or 0.5 mm.....	3.28c	18 12 6	2.85c	2,850	4.58c	3,050	6.66c	370
Sheets, black, 24 gage or 0.5 mm.....	2.75c	15 12 6	3.75c	9 17 6°	Plain wire.....	3.17c	18 0 0	2.00c	2,000	3.00c	2,000	3.11c	173
Sheets, gal., 24 ga., corr.	3.19c	18 2 6	4.70c	12 7 6	Bands and strips...	2.38c	13 11 0††	1.59c	1,588	2.18c	1,450	2.29c	127
Bands and strips.....	2.16c	12 5 0	2.81c	7 8 0									
Plain wire, base.....	3.43c	19 10 0	3.04c	8 0 0									
Galvanized wire, base...	4.09c	23 5 0	3.61c to 3.66c	9 10 to 9 12 6									
Wire nails, base.....			3.52c	9 3 0									
Tin plate, box 108 lbs.	\$ 6.21	1 11 6											
British ferro-manganese	\$100.00	delivered	Atlantic seaboard duty-paid.										

†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. 5s rebate to approved customers. (b) hematite. °Close annealed.
††Rebate of 15s on certain conditions.
**Gold pound sterling not quoted. \$\$\$Last prices, no current quotations.

†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. 5s rebate to approved customers. (b) hematite. °Close annealed. ††Rebate of 15s on certain conditions. **Gold pound sterling not quoted. \$\$\$Last prices, no current quotations.

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.	16.50-17.00
Bos. dock No. 1 exp.	15.00-15.50
New Eng. del. No. 1	15.50
Buffalo, No. 1	17.00-17.50
Buffalo, No. 2	15.00-15.50
Chicago, No. 1	16.50
Chicago, auto, no alloy	15.00-15.50
Chicago, No. 2 auto	13.00-13.50
Cincinnati dealers	14.00-14.50
Cleveland, No. 1	17.50-18.00
Cleveland, No. 2	16.50-17.00
Detroit, No. 1	†13.00-13.50
Detroit, No. 2	†12.00-12.50
Eastern Pa., No. 1	18.00-18.50
Eastern Pa., No. 2	17.00
Federal, Ill.	14.00-14.50
Granite City, R. R.	15.00-15.50
Granite City, No. 2	14.00-14.50
Los Angeles, No. 1	16.00-16.50
Los Angeles, No. 2	15.00-15.50
L. A., No. 1 f.a.s.	17.00-18.00
L. A., No. 2 f.a.s.	16.00-17.00
N. Y. dock No. 1 exp.	14.50
Pitts., No. 1 (R. R.)	19.50-20.00
Pittsburgh, No. 1	17.50-18.50
Pittsburgh, No. 2	16.50-17.00
St. Louis, R. R.	15.00-15.50
St. Louis, No. 2	13.75-14.25
San Francisco, No. 1	16.50-17.00
San Francisco, No. 2	15.50-16.00
Seattle, No. 1	14.50-15.50
Toronto, dlrs., No. 1	11.00
Valleys, No. 1	18.00-18.50

COMPRESSED SHEETS

Buffalo, new	15.00-15.50
Chicago, factory	15.50-16.00
Chicago, dealers	14.00-14.50
Cincinnati, dealers	13.50-14.00
Cleveland	17.00-17.50
Detroit	†13.75-14.25
E. Pa., new mat.	18.00-18.50
E. Pa., old mat.	14.50-15.00
Los Angeles	13.50-14.00
Pittsburgh	17.50-18.50
St. Louis	11.50-12.00
San Francisco	13.50-14.00
Valleys	17.50-18.00

BUNDLED SHEETS

Buffalo, No. 1	15.00-15.50
Buffalo, No. 2	13.00-13.50
Cleveland	13.50-14.00
Pittsburgh	16.50-17.00
St. Louis	10.00-10.50
Toronto, dealers	9.75

SHEET CLIPPINGS, LOOSE

Chicago	10.50-11.00
Cincinnati dealers	9.50-10.00
Detroit	†9.50-10.00
St. Louis	9.50-10.00
Toronto, dealers	9.00

BUSHELING

Birmingham, No. 1.	14.00
Buffalo, No. 1	15.00-15.50
Chicago, No. 1	15.00-15.50
Cincin., No. 1, deal.	11.50-12.00
Cincinnati, No. 2	5.00-5.50
Cleveland, No. 2	11.50-12.00
Detroit, No. 1, new	†12.50-13.00
Valleys, new, No. 1	17.00-17.50
Toronto, dealers	5.00-5.50

MACHINE TURNINGS (Long)

Birmingham	6.00
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Buffalo	10.00-10.50
Chicago	10.00-10.50
Cincinnati, dealers	6.50-7.00
Cleveland, no alloy	11.00-11.50
Detroit	†7.50-8.00
Eastern Pa.	12.00-12.50
Los Angeles	4.00-5.00
New York	†7.00-7.25
Pittsburgh	12.50-13.00
St. Louis	7.00-7.50
San Francisco	5.00
Toronto, dealers	6.50
Valleys	11.50-12.00

SHOVELING TURNINGS

Buffalo	13.50-14.00
Cleveland	12.00-12.50
Chicago	10.00-10.50
Chicago, spl. anal.	12.50-13.00
Detroit	†9.50-10.00
Pitts., alloy-free	14.00-14.50

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†6.00-6.25
Buffalo	11.00-11.50
Cincinnati, dealers	5.00-5.50
Cleveland	11.50-12.00
Eastern Pa.	11.50-12.00
Detroit	†7.50-8.00
New York	†7.00-7.50
Pittsburgh	12.00-12.50
Toronto, dealers	6.00

AXLE TURNINGS

Buffalo	17.00-17.50
Boston district	†9.50-10.00
Chicago, elec. fur.	16.00-16.50
East. Pa. elec. fur.	17.50-18.00
St. Louis	10.50-11.00
Toronto	6.00-6.50

CAST IRON BORINGS

Birmingham	8.50
Boston dist. chem.	†9.00-9.25
Buffalo	11.00-11.50
Chicago	9.50-10.00
Cincinnati, dealers	5.00-5.50
Cleveland	11.50-12.00
Detroit	†7.50-8.00
E. Pa., chemical	14.50-15.00
New York	†7.00-7.50
St. Louis	6.00-6.50
Toronto, dealers	6.00

RAILROAD SPECIALTIES

Chicago	18.25-18.75
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ANGLE BARS—STEEL

Chicago	18.50-19.00
St. Louis	16.00-16.50

SPRINGS

Buffalo	22.00-22.50
Chicago, coil	19.50-20.00
Chicago, leaf	17.50-18.00
Eastern Pa.	24.00
Pittsburgh	23.00-23.50
St. Louis	16.50-17.00

STEEL RAILS, SHORT

Birmingham	17.50-18.00
Buffalo	22.00-22.50
Chicago (3 ft.)	19.00-19.50
Chicago (2 ft.)	19.50-20.00
Cincinnati, dealers	20.50-21.00
Detroit	†20.50-21.00
Pitts., 3 ft. and less	23.00-23.50
St. Louis, 2 ft. & less	19.75-20.25

STEEL RAILS, SCRAP

Birmingham	15.50
Boston district	†14.00-14.50

Buffalo	17.50-18.00
Chicago	16.25-16.75
Cleveland	21.00-21.50
Pittsburgh	22.00-22.50
St. Louis	16.00-16.50
Seattle	18.00-18.50

FROGS, SWITCHES

Chicago	16.00-16.50
St. Louis, cut	15.50-16.00

ARCH BARS, TRANSOMS

St. Louis	16.50-17.00
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PIPE AND FLUES

Chicago, net	11.00-11.50
Cincinnati, dealers	11.00-11.50

RAILROAD GRATE BARS

Buffalo	12.00-12.50
Chicago, net	10.50-11.00
Cincinnati, dealers	9.00-9.50
Eastern Pa.	15.00
New York	†12.00-12.50
St. Louis	11.50-12.00

RAILROAD WROUGHT

Birmingham	15.00
Boston district	†9.50-10.00
Eastern Pa., No. 1	19.00-19.50
St. Louis, No. 1	11.00-11.50
St. Louis, No. 2	15.00-15.50

FORGE FLASHINGS

Boston district	†11.25-11.50
Buffalo	15.00-15.50
Cleveland	16.50-17.00
Detroit	†12.50-13.00
Pittsburgh	16.50-17.00

FORGE SCRAP

Boston district	†7.00
Chicago, heavy	19.00-19.50

LOW PHOSPHORUS

Cleveland, crops	22.50-23.00
Eastern Pa., crops	22.50-23.00
Pitts., billet, bloom, slab crops	24.50-25.00

LOW PHOS. PUNCHINGS

Buffalo	20.00-20.50
Chicago	19.00-19.50
Cleveland	19.00-19.50
Eastern Pa.	23.00-23.50
Pittsburgh	22.50-23.00
Seattle	15.00
Detroit	†14.00-14.50

RAILS FOR ROLLING

<i>5 feet and over</i>	
Birmingham	17.50
Boston	†15.75-16.00
Chicago	19.00-19.50
New York	†17.50-18.00
Eastern Pa.	21.50-22.00
St. Louis	18.00-18.50

STEEL CAR AXLES

Birmingham	19.00-20.00
Boston district	†16.00-16.50
Chicago, net	19.50-20.00
Eastern Pa.	23.00-23.50
St. Louis	20.00-20.50

LOCOMOTIVE TIRES

Chicago (cut)	19.00-19.50
St. Louis, No. 1	16.50-17.00

SHAFTING

Boston district	†18.50-18.75
New York	†18.00-18.50

Eastern Pa.	23.50-24.00
St. Louis, 1 1/4-3 1/4"	18.50-19.00

CAR WHEELS

Birmingham, iron	19.00-20.00
Boston dist., iron	†14.50-15.00
Buffalo, steel	21.50-22.00
Chicago, iron	17.00-17.50
Chicago, rolled steel	18.50-19.00
Cincin., iron, deal.	17.00-17.50
Eastern Pa., iron	20.00-20.50
Eastern Pa., steel	22.00-22.50
Pittsburgh, iron	19.50-20.00
Pittsburgh, steel	23.00-23.50
St. Louis, iron	18.00-18.50
St. Louis, steel	17.00-17.50

NO. 1 CAST SCRAP

Birmingham	16.00
Boston, No. 1 mach.	†15.00-15.25
N. Eng. del. No. 2	14.00-15.00
N. Eng. del. textile	18.25-18.75
Buffalo, cupola	17.50-18.00
Buffalo, mach.	18.00-18.50
Chicago, agri. net.	13.50-14.00
Chicago, auto net.	15.00-15.50
Chicago, railroad net	14.00-14.50
Chicago, mach. net.	14.50-15.00
Cincin., mach. deal.	16.50-17.00
Cleveland, mach.	20.00-21.00
Detroit, cupola, net.	†14.50-15.00
Eastern Pa., cupola	20.50-21.00
E. Pa., mixed yard.	15.50-16.00
Los Angeles	15.50-16.00
Pittsburgh, cupola	18.50-19.00
San Francisco	15.50-16.00
Seattle	16.00-16.50
St. Louis, breakable	14.00-14.50
St. Louis agri. mach.	17.25-17.75
St. L., No. 1 mach.	18.25-18.75
San Francisco	16.00-17.00
Toronto, No. 1, mach., net dealers	15.00

HEAVY CAST

Boston dist. break.	†15.00-16.00
New England, del.	15.50-16.00
Buffalo, break	15.00-15.50
Cleveland, break, net	15.25-15.75
Detroit, auto net.	†15.50-16.00
Detroit, break	†11.00-11.50
Eastern Pa.	18.00-18.50
Los Ang., auto, net.	14.50
New York break.	†14.50-15.00
Pittsburgh, break	16.00-16.50

STOVE PLATE

Birmingham	11.00
Boston district	†11.00-11.50
Buffalo	13.50-14.00
Chicago, net	9.50-10.00
Cincinnati, dealers	9.00-9.50
Detroit, net	†9.00-9.50
Eastern Pa.	15.00
New York, fdy.	13.00
St. Louis	11.00-11.50
Toronto dealers, net	11.00

MALLEABLE

Birmingham, R. R.	17.50
New England, del.	20.00-21.00
Buffalo	19.50-20.00
Chicago, R. R.	18.50-19.00
Cincin., agri., deal.	14.00-14.50
Cleveland, rail	22.50-23.00
Eastern Pa., R. R.	21.50-22.00
Los Angeles	12.50
Pittsburgh, rail	20.50-21.00
St. Louis, R. R.	16.50-17.00

Ores

Lake Superior Iron Ore

<i>Gross ton, 51 1/4 %</i>	
<i>Lower Lake Ports</i>	
Old range bessemer	\$5.25
Mesabi nonbessemer	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbessemer	5.10

Eastern Local Ore

<i>Cents, unit, del. E. Pa.</i>	
<i>Foundry and basic</i>	
56-63%, contract.	9.00-10.00

Foreign Ore

<i>(Prices nominal)</i>	
<i>Cents per unit, c.i.f. Atlantic</i>	
Manganiferous ore,	
45-55% Fe., 6-10% Mn.	14.00-15.00

Swedish low phos.	14.00
North African low phos.	14.00
Spanish, No. African basic, 50 to 60%	14.00
Chinese wolframite, short ton unit, duty paid	\$23.75-24.00
Scheelite, imp.	\$24.00-25.00
Chrome ore, 48% gross ton, c.i.f.	\$25.00-26.00

<i>Manganese Ore</i>	
<i>Including war risk but not duty, cents per unit cargo lots</i>	
Caucasian, 50-52%	48.00-50.00
So. African, 50-52%	48.00-50.00
Indian, 49-50%	nom.
Brazilian, 48-52%	46.00-48.00
Cuban, 50-51%, duty free	61.20
<i>Molybdenum</i>	
Sulphide conc., per lb., Mo. cont., mines	\$0.75

Sheets, Strip

Sheet & Strip Prices, Pages 80, 81

Pittsburgh — Although backlogs are shrinking somewhat, inquiries are expected shortly from automotive sources to swell the sheet and strip backlog. Considerable volume is expected, and already considerable pressure has been placed on prices in an effort to secure concessions. Some weakness has been reported, although thus far it has not spread generally.

Chicago—Sales of sheet and strip steel are light, largely due to heavy previous coverage by large consumers. Shipments continue heavy and the outlook is bright for sustained needs of the automotive industry, farm equipment and tractor manufacturers. Slight seasonal dips have been noted in requirements of some household appliance lines. Additional buying for first quarter is seen likely this week and later in the month, following complete recovery from recent seasonal and inventory factors.

Boston—Rhode Island closes Jan. 15 on 135 tons of narrow hot-rolled pickled and annealed strip, No. 23 gage, for 1941 automobile license tag stock. Cold strip mill production continues heavy. Incoming business has improved slightly. Hot strip deliveries are better. Sheet buying is light, jobber and consumer inventories being considerable in numerous instances and substantial tonnage yet to be shipped against orders placed last quarter.

New York—Sheet buyers are relying largely on stocks on hand and shipments against contracts for current needs, placing few orders. However, producers generally are in good position to withstand the present lull, as most have backlogs of four to six weeks on hot and cold-rolled sheets and more on some special lines. Deliveries on hot and cold-rolled sheets can be had in four to five weeks and in some instances earlier. Some eastern sellers can, if pressed, make shipment on hot-rolled sheets in two to three weeks.

Picatinny arsenal, New Jersey, has bought 105,500 feet of special grade narrow strip steel, part going to Mapes & Sprowl Steel Co., New York, at 4.84c, delivered, and the remainder to Faitoute Iron & Steel Co., Newark, N. J., at 6.10c.

Philadelphia—Deliveries are less extended with some producers offering shipments in three to four weeks, or even less where necessary. Specialties, such as electrical sheets, are obtainable more readily. Makers of stove stampings, radio and household equipment find specifi-

cations tapering. Automotive demand is fairly active. Prices are firm.

Buffalo—Heavy releases and a mild flow of fresh buying has put sheet and strip production back to the five-day week which prevailed before the holidays. Diversified manufacturing outlets continue to call for substantial tonnage and report inventory supplies are none too large. Order backlogs hold sufficient pending tonnage to assure brisk production through February.

St. Louis—Sheet and strip production has recovered to about the pre-holiday rate. Deliveries are shorter, some material being available within two to three weeks. Orders are below production, except in galvanized and enameling material.

Birmingham, Ala.—While currently maintained at somewhat above 90 per cent of capacity, some inclination to slacken is noted in sheets, particularly roofing. A backlog carried over from last year, however, is yet to be worked off.

Toronto, Ont.—Sheet production is maintained at capacity and two major Canadian producers are adding equipment to double output. New booking continues steady with mill orders now reported into next May, and additional contracts pending. New inquiries are appearing, some of which are on war order account, and it is understood there may be considerable overflow to mills in the United States before the end of this quarter. Prices on current orders will be made known at time of delivery.

Baltimore — Sheet requirements are being met largely by shipments against contracts, although buyers' stocks are now in better shape than since last summer. Mill deliveries on hot and cold-rolled sheets now average around four to five weeks. Alloy sheet deliveries continue much further extended.

Tin Plate

Tin Plate Prices, Page 80

Pittsburgh—Tin plate operations have slowed somewhat in the past week. Operations over the week are estimated at 74 per cent, off six points from last week. There will probably be a further decline before spring demand gets under way. This is the normally expected action during January, the only out-of-line factor being the spurt after the holidays.

Baltimore—Tin plate specifications are expected to expand within another fortnight or so. At present releases are light, but with the passing later in the month of the canners' convention in Chicago, at

which time container manufacturers will be better able to gage the outlook, releases for sanitary cans should begin to come in better volume, tin plate sellers believe.

Plates

Plate Prices, Page 80

Chicago — Plate demand holds well, oil equipment, tank and vessel construction and freight car building taking steady shipments. Seasonal influences are expected to bring larger volume shortly.

Boston—Plate demand is light and consumption aside from shipyard needs has not improved. Specifications by larger users are light. Boiler and structural shops continue to buy as needed in small lots. Deliveries are improving and prices are fairly steady at 2.10c, eastern Pennsylvania base.

New York—Plate buying still lags, with shipments of some eastern producers exceeding specifications by about 50 per cent. However, producers still have fairly good backlogs, with releases from car builders and shipyards lending particular support. An eastern producer has increased quantity differentials on floor plates, on quantities under 2500 pounds. Other sellers have not, at least so far, taken similar action.

Philadelphia—Miscellaneous business is slower following a spurt after the turn of the year, with backlogs lighter. Plates are in less demand than heavier material, due in large part to the fact that tank builders stocked heavily late last year. A bright spot is heavier releases for the Philadelphia and Brooklyn navy yards. It is believed a large part of railroad plate tonnage has been filled. Export demand is somewhat more active, especially from Holland and the Scandinavian countries.

Birmingham, Ala.—Plates are in consistent demand, not only for shipbuilding and railroad requirements, but for tank manufacturers. As in the case of sheets, some tonnage from last year is to be completed during first quarter.

Seattle — Large projects are lacking but shops report fair inquiry for boiler and tank jobs, involving small tonnages. Bids will be opened at Leavenworth, Wash., Jan. 23 for a water system improvement involving 13,000 feet of 10-inch, 10-gage steel pipe, tonnage unstated. Specifications will be out in February for a water system project at Cle Elum, Wash., calling for 5½ miles of 16-inch steel pipe.

San Francisco — Interest in the

plate market centers around outcome of the award for 12,000 tons for a 36 to 78-inch welded steel pipe line for the San Fernando valley distribution line, Los Angeles, on which Western Pipe & Steel Co. is low. Other inquiries and awards were for lots of less than 100 tons. Awards for the first week of the year totaled 380 tons, compared with 420 tons for the corresponding week a year ago.

Toronto, Ont.—Plate capacity has been booked solid to the end of May, according to local interests. Additional large orders are pending in connection with \$17,000,000 ship contracts to be awarded without delay by Canadian war supply board. It is stated that a large part of prospective new orders for plates will be covered in foreign markets, chiefly the United States and Great Britain.

Baltimore—New plate business is light, with current needs supplied largely from stock and by shipments against contracts, placed in some cases a couple of months ago. Tank and boiler consumption is fairly well sustained, but railroad requirements have slowed up and less ship work is noted. Ship repairs have been running light for some time.

One eastern Pennsylvania producer has increased quantity extras on floor plates. On lots from 2499 down to 1500 pounds, inclusive, an extra of 25 cents is quoted, 1499 to 500, 75 cents; and 499 and less, \$1.25. These compare respective with 10, 25 and 50 cents, as has been otherwise generally quoted. Whether other floor plate sellers will follow remains to be seen.

Plate Contracts Placed

350 tons, 24-inch water supply main for Bremerton, Wash., to Beall Pipe & Tank Co., Portland.

Plate Contracts Pending

12,000 tons, 36 to 78-inch welded steel pipe, San Fernando valley distributing system, Los Angeles; Western Pipe & Steel Co., San Francisco, low.

Unstated, 13,000 feet 10-inch, 10 gage water pipe for Leavenworth, Wash.; bids to Lou E. Hearst, city clerk, Jan. 23.

Unstated, 5½ miles 16-inch steel water pipe for Cle Elum, Wash.; bids expected in February; Parker & Hill, Seattle, engineers.

Semifinished

Semifinished Prices, Page 81

Pittsburgh—Semifinished tonnage is moving at a steady pace, and although there has been no new buying, backlogs have kept up fairly well. Releases continue active, with nonintegrated mills here running at

good rates. Some sellers here are inclined to be somewhat pessimistic for the outlook after Feb. 15, however, believing small mills will decide to let inventories run lower and hold off releases until second quarter conditions can be judged.

Bars

Bar Prices, Page 80

Boston—While buying of carbon steel bars is fair, there have been some instances of deferred shipments and scattered cancellations. This developed where jobbers in some cases became overstocked on certain sizes and the situation is not general. Improvement in alloy bar buying is more apparent. Most mills appear to be congested on small rounds and flats, carbon grades.

New York—While commercial bar orders have slowed, consumption continues fairly well sustained and deliveries are further extended than on most major products, ranging from four to five weeks, with alloy bars shipments extending much further. Machine tool specifications are said to be holding up particularly well. Bolt and nut requirements are less urgent, as business in this line has tapered rather rapidly this month.

Philadelphia—Demand continues fairly brisk and few makers can offer much delivery within four weeks, especially in smaller sizes. Frankford arsenal, Philadelphia, has awarded 810,000 feet of tungsten-chromium steel rods to Allegheny Ludlum Steel Corp., Bethlehem Steel Co., Carpenter Steel Co. and Crucible Steel Co. at 30 and 30½ cents per pound.

Birmingham, Ala.—Bar business is consistently encouraging, especially manufacturers' bars and concrete reinforcing. Not a great deal of tapering has been evident in this product.

Buffalo—Demand for bars is sustained, as many consumers continue to press for delivery. There is, however, a notable falling off in buying and production is paring heavy backlogs of orders. Mills report difficulty is entailed in filling buyers' demand for immediate shipment.

Toronto, Ont.—Bar booking is attracting little attention, but local interests look for sharp increase in demand before the end of the month. Inquiries are appearing which indicate booking to the end of March to equal or exceed that of closing quarter of 1939.

Baltimore—While bar buying has been exceptionally good, sellers ex-

pect a relatively quiet period. Jobbers, by far the largest buyers in this district, are fairly well stocked and, further, have substantial tonnage still due. Bolt and nut producers, perhaps the second largest bar buying group, are beginning to accumulate backlogs and with the outlook in demand for bolts and nuts for a while less promising, their bar requirements are less urgent.

Pipe

Pipe Prices, Page 81

Pittsburgh—National Tube Co. has been awarded 11,000 tons of 8 and 10-inch line pipe for Stanolind Pipe Line Co., subsidiary of Standard Oil Co. of Indiana, for a line of 145 miles from Ellis county, Kansas, to Washington, Kans.

Boston—Merchant steel pipe buying is slow due to a lull in building. Resale prices are mixed and some shading continues. Except for small lot purchases by the procurement division, Boston, cast pipe is moving slowly with improvement expected next month for spring needs.

Birmingham, Ala.—Pipe plants are on somewhat better schedule than during the holiday, although bookings are down considerably from previous weeks. Operations generally will average four days this month, it is anticipated.

Seattle—Inquiry for cast iron pipe is slow. Dealers anticipate no improvement for at least a month, as no important specifications are out at present. Leavenworth, Wash. has called bids Jan. 23 for about 20,000 feet of 4 to 10-inch cast iron alternates for transite. California-Oregon Power Co. plans installation of 5100 feet of 12-inch cast iron water pipe at Klamath Falls, Oreg.

San Francisco—The cast iron pipe market is quiet and all awards and inquiries are for lots under 100 tons. Less than 100 tons were booked, compared with 539 tons for the first week a year ago.

St. Louis—Shell Oil Co. has completed plans for construction of an 8-inch pipe line from its oil and gas leases in the Salem field in Illinois to Sandoval, Ill., where it will connect with the Illinois Pipe Line system, which conveys crude oil to Shell's Wood River refinery. The cost is estimated at \$150,000.

Steel Pipe Placed

11,000 tons, 8 and 10-inch, for 145-mile oil line in Kansas for Stanolind Pipe Line Co., to National Tube Co., Pittsburgh.

Cast Pipe Pending

400 tons, 12-inch for Klamath Falls, Oreg.; improvement proposed by California-Oregon Power Co., Grants Pass, Oreg.

Unstated, 20,000 feet 4 to 12-inch for Leavenworth, Wash., bids to Lou E. Hearst, city clerk, Jan. 23; Parker & Hill, Seattle, engineers.

Rails, Cars

Track Material Prices, Page 81

Railroad buying is at a low level after the fairly active condition late last year. Rolling of rail backlog will be under way shortly as season for track work approaches. Some small inquiries for rolling stock are coming out and arrangements for financing previous purchases are under way.

Interstate commerce commission has authorized the Northern Pacific to sell to RFC \$5,000,000 worth of equipment trust certificates to finance purchase of 2000 freight cars. Delaware, Lackawanna & Western has been authorized to sell to RFC \$3,100,000 worth of certificates to finance 1100 cars and Chicago, Rock Island & Pacific \$2,680,000 for 1000 cars and 10 diesel switchers. All this equipment has already been placed with builders.

J. G. Brill Co., Philadelphia, has received an order for 28 single motor 40-passenger trackless trolley coaches from the Indiana Service Corp., Fort Wayne, Ind., and five 40-passenger for Delaware Electric Power Co., Wilmington, Del.

Car Orders Placed

Pennsylvania-Reading Seashore Lines, 24 streamlined light-weight, 52-passenger street cars, for use of Atlantic City & Shore Line Railroad Co., Atlantic City, N. J., to J. G. Brill Co., Philadelphia.

Locomotives Pending

Houston Belt Terminal, Houston, Tex., one 660-horsepower diesel switching locomotive; bids asked.

Wire

Wire Prices, Page 81

Boston — Improvement in wire buying is most noticeable in merchant products, notably nails. An export inquiry includes 1000 tons of hob nails for France and close to 300 tons of wire nails for Panama, bids on the latter being in. Incoming volume for manufacturers' wire, spring wire and specialties improves slowly. Not enough new business has yet been placed to date to indicate the extent a re-

bound may be expected this quarter.

Birmingham, Ala.—Despite some inclination to ease from the high of several weeks ago, wire products, including all specifications, are in relatively good demand. Bookings since the turn of the year have been somewhat greater than expectations, and production is estimated unofficially at about 95 per cent.

Baltimore — Brisk specifications and well extended mill deliveries still

feature the manufacturers' wire market, particularly spring and stitching wires and wire rods. Stapling wire requirements will become seasonally more active shortly. Box band steel is moving briskly.

Ferroalloys

Ferroalloy Prices, Page 82

New York—While chrome alloy consumers are specifying lightly,



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Here's a most complete line of Worm Gear Speed Reducers with proved performance of long life records. There's a type and size for every speed reduction requirement.

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THE HORSBURGH & SCOTT CO.

GEARS AND SPEED REDUCERS

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having anticipated their present requirements last month before the price advance, the movement in ferromanganese is expanding slightly. Ferromanganese in carlots is holding at \$100, duty paid, eastern seaboard, and domestic spiegeleisen, 19 to 21 per cent, at \$32, Palmerston, Pa., and 26 to 28 per cent, at \$39.50.

Shapes

Structural Shape Prices, Page 80

Pittsburgh—Construction awards are fairly heavy and well diversified, representing a good volume of private business, largely from industrial expansion, and considerable public works.

In the latter classification, there are several new jobs connected with the military and naval expansion work. However, the bulk of the tonnage is highway construction, partially new but mainly new sections of large jobs now under way.

Chicago—Buying is light, regarded as a seasonal condition. Several projects calling for fairly large tonnages are pending, including 3800 tons for Central avenue viaduct, Chicago.

Boston—Of heavy steel products, structurals are slowest. Plain material prices are steady, and fabricated quotations continue mixed, but not tested on sizable inquiry. While a number of small industrial plant extensions are on the boards for construction this spring, few have reached the buying stage. Bridge needs are bolstered by a 660-ton span for Stonington, Conn. Fabricating shops in this district have small backlogs.

Philadelphia—Activity continues slow, reflecting seasonal influences. A large district shop has work for about six weeks. Mill deliveries are improving.

Buffalo—Grade crossing projects give most current activity, seven such jobs calling for about 3000 tons of shapes.

Seattle—Public works projects are furnishing most tonnage. Important construction is contemplated in the Pacific Northwest, scheduled for bids during the first quarter. Commercial Iron Works, Portland, is low at \$26,491 for furnishing butterfly valves for the Coulee dam, about 200 tons.

San Francisco—The structural market is active and outlook for first quarter is encouraging, as over 47,000 tons are pending. Awards aggregated 5169 tons, compared with 947 for the first week in 1939. The largest inquiry calls for 16,595 tons for the Pitt river

bridge on the Central valley project, California; bids Jan. 16. Bids open on Feb 8 for 1081 tons of sheet piling for the improvement of a portion of the Los Angeles river channel, Los Angeles.

Birmingham, Ala.—Due to some renewal of buying for government uses, particularly airplane hangars in Florida and steel for a navy project at Pensacola, shape output has shown some improvement since the first of the year, although still somewhat behind other specifications.

St. Louis—Interest in structurals centers chiefly in bridge work. Missouri and Oklahoma have such projects requiring about 5000 tons.

Baltimore—While local fabricators on an average have less than one month's work on hand, they are figuring on a fair amount of small, miscellaneous tonnage and regard first quarter outlook as more encouraging than they did a month ago.

Shape Contracts Placed

2500 tons, Esperson building, Houston, Tex., to Mosher Steel Co., Houston, Tex.

1750 tons, curb angles, department of purchase, New York, to Phoenix Iron Co., Philadelphia.

1660 tons, bridge near Redding, Shasta county, Calif., for state, to Columbia Steel Co., San Francisco.

1600 tons, additions to power plant, for Consolidated Gas-Electric Light & Power Co., Baltimore, to Bethlehem Steel Co., Bethlehem, Pa.

1400 tons, psychiatric patients' pavilion, Brooklyn, N. Y., for New York City, to Lehigh Structural Steel Co., Allentown, Pa.

725 tons, bridge, Stonington, Conn., to American Bridge Co., Pittsburgh, through A. I. Savin Construction Co., Hartford, Conn., contractor.

700 tons, shipping and warehouse building 79-C, for Aluminum Co. of America, Massena, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.

562 tons, auditorium and industrial laboratory, department of agriculture, Albany, Calif., to Bethlehem Steel Co., San Francisco.

539 tons, state highway bridge, Muscatine, Iowa, to American Bridge Co., Chicago.

481 tons, state highway project RC 4090,

Dutchess county, New York, to Bethlehem Steel Co., through John Arborio Inc., Poughkeepsie, N. Y., contractor.

410 tons, industrial laboratory unit and storage building, Peoria, Ill., for department of agriculture, to Joseph T. Ryerson & Son Inc., Chicago.

400 tons, building for Thompson-Diggs Co., Sacramento, Calif., to Palm Bridge & Iron Works, Sacramento, Calif.

350 tons, state highway project RC 4080, Erie county, New York, to Bethlehem Steel Co., Bethlehem, Pa.; Peter J. Knickenberg, Buffalo, general contractor.

350 tons, grade crossing elimination, Irving-Farnham, N. Y., New York Central, Nickel Plate and Pennsylvania railroads; to Bethlehem Steel Co., Buffalo.

350 tons, addition, Anaconda Copper Mining Co., Anaconda, Mont., to Worden Allen Co., Milwaukee.

300 tons, traffic separators, Chicago park district, Chicago, to Archer Iron Works, Chicago.

300 tons, midtown highway, midtown tunnel plaza, New York, to American Bridge Co., Pittsburgh.

266 tons, Balona creek bridge, Pacific street, Los Angeles, for city, to Columbia Steel Co., San Francisco.

260 tons, extension to building 210, for Aluminum Co. of America, Arnold, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

255 tons, fuse loading plant, Washington, to Dietrich Bros., Baltimore.

225 tons, extension to mill building, for Chapman Valve Mfg. Co., Indian Orchard, Mass., to Haarmann Steel Co., Holyoke, Mass.

200 tons, grade crossing elimination, Germania, N. Y., for state, to Bethlehem Steel Co., Bethlehem, Pa.

180 tons, state bridge 1873, Cedarville, Ind., to Midland Structural Steel Co., Cicero, Ill.

175 tons, two bridges, route 7, section FFX, Channahon, Ill., for state, to Bethlehem Steel Co., Bethlehem, Pa.

170 tons, steam plant, Glendale, Calif., to Pennsylvania Iron & Steel Co., Los Angeles.

160 tons, state bridge, route 4-A, section 46-SF-2, Chicago, to Bethlehem Steel Co., Bethlehem, Pa.

155 tons, state bridge over Millers river, Orange, Mass., to Bethlehem Steel Co., Bethlehem, Pa.

135 tons, plant addition, American Zirconium Co., Dundalk, Md., to Dietrich Bros., Baltimore.

120 tons, extension to building 177, Washington, for United States navy, to Barber & Ross, Washington.

120 tons, bridge FAGH-M48, Bosque, Texas, to Central Texas Iron Works, Waco, Tex.

110 tons, steel sheet piling, jetty, Deal, N. J., to Carnegie-Illinois Steel Corp., Pittsburgh.

105 tons, bridge, Licking county, Ohio, to Burger Iron Co., Akron, O.

Unstated tonnage, gymnasium, welfare and school buildings, naval air station, Pensacola, Fla., to Ingalls Iron Works, Birmingham, Ala.; Virginia Steel Co., Birmingham, awarded reinforcing steel; Batson-Cook Co., West Point, Ga., contractor.

Shape Contracts Pending

3800 tons, Central avenue viaduct over Milwaukee railroad tracks, Chicago; bids Jan. 17.

2400 tons, nine highway bridges for Oklahoma; bids Feb. 6.

1600 tons, state buildings 60 and 61.

Shape Awards Compared

	Tons
Week ended Jan. 13	17,013
Week ended Jan. 6	12,021
Week ended Dec. 30	14,777
This week, 1939	27,885
Weekly average, year, 1940	14,517
Weekly average, 1939	22,411
Weekly average, December	18,393
Total, to date, 1939	70,743
Total, to date, 1940	29,034
Includes awards of 100 tons or more.	

Willowbrook, N. Y.
 1500 tons, highway bridge over Meramec river between St. Louis and Jefferson counties, Missouri; Massman Construction Co., Kansas City, Mo., low.
 1300 tons, eight bridges, state of Illinois letting Jan. 19; largest bridge, Edwards county, 734 tons; two others over 100 tons, four under.
 1250 tons, general assembly shop, Philadelphia navy yard; bids Jan. 17.
 1200 tons, materials assembly shop, Philadelphia, for United States navy.
 1081 tons, sheet piling, improvement Los Angeles river between Downey road and Randolph street, Los Angeles; bids Feb. 8.
 1000 tons, cranes, Brooklyn, N. Y., Philadelphia, and Norfolk, Va., for United States navy.
 900 tons, wind tunnel and power building, Wright field, Dayton, O.; bids Jan. 27.
 900 tons, grade separations, Winnetka, Ill., for state.
 529 tons, Forty-sixth avenue underpass, Denver, Colo.
 441 tons, railroad undercrossing, Adams and Denver counties, Colo., for state; bids opened.
 295 tons, switch structure, Bonneville power house, Washington; bids to United States engineer, Jan. 30.
 250 tons, hangar and office building, United Air Lines Transport Co., Portland, Oreg.; bids Jan. 16.
 250 tons, store, S. S. Kresge Co., Philadelphia.
 230 tons, addition to building, for Kennebec Pulp & Paper Co., Augusta, Me.
 220 tons, underpass, East Ninth street, Cleveland, for city.
 200 tons, butterfly valves for Coulee dam; Commercial Iron Works, Portland, Oreg., low.
 173 tons, overcrossing, Weed, Siskiyou county, Calif., for state; Judson-Pacific Co., San Francisco, low.
 170 tons, extension to hammer shop, for Midvale Co., Philadelphia.
 150 tons, bridge 448, Quarry, Iowa, for Chicago & North Western railway.
 150 tons, grandstand, Dumore, Pa., high school.
 140 tons, bridge 415, Montour, Iowa, for Chicago & North Western railway.
 125 tons, school gymnasium, Abington, Pa.; bids Jan. 16.
 120 tons, bridge steel, hoists, etc., Roza project, Washington; bids at Yakima, Wash., Jan. 26; material furnished by bureau.
 110 tons, mill building, for St. Regis Paper Co., Deferiet, N. Y.
 110 tons, Safeway Store, San Francisco; bids in.

tained on all jobs and locally there has been no sign of lower prices.

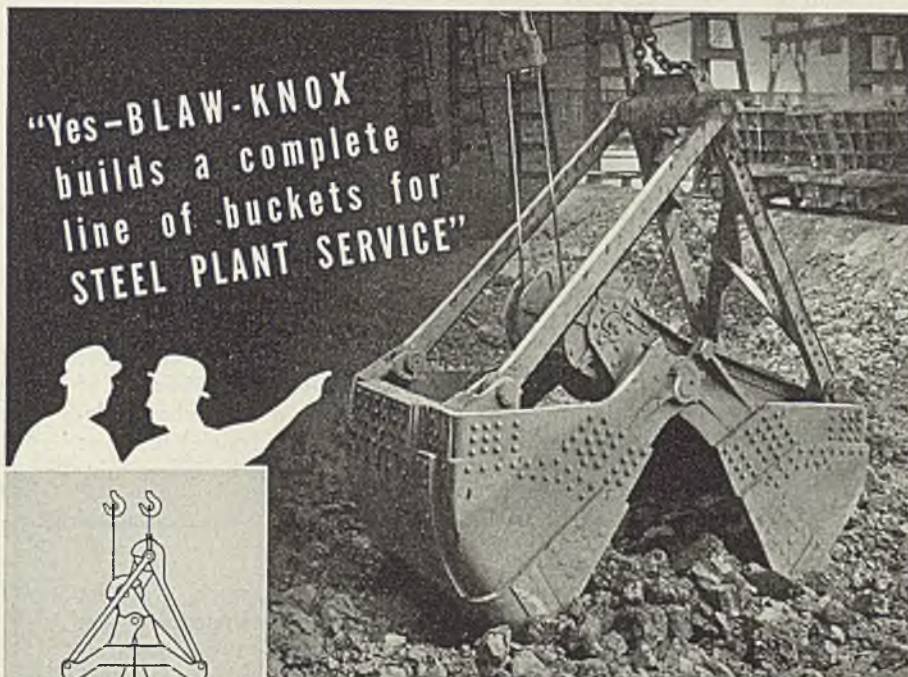
Chicago—Increased demand for reinforcing bars is appearing in preparations for spring construction, most in small lots, but some for larger tonnages. Public works continue to predominate but private projects show an increased proportion.

Boston—Housing projects account for most reinforcing steel buying. Bridge needs are estimated at less than 300 tons. Most current orders have been under 50 tons each. Some

price weakness crops out from time to time.

Philadelphia—A fair amount of public work is due later this month, including Pennsylvania turnpike sections. Sweets' Steel Co., Williamsport, Pa., has booked an Atlantic City housing job. Private work is slow. Prices are fairly steady.

Seattle—Rolling mill backlogs are being reduced, with no heavy new tonnages in sight. Pending business is small. Important projects are scheduled for action soon include the Kettle Falls, Wash.,



"This 2-line hook-on bucket, used where 2 hook blocks are available, is especially advantageous because:

It is a simple, rugged design having few parts—maintenance expense is low.

It is very easy for the crane operator to handle in picking up and discharging loads."

Blaw-Knox can meet your exacting requirements in bucket design. Send us your specification without obligation.

Reinforcing

Reinforcing Bar Prices, Page 81

Pittsburgh—Prices on contracts involving concrete bars have weakened in some sections, although volume is still good. Thus far the weakness has been confined largely to the Middle West, but there are indications that other sections may see lower prices shortly. Eastern sellers report full prices being ob-

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 and
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BUCKETS

Behind the Scenes with STEEL

Hot Dogs' Tale

■ From the *Copco Operator* comes the story of a man who lived by the side of the road and sold hot dogs. He was hard of hearing, so he had no radio. He had trouble with his eyes, so he read no newspapers. But he sold good hot dogs and put signs up on the highway telling people so. And people bought. He increased his meat and bun order. He bought a bigger stove, to take care of his trade. He finally got his son home from college to help him. But then something happened. His son said: "Father, haven't you been listening to the radio? Haven't you read the newspapers? There's a big depression on. The European situation is terrible. The domestic situation is worse. Everything is going to pot." Whereupon the father thought, "He's been to college, he reads the papers, he listens to the radio—he ought to know." So the father cut down his meat and bun orders, he took down his advertising signs. He no longer bothered to stand out on the highway and sell his hot dogs. And his sales fell off almost over night. "You're right, son," said the father to the boy, "We certainly are in the middle of a great depression!"

Ever Think Of It?

■ One of the nicest gestures we've seen in a long time is the attractive New Year's card sent to the peddlers who call on the Clark Equipment Co. thanking them "for all the weary hours and miles used in the past year to tell us how you could help us improve our product."

Sensitive Nose

■ As a one-time core-maker between high school and college, we still have a strange love for the smell of a foundry. Why we should also like the peculiar odor of printers' ink, the Lawd only knows. At any rate this week's front cover by the progressive American Foundrymen's association combines a whiff of both. But please don't misun-

derstand—we do not think it smells bad—far from it. On the contrary it is quite refreshing to see an association do a real job for its industry. You know, there are 5233 foundries in the U. S. and Canada and when these are considered along with their allied industries, it makes a whale of a market for all kinds of equipment.

Keerect

■ The winner of last week's cocoanut problem, Milton Male, of U. S. Steel Corp. says Mr. Heffner submitted a cinch. No trial and error engineer is Mr. Male. He dished up a very lovely-looking formula and the correct answer of 3121. Very graciously, however, he refused the personal copy of the Yearbook, already having one, and so the prize goes to T. E. Hlavac of Ingalls Iron Works whose telegram (paid in advance) just beat out several letters by a few minutes.

Whatsit?

■ And so this week, we'll let you chew over something that your secretary or office boy may get before you do. A sharp pair of eyes and a flexible imagination will do you far more good than a slide rule or mathematical genius. Below is reproduced a picture that is quite clear once you see the subject. Until



then we promise you several minutes of complete bewilderment. Just to make it a little more fun, we won't say the picture is right side up now or not. You decide. Two minutes is good time.

SHRDLU

—The Market Week—

state bridge, the Seattle naval reserve armory and a grain elevator at Longview, Wash. A. W. Quist, Seattle, is low for a quay wall at Puget Sound navy yard involving 130 tons.

San Francisco—While awards were not heavy more than 17,000 tons are pending. During the first week of the year 1710 tons were placed, compared with 3961 tons for the corresponding period in 1939.

Reinforcing Steel Awards

2600 tons, Terrace Village housing, Pittsburgh, to Truscon Steel Co., Youngstown, O.; Hunkin-Conkey Co., contractor.

1300 tons, Friant dam, Central valley project, California, to Colorado Fuel & Iron Corp., Denver.

700 tons, Sunset Hill housing, Fall River, Mass., to Joseph T. Ryerson & Son Inc., Chicago; M. Spinelli & Sons, contractor.

600 tons, Jonathan Pitney housing, Atlantic City, N. J., to Sweets Steel Co., Williamsport, Pa.; John McShain Co., contractor.

480 tons, state highway project RC 4090, Dutchess county, New York, to Fireproof Products Co., through John Arborio Inc., Poughkeepsie, N. Y., contractor.

390 tons, ventilating building, Allegheny mountain tunnel, Somerset county, Pennsylvania turnpike commission, to Bethlehem Steel Co., Bethlehem, Pa.; Ritter Bros., contractor.

305 tons, Campbell Village housing project, Oakland, Calif., to Gilmore Fabricators Inc., San Francisco.

227 tons, bureau of reclamation, invitation B-38,075-A, Odair, Wash., to Sheffield Steel Corp., Kansas City, Mo.

186 tons, state highway bridge and paving, Summit, Ill., to Ceco Steel Products Corp., Chicago.

172 tons, sewage disposal plant, Quincy, Ill., to Ceco Steel Products Corp., Chicago.

166 tons, bureau of reclamation, invitation B-38,064-A, Leavenworth, Wash., to Sheffield Steel Corp., Kansas City, Mo.

163 tons, building No. 148, Rath Packing Co., Waterloo, Iowa, to Ceco Steel Products Corp., Chicago.

161 tons, industrial laboratory and auditorium, department of agriculture, Albany, Calif., to Ceco Steel Products Corp., San Francisco.

150 tons, pumping station, Central avenue, Chicago, to A. M. Castle & Co., Chicago.

Concrete Bars Compared

	Tons
Week ended Jan. 13	8,125
Week ended Jan. 6	12,149
Week ended Dec. 30	4,790
This week, 1939	15,290
Weekly average, year, 1940	10,187
Weekly average, 1939	9,197
Weekly average, December	4,600
Total to date, 1939	16,350
Total to date, 1940	20,274

Includes awards of 100 tons or more.

- 120 tons, plant, Electric Boat Co., Bayonne, N. J., to Faltoute Iron & Steel Co., Newark, N. J.; Austin Co., contractor.
- 105 tons, Balona creek bridge, Pacific street, Los Angeles, to Columbia Steel Co., San Francisco.
- 100 tons, sanitation dump and ramps, New York, to Bethlehem Steel Co., Bethlehem, Pa.; P. T. Cox Construction Co., contractor.
- 100 tons, naval hangar, Pensacola, Fla., to Ceco Steel Products Corp., Birmingham; Standard Construction Co., Columbia, Ga., contractor.
- 100 tons, highway project RC 4086, Broome county, New York, to Bethlehem Steel Co., Bethlehem, Pa.; Warren Bros. Roads Co., Cambridge, Mass., contractor.

Reinforcing Steel Pending

- 2000 tons, Fairhaven housing, Buffalo; Boehm Bros., contractors.
- 770 tons, improvement Los Angeles river, between Downey road and Randolph street, Los Angeles; bids Feb. 8.
- 600 tons, flood wall, army engineers, Ironton, O.; bids Jan. 31.
- 522 tons, crossing at Highland avenue and Cahuenga boulevard and Pilgrimage avenue bridge, Los Angeles; bids Jan. 17.
- 500 tons, 600-man barracks, invitation 6812-40-60, Hickam Field, T. H.; bids Jan. 16.
- 500 tons, housing project, South Norwalk, Conn.; bids Jan. 12.
- 400 tons, highway bridge over Meramec river between St. Louis and Jefferson counties, Missouri; Massman Construction Co., Kansas City, Mo., low.
- 379 tons, route S41, sections 2A and 3A, New Jersey state highway; S. J. Groves & Sons, Ridgefield, N. J., low on general contract.
- 350 tons, grade separation, Winnetka, Ill.
- 250 tons, section 5-P-3, Pennsylvania turnpike, Westmoreland county, Pennsylvania; bids Jan. 12.
- 240 tons, city of Cincinnati; bids Jan. 16.
- 238 tons, grade elimination, Orange county, New York.
- 221 tons, railroad undercrossing, Adams and Denver counties, Colo., for state; bids opened.
- 200 tons, boys' dormitory, Ypsilanti, Mich.
- 199 tons, air corps technical school and hangar, Chanute Field, Rantoul, Ill., T. S. Willis, Janesville, Wis., contractor.
- 135 tons, unit of Roza dam, Washington state; bids at Yakima, Wash., Jan. 26; materials by reclamation bureau.
- Unstated tonnage, women's gymnasium, Iowa state college, Ames, Iowa.
- Unstated tonnage, nursing school and addition, St. Mary's hospital, Wausau, Wis.

Pig Iron

Pig Iron Prices, Page 82

Chicago—January shipments may be 10 to 15 per cent below December. Releases improved last week, but not as much as expected. Buying is light, but a fairly substantial tonnage is yet to be bought this quarter, sellers estimate. Coke shipments so far this month are on a

par with those of the like period in December.

Boston—Pig iron buying continues light, but specifications against orders are well maintained. While there has been a slight decline, foundry melt in general is holding to the recent high rate, notably with shops supplying the machine tool trade. Foundry coke shipments are behind December rate, but well ahead of January last year.

New York—Foundry melt is improving somewhat, following close of inventory season, but little buying of pig iron is expected before another month, as consumers have fair stocks on hand or under contract. Export business continues spotty, one eastern seller recently booking 1000 tons for shipment to Sweden.

Philadelphia—A large tonnage is still due against contracts placed in September. No specifications have been made against some contracts for as much as 1000 tons. As a result first quarter buying may be light. Coke shipments indicate a slower rate of melt this month. It is reported Colonial furnace will be operated by New York and Charleston, W. Va., interests.

Buffalo—Shipping orders are be-

ing received in volume sufficient to maintain present production. Decline in buying results from heavy bookings for first quarter. Current buying is diversified, some consumers taking tonnage in what usually is a slack season for their products. Jobbing foundries generally continue at five days a week.

Cincinnati—Pig iron buying is being delayed by consumer stocks and tonnage on contract. Current sales are small but further covering is expected this month. Melt is steady at the rate of several weeks past. Shipments are steady. Machine tool castings and automotive work are important outlets.

St. Louis—Seasonal factors have retarded foundry operations, with no general upturn looked for until the end of January. However, shipments are fair, despite some requests for delayed deliveries. Considerable iron still is due against old contracts, but consumer stocks in numerous instances are light.

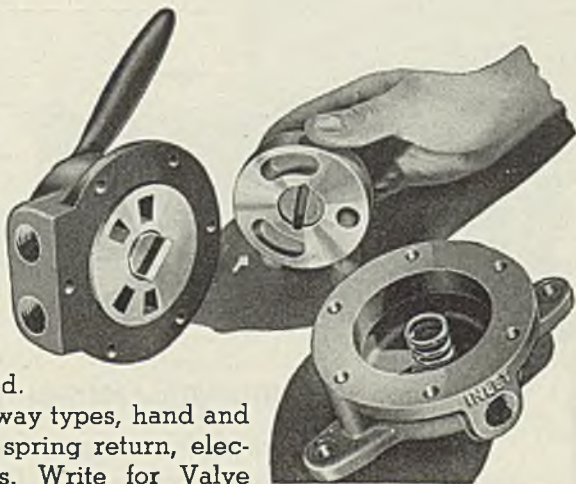
Birmingham, Ala.—No easing is evident in pig iron production, all blast furnaces remaining active.

Toronto, Ont.—Sales continue light, principally from small melters, in lots up to 200 tons. Forward delivery booking is slow, due to large stocks in hands of most

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AIR CONTROL

melting, who placed contracts last quarter for iron greatly in excess of needs. The daily melt is holding steady around 70 per cent.

Scrap

Scrap Prices, Page 84

Pittsburgh—Prices are unchanged, with the market quiet. Little trading occurred during the past week.

Cleveland—Buying is practically absent, with some shipments of lighter grades. Melting show no interest. Prices are steady and largely nominal.

Chicago—Prices are stronger, several grades being up 50 cents. No. 1 steel now is quoted a flat \$16.50, this figure prevailing on mill purchases and dealer-broker transactions. Mill demand has been slightly heavier, and the trade is inclined to the belief prices have touched bottom for the present.

Boston—Prices are steady for domestic scrap deliveries and buying is light. Due to lack of shipping, brokers have lowered prices for heavy melting steel grades for dock delivery and not much tonnage is being bought.

New York—Steel and iron scrap continues dull. While some eastern mills are taking moderate shipments against contracts others have held up shipments. Foundries are buying on hand-to-mouth basis. Prices generally are unchanged with the downward trend less in evidence. Due to

lack of shipping the export movement has been curtailed but more loading is expected during the next three weeks.

Philadelphia — Consumers show little interest in additional tonnage at present prices. Some shipping holdups are reported but movement against contracts is generally free. Great Britain is reported inquiring for 60,000 tons of No. 1 heavy melting steel.

Buffalo — Demand is marking time, but sentiment has been bolstered by lifting of an embargo on shipments which had been in effect at a leading mill for about three weeks. Prices are nominal to a large extent. No. 1 steel holding at \$17 to \$17.50.

Detroit—Hiatus in scrap market activities caused by the institute convention in Pittsburgh came at an appropriate time, as current business continues to lag. Dealers are selling their accumulations, but mills still show scant interest in acquiring tonnage. Prices continue static, with opinion mixed as to probable immediate trends.

Cincinnati—Prices are steady in an inactive market. Consumers have sufficient for current needs and are not interested. Dealers believe prices have reached bottom and are holding supplies for the buying movement believed imminent.

St. Louis—Snow has virtually halted movement of scrap to all destinations. This, coupled with expectations of revival in buying toward the end of this month, has served to create a firmer feeling

and fractional advances on several grades.

At the moment, however, about the only trading has been in steel specialties in small lots. Quotations are largely nominal in absence of actual test sales.

Seattle — The market continues upset, due to trade negotiations between this country and Japan. Indications have come from Washington that pending signing of a new treaty commercial relations may be continued as before. However, in view of the uncertainty, exporting houses are making every effort to have commitments aboard ship before Jan. 26. Movement in the last 30 days has been heavy, although handicapped by lack of prompt steamer space. Because of conditions, firm prices are not obtainable. Rolling mills are out of the market until February and other domestic buyers are not active.

Toronto, Ont.—Trading in iron and steel scrap is beginning to show improvement and local dealers state that mills are showing keen interest in heavy melting steel, while electric furnace operators are more active in the market for low-phos steel, turnings and cast borings. Foundries are taking cast scrap in small lots. Forward delivery contracts are increasing and some dealers report backlogs covering delivery to the end of March. Prices are steady at recently revised levels.

San Francisco — Pacific coast mills are buying a fair amount of No. 1 heavy melting steel at \$16.00 to \$16.50. Some of the Japanese interests have come into the market again and four ships are now being loaded at Los Angeles, while f.a.s. quotations hold at \$17.00 to \$17.50 a ton for No. 1 heavy melting steel. Dealers' buying prices are quoted at \$13.50 to \$14.00 for unprepared material.

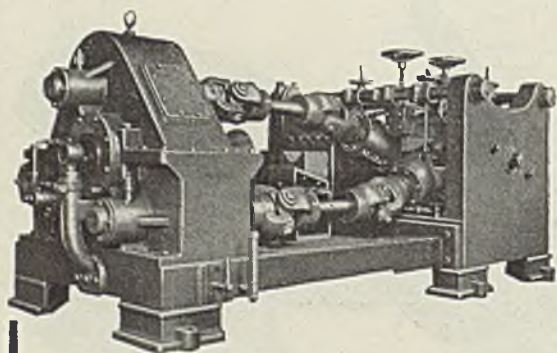
Warehouse

Warehouse Prices, Page 83

Chicago—An upturn is apparent in buying from warehouse after the holiday and inventory periods. Bar and sheet demand is expected to show a gain as mills find themselves unable to give delivery. Demand is well spread, with structurals lagging.

Boston—Warehouse volume is brisk. The number of orders is impressive and demand is well diversified. Alloys are especially active. Prices are firm.

Philadelphia — Galvanized sheets in ten bundle lots for Philadelphia delivery now are quoted at 4.75c, against 4.93c, recently. For outside



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delivery the price of 4.35c, Sparrows Point, Md., is quoted. Buying is slow so far this month but not below seasonal levels.

Buffalo—Warehouse distributors report sales at favorable level. The rebound after the holiday fulfilled expectations. Sellers also report heavier sales than in December and the early part of January, 1940.

Warehouse sellers have followed the move of other areas and increased quantity extras on hot and cold-rolled alloy bars.

Cincinnati—Buying from stock is seasonally good, though slightly under December rate. Some industrial needs are being filled from stock as mills continue behind in deliveries.

St. Louis—Severe weather has served to retard business, with inventory-taking also an adverse factor. The outlook is regarded as hopeful.

Seattle—The year opened with strong demand, sheets, bars, shapes and plates leading. This is attributed to placing of orders delayed over the holidays.

Baltimore—Jobbers experienced good business through the holiday period and well sustained trading so far this month. There was some slowing up in December, a tapering from October, which was the best month of the year for warehouses here.

Steel in Europe

Foreign Steel Prices, Page 83

London—(By Cable)—Production of iron and steel in Great Britain has been intensified and mills are booked several months ahead, mainly on government orders. Shipyards are fully occupied. Commercial users are able to obtain some tonnage under government license. Light foundries are least busy, owing to dullness in the building trades. Efforts are being made to increase the allowance for steel exports. The ore situation is improving but semifinished steel on hand is barely sufficient to last until Continental deliveries can be increased.

Belgium and Luxemburg report strong demand in export markets with slightly more tonnage available.

Equipment

Boston—Harnischfeger Corp., Milwaukee, has been awarded the contract for bridge cranes at the Boston and Norfolk, Va., navy yards at \$68,810. Machine tools orders

continue to be booked at a brisk rate by New England shops with full production schedules operative in most instances. While extended deliveries have tended to delay orders from some industries, the slack is taken up in other directions, notably by aircraft builders and government shops. Large lists continue to appear for the Springfield, Mass., armory.

Washington—Department of interior announces award to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., of 6000-kilovolt-ampere generator for Minidoka dam power project in Idaho, and a 7000-horsepower turbine and generator for the same project to Baldwin-Southwark Corp., Philadelphia.

Seattle—Alaska gold mining firms are anticipating their season's requirements, two 100-ton bucket dredges having been awarded to the Washington Iron Works, Seattle, which is also constructing a 500-horsepower reversible diesel marine engine. Demand for marine diesels is below normal due to unfavorable conditions in the fishing industry. Railway & Industrial Engineering Co., Greensburg, Pa., is low at \$63,802 to Bonneville authority for furnishing disconnecting switches. Same office will receive bids Feb. 1 for 234,700 feet of insulated wire cable for Ampere station; Feb. 2 for one 400-ampere and three 2000-ampere disconnecting switches and Jan. 11 for 6000 feet of wire rope.

More Pig Tin Bought

Washington—C. S. Trench & Co. Inc., New York, has been awarded contract for 1,000,000 pounds of pig tin under the strategic materials act, by the procurement division. The price was 45.96 cents per pound for Straits trading tin or E. S. Coy Penang tin. Delivery has been guaranteed within six months of the contract date. The Trench bid was lowest of five.

Nonferrous Metals

New York—Since buying was light and prices were steady in nonferrous metal markets last week, chief interest centered in pending developments. Temporary National Economic committee opens hearings Monday, Jan. 15, on the copper industry and is expected to bring out testimony of interest to the entire trade. Domestic copper statistics, covering all of 1939, are expected to be released within a few days after a lapse of five months.

Copper—Deliveries continue excellent with some producers reporting

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requests for shipment ahead of original schedules. Fresh demand remained light, however, with prices firm at 12.50c, Connecticut, for electrolytic.

Lead—Sales improved during the latter half of the week but the total week's turnover was relatively small. Price sentiment was bolstered by the report that total stocks have declined to a new 10-year low. The market held at 5.35c, East St. Louis.

Zinc — Consumers continue to show little buying interest in the

prime western market at 5.75c, East St. Louis. The situation has been helped by the curtailment of production in the Tri-State ore district due to cold weather.

Tin—Consumer demand remained only moderate but the treasury bought an additional 500 tons at a net price of 45.73c. The market fluctuated within $\frac{1}{4}$ -cent of the previous week's closing level of 47.50c.

Investment of \$10,000 Behind Each Steel Job

■ The initial investment required to establish a job is financed largely by those who have invested their money in the industry's stocks and bonds. Funds for maintaining the job come from the sale of products to the customers of the industry.

By far the largest item in the total investment required to establish a job in the steel industry is the average investment of \$7300 per employee represented by the industry's raw

material properties and its plant, real estate, buildings, machinery and other equipment.

The cost of establishing inventories of raw materials and supplies to keep the job going and of carrying finished goods averages \$1800 more per job.

The remaining \$900 required represents the amount of ready cash and reserves needed to finance operations between the time that finished goods are produced and the time that payments are received.

Receipts from the sale of products, augmented in unprofitable years by withdrawals from accumulated surplus, provide funds for financing day-to-day operations.

Over the past five years, an average of \$4500 per employee has been spent annually by the industry to meet payrolls, pay taxes, freight and interest charges, maintain the flow of raw materials, buy new equipment and tools and keep the plant and equipment in good running order.



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GARAGE IN CONNECTION

Nonferrous Metal Prices

	Electro, del. Conn.	Copper Lake, del. Midwest	Casting, refinery	Straits Tin New York Spot	Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Alumi- num 99%	Anti- mony Amer. Spot, N.Y.	Nickel Cath- odes
Jan.											
6	12.50	12.50	12.12 $\frac{1}{2}$	47.50	45.75	5.50	5.35	5.75	20.00	14.00	35.00
8	12.50	12.50	12.12 $\frac{1}{2}$	47.87 $\frac{1}{2}$	46.00	5.50	5.35	5.75	20.00	14.00	35.00
9	12.50	12.50	12.12 $\frac{1}{2}$	48.25	46.62 $\frac{1}{2}$	5.50	5.35	5.75	20.00	14.00	35.00
10	12.50	12.50	12.12 $\frac{1}{2}$	47.87 $\frac{1}{2}$	46.25	5.50	5.35	5.75	20.00	14.00	35.00
11	12.50	12.50	12.12 $\frac{1}{2}$	47.50	45.87 $\frac{1}{2}$	5.50	5.35	5.75	20.00	14.00	35.00
12	12.50	12.50	12.12 $\frac{1}{2}$	47.25	45.62 $\frac{1}{2}$	5.50	5.35	5.75	20.00	14.00	35.00

*Nominal.

MILL PRODUCTS

F.o.b. mill base, cents per lb., except as specified. Copper brass products based on 12.50c Conn. copper

Sheets	
Yellow brass (high)	19.31
Copper, hot rolled	21.12
Lead, cut to jobbers	8.75
Zinc, 100 lb. base	11.00c

Tubes	
High yellow brass	22.06
Seamless copper	21.62

Rods	
High yellow brass	15.23
Copper, hot rolled	17.62

Anodes	
Copper, untrimmed	18.37

Wire	
Yellow brass (high)	19.56

OLD METALS

Nom. Dealers' Buying Prices

No. 1 Composition Red Brass	
New York	8.37 $\frac{1}{2}$ -8.50
Cleveland	8.75-9.00
Chicago	8.75-9.00
St. Louis	8.25-8.50

Heavy Copper and Wire	
New York, No. 1	10.00-10.25
Cleveland, No. 1	10.00-10.25

Chicago, No. 1	10.00-10.25
St. Louis	9.25-9.75

Composition Brass Turnings

New York	8.00-8.25
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Light Copper

New York	8.00-8.25
Cleveland	8.00-8.25
Chicago	7.87 $\frac{1}{2}$ -8.12 $\frac{1}{2}$
St. Louis	7.25-7.50

Light Brass

Cleveland	4.75-5.00
Chicago	5.62 $\frac{1}{2}$ -5.87 $\frac{1}{2}$
St. Louis	5.00-5.50

Lead

New York	4.83
Cleveland	4.37 $\frac{1}{2}$ -4.50
Chicago	4.25-4.50
St. Louis	4.00-4.25

Zinc

New York	3.00-3.25
Cleveland	3.25-3.50
St. Louis	3.25-3.50

Aluminum

Mixed, cast, Cleveland	10.25-10.50
Borings, Cleveland	7.75-8.00
Clips, soft, Cleveland	15.75-16.00
Misc. cast, St. Louis	8.75-9.00

SECONDARY METALS

Brass ingot, S5-5-5-5, less carloads	13.00
Standard No. 12 aluminum	15.00-15.50

STEEL

Duty on Tungsten Ore Aids Consumers

■ "Progressive development of the domestic tungsten industry is the direct result of a duty on imported tungsten ores, and here we have the paradox that a protective tariff does not necessarily penalize consumers," said L. Gerald Firth, president, Firth-Sterling Steel Co., McKeesport, Pa., in summing up recent developments in that industry.

"In this case, it has had the effect of placing a ceiling as well as a floor on prices. Assurance of a supply of American mined tungsten ore was a major factor in the November stabilization of prices on high-speed tool steels."

Firth-Sterling company is sole owner of the Wolf Tongue Mining Co., operating tungsten mines and milling plants in Boulder county, Colorado.

Price Fluctuated Wildly

"In the period from 1913 to 1922 there was no tariff on tungsten ore imports with the result that prices fluctuated wildly, and at severe penalties to consumers when considered over the full range of the period. The high figure was reached during 1916, when the price exceeded \$5000 per net ton on 60 per cent milled ore. The price during 1913, after removal of an earlier tariff, ranged between \$400 and \$500, while in 1921 it down-spiraled to the ridiculously low figure of \$130 on the same grade of ore.

"The advantage of the low prices to consumers was, of course, short lived in every case, since they occurred during periods of low demand and therefore served primarily as a weapon to destroy domestic sources, being only a fraction of domestic mining costs. Interruption of domestic mining is very costly. This is because American ore bodies are under ground at considerable depths, and continuous operation is necessary to prevent flooding of mine shafts. When this occurs, shafts and galleries soon cave in and can never be reopened.

"The present price of milled 60 per cent tungsten ore is approximately \$1500 per net ton, with the tariff on imported ores amounting to about 30 per cent of this figure. American consumption of tungsten amounted to \$16,000,000 in 1937 and approximated \$10,000,000 in 1939. More than half of the 1939 total was American produced.

"The strategic importance of the metal is greater, however, than the dollar consumption implies. Prices and availability affect many industries. The foremost uses of the material are in the manufacture of household Mazda lamps, tool steels, sintered carbide dies and tools, radio

tubes, airplane and automobile valves, electrical contacts, and X-ray targets. In most of these the metal is virtually indispensable though the unit amounts may be very small.

"Without the development of domestic sources—impossible without the assistance of the tariff—there is no doubt but that the September rush of buying would have found the United States tragically short in tungsten supplies. This would have created a choice moment for foreign suppliers to skyrocket prices again. The present price of 67 cents per pound on 18 per cent tungsten steel could not then have been maintained and we might have been on the way to the \$2.50 price reached in 1918.

"In contrast to this possibility and past experience, the tungsten market has been orderly, with consequent calm in dependent consumer circles. Moreover, considerations of national defense make it vital to eliminate, insofar as possible, dependence on foreign sources for any strategic metal. Given this continued tariff protection and understanding, there is every reason to believe that the tungsten mining industry can push its development and continue to maintain reserves to assist in meeting emergency needs and preventing scare purchasing cycles."

\$25,000 Fund Provides Engineering Fellowships

■ American Institute of Electrical Engineers has announced the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has established a \$25,000 trust to provide graduate

fellowships in electrical engineering.

Known as the Charles LeGeyt Fortescue fellowship, the educational trust will be a memorial to Dr. Fortescue "in recognition of his valuable contributions to the electric power industry." His outstanding achievements were the development of symmetrical co-ordinates, his work on transformer design, and his theories of lightning behavior. Prior to his death in 1936, Dr. Fortescue had been granted 185 patents for electrical inventions achieved during a 38-year association with Westinghouse.

Beginning this year the fellowship committee of the American Institute of Electrical Engineers will annually select candidates to receive the awards, which provide a minimum allowance of \$500 each.

Sights 15 Per Cent Gain In 1940 Appliance Sales

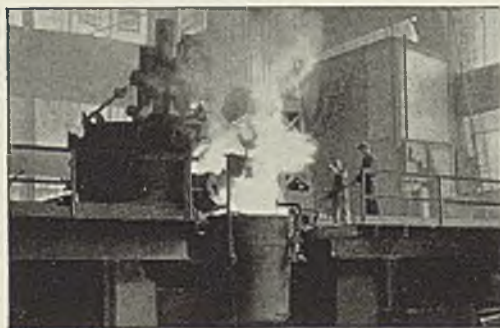
■ Electric refrigerator sales in 1940 will gain 15 per cent and total approximately 2,065,000; electric ranges will gain 20 per cent to around 400,000 for the year. This was the prediction of Frank R. Kohnstamm, sales manager, Westinghouse Electric & Mfg. Co.'s merchandising division, made at a preview of the company's 1940 models in New York last week.

Another great potential market, Mr. Kohnstamm pointed out, is that for packaged air conditioning units for homes, offices, hotels, hospitals and other outlets. "It may be expected that public response to new, efficient and easily-installed room coolers, priced materially lower than former models, will be enthusiastic."

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Construction and Enterprise

Ohio

BLUFFTON, O.—Village, W. A. Howe, mayor, planning special election to proceed with plans for sewage disposal plant and interceptor sewer; total cost \$400,000; Champe, Finkbeiner & associates, Nicholas building, Toledo, consulting engineers.

CINCINNATI—Middleman Iron & Metal Co., incorporated; \$25,000; Sidney J. Kahn, Joseph H. Hoodin, Albert J. Lerner; Bolsinger & Hoodin, Fountain Square building, correspondents.

CLEVELAND — City, department of public service, Miles Evans, director, city hall; seeks one motor-driven crane with bucket; allow credit for used crane.

HAMILTON, O.—Village of New Miami, Mark Brown, village solicitor, contemplates electrical distribution system; includes street light system power lines to Hamilton municipal light plant, switch gears and other necessary equipment to service 600 customers; cost \$45,000. Froelich & Emery, Second National bank building, Toledo, consulting engineers.

LORAIN, O.—City, Harry Van Wageningen, mayor, city hall; city engineer, Harry Alexander; contemplates sanitary sewer lines at Colorado avenue from Idaho to Kansas avenues, and from Pennsylvania to Root road; cost \$30,000; plans submitted for WPA approval.

NORTH BALTIMORE, O.—Rural electrification; owner Hancock-Wood Electric Co-operative Inc., A. J. Phillips, superintendent, J. E. Shoop, president, South Main street; Putnam & Woolpert Engineering Co., 132 North Main street, Dayton, engineers; bid involves 190 miles of lines to serve customers in Hancock, Wood, Putnam, Hardin, Sandusky, Henry and Allen counties; cost \$194,000.

PHILO, O.—Ohio Power Co., C. L. Spurrier, local superintendent, 305 Cleveland avenue S. W.; holding company, American Gas & Electric Co., Philip Sporn, vice president, 30 Church street, New York; contemplate furnishing and installing one 85,000-kilowatt cross compound condensing unit, consisting of one high and low pressure turbine generator, hydrogen cooled; two new boilers with capacity of approximately 850,000 pounds steam per hour; cost \$6,500,000.

QUINCY, O.—Village, W. M. Harbour, mayor, has preliminary plans for waterworks; includes reservoir tank wells, district system and fire hydrants; cost \$59,000; Eugene P. Light, 323 George street, consulting engineer.

REPUBLIC, O.—Village, C. E. Womer, mayor; preparing plans for waterworks system, includes wells, pump and building; distribution system and elevated tank; estimated cost \$78,000. Champe, Finkbeiner & associates, Nicholas building, Toledo, consulting engineers.

SPRINGFIELD, O.—City, W. H. Story, city manager, completing plans for waterworks improvements and dam construction; includes filter plant and outside piping, cost \$400,000; filter equipment; mixing and clarifying equipment; dam and storage tanks; total cost \$1,091,580; Alvord, Burdick & Howson, Chicago, consulting engineers; William E. Lucas, city engineer.

TOLEDO, O.—City, division of water engineering department, Cherry street bridge, J. H. Hewhurst, acting service director; plans lake water system, high pressure at Collins park; estimated \$800,000; low pressure station near intake off Reno beach; estimated \$600,000; and chemical station and head house

at Collins park; estimated \$400,000; bids to be advertised Jan. 27; Greeley & Hansen, Cherry street, consulting engineers.

WALBRIDGE, O.—Village, Edward Cavanaugh, clerk, storm and sanitary sewers and treatment plant; H. P. Jones & Co., Second National bank building, Toledo, consulting engineer; sewage plant and pumping station to be built first; purchased jointly by WPA in Columbus and village; cost \$96,000; to bid shortly.

WEST LIBERTY, O.—Village, Donald McAlexander, clerk, has plans for sewage disposal plant and sewerage system; Jennings-Lawrence Co., 538 Rowlands building, Columbus, consulting engineers; cost \$130,000; dependent on WPA approval.

Michigan

DETROIT—Otto C. Miller Co., will erect a \$16,000 factory building on Rose-lawn avenue for H. B. Earhart, Inc., Detroit.

FLINT, MICH.—Working drawings are being prepared by John MacKenzie, architect, for superstructure for a factory building to be erected in Flint for Standard Cotton Products Co.; August B. Johnson, Flint, awarded general contract.

GRAND RAPIDS—Owen-Ames-Kimball Co., has been awarded contract for an addition and alterations to a factory building in the city for McInerney Spring & Wire Corp.; estimated cost \$35,000.

HASTINGS, MICH.—City contemplates installation of a new street lighting system in its downtown area.

Illinois

CHICAGO—International Rolling Mills Products Co., is erecting 1-story modern steel warehouse, approximately 50,000 square feet, to be equipped with 75-foot crane; cost \$100,000.

Maryland

BALTIMORE — Ratcliffe Construction Co., American Trust building, has contract for addition to building Howard & Ostend streets, for Parker Metal Decorating Co.; Kubitz & Koenig, Emerson Tower building, engineers.

BALTIMORE—Talles Construction Co., 4024 Bonner road, has contract for factory building, Clement & Decatur streets, for Union Bros.; Benjamin Frank, 15 West Franklin street, architect.

BALTIMORE—Tuller Construction Co., Red Bank, N. J., has contract at \$184,790 for mechanical and electrical equipment for pump and blower station, Wagner Point.

Kentucky

LOUISVILLE, KY.—Louisville Gas & Electric Co., unit Standard Gas & Electric Co., Bernard W. Lynch, president, has preliminary budget \$2,015,615 for 1940, including from \$110,000 to \$120,000 for construction of complete new electrical sub-station in southern part of city, with capacity of from 15,000 to 20,000 kilovolts; work to begin soon; improvements at company's sub-stations, \$571,435; for maintaining and improving electric distribution and electric transmission, \$747,000; for gas distribution, \$125,000; 2 or 3-unit sub-stations also are to be purchased for relieving growth load.

LOUISVILLE, KY.—United States engineer office, received low bid at \$64,196 from Midland Constructors, 205 West

Wacker drive, Chicago, for constructing Rogers ditch pumping plant for Gill township levee unit.

Florida

CHIEFLAND, FLA.—Central Florida electric co-operative association, John L. Horne, president, will construct 116 miles of REA lines in Levy and Gilchrist counties; cost \$96,000.

MIAMI, FLA.—City will expend approximately \$46,000 for additional facilities for water supply; install new pumps delivering 20,000,000 barrels daily from Miami canal.

TAMPA, FLA.—RFC completed \$900,000 loan in co-operation with Exchange National and First National banks to Tampa Shipbuilding & Engineering Co., to finance building of the second four of eight ships for the maritime commission; \$250,000 to be spent for plant expansion, including construction of a third and possibly a fourth shipway; will purchase additional cranes, locomotives and other heavy equipment.

Georgia

JESUP, GA.—J. H. Chaffin, Robert Warren and others interested in construction of 80 miles of electric line in Wayne county under supervision of REA.

LA GRANGE, GA.—LaGrange Coca Cola Bottling Co., George S. Cobb, Jr., has plans by Odds Clay Poundstone, architect, Palmer building, Atlanta, for bottling plant; 2-story; brick; hollow tile; structural steel; built up roof; steel sash; plans about ready.

Mississippi

JACKSON, MISS.—Tom B. Scott, John Hart building, has contract for construction of \$30,000 warehouse and office building on Terry road, for International Harvester Co.; 100 x 180-foot, brick; Faust & Wakefield, owners.

North Carolina

CHARLOTTE, N. C.—County drainage commission, Dr. J. R. Alexander, chairman, starts work soon on \$40,000 drainage project in Steel Creek township; W. D. Alexander, engineer.

KINSTON, N. C.—City receives bids Jan. 16 for construction of 500,000-gallon water tank, installed at power house additional 5000 kilovolt turbo generator and appurtenant equipment; surface condenser for use with generator and two turbine-driven boiler feed pumps; estimated cost \$300,000.

WILSON, N. C.—City votes Jan. 23 on \$300,000 bonds for purchase of new turbine for electric plant, capacity 7500 kilovolts.

Tennessee

CHATTANOOGA, TENN.—Vance Iron & Steel Co., subsidiary Republic Steel Corp., purchased Lucey Mfg. Co.; will be used as steel jobbing concern for warehouse purposes, replacing former warehouse facilities.

MEMPHIS, TENN.—Memphis Light Gas & Water division, receives bids Jan. 24 for sub-station, underground ducts and cables to cost about \$136,000.

Louisiana

WINNFIELD, LA.—Averett & Kelsoe, have contract for construction of 3-story addition to Carey Salt Co.; mill building for storage and packing; steel with transite siding; cost \$20,000.

WINNSBORO, LA.—Northeast Louisiana Power Co-operative Inc., receives bids Jan. 16 for construction of 131 miles of rural power lines to serve 325

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members in West Carroll and Richland Parishes; W. L. Rush, Oak Grove, engineer.

West Virginia

LOGAN, W. VA.—Guyan Machinery Co., wants hoist, suspension type, 1-ton Shepard, 3-phase, 60-cycle, 220-volt, floor control; bridge crane, 5-ton 22-foot span, 230-volt direct-current motors, floor control; centrifugal pump, bronze ball bearing, 4-inch discharge, 80-foot head with motor, 3-phase, 60-cycle, 220-volt; diesel or gasoline engine 75 horsepower, preferably connected to 250-volt, direct-current generator.

PARKERSBURG, W. VA.—Federal approval granted for \$984,000 for airport.

Virginia

DANVILLE, VA.—Danville Knitting Mills, wants boilers one or two, second hand, either water tube or fire tube, to total 400 or 450 horsepower.

FORT HUNT, VA.—Coast guard radio station laboratory; fire damage; loss \$10,000.

Missouri

BUCKLIN, MO.—\$17,000 bond issue carried at a recent election to finance construction of an electric distribution system from Marceline to Buckline; engineer not yet selected; J. J. Hogan, mayor.

HANNIBAL, MO.—City, mayor, is taking bids to Jan. 22, 8 p. m., for sewage disposal plant as per specifications; obtainable from consulting engineer, Black & Veatch, 4706 Broadway, Kansas City.

FESTUS, MO.—City, F. V. Iseman, receives bids Jan. 24 for sanitary sewer and water system extension, materials and equipment only; Russell & Axon, 4903 Delmar boulevard, engineer.

ST. LOUIS—Missouri Pacific Railroad Co., has budget for \$10,880,000 for improvements on railway lines during 1940; \$1,431,490 approved for rail and track materials; \$1,300,000 for new rolling stock; \$250,000 for 3-unit streamlined train; \$400,000 for six large diesel switch engines; \$180,000 for five smaller diesel electric engines; and \$570,000 for 200 stock cars; largest item was \$3,250,000 including both labor and rail costs for laying 215 miles of new rail on main tracks and relaying 177 miles of used rail on secondary lines; budget approved by United States District Judge, George H. Moore.

WAVERLY, MO.—City, T. E. Guenther, mayor, making preliminary survey and will vote on bond issue; to apply for WPA aid in the construction of a water-works plant and sewers to cost about \$100,000; Harrington & Corteylou, Dwight building, Kansas City, consulting engineer.

Arkansas

PINE BLUFF, ARK.—Arkansas Power & Light Co., has \$1,500,000 for construction of a 70-mile 11,000-volt transmission line from Batesville, northward through White Valley to connect Empire District Power Co.'s Missouri lines with company's system at Harrison; during year company to continue rural electrification begun in 1935; other improvements include construction of 33,000-volt line from company's substation at Market Tree, to tie into the interconnected system of recently acquired Truman properties, and rebuilding at approximately \$40,000.

RUSSELLVILLE, ARK.—Tippie of Mine

No. 1, fire damage; Bernice Anthracite Coal Co.; loss \$10,000.

WYNNE, ARK.—Eastern division, Arkansas Power & Light Co., W. H. Howze, manager, planning construction of tank with capacity of 100,000 gallons.

Minnesota

ST. JAMES, MINN.—South central electric association, Edward C. Meier, superintendent, has awarded contract, approved by REA, to E. W. Wylie Inc., 2239 Ford road, St. Paul, at \$56,415 for construction of 85 miles of rural transmission lines in Blue Earth, Cottonwood, Jackson, Martin, Watonwan, Brown and Redwood counties.

ST. PAUL, MINN.—University of Minnesota, R. S. Callaway, purchasing agent, 323 administration building, main campus, taking bids to Feb. 15, 2 p. m. on furnishing two new pulverized fuel-fired steam generating units, each 30,000 pounds per hour capacity; W. F. Holman, 309 administration building, supervising engineer.

VIRGINIA, MINN.—Northern electric co-operative, Fritz E. Anderson, superintendent, has awarded contract subject to REA approval to Zontelli Bros., Iron-ton, at \$229,518 for construction of rural transmission lines in St. Louis county; H. S. Bliss, 2944 Cedar avenue, Minneapolis, consulting engineer.

WHEATON, MINN.—Village, M. J. Fridgen, clerk, contemplating construction of a sewage disposal plant as property owners objecting to present facilities; plans not definite.

Texas

BAY CITY, TEX.—Central Power & Light Co. plans erection of storage warehouse and garage; 1-story; structural clay tile; steel beams; steel sash; reinforced concrete floors; built-up roof; Kenneth Nelson, designer.

DALLAS, TEX.—Dallas Power & Light Co., plans \$500,000 expansion in 1940.

HOUSTON, TEX.—Houston Lighting & Power Co., will erect sub-station on 10-acre tract east end of Blodgett; plans not completed.

HOUSTON, TEX.—Harry Cagle Co., 2410 McDuffie street, has contract at \$41,429 for construction of sewage treatment plant and appurtenances at south side sewage treatment plant.

SAN ANTONIO, TEX.—San Antonio Public Service Co., will spend \$1,031,000 in 1940 for additions and improvements; approximately half of allocation to be used by electric department for additions and improvements, rural line extensions, poles, transformers in South Texas department; \$147,000 provided for territories served outside of San Antonio area; Comal station at New Braunfels will require \$24,000 for new construction and additions; in gas department, \$272,000.

SEGUIN, TEX.—City has WPA grant, \$145,793, for improvements to water and sewer system.

Kansas

AFRA, KANS.—City, E. L. Gilliland, clerk, started work on construction of wells and water distribution lines and will construct in the spring a 50,000-gallon tank on steel tower; total cost \$58,000. Paulette & Wilson, Public Utility building, Salina, consulting engineers.

FOWLER, KANS.—City T. J. Gardener, mayor, considering a project for construction of a sewerage system and sewage disposal plant; estimated cost \$50,-

000; consulting engineer not yet selected.

KANSAS CITY, KANS.—Standard Rendering Co., Edward Morris, president, will proceed with plans for construction of 2-story, brick 60 x 70-foot rendering building and 1-story boiler house; total cost \$100,000; M. H. Doyno, 1930 Railway Exchange building, St. Louis, consulting engineer.

MARION, KANS.—Central Co-operative Electric Co., has completed its preallocation survey and will apply to REA for funds to finance construction of about 150 miles of rural transmission lines; Paulette & Wilson, Public Utility building, Salina, consulting engineers.

WHITE CITY, KANS.—City, Robert Guber, clerk, has filed application with WPA for funds to aid construction of sewers and a sewage disposal plant to cost \$120,000. Paulette & Wilson, Public Utility building, Salina, consulting engineers.

WINEFIELD, KANS.—City, L. P. Ravenscroft, mayor, preparing specifications for improving power plant including a new water heater and auxiliaries. Black & Veatch, 4706 Broadway, Kansas City, Mo., consulting engineers.

North Dakota

BISMARCK, N. DAK.—State railroad commission has granted authority to Baker electric co-operative to construct rural transmission line extensions into Towner, Rolette, Benson and Wells counties.

FARGO, N. DAK.—Northern States Power Co., 15 South Fifth street, Minneapolis, was allotted \$90,000 for improvement of its power plant here, and improvement of street lighting system.

FARGO, N. DAK.—State railroad commission has granted authority to Cass county electric co-operative for extension of its rural transmission lines into Traill, Cass Richland and Ransom counties.

GRAFTON, N. DAK.—State railroad commission has granted authority to Walsh county electric co-operative to construct rural transmission lines near here.

South Dakota

TIMBER LAKE, S. DAK.—Voters of city have approved construction of a municipal light and power plant.

WALL, S. DAK.—West river electric association, F. R. Rector, president, has awarded contract subject to REA approval to Rapid Electric Co., Rapid City, at \$111,000 for construction of 130 miles of electric power line; distribution system and sub-station near Rapid City; Walter Walking, Rapid City, consulting engineer.

Nebraska

HASTINGS, NEBR.—City, L. T. Waterman, mayor, will hold election soon on a \$250,000 bond issue to finance either purchase of present private natural gas plant and distribution system, or construct a new one; Frank E. Devlin, W. K. H. building, Wichita, consulting engineer.

Colorado

WALSENBURG, COLO.—City, Dr. S. Julian Lamme, mayor, is contemplating bond issue to raise city's share of funds which the WPA grant of \$33,063 already allocated, will finance construction of a water filtration plant; Burton Lowther, Colorado building, Denver, consulting engineer.

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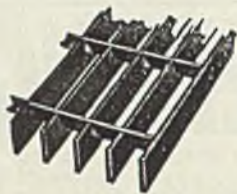
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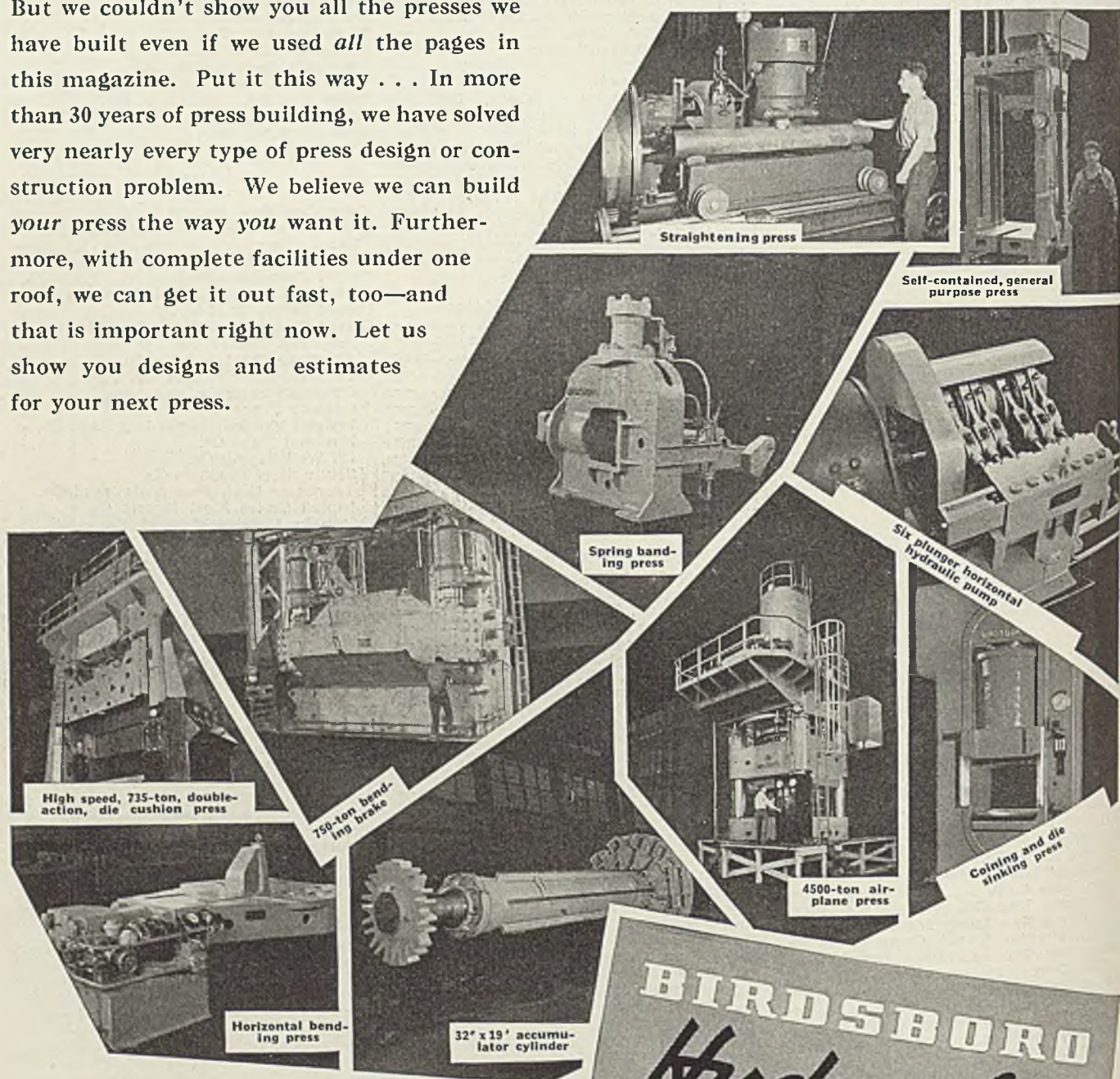
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