STEEL

PRODUCTION · PROCESSING · DISTRIBUTION · USE

For forty-eight years—IRON TRADE REVIEW

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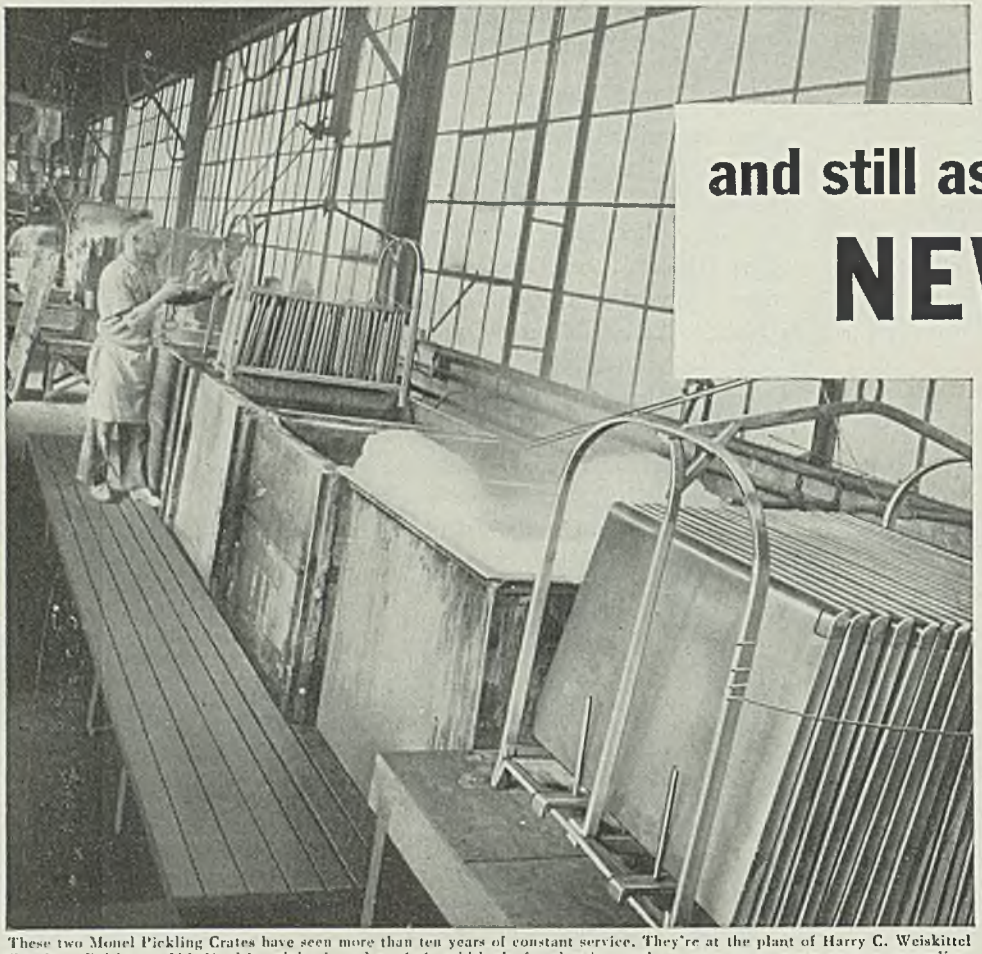

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As the Editor Views the News

AT THIS writing, the stage of labor relations in the steel industry appears to be set for a wholesale back-to-work movement. The backbone of the CIO drive seems to be broken and unless some new, unexpected influence is thrust into the situation, operations in the affected plants will climb gradually back to normal. Unstinted credit for this gratifying outcome is due to Mr. Girdler and his associates Messrs. Grace, Purnell and Block, whose courageous and timely challenge to lawless mob rule (p. 16) shocked the American nation into protest against a continuance of anarchy by government sanction.

• • •

Zeal for Fair Play Helped

It is doubtful whether the cause for which the steelmakers fought could have been victorious if it had not been for the support of the public. The labor situation came to a crisis at a time when a stubborn bloc in congress and a substantial portion of the American public had become thoroughly disgusted with the manner in which the Roosevelt administration encouraged the unruly elements of unionism to run rough-shod over the rights of law abiding citizens. The steel strike impasse occurred just in time to furnish a rallying point for this disgust. Public zeal for fair play did the rest.

• • •

Peace Still Far Away

Notwithstanding this stirring episode, the struggle for industrial peace must go on. In the automobile industry, for instance (p. 29) there remains the question of whether the present contracts with CIO will continue to be broken at the whim of reckless youths and whether sabotage on the assembly line can be stopped. One wonders whether this recent experience will cause Mr. Lewis to purge his organization of Communists and law-breakers, and whether congress—now that it has heard the protest of the public—will dare to remedy the deficiencies of the Wagner act. Again, will ardent new dealers, including the President, take this opportunity to re-establish the authority of law? Will steps be taken to make unions responsible for their acts? All of these things will come in due time. Progress was made last week, but we fear permanent industrial peace still is far away.

• • •

For Comfort And Efficiency

It is difficult to measure losses due to inefficiency in industrial plants which are too hot in summer and too cold in winter. One superintendent estimates in a certain shop (p. 38) production suffered from these causes to the extent of 35 per cent. Modern equipment, including heaters, ventilators and cooling devices make it possible to avoid much of the inconvenience and inefficiency due to heat and cold. Where management can introduce these modern aids, it profits in two directions—lower cost of production and improved morale of workers. . . . An Illinois company is building all-steel houses, 32 x 44 feet, in its plant and moving them, completely finished for occupancy (p. 44), by crane, river barge, and tractor to their sites.

• • •

Refinement for C. R. Tin Plate

Superintendents of enameling departments will appreciate the significance of the points raised by a Pennsylvania enameler (p. 54) who discusses volume, quality and cost problems of the enameling shop in relation with the requirements and conditions exacted by sales, engineering, production, tool design and other departments. . . . Producers of cold rolled tin plate have been trying to impart stiffness to the material without reducing its workability to such an extent that cans cannot be made satisfactorily with high speed canmaking machinery. One solution has been found (p. 56), consisting of precision control of heat treatment and cold rolling. . . . Some machine tool builders are finding it worth while to utilize skid platforms (p. 49) in final assembly work and for storage of finished machines. This scheme makes for convenience and "good housekeeping."

E. L. Ahara

Pouring a Test Pig at an Inland Open Hearth

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Strike Breaking Up; Week of Mediation Fails; Troops Stay

VANGUARD of Ohio national guardsmen entering Youngstown. "We have won the strike!" cried the pickets, but all this was changed Friday when the governor ordered the troops to protect the loyal workers, and plants prepared to open

BREAK-UP of the steel strike appeared imminent late last week following the decision by the governors of Ohio and Pennsylvania to permit reopening of plants, and to see that state troops and police protect returning workers.

It was a week of dramatic incidents, capped by the admitted failure of the government's mediation board to settle the issue between CIO and the Republic Steel Corp., Bethlehem Steel Corp., Youngstown Sheet & Tube Co., and Inland Steel Co.

Perhaps if there had been more than one issue to mediate—if there had been several on which to give and take, some sort of harmonious compromise might have been affected. But on the single question—to sign or not to sign a contract with the CIO—the steel companies were adamant.

When the board issued its statement Thursday night, after four days of interviewing company and union officials there was nothing left for the governors to do but lift the "status quo" arrangement requested by the President and Secretary Perkins pending the negotiations.

Republic, Bethlehem and Sheet & Tube prepared to put in effect plans for reopening plants and increasing operations, which they had announced earlier in the week when the government stepped in with a restraining hand. Inland stated it has no plans for opening at present.

After four and a half weeks of idleness for 70,000 Republic, Sheet & Tube and Inland wage earners and one full week for 14,000 Bethlehem's workers at Cambria—time in which they collectively lost about $12,000,000 in wages—the great majority were believed ready to return.

Public Protests "Freeze-Out"

The four companies—first of the large independents to halt the CIO's encroachment—have annual ingot capacity for 20,873,000 gross tons, approximately 30 per cent of the industry's total.

One of the factors leading to the prompt disposition of its work by the mediation board was the storm of public protest against the use of troops to "freeze" operations, and keep out thousands of employes.

In Ohio 4800 guardsmen were on duty at Youngstown, Niles and Warren; at Johnstown, Pa., where Bethlehem has its Cambria plant, were 600 state police, although this latter force later was reduced to 200.

"We have won the strike!" the pickets cried as the guards showed up, but Friday the tables were turned when the official ban was lifted, and the governors gave the word to enforce law in favor of workers as well as pickets.

The position into which CIO tactics and political circumstances had forced government was sharply outlined. At the beginning of the week when the board got under way the President sent telegrams to T. M. Girdler, Republic chairman, and Frank Purnell, Sheet & Tube president: "In the promotion of public safety . . . . I earnestly join with the board in this request to you."

The request was to keep the plants closed, and the steel companies refused to comply.

When Gov. Davey ordered out the troops to compel them to do so, he said he had talked with the President and that the President had agreed that this was the thing to do.

Thursday night after the board issued its statement, the governor modified his order for the troops:

"In view of the failure of the peace negotiations under auspices of the federal mediation board," he stated, "the rights of all citizens must be protected."

Willingly and repeatedly, officials of the four steel companies responded to calls before the mediation board in Cleveland. They refused to arbitrate the issue of making a signed or oral contract with the CIO, holding that it was an irresponsible organization. At the conclusion of the conferences they issued a joint statement. (See below)

John L. Lewis, Philip Murray and other CIO leaders likewise appeared before the board and argued for signatures.

Finally, on the last day, the board proposed that the steel executives meet with the CIO leaders in the board's presence, and this the steel men declined to do.

The board then issued the following statement:

"We appreciate the problems of management, but we think that the companies in refusing to make any agreement are taking an unwise position. Nothing can be clearer today than that management and organized labor, when it really represents the wishes of the men, have got to learn how to live together, to reach agreements, and to abide by them when made. At the same time the extent of the union's actual membership, and its right to speak for the employes, has not conclusively been demonstrated.

"Under these circumstances we proposed to each company this settlement: The making and signing of an agreement with the union, to become effective only if the union wins an election; the calling off of the strike and the return of all the men to work; the holding of a secret ballot election in the company's plants by the National Labor Relations Board; the agreement to go into effect if the union wins, and to be torn up if the union loses.

Board Requests Meeting

"The companies rejected this proposal. We believe that the union would accept it or some variation of it.

"Under these terms of settlement both sides would yield something, but not more than we think they ought to yield. The union would have to take its chances on an election. If, in the case of any company, a majority rejected the union, the union would have no contract. If, on the other hand, the majority voted for the union, its contract would stand.

"The heads of the four companies have not, either during the strike or before it, ever met the union representatives, and have thus far declined to join them in conference with us. We cannot but believe that the bitterness and suspicion which separate the two sides would be allayed by a man-to-man discussion around the conference table, and that the only hope of settlement lies in such a meeting.

"We now publicly urge the heads of the four companies to accept our invitation, to meet at once with the union representatives and our board, and to discuss terms of settlement and the future relations of management and employes."

The statement by Republic and Sheet & Tube finally rejecting the board's proposal follows:

"The proposal submitted by the mediation board and given out for publication tonight (Thursday) is exactly the same as the one discussed in the meeting today and which we were obliged to reject. We are very sorry that all we can do is reaffirm the position which we have maintained from the beginning. We cannot in justice to our employes sign a contract with the C. I. O."

Joint Steel Statement Makes It Clear and Emphatic

AT the close of the conference Thursday between the steel mediators and executives of Republic Steel Corp., Youngstown Sheet & Tube Co., Inland Steel Co. and Bethlehem Steel Corp., filed the following statement with the board:

"To avoid the possibility of a misunderstanding of the position of the steel companies whose executives have been conferring with you at your request, it is desirable that we state to you in writing our understanding of the issues involved in our discussions with you and our position on them.

"There is confusion in the public mind regarding the real issues involved. The statement has been made that our companies have arrived at an oral agreement with the CIO regarding wages, hours and other conditions of employment, but decline to put that agreement in writing. That is not true. No such agreement, oral or otherwise, has been reached.

"That does not mean, however, that the terms of employment now in effect with our employes are indefinite or uncertain or subject to unreasonable or arbitrary changes. They have been reduced to writing in the form of notices which have been posted in all the plants to which they apply or otherwise announced in writing to all our employes and are thoroughly understood by our employes. They are satisfactory to our employes, and our understanding is that you are not concerned in your mediation with any question of wages, hours or working conditions.

Employes Do Not Want Change

"The real issue is that the CIO demands that we, respectively, enter into a contract with the CIO covering wages, hours and other working conditions, notwithstanding the fact that it was not a party to the establishment of those conditions. In other words it is not our employes who want a change in our relations —it is the CIO that wants a contract.

"That raises the fundamental issue in the present controversy, namely; Is the CIO qualified to be a party to such a contract? We are unanimous in our opinion that it is not. Our reasons for such opinion may be summarized as follows:

"(1) The character of the CIO as disclosed by its acts and declarations is such as to disqualify it.

"(2) The declared objectives of the CIO in demanding a contract are, we believe, inimical to the best interests of our employes, our stockholders and the public.

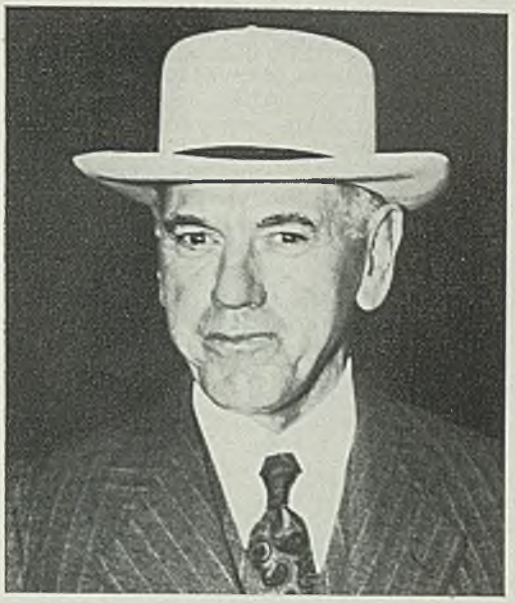
"There must be a meeting of minds on all questions which it is proposed to cover by an agreement before it can be said that an agreement has been reached. One very important question which is involved in all agreements is the question of the parties thereto: Is each of such parties satisfactory to the other? That question remains to be answered by each party for himself.

"The law does not and cannot compel any person or company to make an agreement, either oral or written, with any other person or company, even though the provisions of the proposed agreement be otherwise satisfactory to both parties. The law reserves to every person the right to say whether he will or will not enter into an agreement with another.

"In the present case the CIO is not satisfactory to us as a contracting party and we have the lawful and moral right and duty to stop there. The CIO is totally irresponsible. Such a contract could mean nothing in so far as it is concerned. It would not create, and is not intended by the CIO to create, any obligation that could be enforced against the CIO.

"That the CIO is irresponsible is well established by the record. Strikes continue to occur in many plants notwithstanding signed agreements with the CIO similar to that now demanded of us.

"A striking example of the irresponsibility of the CIO is found in the recent threat of the United Mine Workers of America, a CIO



E. G. Grace (Bethlehem)

Frank Purnell and J. C. Argetsinger (Sheet & Tube)

John L. Lewis

Mediation board seated, left to right: C. P. Taft, L. K. Garrison and E. F. McGrady. Standing, J. F. Dewey, a department of labor conciliator, and R. A. Lind, labor board regional director

Mediation Snaps

Left to right, Donald B. Gillies, T. M. Girdler and C. M. White, of Republic; and Wilfred Sykes, assistant to the president, Inland Steel Co. Near the mediation room all the steel men were besieged by photographers. "Want a fighting pose?" cried Girdler to one of them, drawing up his arms while the others laughed. Girdler, too, was so amused he tweaked his own nose. Acme photos

affiliate and the chief organization of John L. Lewis, to call a strike of the employes of any commercial coal mine operator who shall sell any coal to the steel companies which have refused to sign a so-called CIO contract and thus to violate a contract of the United Mine Workers of America with each such operator, which clearly provides that such a strike will not be called.

Cites CIO Activities

"That the CIO is irresponsible has been established in many other ways. In recent months that organization has placed itself above the law of the land. Its members at the direction of its leaders have engaged in illegal picketing. They have frightened local authorities in many communities to the point where law enforcement has completely broken down, and a reign of anarchy and violence has been established by armed mobs. They have interfered with and stopped the delivery of the United States mails. In its effort to impose its will upon industry and employes of industry in this country, the CIO has resorted to methods of terrorism in many parts of the country. Examples of this are of daily occurrence in industrial plants and in the communities in which they are located. The latest of these is the declaration of a general strike in Warren, O., to prevent the military authorities from enforcing the order of a court.

"Employes are entitled to their right of employment without being coerced into membership in the CIO or any other organization. We are unwilling to take any step which will tend to force any of our employes to pay tribute to the CIO or any other organization for the right to continue to work.

"Clearly no responsible business concern should be expected to enter into contractual relations with an organization whose record shows persistent disregard of contracts, flagrant violation of the laws of the land and intimidation of the public authorities to prevent the enforcement of those laws.

"The CIO demands a contract with us, in order that it may have what it can claim is evidence of the endorsement of that organization by the employer. It would be unfair to our employes to subject them to pressure which we would be represented to have approved.

"Under the CIO procedure, the signing of a contract is a first step to the closed shop and the check-off. Mr. John L. Lewis and other CIO leaders have so publicly announced. Such a contract would be used to secure the enrollment of unwilling employes. Each of us believes that its employes have a right of their own free choice, free from coercion or intimidation from any source, to join any organization or none. We will not be parties to coercive organizations or assist those who seek to use coercion. On the other hand none of our companies has discriminated against such of its employes as prefer to join any organization.

"The fundamental issue of the present situation is the right of American citizens to work free from molestation, violence, coercion and intimidation. Our companies have recognized that right and we decline to take any action that will prejudice it.

Court Defined Rights

"In conclusion it seems pertinent for us to state what we believe to be the proper solution of the present difficulty, namely, to decide what are the rights of the parties concerned and to enforce them. The future of our country demands it.

"The rights of the parties to such a controversy as now confronts us have been clearly defined by the Supreme Court of the United States in the case of American Steel Foundries v. Tri-City Central Trades Council, 257 U. S. 184 . . .

(Here follow excerpts from this and other court decisions).

"We have at all times observed scrupulously the rights of our employes as defined by the courts. If the CIO will as scrupulously respect those rights, or in the event of their continued refusal to do so, if the public authorities will in the dis-

Flying Down to Pittsburgh, Mr. Lewis Reads About His Associates

FLYING to Pittsburgh one evening last week, after his meetings with the steel mediation board in Cleveland, John L. Lewis was reading intently a column in the *Cleveland News*. In this column, a series of identifications of CIO leaders as communists pinned on Lewis his own association with them.

The list of Lewis' "red" allies is taken from a pamphlet issued by the Constitutional Education league, an anti-communist foundation in New Haven, Conn., which has been investigating subversive movements in the United States since 1919—the year of the great steel strike led by William Z. Foster, an avowed communist. Here are a few of them:

John Brophy, executive director of the CIO, at one time a mine union insurgent branded "communist" by Mr. Lewis himself; a visitor to Russia and an enthusiastic admirer of the soviet industrial order.

Powers Hapgood, CIO field representative recently stopped from organizing by the state of Maine, an avowed communist;

Adolph Germer, general organizer for the CIO, another Russian vistor and admirer;

Jack Stachel, CIO director in Pennsylvania, member of the central committee of the communist party in America;

Walter and Victor Reuther. United Automobile Worker officers in Detroit and Flint and chief orators in the General Motors strikes; both lived in Russia during 1934 and Walter is shown to have written an enthusiastic letter home saying, "Carry on the fight for a soviet America";

John Anderson, communist candidate for governor of Michigan in 1934, organizer of United Auto Workers local 155—also a Russian visitor.

Israel Berestein, CIO organizer at Pittsburgh, former Pacific coast representative of Amtorg, Russian trading corporation doing business in America;

Saul Waldbaum, counsel to the CIO in the RCA Victor strike at Camden last year, Philadelphia representative of the Communist International Labor Defense;

Margaret Cowl, former communist speaker and organizer at Pittsburgh, head of the CIO women's auxiliary at Flint and Detroit during the auto strikes, credited with costuming workers' wives with red armbands and red berets;

James W. Ford, communist candidate for vice president in 1936, a speaker at a congress of negro labor in Pittsburgh this spring presided over by Philip W. Murray, chief lieutenant to Mr. Lewis;

Maurice Sugar, counsel to the CIO unions in Detroit, Flint, and Lansing, and the Detroit representative of the Communist International Labor Defense;

Dr. Clinton S. Golden, CIO organizer in Ohio for the steel strike, former field agent and director for Brookwood and Commonwealth Labor colleges, where labor organizers are taught and the Russian state held up as a model;

Sidney Hillman, head of the CIO textile unions, a socialist of wide political experience and also a long-time friend of soviet Russia and a director of the Socialist Garland Fund, which supports labor colleges.

charge of their duties use their power as they are in good faith bound to do and will afford protection to those of our employes who manifest a desire to work under the established working conditions, the strikes will be over tomorrow."

At Johnstown

AFTER closing the Cambria plant of Bethlehem Steel Co. at Johnstown, Pa., Sunday, June 20, Gov. George Earle of Pennsylvania rescinded his martial law order last Friday.

Criticism of martial law had been widespread since it came at a time when Bethlehem's men were returning in increased numbers. The Cambria plant had been operating at around 75 per cent of capacity and picket lines were dwindling before Governor Earle ordered the closing.

Bethlehem officials at Johnstown indicated that the reopening would be gradual and they did not expect that operations would approach normal until possibly sometime this week. About 800 maintenance men had remained on duty during the period of martial law and movement of raw material and finished products was permitted.

Several thousand miners gathered in Johnstown Friday to support the strike of CIO strikers. They dispersed, however, upon learning that the plant would not open immediately.

The governor rescinded his order after pressure was brought to bear on him by several Johnstown organizations of workers and citizens.

At Washington

T M. GIRDLER Republic's chairman, at Washington Thursday clarified his position to the senate postoffice committee in a statement similar to that issued jointly by the four companies affected at the final conference of the mediation board.

He refuted charges Republic maintains arsenals and illegally armed forces and introduced into evidence pictures of large collections of rifles, shotguns, revolvers, dynamite and other weapons seized from CIO pickets by Ohio sheriffs.

Testimony of Philip Murray before the committee and charges made by Murray against Republic and against Girdler personally were branded as unfounded.

He cited CIO picket methods to illustrate union irresponsibility.

Issuance of warrants for the arrest of six pickets for illegal interference with the mails was referred to by the Republic chairman.

"Statements have been made to this committee that the CIO pickets did not interfere with the mails. The falsity of these statements has been conclusively demonstrated," he said.

Mr. Girdler pointed out that police inspections of Republic plants had failed to reveal any law violations. Police officers and watchmen were maintained on the company's scattered $300,000,000 properties in accordance with insurance requirements. He denied owning machine guns or violating federal or state firearms laws.

"It has been charged employes working in our plants are imported strike breakers. This is an unqualified falsehood. Every man working in an operating Republic plant is a regular employe who was on the payroll before the strike was ever discussed."

In concluding his statement Mr. Girdler suggested five principles for employer-employe relationships which might point the way to industrial peace. These were:

Workers should be free to join or not join a union as they choose without coercion from any source whatsoever.

No employe should be forced to pay dues to any union against his will.

All employes should be permitted to take a vote by secret ballot on whether or not they want to strike.

There should be full publicity and public accounting of the financial affairs of every union.

Responsibility of a union in any contract or agreement should be equal to that of the employer and laws to that end enacted.

Same Issue in 1919, But Law Enforced

IN THE steel strike of 1919, which started Sept. 22 and faded out by Oct. 30, the National Committee for Organizing Iron and Steel Workers was in charge.

Though Samuel Gompers, president of the American Federation of Labor, named the committee—officials of 24 affiliated unions—he was lukewarm toward the movement, fearing the rise of William Z. Foster, communist leader, who forced the strike.

No wage or hour issues were involved.

"Company unions" were the object of attack, and the closed shop was demanded.

The strike was called and conducted entirely by radical elements in the federation.

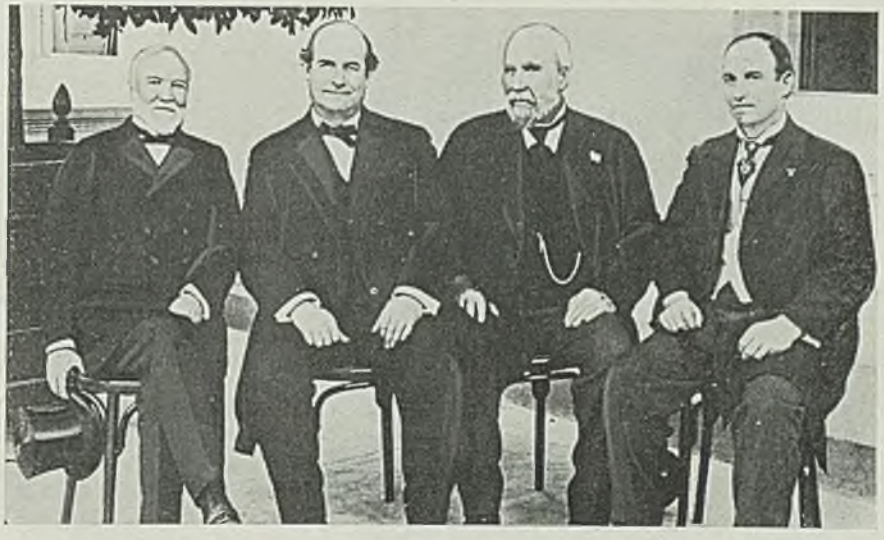
Acts of violence by pickets were common occurrences.

Public opinion was opposed to the strike and the methods employed.

Pressure of back-to-work sentiment finally ended the strike.

Law enforcement agencies were neutral and gave no aid to the lawless element, **federal and state troops being used to assure workers safety in their employment.**

They Talked It Over 32 Years Ago



ANDREW CARNEGIE, William Jennings Bryan, James J. Hill and John Mitchell at a labor conference in 1905. Mitchell, at the right in the picture, was president of the United Mine Workers and then at the height of his power. He had brought the anthracite strike of 1902 to a close by agreeing to accept an award made by President Roosevelt's commission. One of the points stressed in the award was that miners should be permitted to work, whether or not they belonged to a union. In 1905 Mitchell again was threatening a strike. Carnegie, steelmaster; Bryan, "leader of democracy"; Hill, railroad builder; and Mitchell, labor chief—all started as laborers

First-Half Steel Score Near Record, Despite Labor Turmoil

IN THE three years ended in 1932, steel ingot production dropped from the all-time high of 1929 to the smallest tonnage since 1901. At the half-way mark of 1937, the industry finds that the five years since the nadir of the depression have restored output to the pinnacle from which it toppled.

Steelmaking during the six months just ending approximated that of the like 1929 period. Only the interference of strikes prevented the half-year from setting a new record. The gain over last year was 35 per cent, while compared with 1932 there was an increase of 275 per cent.

Six-months' pig iron production rose 46 per cent over 1936 and was about equal to the 1926 tonnage, but failed to equal the 1929 figure by more than 8 per cent. Output for the first half of 1932 was nearly quadrupled, while tonnage produced the first six months of 1932, 1933 and 1934 combined has been topped so far in 1937.

Following are production data in gross tons for the first six months of recent years:

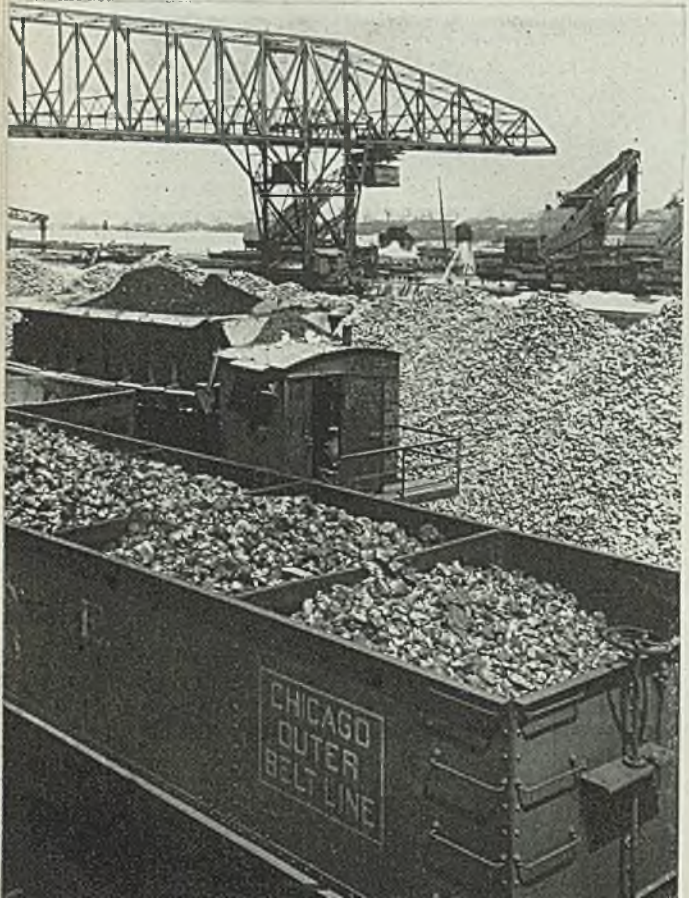
	Steel Ingots	Pig Iron
1937*	28,800,000	19,800,000
1936	21,276,097	13,580,002
1935	16,042,651	9,829,934
1934	16,402,554	9,852,608
1933	8,864,388	4,444,750
1932	7,697,210	5,164,520
1931	15,559,860	11,098,122
1930	23,578,619	18,304,614
1929	29,036,274	21,637,537
1928	24,798,073	18,510,463

*June estimated.

While July, 1932, marked the turning point in steel operations and the trend during the succeeding 36 months was irregularly upward, the strongest and most sustained surge in production started after the middle of 1935. At the latter time the backing and filling of the preceding three years was replaced by a broad recovery that almost completely disregarded seasonal influences and caused output to expand, with only brief interruption, to its recent plateau.

In the past, March frequently marked the year's peak in steelmaking, with activity settling thereafter through July. This year, March was taken in stride as the rate of output edged upward through April and May until strikes near the end of the latter month reversed the trend. The fact that, for the first time in history, production during each of these three consecutive months exceeded 5,000,000 tons attests to the strong and sustained support behind the current revival.

In analyzing the outlets for finished steel during the past six months, it is apparent that while demand became more diversified than in the previous several years, the insistent call for the light, flat-rolled products was a leading factor in holding production at such a high rate. The large capacity furnished by the numerous continuous mill installations was taxed by the heavy requirements of both major and miscellaneous users, which boosted production of sheets to a record figure. Tin plate production was the largest in history.

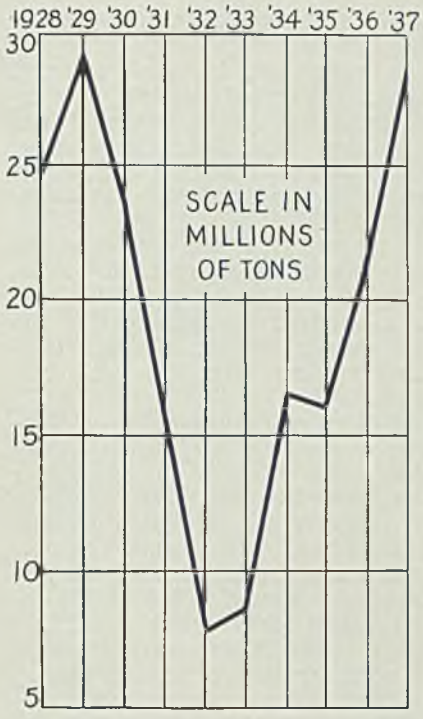


A GREAT YEAR FOR RAW MATERIALS — Here is seen coke from the Gary ovens spotted for unloading into blast furnaces; ore in 60-ton transfer cars, ready for dumping into ore bins; and limestone in storage yard, with unloaders and ore bridges in the background

Railroads Helped Recovery

Without the revival in demand for plates, shapes and rails, however, steelmaking would have fallen far short of its attained rate. A major share of the credit for improved activity in the heavy products goes to the railroads who have found it necessary, after several years of restricted buying of equipment, to make substantial additions to rolling stock, while faster train speeds have dictated extensive track replacements.

Total purchases by railroads from manufacturers during the first five months of this year were 55 per cent larger than a year ago and orders for materials and supplies were 45 per cent ahead of 1936, according to a recent survey by *Railway Age*. Of the total of $552,381,000 estimated to have been spent to June 1 this year, $307,519,000 went for materials, $111,430,000 for cars and locomotives and $133,432,000 for fuel. Buying of new locomotives and cars is placed at a peak since 1929 and 91 per cent larger than a year ago.



Steel ingot production in first half of each year. High as is the output in 1937, almost equal to 1929, strikes barred an all-time record

As the half year ends, freight car builders are in a comfortable position to maintain good operations through most of the summer, while prospects for additional equipment buying give a favorable aspect to the coming six months. Plate mills are heavily booked, not only with car material but also with tonnages required by tank and structural fabricators and miscellaneous consumers.

More Steel Per Car

The automotive industry, the leader among major steel users in recovering from the depression, reached a new production peak since 1929 in the first half of this year. The gain over a year ago was 12 per cent, while the 1932 output was more than tripled. The decrease compared with 1929 was about 15 per cent, but actual steel consumption by the industry was almost equal to the all-time peak.

Indicated steel use per automotive vehicle built in 1929 was 1.13 tons, according to STEEL'S annual compilation of finished steel distribution. Last year the consumption was 1.31 tons per unit, reflecting the increased weight of the lower price cars which make up the bulk of total assemblies. On this basis it may be assumed that the automotive industry so far this year has been using steel at close to the highest rate in history.

Less impressive has been the record of building construction; nevertheless, the tendency is toward improvement, and awards of fabricated structural steel for the half year were the best since 1931. Compared with 1929, however, there was a decrease of 40 per cent.

Governmental expenditures for public works, which comprised an important market for building steel during the past several years, is being curtailed, but privately financed projects lately have been increasing in number. High cost of labor and material and threats of still higher taxes have tended to restrict building activity despite a shortage of dwellings and industrial structures in numerous localities.

Following is a comparison of automobile output, freight car orders and structural shape awards in the first six months of the respective years:

Six Months	Automobile Production	Freight Cars Ordered	Structural Shape Awards (Tons)
1937*	2,900,000	46,500	700,000
1936	2,594,824	38,109	536,349
1935	2,329,518	6,333	387,266
1934	1,796,423	23,259	463,717
1933	1,028,376	566	402,870
1932	911,117	359	431,905
1931	1,639,027	6,044	1,031,646
1930	2,309,265	32,604	923,828
1929	3,413,804	62,816	1,153,347
1928	2,326,509	28,334	1,016,745

*June estimated.

Operations of the farm equipment industry thus far in 1937 have been of near-record proportions and have helped materially to swell finished steel bookings, particularly among Chicago mills. Production of implements and tractors has been affected less than usual by the season, the customary dip at the conclusion of the first half being supplanted by well sustained schedules. Agricultural equipment sales have been running about 25 per cent ahead of last year, near the 1929 level.

With farm income for the first half estimated at about 15 per cent better than a year ago, and with prices of agricultural commodities relatively high and larger crops in prospect, the farmer is making up for the extensive postponement of equipment buying during the depression in a manner that augurs well for steel consumption in implement and tractor manufacture.

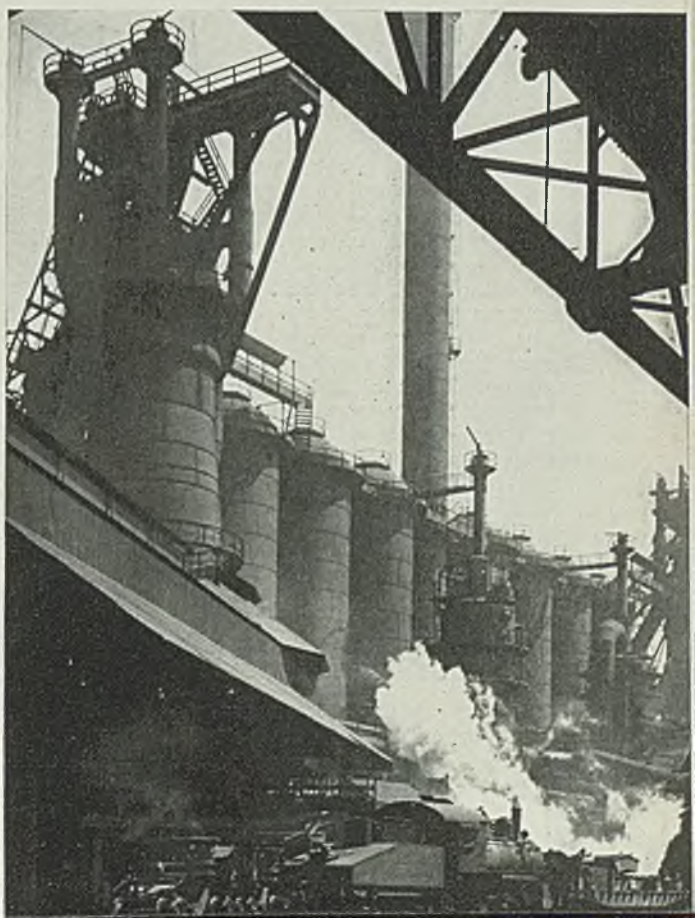
Steel Exports Gain

The extent of world-wide demand for steel to date this year is reflected in sharp gains in export trade of this country. Iron and steel shipments, excluding scrap, during the first four months were more than double the comparable 1936 total though 22 per cent behind 1929. The April movement, the last for which official figures are available, exceeded that for any month in 1929, while scrap exports in the same month reached an all-time peak.

Price developments the past six months were marked by two major increases in finished steel and by a sharp rise and fall in scrap values. STEEL'S index of finished steel prices stood at $53.90 in December. Increases which became effective Jan. 1 boosted the index to $55.80. Another general advance became effective in March, offsetting previously announced wage increases and hiking the index to $60.70.

Subsequent raises brought the index to $61.70, or 18 per cent higher

(*Please turn to Page 26*)



CLOSE-UP IN THE YARDS AT GARY—Two of the 12 blast furnaces, with their hot blast stoves for heating the 7000 tons of air forced into the two furnaces each day. Photos courtesy Carnegie-Illinois Steel Corp.

Dual Problem Faces American Industry

ASSERTING that employer-employe relations are now as strained as at any time in the history of the country, A. R. Mathieson, assistant to the vice president, United States Steel Corp., declared at the Economics Conference of Engineers, Johnsonburg, N. J., last week that the challenge that faces America is twofold:

First, the elimination of unemployment and, second, the prevention of shattering economic upheavals insofar as may be humanly possible. On the solution of these problems, he said, may well rest the permanency of the present system of the government.

Mr. Mathieson reviewed improvements in living and working conditions of labor and said that in his opinion the chief cause perhaps of present strained relations between labor management in many sections of industry is "a haunting feeling of insecurity on the part of the worker."

"If the employer could convince his workmen," Mr. Mathieson continued, "that however serious this problem may be, it is not insurmountable, we would be making a real progress toward industrial peace.

"The labor leader on the other hand could contribute much by sound leadership, and acceptance of responsibility commensurate with labor's power, and an openminded view of the problems of the day."

Discussing changes in working conditions, the speaker pointed out that 25 years ago his company's base labor rate in Pittsburgh district was 17½ cents an hour, that the turn men were employed 13 hours a night or eleven hours in the day shift, with many working seven turns a week. Today, unskilled labor receives 62½ cents an hour and works on a 40-hour week schedule with time and one-half pay for over time.

The conference, sponsored by the Society for the Promotion of Engineering Education and Stevens Institute of Technology, Hoboken, N. J., adjourned last Saturday after a morning session lead by Prof. Edmund D. Ayres, University of Wisconsin, on the relationship of engineering to economic and social problems. The conferences began June 18.

A.F.A. SCHEDULES TECHNICAL, THREE REGIONAL MEETINGS

American Foundrymen's association has scheduled a mid-year technical meeting and three regional conferences to be held in co-operation with certain chapters and universities this fall.

Mid-year technical session will be held in Columbus, O., Sept. 30-Oct. 1, in conjunction with the Battelle Memorial institute. Meetings will be devoted exclusively to discussion of several outstanding technical problems of the steel, nonferrous and gray iron foundries. Those attending will inspect the institute's new foundry research laboratory.

Regional conferences will be held as follows: At Missouri School of Mines, Rolla, Mo., Oct. 8-9, under auspices of the university and the St. Louis chapter; at Cornell university, Ithaca, N. Y., late in November with the university and the Buffalo chapter; a second annual Iowa conference in conjunction with the Quad City chapter and one of the state universities, date and place to be announced later.

Steel Featured at Railroad Exhibit

THE first in seven years, the "railroad" show, which ended last week in Atlantic City, N. J., forcibly revealed the part steel has played in the advanced design of railroad equipment. Measured in many ways, from some minor part in the assembly to the completed unit, steel and its alloys were shown to have contributed much to progress in this field.

With more than 280 exhibits in the municipal auditorium and with some of the larger units on display on railroad sidings, there was close to, if not a record attendance. A number of the larger steel producers had exhibits, in addition to the attractive displays of a host of manufacturers of metal parts and appliances.

Many Exhibits and Papers

The exhibition, sponsored by the Railway Supply Manufacturers' association, was held in connection with meetings of the various divisions of the Association of American Railroads, which were scheduled for a period of several days. These meetings and particularly those of the mechanical division, attracted no little attention of steel engineers.

There were papers on research in car and locomotive equipment, and various committee reports, including one on specifications and tests for materials, in which several revisions in steel specifications were proposed. Among others, new specifications for steel bars were presented, covering carbon hot-rolled and cold-finished and also alloy steels of the grades in most general use.

A report on handling railroad scrap presented detailed data on comparative costs of diverting iron and steel into higher grades for more profitable sale; a companion report on reclamation was also submitted.

One feature of the exhibit was a new 50-ton lightweight, all-welded alloy-steel box car, of dimensions of a standard car, but almost of 10,000 pounds lighter, built by Pullman-Standard Car Mfg. Co., Chicago.

Modern cars constructed on Mansteels, products of United States Steel Corp. subsidiaries, were shown Ten, Cor-Ten and 18-8 stainless in contrast to cars built several years ago of carbon steel. The new cars weigh 30,500 pounds to 34,900 pounds, compared with 40,000 to 42,000 pounds for the older types. This allows about 5 tons more pay load to each car without added power to haul.

The statement is made that American railroads could have saved $154,000,000 in 1937 operating costs if it had been possible to reduce overweight of all cars at once to the level of the new types.

In the opinion of one railroad authority carbon steel will be made as a special steel in future and the high-tensile steels will become the "ordinary steels."

Outside Union Voted Down at Wisconsin

Progressive Steel Workers, an independent union in the Wisconsin Steel Works, has been recognized by International Harvester Co., Chicago, as sole bargaining agent for employes of its steel company subsidiary. This action followed an examination by an independent firm of public acountants of employes' cards as submitted by the Progressive Steel Workers and by the Amalgamated Association of Iron, Steel and Tin Workers. The independent union received 3020 votes of the 4011 eligible employes.

In recent elections held in the Chicago district by the national labor relations board, CIO was victor in balloting at the plant of Revere Copper & Brass Inc. by a vote of 481 to 314, while employes of the Crowe Name Plate & Mfg. Co. rejected the Amalgamated association 446 to 372.

The Allegheny regional advisory board, Pittsburgh, estimated carloadings in this district for the third quarter at 943,326 cars, an increase of 7.7 per cent over actual loadings of 884,532 cars in third quarter of 1936. The forecast compares with loadings of 1,082,261 cars in third quarter of 1929.

Carnegie-Illinois Merges Two Plants

CARNEGIE-ILLINOIS STEEL CORP. has announced that the Farrell steelworks and furnaces and the Farrell-Mercer sheet and tin mills will be merged and operated as a single plant to be known as the Farrell works.

Frederic B. Quigley, C. A. Ferguson and G. W. Humes have been appointed to direct operations effective July 1. Mr. Quigley will be general superintendent. Mr. Ferguson will be assistant general superintendent, in charge of sheet and tin plate, and Mr. Humes will be assistant general superintendent in charge of all steel mill operations.

The plants are on adjoining tracts of land, and their functions are of a nature that lend themselves to integration rather than operation as separate units. The plants produce blooms, billets, plates, sheet bars, slabs, ingots, tin and black plate, sulphate of iron, blued and black sheets, and enameling stock. There are two blast furnaces and 15 open hearths at Farrell.

Mr. Quigley entered the steel industry in the blast furnace department of Carnegie Steel Co.'s Ohio works in 1908, year of his graduation as a metallurgical engineer from Case School of Applied Science. Shortly after the merger of the Carnegie and Illinois Steel companies Mr. Quigley was named general superintendent of the Farrell steel works and furnaces, the position he now occupies.

Mr. Ferguson, a 1911 graduate of the University of Michigan, was a draftsman for the Westinghouse Electric & Mfg. Co. from 1912 to 1913. That same year he became assistant master mechanic at the Vandergrift works of American Sheet & Tin Plate Co.

When the sheet and tin plate company was combined with Carnegie-Illinois Steel Corp. Mr. Ferguson was named general superintendent of Farrell-Mercer works, his present position.

Mr. Humes entered employ of Carnegie Steel Co. as a machinist helper at Farrell in 1908. He has been open hearth superintendent at Farrell for eight years.

Soil Pipe Makers Answer Federal Complaint

Answer was filed last week with the federal trade commission by the Cast Iron Soil Pipe association and 35 other respondents to a complaint of the commission in which the respondents were charged with violating the trade commission act and the Robinson-Patman law.

The answers generally deny the commission's allegations and ask for a dismissal of the complaint. The case is of some importance because it involves basing points.

Financial

J. & L.'S NET INCOME FOR 12 MONTHS $7,619,668

Jones & Laughlin Steel Corp., Pittsburgh, and subsidiary companies report for the 12 months ended April 30, 1937, consolidated net income of $7,619,668 after provisions for depreciation, depletion, interest charges on funded and long term debt, etc.

During the 12 months dividends on the 7 per cent cumulative preferred stock amounting to $5.50 per share, or $3,229,264.50, were paid. On April 30 dividends in arrears on the 7 per cent cumulative preferred stock amounted to $26.25 per share, or $15,412,398.75 on the 587,139 shares outstanding.

No provision has been made for federal surtax on undistributed profits applicable to 1937 and no provision was required on undistributed profits applicable to 1936.

The income account is being made generally available to security holders of the corporation and other interested parties pursuant to the provisions of Section 11-A of the securities act of 1933, as amended, and is issued in connection with the sale of $30,000,000 principal amount of Jones & Laughlin first mortgage bonds, series A, 4¼ per cent, due March 1, 1961, for which registration statement was filed with SEC on March 13, 1936, and became effective April 2, 1936.

DIVIDENDS DECLARED

Fansteel Metallurgical Corp., North Chicago, Ill., declared the regular quarterly preferred dividend of $1.25 per share, payable June 30 to stockholders of record June 15. This is the second installment of the $5 preferred dividend for 1937, authorized by the board of directors Feb. 8. Other payments are scheduled for Sept. 30 and Dec. 17 to holders of record Sept. 15 and Dec. 15 respectively.

Directors of Cleveland-Cliffs Co., Cleveland, voted a dividend of $2.50 a share on $5 preferred stock, payable June 30 to stock of record June 24. The disbursement will leave $24.66 of the accumulated dividends unpaid. The Cleveland Cliffs Corp., Cleveland, a holding company having 50 per cent interest in Cleveland-Cliffs Iron Co., also declared a dividend last week, of 20 cents payable July 30 to stock of record July 20.

Joliet Wire Rod Mill Is Dedicated

JOLIET, Ill., one of the oldest steel centers in the Middle West and for nearly 60 years actively identified with the manufacture of steel wire, on June 23 was the site of the observance of a major development in that city's industry.

The occasion was the formal opening of the new $3,000,000 rod mills of American Steel & Wire Co., but the interest and pride of the Joliet citizenry in the installation made the celebration a community, rather than a company affair.

Several hundred out-of-town visitors, including officials of the United States Steel Corp. and American Steel & Wire Co. and leading business executives of the Chicago district, were guests of the Joliet association of commerce at a luncheon which preceded inspection of the new plant. The national champion high school band of Joliet met the special train which brought visitors from Chicago, while a special 32-page rod mill section supplemented the day's regular edition of the *Evening Herald-News*, Joliet newspaper.

At the luncheon civic leaders paid tribute to the company and expressed their gratification over the building of the new mills which have aided to bring Steel & Wire's employment there to an all-time peak.

Old-Timers Introduced

Guest speakers included C. F. Blackmer, president, American Steel & Wire Co., who described briefly the new installation where it is possible to produce 220,000 tons of No. 5 rods annually. Other speakers were Arthur H. Young and Ralph H. Watson, vice presidents, United States Steel Corp.; C. F. Hood, executive vice president and F. Ingraham, manager of operations, Chicago district, American Steel & Wire Co.

A feature of the luncheon was the introduction of ten men who have had a combined service record of 520 years and eight months with the American Steel & Wire Co. at Joliet. All but one have been pensioned.

The new continuous mills, incorporating recent developments in design, replace two old mills which were closed in 1930 and subsequently scrapped. Rod requirements of the company's wire mills at Joliet, Waukegan and DeKalb, Ill., will be filled by the new units.

(For a description of the mill see article beginning on page 41 of this issue).

Men of Industry

HENRY R. HORTENSTINE, vice president and chief engineer, has been elected president, Hunter Steel Co., Pittsburgh. He has been associated with the company and its predecessor 21 years. Paul A. Smith, for the past five years vice president and field engineer, has been appointed vice president and general manager.

♦ ♦ ♦

Myron C. Taylor, chairman, United States Steel Corp., New York, sailed for Italy June 18.

♦ ♦ ♦

W. A. Armstrong, Dayton, O., has been named vice president, Nash-Kelvinator Corp., Detroit.

♦ ♦ ♦

W. W. Coleman, president, Bucyrus-Erie Co., South Milwaukee, Wis., has returned from an extended trip abroad.

♦ ♦ ♦

Frank P. Dahlstrom has joined the staff of Aetna-Standard Engineering Co., Youngstown, O., as electrical engineer.

♦ ♦ ♦

H. C. BeMent, formerly with Crown Cork & Steel Co., Baltimore, is now with Mackintosh-Hemphill Co., Pittsburgh, in the metallurgical department.

♦ ♦ ♦

J. H. VanCampen, chief engineer, Corrigan McKinney division of Republic Steel Corp., Cleveland, resigned recently to assume new duties with H. A. Brassert Co., Chicago.

♦ ♦ ♦

E. C. Roberts has been made assistant advertising manager, Clark Controller Co., Cleveland. C. A. Reece will continue to work in a consulting and advisory capacity, cooperating with Mr. Roberts.

♦ ♦ ♦

W. S. Haring, vice president in charge of western sales for the Alan Wood Steel Co., Conshohocken, Pa., is spending several weeks in the East. His headquarters are in Los Angeles.

♦ ♦ ♦

J. L. Perry, president, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., was chosen one of the 11 directors of the Alabama chamber of commerce at its organization meeting recently.

♦ ♦ ♦

Malcolm F. Judkins has been appointed chief engineer, Firthite division, Firth-Sterling Steel Co., McKeesport, Pa. A graduate in chemical engineering from the University of Washington in 1928, he received his master of science degree from Carnegie Institute of Technology in 1929. He has been

Malcolm F. Judkins

identified with engineering work in the Firthite manufacturing department since the beginning of the sintered carbide development.

♦ ♦ ♦

Oscar F. Patzke has been appointed sales manager, Smith Steel Foundry Co., Milwaukee. He has been in both production and sales connections with Milwaukee steel foundries for more than 25 years.

♦ ♦ ♦

Robert W. Law has been appointed division manager at Boston for A. M. Byers Co., Pittsburgh. Mr. Law has been with the organization since 1925 as sales representative in the New York division. He succeeds J. J. Riley.

♦ ♦ ♦

T. E. Hughes, chief maintenance engineer, Duquesne plant of Carnegie-Illinois Steel Corp., has been elected chairman of the Pittsburgh district for the Association of Iron and Steel Engineers for the period beginning Aug. 1 to July 31, 1938.

Charles R. Honce
Formerly cashier, United States Steel Corp., New York, who has become assistant treasurer, as noted in STEEL, May 31, page 30. Mr. Honce began his career as an office boy with the Steel corporation 32 years ago

♦ ♦ ♦

James F. McCrory Jr., formerly with O. Hommel Co., has become associated with J. C. Ackerman, Pittsburgh, representative for various chemical, oil, and specialty producers. Their new offices are located at 1411 Oliver building, Pittsburgh.

♦ ♦ ♦

C. W. Gilmer, heretofore manager mechanical sales, Seattle branch of United States Rubber Products Inc., has been transferred to the New York office as belting sales engineer. L. F. Koepp, formerly salesman in the Seattle district, has been appointed to take Mr. Gilmer's place.

♦ ♦ ♦

Carl Sawade, general sales manager, Utica Radiator Corp., Utica, N. Y., will also assume sales direction of the new air conditioning division. He will divide his time between Utica and the recently opened New York office at 101 Park avenue.

♦ ♦ ♦

Fred L. Plummer, consulting engineer and associate professor of structural engineering at Case School of Applied Science, Cleveland, has been elected president, Cleveland Engineering society. Ward Harrison, director of engineering, General Electric Co., has been elected vice president of the society.

♦ ♦ ♦

W. P. Marquis has been appointed works auditor of the new Irvin works of Carnegie-Illinois Steel Corp. Formerly chief of the bureau of costs at the company's general offices in Pittsburgh, he has been employed by subsidiary companies of United States Steel Corp. since 1913.

♦ ♦ ♦

Frederick E. Barth, for 11 years vice president, Graton & Knight Co., Worcester, Mass., has been elected president, to succeed the late Frank H. Willard. He has been with the company since 1919, serving first as office manager and then as general sales manager from 1924 to 1926 when he was elected vice president and assistant general manager.

♦ ♦ ♦

Forrest U. Webster, for nine years advertising manager of Cutler-Hammer Inc., Milwaukee, and for the past three years merchandise sales manager, has resigned to become an executive of the Lord & Thomas advertising agency, New York. He is a former president of the Milwaukee and National Association of Industrial Advertisers.

♦ ♦ ♦

Charles H. Stoeckle, Crucible Steel Co. of America, has been elected chairman, Philadelphia chapter, American Society for Metals. Other officers selected for the coming year are: vice chairman, Adolph O. Schaefer, Midvale Co.; secretary,

Frank H. Pennell, Autocar Co., and treasurer, George P. Kraemer, Edgar T. Ward's Sons Co.

♦ ♦ ♦

Benedict Van Voohris affiliated with the plastics department of E. I. duPont deNemours & Co. was elected president, Purchasing Agents Association of New York at its annual meeting June 15. Leonard G. Tubbs, National Dyeing & Printing Co., was elected first vice president; Harold K. LaRowe, Dairymen's League Co-operative Association Inc., second vice president; and Edward B. Fielis, New York & Queens Electric Light & Power Co., treasurer.

♦ ♦ ♦

Harry James, who will retire as general manager of the Pencoyd, Pa., plant of Carnegie-Illinois Steel Corp., July 1, was guest of honor at a dinner tendered by his associates at the Penn Athletic club, Philadelphia, June 19. Mr. James had been identified with the Pencoyd organization 49 years and is retiring at the age of 70 under the corporation's pension plan. He will be succeeded by William Unger, formerly assistant manager at the Homestead works of Carnegie-Illinois in Pittsburgh.

♦ ♦ ♦

F. C. Ritner has been appointed assistant to the president, Carboloy Co. Inc., Detroit. He will have charge of special wear resistant applications, new developments and special products. T. D. MacLafferty, heretofore identified with the Detroit office of General Electric Co., has been named assistant to the general sales manager of Carboloy while H. C. Stone has been transferred from the Newark, N. J., office to represent Carboloy in New York.

♦ ♦ ♦

Harvey A. Scribner has been elected president, Russell T. Gray Inc., industrial advertising agency, Chicago. He succeeds the late Russell T. Gray. He joined the organization in 1923 and since 1927 has been first vice president. R. V. Barr, for 12 years secretary and assistant treasurer, has been elected secretary-treasurer. L. G. Willcox has been re-elected vice president. W. J. Higgens, art director for the past 16 years, and John R. Armstrong, account executive for eight years, have been named vice presidents.

♦ ♦ ♦

Louis B. Neumiller, former manager of the central sales division for Caterpillar Tractor Co., Peoria, Ill., has been named director of industrial relations, a new post. C. M. Burdette, former assistant to Mr. Neumiller, has now been advanced to manager of the central sales division.

L. J. Fletcher, former head of the agricultural sales division, has been named assistant general sales manager.

C. A. Spears, supervisor of special representatives, has been promoted to manager of allied equipment sales; Merwin T. Farley, eastern agricultural sales supervisor, has been promoted to agricultural sales manager of the eastern division, and Floyd E. Rusher, agricultural sales manager, eastern division, has been advanced to assistant sales manager of the central division, succeeding Mr. Burdette.

♦ ♦ ♦

Norman J. Quinlan, formerly superintendent of production and processing contracts, has been appointed assistant to general superintendent of Gary works, Carnegie-Illinois Steel Corp. He is succeeded by Glenn W. Covalt, who had formerly served as chief clerk to the assistant general superintendent.

Norman J. Quinlan

Mr. Quinlan has been associated with Gary works since 1908 having served in the construction department, the merchant mill, and the order department. Mr. Covalt joined the Gary Works in 1912 where he was employed in the merchant mill and held several operating positions before he became chief clerk to the assistant general superintendent in 1918.

♦ ♦ ♦

J. E. Fields, vice president and director of Chrysler Corp., and president of the Chrysler division, has assumed duties in the executive management of the corporation as a whole, with offices at the Highland Park plant, Detroit. Prior to becoming associated with Chrysler in 1922, Mr. Fields was active in the machinery and cash register industries, and with Chalmers and Hupp automobile companies.

David A. Wallace, for a number of years vice president of Chrysler division in charge of manufacturing, and president of the Chrysler marine engine division, has been appointed president of the Chrysler division.

Joseph W. Frazer, vice president of the Chrysler division, has been named vice president and director of sales and merchandising.

Died:

WILLIAM T. MARTERSTECK, 67, prominent in the steel industry of Canton and Youngstown, O., and Sharon, Pa., districts, in Cleveland, June 21. Born in Bruggen, Germany, he was educated there and came to America at the age of 20. He was chief engineer in charge of constructing the Central Steel plant at Massillon, O., now the alloy division of Republic Steel Corp., and the Mark plant, Indiana Harbor, Ind., now a division of Youngstown Sheet & Tube Co. For three years ending in 1931 he was engaged on construction work in Russia, first for the Freyn Engineering Co. and later for the Soviet government direct.

♦ ♦ ♦

Richard C. Stewart, chairman of the board, Stewart Iron Works Co., Covington, Ky., in Covington, June 14.

♦ ♦ ♦

Albert P. Wolf, 62, for the past 16 years inspector at the Los Angeles plant of Consolidated Steel Corp. in that city, June 3.

♦ ♦ ♦

Robert R. Keith, 58, head of the tractor division of the J. I. Case Co., Racine, Wis., in Des Moines, Iowa, June 13.

♦ ♦ ♦

Eugene A. Giard, 43, research engineer, Cutler-Hammer Inc., Milwaukee, June 12.

♦ ♦ ♦

William S. Davenport, president, Davenport Machine Tool Co. Inc., Rochester, N. Y., in Rochester, June 7.

♦ ♦ ♦

Charles E. Gross, 67, associated with the York Ice Machinery Corp., York, Pa., for practically 49 years, in York, June 15.

♦ ♦ ♦

Edwin B. Glasgow, chief clerk of the auditing department, H. C. Frick Coke Co., Pittsburgh, in Scottdale, Pa., June 17.

♦ ♦ ♦

Charles A. Strelinger, 81, founder and president, Charles A. Strelinger Co., Detroit, manufacturer of machinery, tools and shop supplies, in St. Louis, June 16. Mr. Strelinger founded the company in 1884 and since leaving Detroit, four years ago had resided in St. Louis. He was also president of the Canadian branch of the company.

♦ ♦ ♦

John H. Nicholson, 70, former vice president of National Tube Co., Pittsburgh, and an authority on steel processing development, June 20 in Pittsburgh. He was noted as a pioneer in the development of seamless tubing. Shortly after going to Pittsburgh, he organized the Standard Seamless Tube Co., of which he became president. When this firm was absorbed by National Tube he was made vice president.

Production

STEEL production declined 1½ points last week to 74 per cent due largely to a drop of 10 points in Pittsburgh operations because of strike situation at Johnstown. However, the rate is expected to rebound this week, as several plants affected by strikes, are reopening. Details follow:

Cleveland-Lorain—Gained 3 points to 49 per cent, following addition by Otis Steel Co. of one unit to its active list.

Birmingham—Steady at 83 per cent.

Chicago—Unchanged at 63½ per cent, with output confined to plants of Carnegie-Illinois Steel Corp., Republic Steel Corp., and Wisconsin Steel Works. Three blast furnaces still are being operated under strikers' sanction by Inland Steel Co. and Youngstown Sheet & Tube Co. Twenty-seven of 39 stacks are active.

Detroit—Up 2 points to 99 per cent, with one of the district's open hearths down two days for repairs.

New England—Up 10 points to 92 per cent, with all but one small open hearth operating.

Cincinnati—Declined 7 points to 86 per cent when two open hearths were taken off for repairs, leaving 20 producing. At least one of these will be restored next week.

Pittsburgh—Off 10 points to 82 per cent, as a result of the enforced closing at Johnstown, Pa. With the approach of the vacation season, operations in the next few weeks may fluctuate. In the week of June 28 many departments at Donora will be closed for vacations, and in the following week plants of one of the independent producers will be closed.

Wheeling—Continued to hold at 93 per cent for the second consecutive week.

St. Louis—Unchanged at 93 per cent, 29 out of 33 open hearths being active. No early change is anticipated.

Buffalo—Off 1 point to 88 per cent. Thirty-eight open-hearths and 11 blast furnaces in the district are active.

Youngstown—Averaged 29 per cent, down 1 point. The rate will advance to 30 per cent this week as Carnegie-Illinois Steel Corp. operates all 15 open hearths, a bessemer and five blast furnaces at its Ohio works and 11 open hearths and two blast furnaces at its Farrell plant. Sharon Steel Corp. has four open hearths and one blast furnace active at its Lowellville works.

Central eastern seaboard—Held at 67 per cent, with little deviation expected.

District Steel Rate

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended June 26	Change	Same week 1936	Same week 1935
Pittsburgh	82	—10	66	30
Chicago	63½	None	71	41
Eastern Pa.	67	None	47	29
Youngstown	29	—1	80	42
Wheeling	93	None	71	48
Cleveland	49	+3	84½	46
Buffalo	88	—1	84	32
Birmingham	83	None	58½	30
New England	92	+10	80	61
Detroit	99	+2	100	94
Cincinnati	86	—7	80	†
St. Louis	93	None	†	†
Average	74	—1½	71½	37

†Not reported.

Birmingham District Has All Blast Furnaces in

With blowing in of its sixth blast furnace at Ensley, Ala., June 22 by Tennessee Coal, Iron & Railroad Co. all of the 18 serviceable stacks in the Birmingham district are in blast. This makes eight stacks in blast for this company, the other two being at Fairfield. Sloss-Sheffield Steel & Iron Co. has its four in service; Republic three, and Woodward Iron three.

First-Half Steel Near Record, Despite Strikes

(*Concluded from Page* 21)

than the average for June, 1936. Price increases on a number of products were applied July 1 last year, however, whereas present quotations are being extended into next month. The June price average stands at nearly 30 per cent above the 1932 level for that month and 5 per cent higher than in the sixth month of 1929. Pig iron was raised $3.50 a ton during the half year, moving its price to $4.50 above that a year ago.

Scrap quotations rose steadily during the first quarter, in some districts touching new highs since 1923. STEEL's price index of steelworks scrap rose from $17.58 at the opening of the year to a peak of $22.08 early in April before the market collapsed and wiped out all of previous gains. The lower figure, however, leaves quotations ahead of the June averages for 1929 and subsequent years. Average prices of finished steel and steelworks scrap for June of recent years follow:

	Finished Steel	Steelworks Scrap
1937	$61.70	$17.15
1936	52.20	12.55
1935	54.00	10.45
1934	55.08	10.32
1933	45.30	9.55
1932	47.64	6.62
1931	30.82	8.84
1930	52.37	13.11
1929	58.43	16.46

Engineers Discuss Flood Problems

MEMBERS of the Association of Iron and Steel Engineers turned their attention to flood protection and rehabilitation at a meeting in Pittsburgh, June 23, after a visit to the new Homestead plate mill of Carnegie-Illinois Steel Corp.

M. F. McConnell, general superintendent of the plant, was host for the inspection trip.

The symposium on flood protection included a joint paper by F. S. White, Westinghouse Electric & Mfg. Co., and G. P. Airhart, General Electric Co.; a joint paper by E. A. Hester, Duquesne Light Co., and Robert Cranson, West Penn Power Co.; and a paper by James Farrington, Wheeling Steel Corp. An interesting discussion concluded the meeting.

Mr. Farrington pointed out in his paper that mill buildings subjected to floods may be waterproofed at small expense, while equipment may be protected through raising or blocking up, using grease, and installing protective covers. Wheeling Steel Corp. is raising all openings into its motor room to guard against a possible 57-foot flood stage, he said.

Precautionary Measures

Concerning the design of electrical equipment for flood duty, Mr. Farrington suggested that coils should be wound with air spaces to facilitate drying, and he recommended the use of nonporous insulation and nonrusting wedges. In small motors, field coils should be completely encased.

In a paper on reconditioning flood damaged electrical apparatus, Mr. White and Mr. Airhart pointed out submerged apparatus is likely to be damaged by dirt, oil, grease, and other harmful matter. Carefully proven methods of drying, testing, and cleaning must be adopted. As soon as possible it is necessary to open up all bearings, clean them thoroughly, get all parts dry, and coat all bearing and journal surfaces with moisture-free oil to prevent rusting. While it is not always easy to get rid of moisture even at 100 degrees Cent. with fibrous insulation, perhaps the most effective method of doing so is by means of a vacuum.

Lessons learned from the flood of March, 1936, at Pittsburgh were discussed in the paper by Mr. Hester and Mr. Cranson. If proper precautions are taken, service can be speedily restored, they said. A good investment is to have a few permanent drying ovens set up for flood duty.

Activities of Steel Users and Makers

BLAW-KNOX CO., Pittsburgh, has sold its dust collecting division to Pangborn Corp., Hagerstown, Md. Patents, drawings, and good will are also taken over by Pangborn.

Blaw-Knox will continue to manufacture and market Blaw-Knox devices for the cleaning of liquids and gases, this type of equipment not being included in the foregoing arrangement.

♦ ♦ ♦

Utica Radiator Corp., Utica, N. Y., has appointed ABC Oil Burner & Engineering Co. Inc., Philadelphia, distributor for the Utica air conditioner in the metropolitan territory of Philadelphia.

♦ ♦ ♦

Franklin Steel Co., Cleveland, has leased from Consolidated Iron & Steel Co. warehouse of 26,000 square feet at 5201 Lakeside avenue, to take care of increased demand for steel plates and sheets.

♦ ♦ ♦

Harold E. Trent Co., Philadelphia, manufacturer of electrically-heated industrial equipment, announces that its plant will be closed the week of July 5 for vacations.

♦ ♦ ♦

Blanchard Machine Co., Cambridge, Mass., announces that its offices will be closed the weeks of July 19 and 26 and the shop will be closed the week of July 26 for annual vacation.

♦ ♦ ♦

Milwaukee branch of Edgar T. Ward's Sons Co. has moved from 1811 South Sixty-sixth street to 6623 West Mitchell street, increasing its floor area from 10,000 feet to 27,000 square feet. The branch was established in 1928 and serves the Wisconsin territory. Fred O'Dell is branch manager.

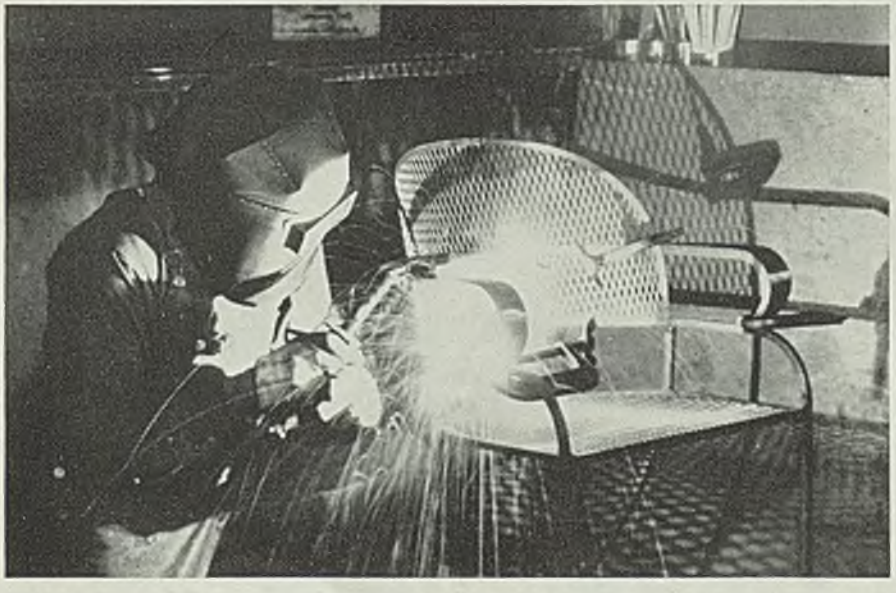
♦ ♦ ♦

McKenna Brass & Mfg. Corp., Pittsburgh, successor to McKenna Brass & Mfg. Co. Inc., is now located in its new plant at Dallas and Susquehanna streets, for the manufacture of bottling machinery, bottle washers, carbonaters, filters and a general line of brass goods. Stockholders of the predecessor company are to vote later this month on dissolution of McKenna Brass & Mfg. Co. Inc.

♦ ♦ ♦

Kropp Forge Co., Chicago, maker of rough and finished drop and hammer forgings, is adding a new building of 15,000 square feet to house increased machine shop facilities. This building will be set apart from its hammer shop to allow for producing precision machine work and will be completely tooled with modern high-speed machine tools for rough and finish machining of small and large forgings, up to 30 tons. The company's expansion program so far completed includes the addition of new die sinking equipment, several new hammer and additional heat treating furnaces. Gas burning equipment will be installed.

Graceful Lawn Chairs Made by Welding



STEEL furniture for lawn and veranda grows in popularity, particularly at this season. Joining the parts with molten metal under the electric arc welder helps make chairs, tables and other articles attractive and serviceable. Photo, by Lincoln Arc Welding Foundation, Cleveland, shows fabrication of a lawn chair at the plant of Howell & Co., St. Charles, Ill.

Homestead Plate Mill Holds Open House

Carnegie-Illinois Steel Corp. held open house June 24 at its new 100-inch plate mill at Homestead works. Its purpose was to afford residents of Homestead and vicinity opportunity to see a modern electrically-powered plate mill in operation. The company has offered community visits to its plants for more than a year, and in a series of 16 such occasions in the Pittsburgh district last fall more than 100,000 persons were received, the record being 12,238 visitors in one day at Vandergrift works.

Visitors entered near the slab-heating furnaces and followed operations to the shipping floor, seeing the entire sequence.

Carrier Corp. Graduates Air-Conditioning Class

Carrier Corp., Newark, N. J., manufacturer of air-conditioning equipment, has just graduated a class of 55 young engineers, who have been assigned to posts within the organization or with the company's dealers in various countries.

The training program covered ten weeks instruction in residential and comfort air conditioning, commercial and industrial refrigeration and unit heating.

World Tin Consumption Shows Steady Increase

World production of tin in the first four months of 1937 was 60,646 gross tons, an increase of about 5600 tons over the corresponding period of 1936, according to the International Tin Research and Development council. Comparable statistics of consumption were 65,636 tons in 1937, against 54,691 tons in 1936. The council's statistics have been made more complete by addition of figures representing tin smelted and consumed locally in such countries as Japan and Australia, giving coverage to practically the entire world.

For the year ended April, 1937, the United States showed an increase of 17,800 tons over the previous year, 26.8 per cent. Apparent consumption in the United Kingdom indicated a decrease of 14.7 per cent. In view of the activity of tin consuming industries heavy draft on stocks is indicated. Russia consumed 11,155 tons, about 40 per cent above the previous year. World production of tin plate in the year ended April, 1937, increased 24.5 per cent over the preceding year, from 3,196,000 tons to 3,976,000 tons. Tin used for this purpose was, respectively, 53,000 and 66,000 tons.

MIRRORS OF MOTORDOM

DETROIT

EYES of the motor industry are being turned toward Dearborn, following reports Ford is preparing to release an extensive tool and die program for some rather important revisions to be made on 1938 models. Up to now, the industry as a whole has been soft pedaling new model changes, and general opinion has been that they would be minor, primarily as a result of protracted labor disturbances. But plans for the new Ford may work some change in this situation.

It will be recalled recently Ford purchased a considerable amount of new machinery for a centrally located tool and die shop. Consolidation of a number of small departments throughout the plant was proposed and work was started in remodeling and extending one end of the transfer building at the Rouge plant for this new tool and die shop. New foundations were set, and structural work started.

Die Interests Encouraged

Recently, it is understood, when Mr. Ford was apprised of the development and went out to look over the initial stages of the project, he quickly issued orders to halt all work. This was done, after a reported $300,000 had already been invested in the program. Chief reason for Mr. Ford's turning thumbs down was the location which he considered to be poorly selected for a centralized tool and die shop.

In the past week, tool and die shops around town have perked up their ears at the news an important release of prints on tools and dies was imminent from the Rouge plant for 1938 models. Local die interests were just about resigned to a bad season on new dies, when word on the Ford development became known. They are now inclined to the belief things will not be so bad after all.

Expansion of steelmaking facilities at the Ford plant also will get under way shortly. Three of the ten present open-hearth furnaces

BY A. H. ALLEN
Detroit Editor, STEEL

will be torn down and capacity increased from 90 to 180 tons. Material for this work has now been ordered and the go-ahead signal is being awaited. It is said plans have been approved also for a new bessemer converter installation, probably to be used for duplexing purposes.

The day of the bessemer thus appears not to be at an end, as some had supposed. Only recently (STEEL, June 14) Weirton Steel announced a new 25-ton bessemer installation at Weirton, W. Va., the first such furnace to be erected since 1930 when J. & L. put in two 25-ton units at its South Side works in Pittsburgh. Size of the proposed Ford unit is not yet known, but it probably will be 25 tons.

Best guess so far heard on when the new Ford will be coming from the assembly line is Sept. 2. If this date is to be made, some tall hustling is indicated at the Rouge plant, since over half the force will be idle the last two weeks of July when inventory and the changeover will be effected. Vacations are being staggered this summer, and during the shutdown period, employes will be furloughed and not dismissed and rehired as in previous years.

UAW Quiet at Ford Plant

UAW activities at the Ford plant have been quiet lately, beyond a routine investigation of the recent riot by the prosecutor's office here. The union proposes to make another attempt to distribute literature to Ford employes July 7, but this time will be careful to stay off Ford property and, in fact, out of Dearborn completely. Police protection at vantage points in Detroit where workers board cars is claimed to have been obtained.

Another interesting commentary on how things are operating these days as far as the unions and the government are concerned is seen in the union's statement that 10,000 copies of a speech made by Representative Maverick of Texas, denouncing the Ford management for its part in the recent embroglio, will be mailed under *government frank* to residents of Dearborn. Here is a case where taxpayers are bearing the cost of burdening themselves with union propaganda.

EQUIPMENT buying programs for the numerous new plant projects now under way has been practically completed and machinery and equipment people are talking about the "summer lull" again.

Ground will be broken for the new Chrysler engine plant in Windsor this week probably, with the plant scheduled for completion by Sept. 1. Equipment for the Chrysler Kokomo, Ind., plant has all been awarded and includes a fair volume of used machinery, especially in the toolroom and maintenance classifications. Necessity for speedy delivery of this equipment forced the buying of some used tools, since deliveries on many types of new machines remain protracted.

No word has been received on the start of work on the General Motors diesel plant here on Outer Drive. While the corporation is talking about starting operations by Nov. 1, observers are inclined to the opinion it will be well after the first of next year before wheels are turning.

More than one set of new plant plans has been shelved because of labor difficulties, but probably will be dusted off some time this fall or next year, since there is no particular pessimism being heard over the outlook for the long pull. For example, Plymouth plant engineers had prepared a set of requests for new equipment which they proposed to install this summer in the changeover period, but it is understood the Chrysler Corp. management suggested folding the plans up until a later date.

Plymouth, incidentally, is issuing

MIRRORS OF MOTORDOM

inquiries for a number of parts considerably smaller than comparable parts used on present models. It is not known whether this is simply some experimental work of its engineering department or whether some as yet undisclosed plans for Plymouth are in the making. Plymouth assembly lines are running at full speed, with output averaging close to 14,000 weekly when the laboring force is inclined to put in five full days. Dealer backlog of orders still is high and no tapering in production is yet in sight.

MOTOR cars and parts ranked second in dollar volume of American exports last year, and this year likely will even better the 9.9 per cent of the total registered last year. Car builders here are studying this market carefully, and are especially interested in the showing made by Willys so far this year, notably in the Union of South Africa. Total exports of cars to this country for the first four months of the year reached 12,675, of which Willys accounted for about 2500 or 20 per cent.

Popularity of a light car of the Willys type has led some other manufacturers to experiment with an export model. Studebaker is reported to have made some tests on a light 6-cylinder model for export, but as yet is not satisfied with the results. Hudson also is said to be making some road tests on a new small 6-cylinder export model, but no official announcement on this car has appeared.

Large appropriations for road improvement in foreign countries—particularly South Africa and South America—have spurred automotive travel and the market for cars. Improved industrial activity has meant more money to spend for automobiles. High cost of fuel seems to be the chief adverse factor for American-made cars. If economies can be effected in this direction, export managers are forecasting sharp increases in sales of automobiles abroad. The Hull program of reciprocal trade treaties, including some important agreements still to come, should give further impetus to foreign sales.

Observers of minute details on new cars probably already have noticed the new type of assembly screw being used by some makers on garnish moldings, drip moldings and other metal parts. Instead of the conventional slotted head, this new screw has a "cross recess" head, resembling two conventional slots at right angles but not extending to the edge of the head.

General Motors divisions have used several million of these screws on this year's cars; Chrysler likewise; and Ford a large quantity on commercial models. Packard has specified the screw for certain parts of its 1938 models and already has released a large quantity. Although about 20 per cent more costly than slotted-head screws, they present unique advantages.

The design was developed within the last year after considerable experimental work by the American Screw Co., Providence, R. I. The head, with the special type of recess, is cold upset and calls for a high quality of steel rod. Steel companies have devoted extensive research to perfecting suitable steels for the work. The screws also are supplied in various nonferrous alloys and with all types of plated finish.

Ninety per cent of the applications for the screw, which is made in all sizes and types, are in sheet metal assemblies. Main advantages are practical elimination of work spoilage due to a driver slipping off the screw and marring the finish of the part, greatly increased speed and facility of driving and a tighter assembly. Special drivers are required, with points resembling a rock drill bit shaped to fit snugly in the cross recess.

GENERAL MOTORS estimates that by August it will have more than made up the 133,000 production of cars lost during the 6-week strike earlier this year. . . . Dan Gladstone, owner of the Cope-Swift Foundry Co. here locked the doors of his plant the other day and said he would stay closed "until the CIO ceases to have a strangle-hold on industry." Forced by the UAW to grant wage increases, he lost money in April and again in May, reached the last pay day $200 short of the amount necessary to meet the payroll. Twenty union employes, armed with steel bars, cornered him in his office and demanded the money. Mr. Gladstone produced a revolver, ordered the men out of the plant and said he would shoot the first picket who showed up the next day. None did. . . . DeSoto dealers report good inroads on the used car problem, sales so far this year being 34 per cent ahead of last year. . . . City Auto Stamping in Toledo will make a $100,000 addition to its plant for storage space. . . . Pontiac has formed a new "customer relations" department to be the company's official ear-to-the-ground. . . . Hudson is supplying a special device for demonstrating gasoline consumption, comprising a gage holding 0.1-gallon of gasoline which can be checked against the speedometer to determine the miles-per-gallon. The device also is arranged to indicate the quantity of fuel the gas pump can deliver and the pressure under various operating conditions the car will meet.

Automobile Production

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

	1935	1936	1937
Jan.	300,335	377,244	399,634
Feb.	350,346	300,810	383,698
March	447,894	438,943	518,977
April	477,059	527,625	553,415
May	381,809	*480,518	540,357
5 Mos.	1,957,443	2,125,140	*2,396,081
June	372,085	469,368	.....
July	35,297	451,206	.....
Aug.	245,075	275,934	.....
Sept.	92,728	139,820	.....
Oct.	280,316	230,049	.....
Nov.	408,550	405,799	.....
Dec.	418,317	519,121	.....
Year	4,119,811	4,616,437	.....

Estimated by *Ward's Automotive Reports*
Week ended:

May 29	131,421
June 5	101,629
June 12	*118,798
June 19	*111,620
June 26	121,032

	Week ending June 26	June 19
General Motors	46,190	*36,450
Ford	28,890	*29,665
Chrysler	28,775	*28,875
All others	17,177	*16,630

*Revised. †Estimated.

How Manufacturers Can Help Distributors

Manufacturers should indicate in their catalog whether their products meet government specifications, identifying the particular specifications so met, according to a recommendation by the American Supply and Machinery Manufacturers' Association Inc., Pittsburgh. Such notations, it is claimed, are required in order to enable distributor salesmen intelligently to quote on government inquiries.

WINDOWS OF WASHINGTON

BY L. M. LAMM
Washington Editor, STEEL

WASHINGTON

HEARINGS on the hour and wage bill before the joint congressional committee were completed last week. They lasted some three weeks. Donald Richberg, former head of the dead blue eagle, was one of the last witnesses.

There are two definite trends of thought relative to this legislation. One is that the President has been stopped in getting its enactment and the other is that unquestionably some labor legislation of this type will be passed but it will probably be much changed from the present bill.

During the course of the hearings section 5 came in for considerable discussion and also there was much discussion of the fact that all industries and businesses should come under the new law, no matter how small the plant, even one employe. It was repeatedly pointed out that many of the small organizations are the worst chiselers.

Donald Richberg, once called the "assistant President" made quite a lengthy statement and as former head of the NRA he was sharply questioned.

Labor Bill Has Vices

He stated that the Black-Connery bill has "vices" of indefinite standards, uncontrolled discretion, undesirable extent of authority and resulting difficulties of enforcement."

Telling the committee that the bill has been shrewdly drawn Richberg said, "for this very reason I believe that this major effort ought not to be weakened by undertaking at the same time to achieve other objectives which command much less general support (than hours and wages) which are much more difficult to achieve, and some of which, although theoretically beneficent, may prove to be in fact undesirable."

Richberg told the committee that the grant of too much discretionary power will "embarrass the board, not only because of legal questions as to the extent and validity of such delegations of legislative power, but even more because of a continuing pressure upon the board to extend its authority and to use its broad powers for correction of such a multitude of evils that careful, cautious progress in a field of political experimentation will be made practically impossible."

In the same connection the erstwhile NRA head said that "the unhappy experience of the NRA indicates clearly the wisdom of giving to an administrative board the protections of a clear mandate to perform a practical task within a definitely limited jurisdiction."

Richberg, in concluding, said that "if we have now reached the time when the federal government is ready and able, without fear of judicial restraint, to go forward to eliminate oppressive wages, oppressive hours and oppressive child labor from all employments subject to federal control, then in the name of humanity let us do that job, let us do it promptly and effectively, unhampered by the burden of trying to do several wellnigh impossible jobs at the same time by the same board."

One of the significant features of the hearings is the fact that not a single witness, with the exception of a radical labor leader, has endorsed the labor bill as it stands.

The spokesmen of business who have appeared before the committee have warned that the legislation would be difficult, if not impossible of administration and enforcement.

ROPER SEES SUSTAINED UPWARD INDUSTRIAL TREND

While refusing to discuss the steel strike situation directly at his press conference last week, Secretary of Commerce Roper said that in the light of interruptions in industrial activity occasioned by labor disturbances, "I was interested to observe some statistics of the first five months of this year, indicating a sustained upward trend, compared with the same period of last year.

"Industrial production," he said, "is 20 per cent ahead of the 1936 period; factory employment, 13 per cent; factory payrolls 29 per cent; machine tool orders booked, 90 per cent; construction contracts ahead 17 per cent; dividend payments, 40 per cent; and department stores, 10 per cent.

"Particularly substantial gains are being reflected by manufactures of aircraft and engines, automobile trailers and air conditioning equipment.

"These favorable factors, supplemented by encouraging crop and fruit prospects and indications of early settlement of labor difficulties, give encouragement to business prospects for the remainder of the year."

DEMOCRATS AROUSED BY FEDERAL AID TO STRIKERS

Many democratic members of congress, largely southerners, jealous of state rights, have assailed the stand of the administration in the steel strike. Representative E. E. Cox, Georgia, democrat, said: "The most scandalous exhibition of cowardice I have ever witnessed is that now displayed by the government as regards delivery of mails in the strike-ridden areas. The power of the government has been set at naught. It has surrendered to a handful of lawless people and stands before the country as a discredited thing."

Senator Joseph W. Bailey, North Carolina, democrat, said: "The action of the governor of Pennsylvania in declaring martial law at Johnstown and demanding the closing of industries, is highly significant in view of the fact that thousands of workers were carrying on their work and did not wish to strike."

Senator Walter F. George, Geor-

gia, democrat: "By invoking martial law the governor (of Pennsylvania) instead of protecting workmen in their right to work, deliberately denies them this protection."

Senator Rush D. Holt, West Virginia, democrat: "The lawless element of the CIO is boasting by word of mouth and through printed communications that the government is with them. It is a known fact that John L. Lewis contributed out of the unions' dues hundreds of thousands of dollars to the federal and state tickets. That is not the seriousness of it, but when Lewis makes the statement that it is an obligation of the executive to pay back this debt, then it is something."

Representative Clare E. Hoffman, Michigan, republican, asks Secretary of Labor Perkins a number of pointed questions about the mediation board she has appointed to examine the steel strike situation, among them being:

"Whether a book written by the said Charles P. Taft 2d contained the statement that, 'Fuel is added to the flames by the silly refusal of employers to put such agreements as they may reach in writing.'

"Whether Lloyd K. Garrison made the statement: "The establishment of satisfactory relations between labor and management depends upon the frank acceptance of collective bargaining and the reduction of these agreements to writing.'

"Whether Edward F. McGrady, of the labor department, being a member of the mediation board, it is the policy of the labor department to close factories where the employer refuses to sign a written contract and a labor organization threatens to either close the factory or make demonstration in force against the workers who may remain within."

PROPAGANDA ACTIVITIES OF GOVERNMENT ARE COSTLY

In connection with the survey being made of the government organization by the Brookings Institution, a non-governmental organization, for Senator Byrd, Virginia, chairman of the select committee on investigation of executive agencies, an enlightening chapter in the survey was made public last week on publicity activities of the administration.

The report calls attention to the fact that while no figures are available on the growth of publicity activities "it is evident that it has increased materially in recent years." The fact is noted that the earlier efforts of the government generally were confined to notices of publications, although there gradually developed the practice of issuing material dealing with operations. "After 1933," says the survey, "the directing heads of publicity agencies were usually men who had extensive experience in newspaper work and who had in many instances been Washington correspondents."

Discussing the present magnitude of this publicity within the government the report states that "reports received from the executive agencies show that during the fiscal year 1936 expenditures for salaries of persons who were engaged solely in publicity work or a part of whose time was allocated to that purpose amounted to $521,000. In addition the salaries of persons who were employed partly on publicity work, but whose time was not allocated amounted to $81,000." These figures are for salaries of the office staff only and do not include any expenditures for salaries, equipment, and supplies used in duplicating the releases.

STEEL NOT VIOLATOR OF ROBINSON-PATMAN ACT

A year has passed since the effective date of the Robinson-Patman act under the jurisdiction of the federal trade commission. To this time no court decision has been handed down which would show what attitude the courts will take on this law.

The trade commission has announced that as of the effective date one year ago it has made 291 investigations of alleged violations of this act. Of this number 152 have been completed and formal complaints were issued in 22 cases; 98 cases were closed, and 32 are still awaiting disposition.

While not giving names the commission has made public a tabulation showing that of this number two cases were in the steel industry and one in the iron pipe industry.

In connection with the cases that were investigated, it is understood that several cases involving sales to the federal government were closed following the giving of an opinion by the attorney general, holding that this act does not apply.

LIND ASKS CO-OPERATION OF MACHINERY EXPORTERS

L. M. Lind, chief of the machinery division of the department of commerce, is calling upon machinery manufacturers to exchange export experiences, with his division as a clearing house. He believes that this will work to the benefit of all.

"Let's try to help each other in our export problems," says Lind. "Branches of the machinery industries are so diverse that officials of machinery building companies find it difficult to maintain liaison with each other adequately. 'Swapping' experiences and advice on solving various problems is likely to help."

In making his plea for a trial of the exchange of information, which Lind states was suggested by a member of the machinery industry, he states: "After receiving from us news on one opportunity or another and taking your own action, would you be good enough to write us the result? There may be, of course, a lag of several months before the actual outcome, but it would be helpful to the machinery division, and after a short time to you also, if we are informed of what happens on the many opportunities for export sales which we bring to your attention."

STEEL INDUSTRY OPPOSES HIGHER IRON ORE RATES

Concluding arguments were heard last week by the interstate commerce commission in ex parte 115, the case in which railroads are asking increases in freight rates to take the place of the recent reduction made by the commission.

There is a general feeling here that it will be at least 60 days before a decision is handed down and it may be much longer. The feeling also prevails that the commission will not allow the increases.

T. H. Burgess, representing the Republic Steel Corp. and others, during the final argument opposed a 6-cent per ton increase in rates on iron ore, because he said the carriers do not need an increase in rates. All they need, he contended, is an increase in iron ore tonnage and they are going to get that.

PRIVATE RE-EMPLOYMENT AT RECORD HIGH RATE

Secretary of Labor Perkins announced last week a new alltime record in private placements and decline in the number of active job seekers to the smallest volume in the history of the nationwide system of public employment offices.

"Nearly a quarter of a million private placements were made by public employment offices during May, 1937," she said. "The total of 240,703 marks the fifteenth consecutive month in which placements with private employers have exceeded those made in the same month one year earlier. This volume, which is the highest ever recorded during the history of the employment service, is 80 per cent above May, 1936, and nearly 10 per cent over April.

O'BRIEN OFF TARIFF BOARD

Robert Lincoln O'Brien has resigned as chairman of the United States tariff commission and President Roosevelt has appointed Raymond B. Stevens as chairman from July 1 and Henry F. Grady as vice chairman.

Editorial

Public Welcomes Challenge To Government by Mob

ONE of the most encouraging aspects of the present labor controversy in the steel industry is the inspiring manner in which a large portion of the American public is rallying to the cause of fair play.

Thousands of individuals who have little or no direct concern as to whether or not the steel companies sign agreements with CIO are becoming keenly interested in the contest because they realize that its significance extends far beyond the realm of labor relations.

They know that this is no ordinary fracas between employer and employe or between employer and union organizer. They see through the deceit of those who claim that collective bargaining is at stake. They even minimize the importance of the question of recognition, knowing that it is but a minor detail of a far more momentous issue. They subordinate all of these points to the one predominating question of whether this nation is going to be governed according to established laws or according to arbitrary rules made to suit each occasion.

John Q. Citizen probably wouldn't care much whether a steel company ran an open shop or signed a contract with a union, providing the decision did not affect him adversely. But when he sees that in handling this labor problem his federal government sneers at the laws protecting the rights of citizens and brazenly encourages a minority to break laws, John wonders what the outcome of this kind of government will be.

Sauce for Goose not Sauce for Gander as Law Is Interpreted Under Strike Conditions

Naturally he ponders over the discrepancies in the action of public officials. He wonders why Uncle Sam will deliver mail to a sit-down striker without question, whereas he will check with CIO representatives to see whether it is all right to deliver mail to a loyal worker in a plant where a minority has struck. He tries to figure out why it is sanitary for sit-downers to sleep on counters in a department store, whereas it is against the sanitary code for workers to sleep on cots in a steel mill.

Again he reads in the papers that strikers dynamited a railroad track in Ohio. Nothing was done about it, but John knows that if he were to be so brash as to place a sash weight on a railroad siding, an officer would arrest him and he would get the works.

Mr. J. Q. Citizen wonders why the law enforcing officers consider it good sport for striker snipers to take pot shots at airplanes, but consider it a damnable outrage that a private company should engage a private landing field as a base for airplanes.

Also, he wonders just why a governor—and especially one who has just come out for the President as a candidate for a third term—should order a company to close its plants because Mr. Lewis threatened to import thousands of miners to start a riot. Mr. Citizen wonders why it wouldn't have been more sensible to ask the miners to stay in their own precincts—especially since they have a contract to live up to in connection with their own jobs.

John is also puzzled by the attitude of unionists. In Ohio, when the national guard patrolled plants where no one was working the strikers were elated. They sent telegrams of praise to Governor Davey. But when the strikers discovered that the militia also was patrolling a Warren plant where employes were working, they proclaimed that this was an outrage and they sent scorching telegrams of criticism to the governor.

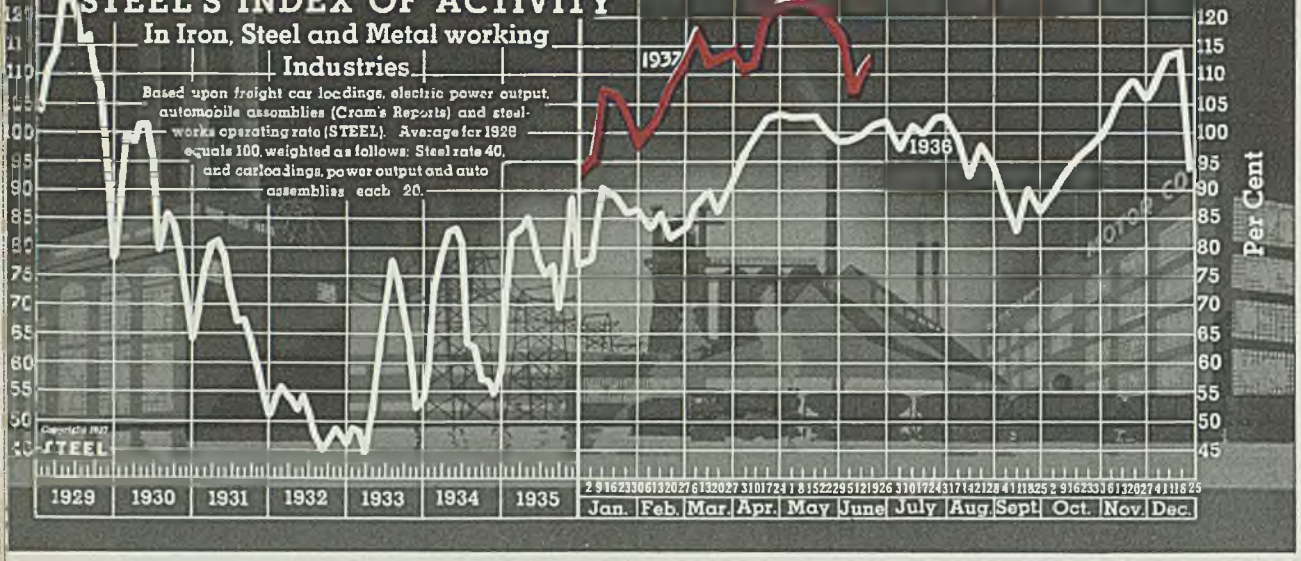
Independent Steel Heads May Be Fighting for Deeper Principle than Simple Labor Question

John's neighbors share his confusion. Bill Smith, next door, is a painter and belongs to a union. But Bill never goes to union meeting because the head of the local is an ex-convict who has been known to place bombs in the cars of union members who are foolish enough to ask for an accounting of the local's treasury. Bill also keeps away from union headquarters to escape being drafted for picket duty in a garment workers' strike.

And down at the end of the street, Oswald Skitowski, an ardent CIO convert, tells all that will listen that the local CIO spellbinder says that President Roosevelt is on the side of the strikers, that four departments of the federal government are allies of CIO, that Secretary Perkins has said that sit-down strikes are legal, that the President has as much as said that property rights need not be respected when human rights are at stake, etc., etc.

And so John Q. Citizen wonders where this outrage will end. He sees President, governors, mayors and petty officials bending knee to irresponsible union mobs and he asks where the ordinary, hardworking, conscientious citizen can go to obtain justice.

Perhaps the stand of Messrs. Girdler, Grace, Purnell and Block will provoke an answer to John's question. Possibly these four, who started out to settle a labor argument, may wind up as benefactors whose timely protest against mob rule shocked the nation into curbing the new deal before it became firmly established as a raw deal.



The

STEEL'S index of activity gained 3.6 *points to* 112.5 *in the week ending June* 19:

Weed ending	1937	1936	1935	1934	1933	1932	1931	1930
April 17	119.6	103.1	86.3	85.0	55.8	53.4	81.1	103.1
April 24	122.0	103.6	84.9	87.5	59.5	52.3	80.6	103.7
May 1	123.9	103.2	84.6	86.0	60.3	52.5	87.7	103.3
May 8	123.5	103.0	79.4	84.4	62.5	54.7	79.7	102.8
May 15	123.2	103.1	80.5	82.4	65.2	54.3	78.7	102.5
May 22	122.2	100.4	82.8	81.9	66.1	55.1	78.3	102.3
May 29	115.6	98.6	71.9	75.7	65.3	54.2	75.7	94.9
June 5	105.1	98.8	79.3	82.3	69.9	51.0	73.5	97.9
June 12	108.9†	99.4	80.0	83.6	72.1	51.1	73.2	96.2
June 19	112.5*	101.0	77.3	81.8	73.9	51.8	70.9	95.0

*Preliminary. †Revised.

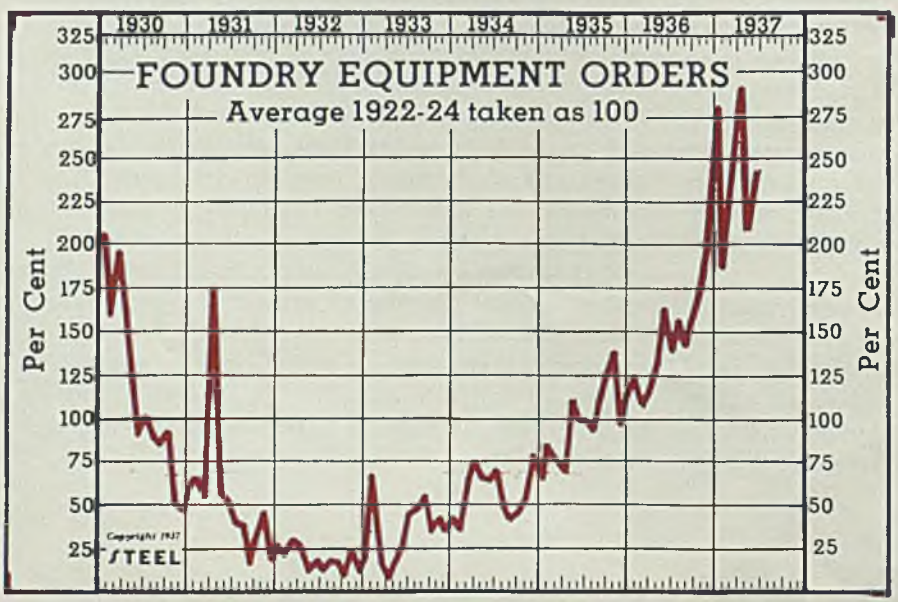
Second Quarter Record Is Good Despite Interruptions

RECORDS of industrial activity for the month of June will reflect the effect of the steel strike to a lesser extent than would be expected from the publicity the contest has received. The first attack of CIO involved three companies whose plants account for 16 per cent of the nation's total ingot capacity. On the basis of averages for four weeks preceding and four weeks following the beginning of the strike, its effect on the national rate of steelmaking operations was a drop from 90 to 75 per cent, or a loss of 16.6 per cent.

Using a similar method of averages, etc. effect upon activity in the iron, steel and metalworking industries, as measured by STEEL'S weekly index, was a decline in index numbers from 123.2 to 110.5, or a loss of 10.3 per cent.

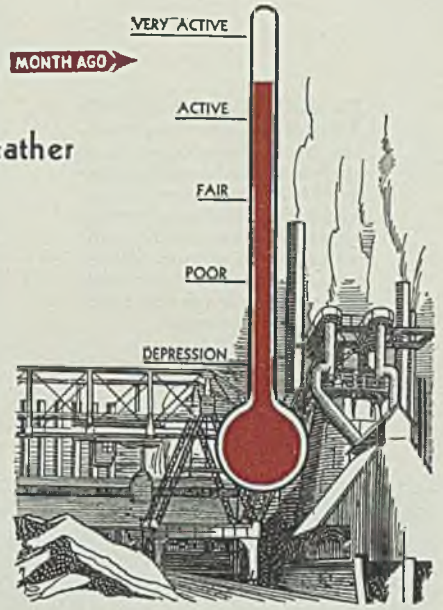
However, this figure probably is high for two reasons. First, the average for the four week period following the advent of the strike included the Memorial day week-end. Obviously a small part of the loss may be attributed to the holiday interruption instead of to labor trouble. Also, there has been a slight easing of activity in June due to seasonal or other influences wholly independent of the labor situation. In short, the CIO battle with the independent steel producers has curtailed general industrial activity by less than 10 per cent—perhaps not more than 7 or 8 per cent.

Figures for the latest week show a further recovery from the recent low. STEEL'S index of activity for the week ending June 19 stands at 112.5, as compared



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

BUSINESS TREND



Industrial Weather

TREND:

Steady

with 108.9 in the preceding week and 105.1 in the week ending June 5.

All four barometers figuring in the index reflect steady trends in the face of the current labor strife. Revenue freight car loadings continue at around the 750,000 mark weekly. Steelworks operations show only minor fluctuations and have hovered around 75 per cent of capacity since the last week of May. Electric power output has exceeded the 2,200,000,000 kilowatt-hour level in each of the last two weeks. Automobile production was stepped up to 120,720 units in the week ending June 19, after receding to 101,629 and 108,182 in the preceding two weeks.

The average of STEEL's index for the second quarter of 1937 is 116.4, which exceeds that of any quarter of the recovery period by a wide margin and falls short of the average of 121.1 for the record second quarter of 1929 by only 4.7 points.

Where Business Stands

Monthly Averages, 1936=100

	May, 1937	April, 1937	May, 1936
Steel Ingot Output	131.8	129.7	103.5
Pig Iron Output	136.4	135.3	102.3
Freight Movement	112.4	106.5	96.7
Building Construction	118.0	141.7	106.5
Automobile Production	140.4	143.9	124.9
Wholesale Prices	114.1	117.0	96.4

The Barometer of Business

Industrial Indicators

	May, 1937	April, 1937	May, 1936
Pig iron output (Daily average, tons)	114,328	113,469	85,795
Machine Tool Index	234.2	219.8	116.6
Finished Steel Shipments	1,304,039	1,343,644	984,087
Ingot output (Daily average, tons)	198,213	195,072	155,625
Dodge Bldg., awards in 37 states (sq. ft.)	40,287,900	48,396,100	36,362,700
Automobile output	540,357	553,415	480,571
Coal output, tons	29,980,000	26,010,000	28,684,000
Business failures; number	834	786	832
Business failures; liabilities	$8,364,000	$8,906,000	$15,375,000
Cement production, Bbls.	.....	10,315,000	10,985,000
Cotton consumption, bales	669,000	719,000	530,000
Car loadings (weekly average)	779,541	738,810	670,630

Financial Indicators

	May, 1937	April, 1937	May, 1936
25 Industrial stocks	$210.16	$215.62	$201.23
25 Rail stocks	$46.12	$46.27	$35.24
40 Bonds	$85.35	$85.79	$86.25
Bank clearings (000 omitted)	.....	$26,086,000	$22,473,000
Commercial paper rate (N. Y., per cent)	1	1	¾
*Commercial loans (000 omitted)	$9,529,000	$9,428,000	$8,626,000
Federal Reserve ratio, per cent	79.7	79.7	78.5
Railroad earnings	$47,807,447	$69,379,328	$41,547,644
Stock sales, N. Y. stock exchange	18,564,979	34,613,169	20,614,690
Bond sales, par value	$178,891,200	$294,936,800	$201,974,000

*Leading member banks Federal Reserve System.
†April, March and April respectively.

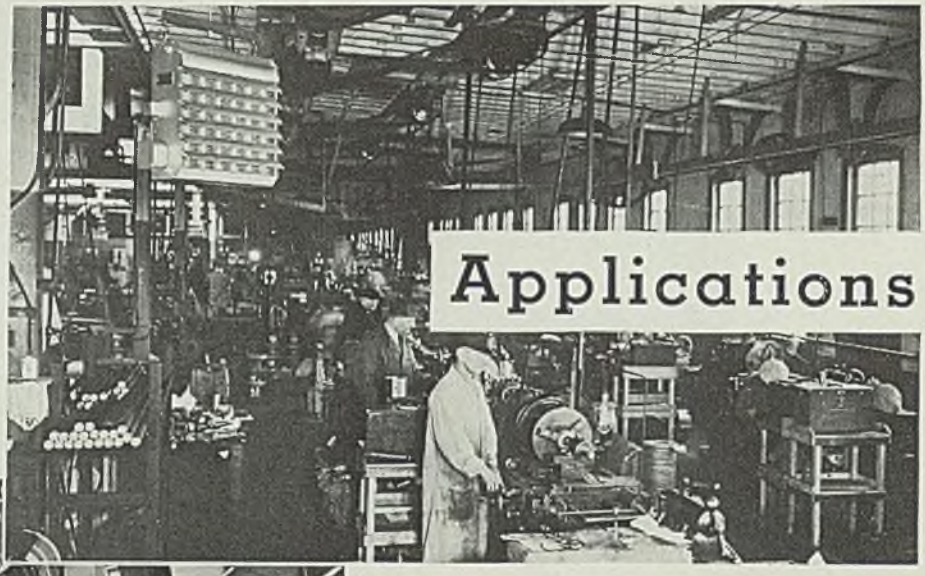
Foreign Trade

	May, 1937	April, 1937	May, 1936
Exports	.....	$269,171,000	$201,042,000
Imports	.....	$287,252	$191,110,000
Gold exports	.....	$13,000	$5,000
Gold imports	.....	$215,825,000	$169,957,000

Commodity Prices

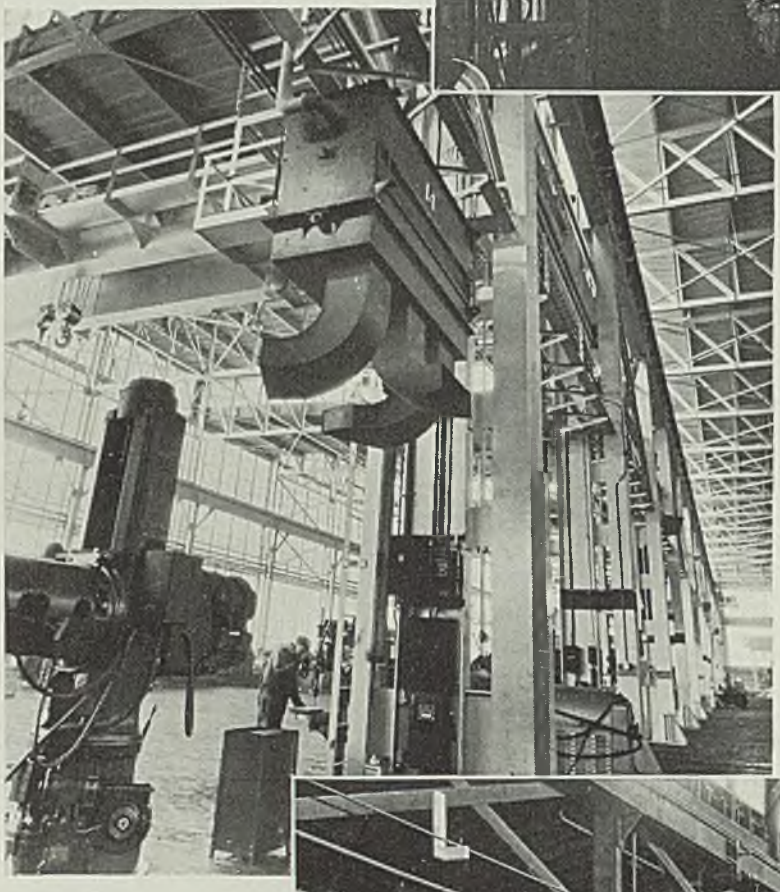
	May, 1937	April, 1937	May, 1936
STEEL's composite average of 25 iron and steel prices	$40.06	$40.39	$32.92
Bradstreet's index	$11.51	$11.81	$9.73
Wheat, cash (bushel)	$1.47	$1.54	$1.07
Corn, cash (bushel)	$1.47	$1.43	79c
Petroleum, crude (Bbl.)	.....	.....	$1.08

Applications o



RIGHT view shows baffle plates on an all-electric heater force warm air downward on operators in this machine shop, while below large units, centrally mounted, force warm air in two directions, heating two adjacent bays from one set of heaters

Photo courtesy American Foundry Equipment Co.

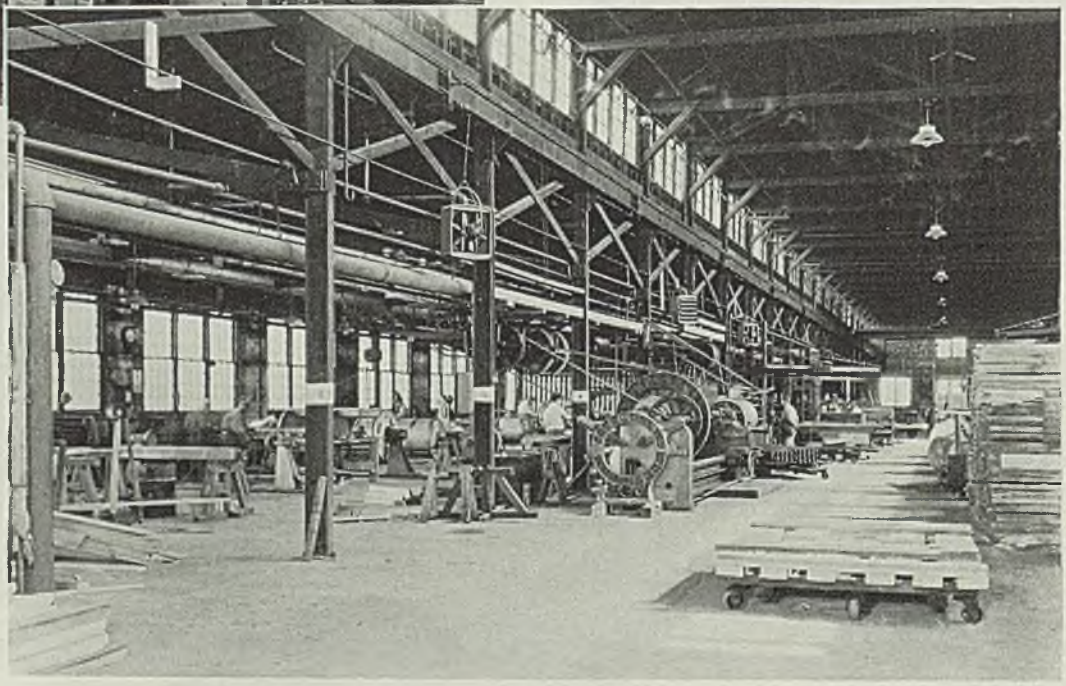


BY FRED MERISH

INDICATIONS of the changing times have been quite abundant. Recent conventions and meetings have indicated to no little extent that the emphasis in business today is on management and its relationship to the employe and his welfare. In large measure has it been proved that management's contributions to employe safety, welfare and comfort are returned in greater measure by increased production and lower costs.

Many employers have found that an important factor in assuring employe comfort is proper heating and ventilating of their plants. As a result of studies along this line, an increasing number of replacement and

Photo courtesy Herman Nelson Corp.



HIGH, centrally mounted unit heaters facing in alternate directions are used to heat adjoining bays in a large plant

Unit Heaters

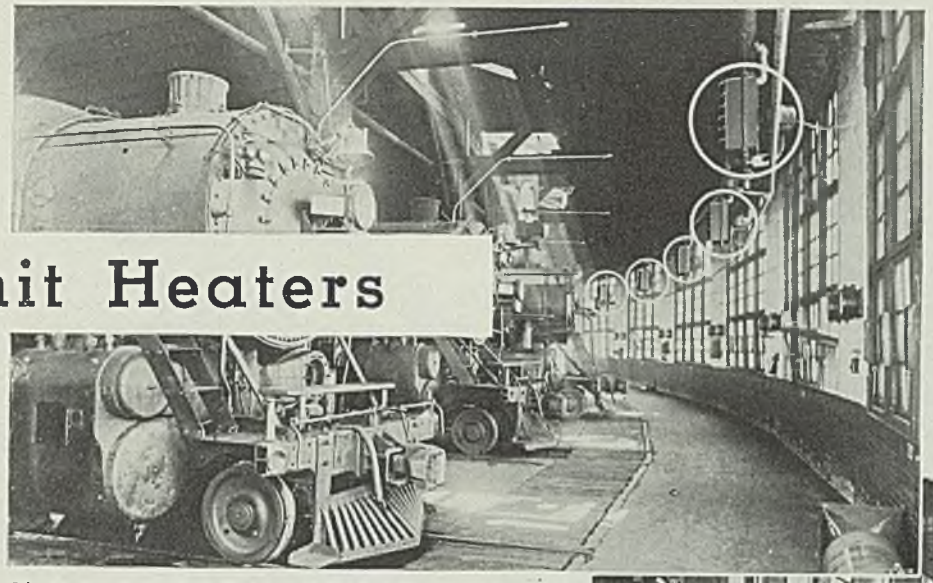
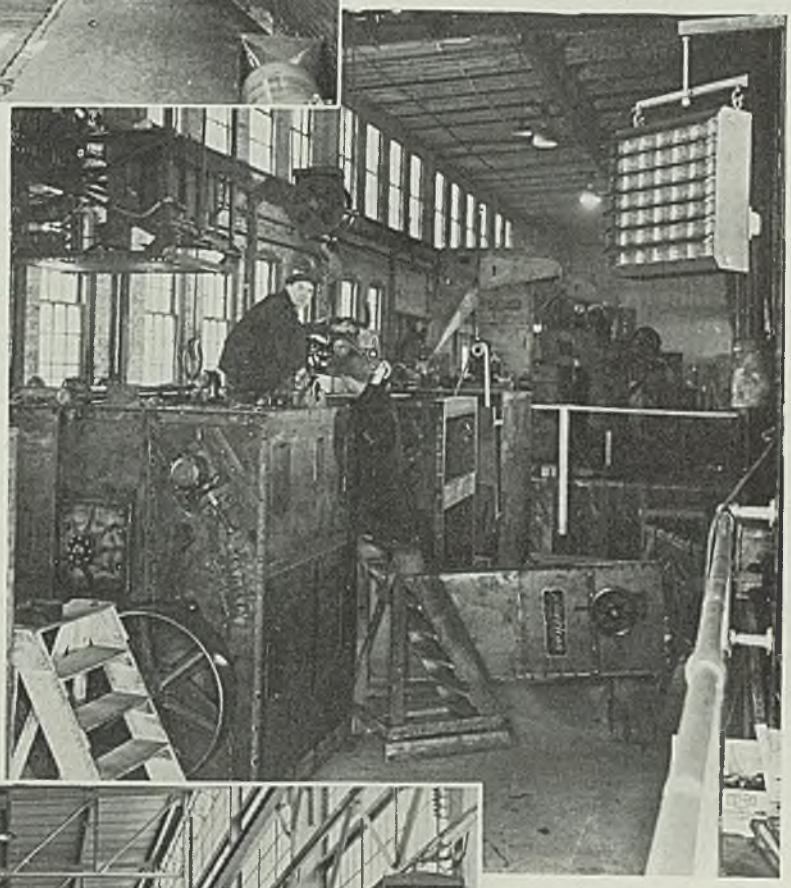


Photo courtesy Unit Heater & Cooler Co.

LEFT view demonstrates how problems of heating in a railroad "roundhouse" are solved through the use of a battery of unit heaters. Metalworking shops like the one shown below find that more efficient year-round production results from use of these heaters

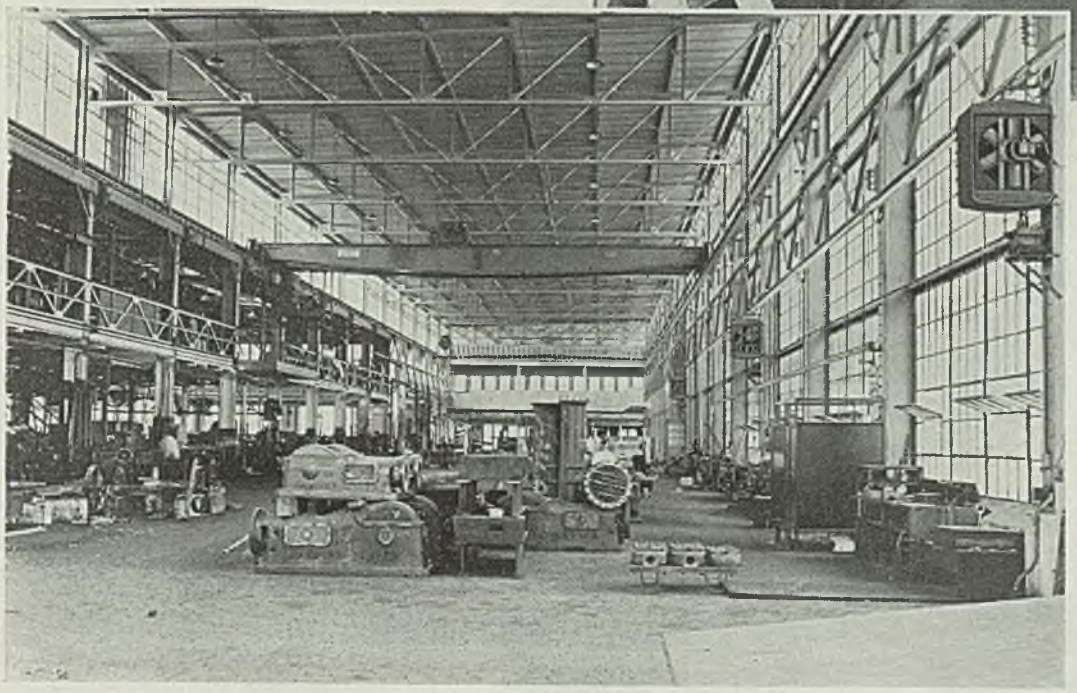
Photo courtesy American Foundry Equipment Co.



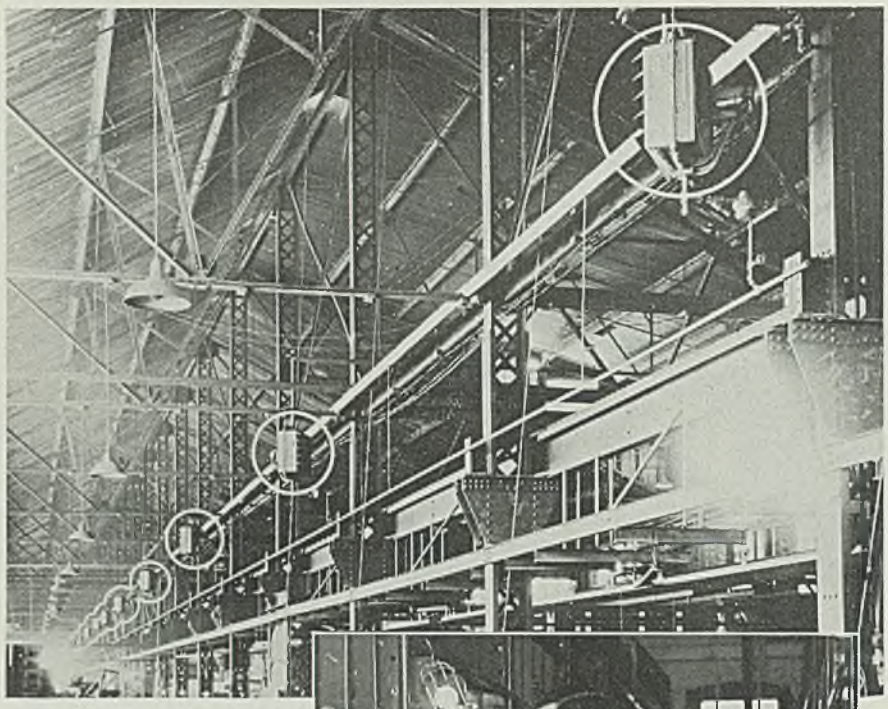
renovation installations are under way, 80 per cent of which are of the circulating unit heater type.

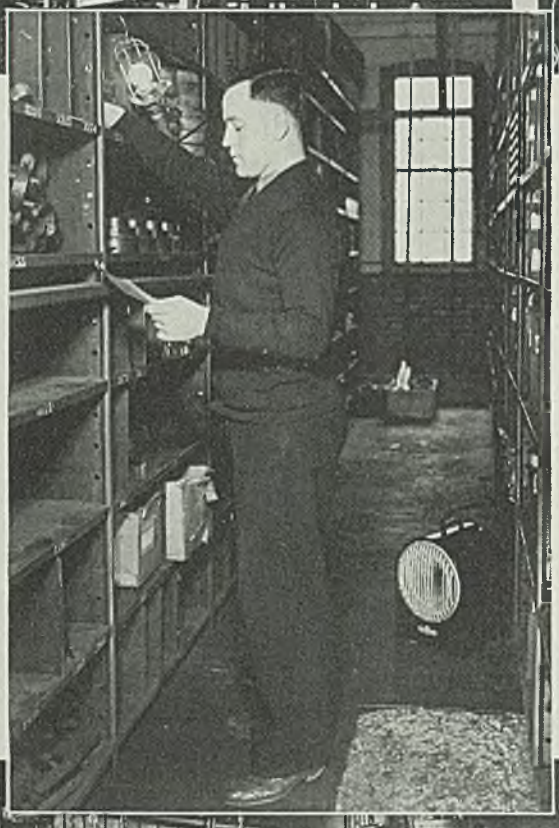
In one steel plant, 400 feet long, 200 feet wide, 50 feet high, we found 25 double unit heaters which have been in service for more than a year. The superintendent informed us that before the installation of unit heaters, ice used to be on the floor on cold mornings when the men came in and often during the day, caused by water dripping down after cooling drills and other operations. Unit heaters have eliminated the ice entirely. A few units are kept in operation throughout the night, just enough to keep the water from freezing. All units are turned on a few minutes before the men start work and it is no time before the plant is comfortable. Formerly,

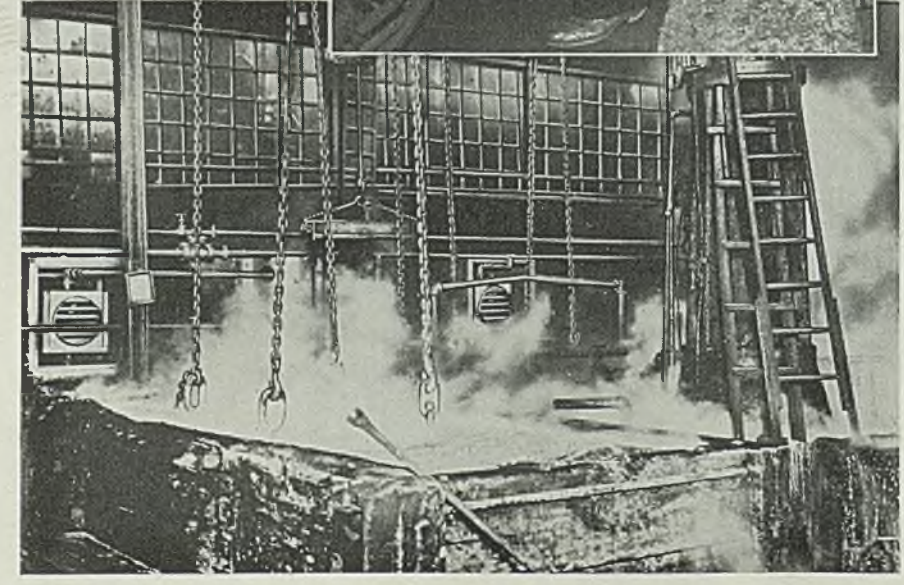
Photo courtesy Herman Nelson Corp.



UNITS at medium height solve effectively problems of heating shops built with high ceilings







Top photo courtesy Unit Heater & Cooler Co.; center courtesy American Foundry Equipment Co.

INSTALLATION of unit heaters solving a heat problem in a foundry is shown above. Cold spots, which often cause difficulties in the winter season in foundries, are eliminated. Small portable electrical units similar to the one shown at right provide the means for elimination of heavy, awkward clothing in cold stock rooms. Elimination of vapors and fumes around a pickling bath was the assignment given this pair of heaters shown below

said the superintendent, it was 2 hours, sometimes more, before the plant was comfortable. He estimated that cold weather cut production 35 per cent. Since the installation of 25 unit heaters, the morale of the men is much better and sick leaves have been cut to 5 per cent of former figures.

Drafts Are Eliminated

In another plant where the area around an open door had always been too cold for comfortable work in the winter, the installation of a floor mounted unit near the doorway solved the problem by picking up and heating the cold, infiltrated air from the floor before it had a chance to penetrate to the interior of the

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INTEREST shown in Mr. Merish's original article which appeared in the Feb. 8, 1937, issue was so great that at the request of the editors of STEEL he has continued his field work. In this, the first of two instalments, Mr. Merish reports many engineers and plant managers have realized that heating is as important as any other factor in modernization programs

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building. As the superintendent of this plant explained it, the men working around the doorway were not the only ones whose efficiency was reduced. The cold seeped into other sections of the plant, creating additional discomfort, bad drafts and demoralizing production. In another plant handling metalworking, a similar condition existed but there was no space to locate a floor-mounted unit near the door so the infiltration was counteracted by focusing a unit heater directly at the source of infiltration from a distance of 60 feet. In these plants only one unit heater is being used, another heating system providing the remaining heat required, hence, it cost comparatively little to eliminate these expensive cold spots. We find that such cold spots are frequent in steel and iron producing plants. They are mighty costly tenants. In some plants inspected on this survey the existing heating systems seemed to give satisfaction in the main, but were "weak sisters" in certain corners or sections. Unit heaters will correct such weaknesses.

In some plants unit heaters were hooked up to air mixing boxes to provide more comfortable ventilation as well as heating. Air mixing boxes are equipped with adjustable

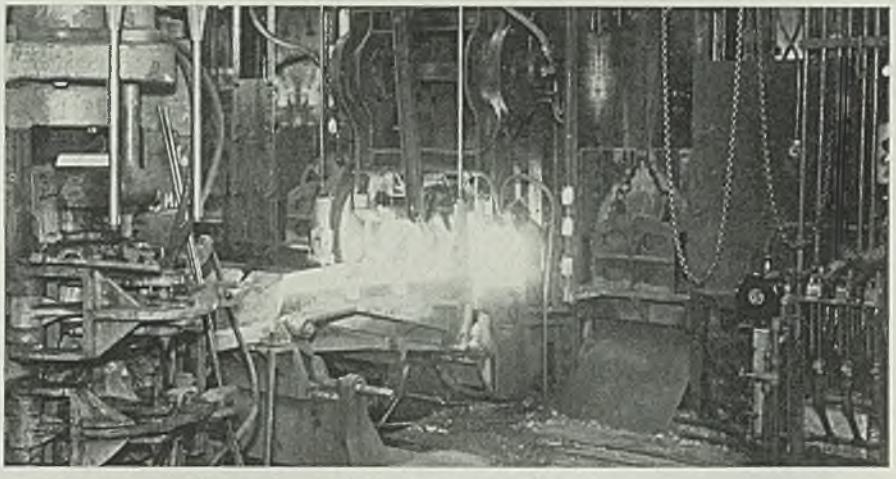
(*Please turn to Page* 70)

Continuous Rod Mills Are Set Parallel in New Plant

DEDICATED by a formal inspection June 23 the two new parallel, continuous rod mills of American Steel & Wire Co. at Joliet, Ill., now in successful operation, embody notable features. Their combined production, when rolling No. 5 rods, is 13,712 feet per minute. They are said to be capable of rolling the heaviest bundle of No. 5 rod in the world, 600-pound bundles containing 5000 feet. While the mills have that capacity, the regular bundle will weigh about 550 pounds and measure around 4375 feet. The two mills have total capacity of about 220,000 tons of rods per year ranging from No. 5 up to 0.5-inch in diameter.

Raw material consists of 2 5/16-inch square billets 30 feet long. Basic steel billets are obtained from the Gary works and bessemer billets from the South Chicago works of Carnegie-Illinois Steel Corp. The billet yard at Joliet, with capacity of approximately 20,000 tons, is commanded by two 15-ton cranes mounted on a 415-foot runway with 120-foot span. Billets are unloaded from cars and placed in racks formed by vertical beams. By this arrangement all billets of similar chemical composition are segregated with resultant prevention of mistakes in taking billets from stock to feed the heating furnaces. In the billet yard are two skid platforms on which the billets are placed by the cranes. From the skids they are rolled onto the furnace approach tables.

Heating furnaces are two in number, one for each continuous mill. In each the hearth is 32 feet long and 34 feet wide. After each billet has been pushed into the furnace long arms come in from the sides and push the entire row of billets towards the hot end of the furnace. In this way a gradual feed of billets from the cold toward the discharge end is maintained. Full automatic temperature control is secured by means of pyrometers connected to temperature recording instruments and fuel control apparatus. Coke oven gas is the fuel although natural gas or oil may be used if necessary. At the discharge ends of the furnaces the heated billets are pushed in two lines into the



BILLETS are 2 5/16 inches square and 30 feet long. This view shows a billet leaving heating furnace and entering roughing stand of one of the two new continuous mills

BY the use of vertical beams the billet yard is arranged in compartments for segregating billets according to composition. Total capacity of the yard is 20,000 tons. Billets are loaded in cars on skids so that crane chains may be slipped beneath them

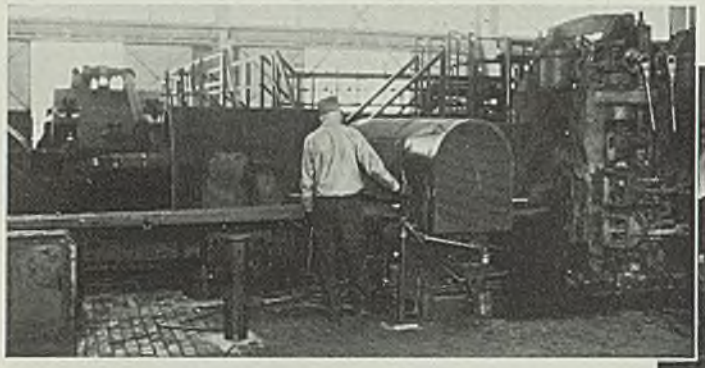
first stands of the continuous mills.

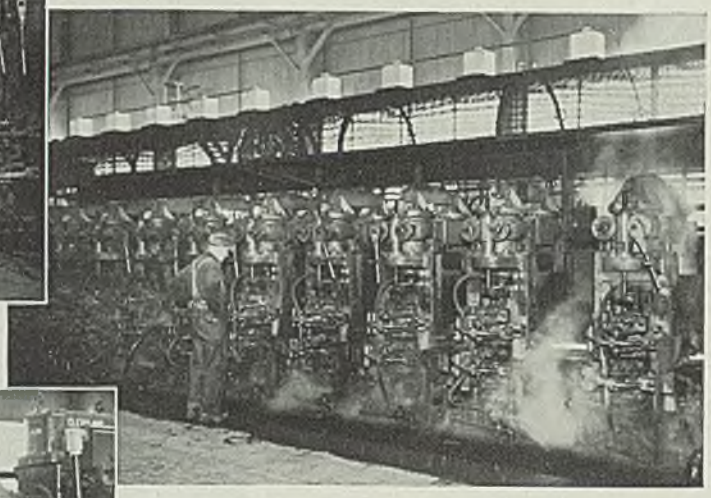
Each of the new mills has 19 stands. The roughing train in each case consists of five 15-inch followed by four 13-inch stands. Then comes a steam-powered flying shear for cropping the front ends of the rods. Following are ten 11-inch stands which comprise the finishing train. Billets are fed to each mill in staggered pairs. Throughout the rolling the billet is changed at each pass from square to oval and back to square. After the first oval pass a twist guide turns it 90 degrees for the next pass which is square. After the square pass the billet is turned 45 degrees. This twisting between passes continues until the last pass which is round. Maximum reduction by any pass is 35 per cent and the minimum reduction of 9 per cent occurs in the final pass. Rolling speed varies from 8.38 revolutions per minute in the first roughing pass to 1126.45 revolutions per minute, or 3928 feet per minute, for the last pass in the finishing mill. A billet advances through all 19 passes in 75 seconds. With two billets passing through each of the mills simultaneously one billet is rolled every 40 seconds. In the old Joliet rod mills, abandoned because of obsolescence in 1931, rolling speed was 1500 feet per minute.

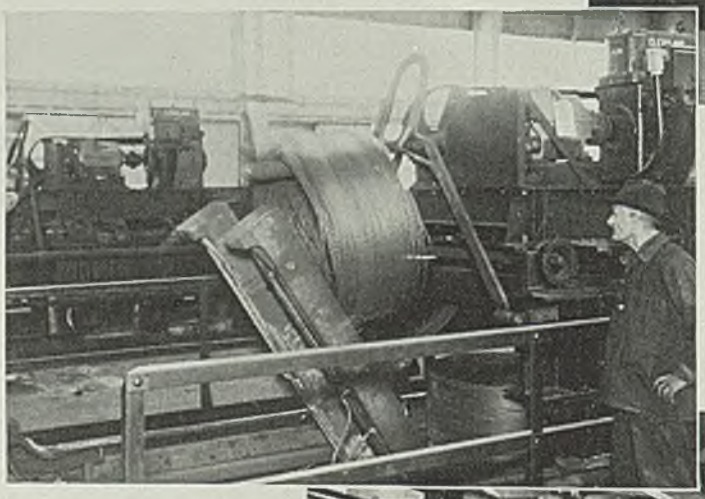
Minimize Temperature Drop

Speedy rolling, says the company, results in better rods and better wire products made from the rods because the drop in temperature between the front and rear ends of the rod is practically eliminated. In the past the drop was sometimes as much as 500 degrees Fahr. and by the time the rear end of the rod reached the last pass it had cooled to such an extent as to interfere seriously with accuracy of gage, contour and uniformity. As a result rods would vary from front to rear.

Instead of changing rolls the company has provided a full set of duplicate finishing stands. In other words, complete stands in the finishing train are replaced. This operation may be performed in an hour and a half or less. The new mill is said to be the first of its kind to be equipped throughout with antifriction bearings. Stands are equipped with tapered roller bearings with special provision for adjustment of the rolls vertically, horizontally and longitudinally, thus permitting accurate lining up of passes. To keep the mill in line it is equipped with universal spindles throughout







AT top left is shown flying shear located between intermediate and finishing stands which removes burred ends to prevent cobbling. At top right is a general view of the finishing stands showing, overhead and in rear, cobble screens which provide an added measure of safety to operators. Bundles, as shown at bottom left, are removed from the drag conveyor and placed on the hook conveyor by a transfer machine. At bottom is shown a general view of the inspection platform

instead of the usual wabblers. All pinions of the roughing mill have herringbone teeth. Pinions in the finishing mill, together with their speedup gears, arranged in the same case, have single helical teeth. Bevel gears are spiral and gear reduction sets have herringbone gears. This construction has effected a great reduction in the noise usually generated by rolling mills.

Each mill is driven by a 4500-horsepower motor and there are two motor-generator sets to synchronize the reel speed with the speed of the final pass. As each rod leaves the mill it passes through a semiautomatic device which switches it to the desired reel. Six reels are provided for each mill. Also located between mills and reels is a descaling device which controls the scale left on the rods. In line with each mill and directly behind the reels is the operating pulpit from which is controlled the starting and stopping of the mill, the switching of rods to the reel, discharge of the rods from the reel to the conveyor and the movements of the conveyor.

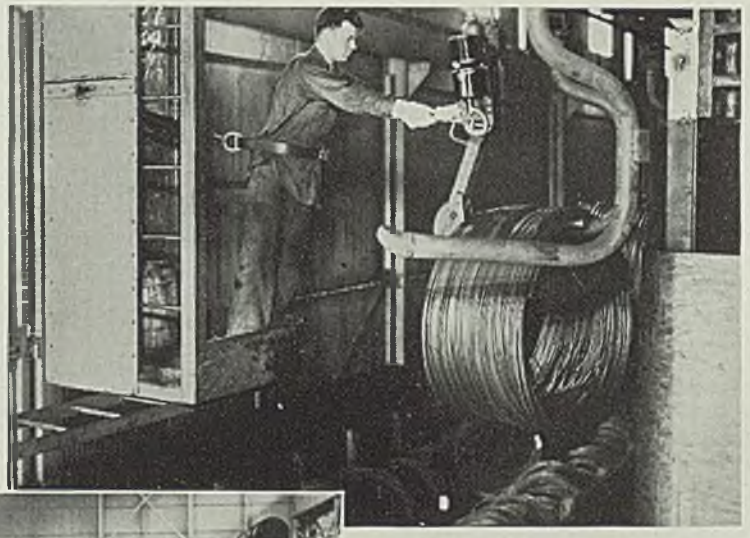
After each length of rod has been coiled the reel elevates and pushes the rolled rod onto a drag conveyor. Two drag conveyors serve each mill. The bundle remains on the drag conveyor for approximately 12 minutes or until it is sufficiently cool to be transferred to a hook conveyor. Hook conveyors are two in number, one for each mill. One conveyor is considerably longer than the other and is used on the mill which rolls a variety of sizes for special purposes.

Built Above Ground

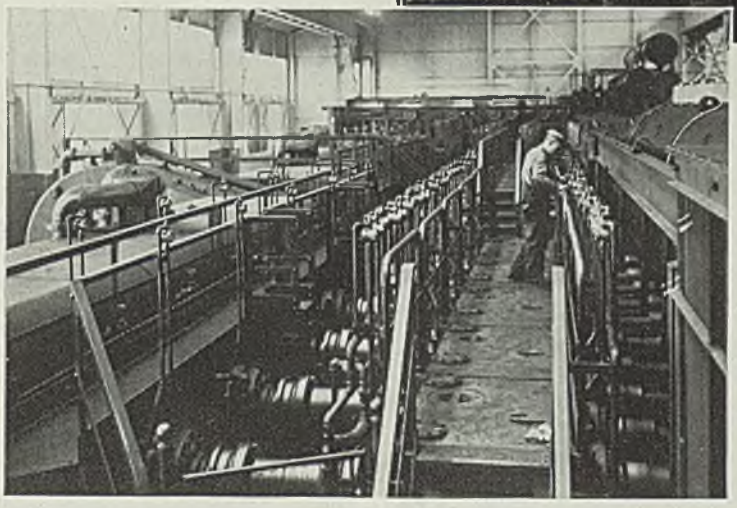
The mill with the short conveyor rolls No. 5 rods at all times. By means of adjustable speed motors speed of the hook conveyors may be varied from 9 to 27 feet per minute. The speed is set to give the bundles time to cool to air temperature before reaching the inspection platform; this time usually ranges from 40 to 60 minutes. Special cranes load the rods into cars or on trucks for shipment; they are loaded in a position which facilitates unloading them by means of crane and hook.

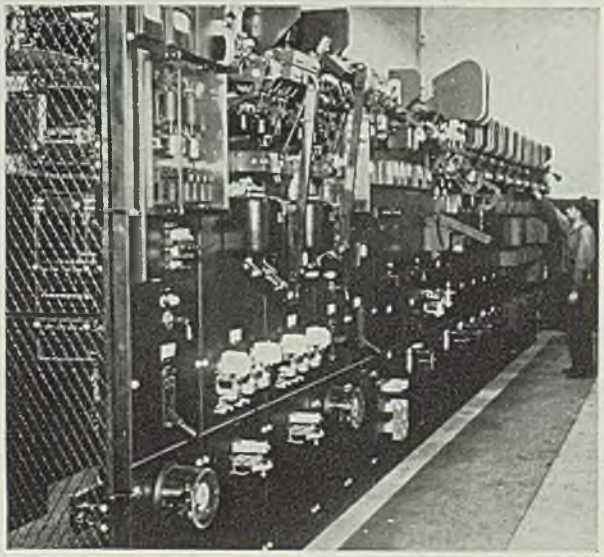
An unusual feature of the two new rod mills is that they are built at an elevation of 14 feet above ground level. This is because the drainage conditions are such that if the mills were located at ground level in the usual way it would be necessary to pump all water to an elevation so that it could enter existing sewers. On the ground floor is located a complete oiling system with sight flows for all bearings and sprays to gears. Furnace recuperators, reel drives, electric controls, return conveyor chains and all such equipment as usually are placed on the mill floors or in balconies or pits are located on the ground floor.

The new rod mills are in buildings consisting of two parallel bays 140 feet wide and 408 feet long with a 70-foot wide hook conveyor building located parallel to the rod mill buildings. Local power companies furnish current at 6000 volts. Water is obtained from the existing aqueduct and passes through a self cleaning strainer to the mill service lines. A new pumphouse was installed adjacent to the mill. It has two centrifugal pumps with capacity for 6000 gallons of water per minute each. Either one can furnish all the water required by both mills.



EVERY care has been given to accident prevention. Operator who removes bundles from hook conveyor for loading into freight cars is held securely in his position by means of a safety belt. Below is shown a general view of the driving side of one of the new continuous rod mills. At bottom right is a general view of the electrical control room



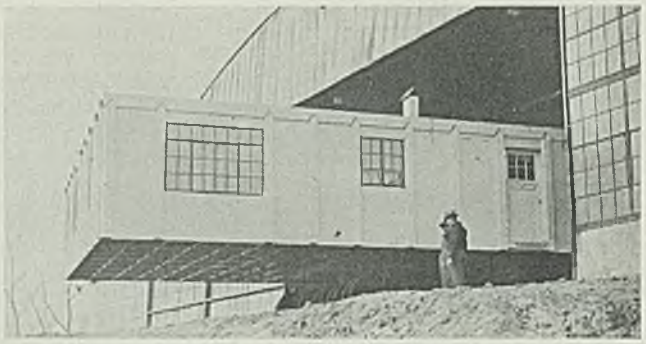


All Steel Houses Are Built Complete In Shop and Moved to Building Site

UNUSUAL features are reflected in six new steel residences, briefly described and illustrated in STEEL of March 1, Page 58, now being built by R. G. LeTourneau Inc., Peoria, Ill. One of the most interesting is that the houses, each 32 x 44 feet, are finished complete for occupancy in the company's plant. They are handled away from the plant by means of a crane which engages three steel hooks anchored through the roof to the partition walls. They are launched on the Illinois river and towed to the other side where they are lifted by a tractor powered crane and placed on sites on a tract owned by the LeTourneau Foundation, a non-profit corporation organized to provide homes for the company's employes. Additional houses of similar design and construction are to be built later.

Copper bearing steel is used throughout both for interiors and exteriors and all joints are welded electrically. Floor joists are 6-inch junior I-beams and the floor is an integral plate formed by welding ¼-inch steel plates each 44 feet long. Inside and outside of the exterior walls are No. 10 gage plate. Each wall is assembled as a unit, the box like construction giving rigidity and strength. The 4-inch space between outside and inside plates is filled with rock wool insulation which is blown in place. The ceiling is 7 feet 10 inches high and the roof is flat, constructed with inside and outside plates welded together. Ceiling joists and rafters are identical, being junior I-beams spaced 24 inches on centers. The 6-inch space between ceiling and roof also is filled with rock wool insulation.

Living quarters in these homes include a 17¼ x 16½-foot living room, 17¼ x 9 2/3-foot kitchen, 13¾ x 22¼-foot combined garage, laundry and utility room, 6½ x 7 5/6-foot bathroom and three bedrooms, respectively 11 5/12 x 13 5/6, 10 x 16½ and 9¼ x 16½ feet. One of these rooms opens directly into the kitchen and may be used as a breakfast and dining room if desired. Outside windows are steel sash welded to the walls. Steel storm sash are fastened on the inside with rubber gaskets and are so constructed that the outer windows may be opened for ventilation. In the garage and utility room is a steel furnace provided with an automatic, thermostatically controlled, coal stoker which feeds from a 2-ton, built in, coal bin filled from outside the house. Air is forced through the furnace by a fan and then through ducts in the ceilings of the various rooms. Cooled by well water, a large coil furnishes air conditioning through the same system during the summer months.



This steel house is completed in the shop and moved to building site by cranes and 16-wheeled trailers

Bathtub, complete with shower head, lavatory and kitchen sink all are built-in at the plant. Wardrobes, cabinets and closets all are of steel, decorated to match the rooms in which they sand. Electric wiring is completed in the shop. When needed, dark gray machine filler is used for smoothing the welds. Experience in fabricating these first six houses has resulted in the setting up of production methods whereby such homes may be produced in the future with economy, precision and speed. This type of house can be moved overland on a 16-wheel trailer drawn by tractor or truck. Under special permit, this dwelling can be moved any distance to a building site and be ready for occupancy as soon as water, sewer and electrical connections have been made.

Modernistic in design, and with flat roof and horizontal lines, the exterior of the new steel home is relieved vertically by the use of ship channels as studs. Beauty and a warm, homey atmosphere have been secured through the use of paint colors developed by the Sherwin-Williams Co., Cleveland, for application on metal surfaces, thus eliminating any tendency toward a cold or uninviting appearance. The entire house, inside and out, is backed primed with a rust inhibitive primer. Under the floor a second coat of acid resistant paint is applied and on the roof a second coat of liquid roof cement is used. Exterior side walls are painted with a second coat of wall paint and the ceiling is finished in semilustre cream. The living room receives a third coat of raw sienna glazed. The utility room, sufficiently livable to be used as a party room, is decorated in light gray with vermillion trim. Kitchen and breakfast room walls are canary yellow with brick red trim. The center bedroom is finished in pale green flattone with sponge stippling over ivory. The bathroom is decorated with pastel blue dado and enameloid platinum top.

These houses are fire, dust and termite proof and are practically

Interior surfaces of all steel homes lend themselves to artistic effects when given proper treatment, as reflected in this typical living room

airproof. They are waterproof since, though weighing 41 tons each and displacing almost one foot of water, they may be floated safely across the Illinois river. They are believed to be earthquake proof as well as flood proof. They are the result of the creative originality of R. G. Le-Tourneau, who believes that with proper care and repainting these houses will last indefinitely. Details of design were worked out by Ephraim Field, architect and engineer.

Shortcut Methods Measure Expansion

BY W. F. SCHAPHORST

USE of the accompanying chart makes "longhand" figuring unnecessary in determining the expansion in steel pipelines, rods, tubes and other sections for ordinary temperature differences. All that is necessary is to lay a straightedge across the chart once or stretch a fine black thread across, as indicated by the dotted line. Suppose the question is as follows: If a certain pipeline 100 feet long is subjected to a temperature variation of 100 degrees Fahr., what will be the total expansion in inches? By connecting column A at the 100-degree temperature difference point with column C at the 100-foot length point, the intersection with column B is at 0.8-inch, which represents the total expansion in inches.

The chart also can be used for determining the allowable temperature difference where a definite amount of space is available for expansion and contraction. Thus, if the length of the pipe is 100 feet and the allowable expansion is 0.8-inch, it would be shown that a temperature difference of 100 degrees Fahr. would be the limit. Also, if the factors in columns A and B are known, the unknown in column C is immediately found. If any two of the factors are known, the third may be found without any computing.

The range of the chart is wide enough to care for almost any expansion or contraction problem. The temperature difference in column A varies all the way from 20 degrees to 1000 degrees; seldom if ever do we have as high a temperature as 1000 degrees. The chart may be used for lengths varying all the way from 10 to 3000 feet. Total expansion between these limits as shown in column B, ranges from 0.02-inch to 300 inches.

Control System For Spot Welding

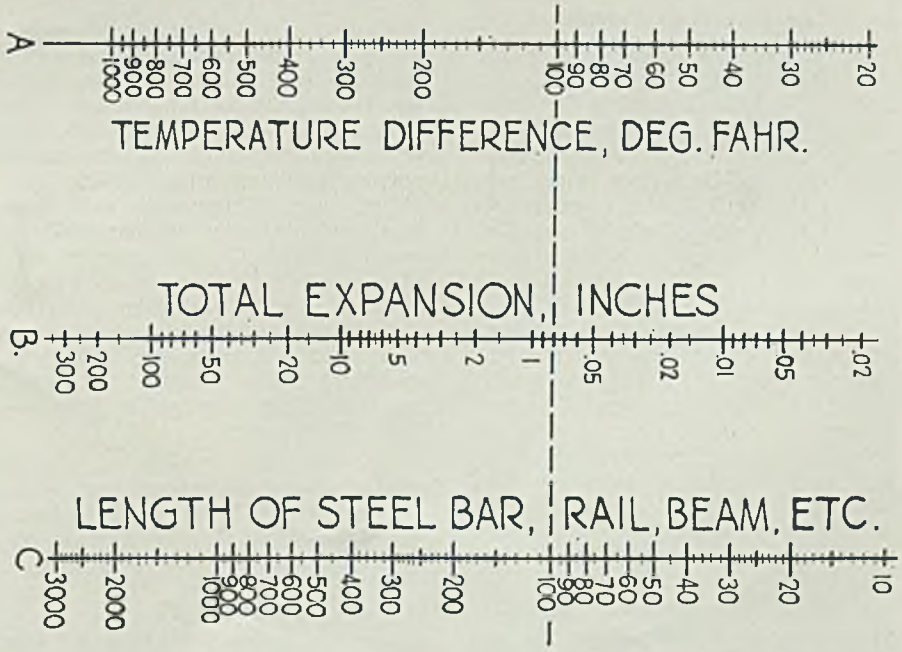
THE application to spot welders of control and regulating devices which can be set with considerable accuracy to produce any degree of heat, pressure or current dwell has made it possible to take the responsibility for the uniformity of welds on duplicate parts almost entirely out of the hands of the operators, says *Flashes*, published by Thomson-Gibb Electric Welding Co., Lynn, Mass. In many plants in which spot welding is an important production operation, the welding factors are determined and recorded in the laboratory or experimental department before any unit goes into production.

Such variables as length of stroke, air pressure setting, heat regulator setting, timer setting, type of electrode and (where more than one type or size of spot welder is used) the number of the welding machine are furnished to the operator along with the routine information like order numbers, quantities, etc., which appears on most job tickets or production orders. In some plants it is common practice to keep a sample of every piece on file in much the same way as jigs or fixtures are stored so that spot welder operators can have a model to show the location and spacing of the spots and other assembly details.

With this information available operators have little excuse for lack of uniformity no matter how many men share the job or how much time passes between repeat orders. This information can be obtained in a crude way by experimenting in the shop with the first few pieces on an original run and noting the settings that give the best results. But where there is a variety of pieces and considerable welding to be done, it is usually far more efficient and the results are sure to be more positive if the experimental work is done on a laboratory type welder. One of these machines is now operating in the laboratory of a company that makes a wide variety of models of several rather complicated products. Spot welding plays an important part in their assembly operations and they find that this laboratory welder has a number of valuable advantages. Experimental work can be done very quickly and with a high degree of accuracy. The shop welders are always free for production work and because the settings are determined in advance, there is little time lost in setting up or changing over and rejections are held to a minimum.

Has Two Purposes

This laboratory welder is designed with a two-fold purpose in mind, to make it applicable to a wide range of welding conditions and to provide accurate readings of the welding variables. This is made possible by a stroke adjustment of from 0 to 5 inches, a pressure range from 200 to 5000 pounds, and a heat regulation range of 69 points. The foot valve control is designed so that the head can be brought down to the work and returned without actually making the weld when checking positions and the upper and lower arms are arranged to hold either spot welding points or adapters for projection welding electrodes.



This chart, as explained in accompanying article, permits use of a shortcut method in calculating expansion in steel pipe and other lines

Electroplaters Conclude Silver Jubilee Convention

THE American Electro-Plater's society concluded one of the most successful conventions in its history in New York June 14-17, an event marking the silver jubilee of the organization. Both the practical and purely scientific aspects of plating were reported and discussed at five complete sessions held during the course of the 4-day period.

The art of plating metals, more and more, is taking its rightful place in industry. It long has been an established fact that materials can be made more durable and often more decorative through the application of noncorrosive coatings. The plating industry, individually and through its organization, is striving to make these coatings even more serviceable and economical to the ultimate consumer.

The American Electro-Platers' Society is recognized by the national bureau of standards where it has maintained a fellowship for years. Through co-operation of the American Society for Testing Materials a number of standards have been set up for electroplated coatings. Plating thus is being recognized as a science which has interested many of the great technical men of our day. Recently, scientists from all principal countries of the world, including the United States, met in London for the first international electrodeposition conference where technical information was presented and discussed.

Extensive Tests Conducted

During the past several years, the American Electro-Platers' Society and the American Society for Testing Materials have conducted experiments with electroplated coatings on both iron and steel and nonferrous metals in co-operation with the bureau of standards. The results of these experiments have been very helpful to the plating industry. However, as pointed out by Charles H. Proctor, original founder of this society and now president of Proctor Chemical Co., Clearwater, Florida, the solution of metal protection problems has by no means been solved and further extensive development work is necessary. At present, the staff at the bureau of standards is too small to conduct the many experiments which should now be underway.

Considerable development work also is being carried out by the various branches of the society. One of the most interesting papers presented at the technical sessions was by Albert Hirsch, electroplater and chemist, Carey McFall Co., Philadelphia, on *The Cathode Efficiency of Electroplating Barrels and Its Effect on the Adhesion of Nickel Deposits.* This was prepared as the result of findings by the Philadelphia group. It was found, for instance, that rubber lined barrels showed a saving in time over lead lined barrels with the same thickness of coatings. The Cleveland branch prepared a joint paper on *Health Hazards in the Plating Room.* It was pointed out that small shops especially are lax in providing clean and light rooms which would prevent nickel itch, lead poisoning, cyanide burns, and other industrial hazards.

Warns Against Gas Generation

It was stated that cyanide and acid tanks should not be in close proximity since this results in the generation of lethal gas similar to that used in penitentiaries for executions. Edward C. DeLorme, of the Boston branch, presented a paper on *Air Conditioning of the Plating Plant* which developed considerable interest from the standpoint of health hazards. Air conditioning, of course, results in a quick removal of gases and hence one of the principal hazards to workmen.

Gustave Klinkenstein, vice president and technical director, Maas & Waldstein Co., Newark, N. J., presented a review of conditions affecting the occurrence of crystal and stain spotting and methods for their prevention. Spotting gives the finished product an uneven appearance and is one of the most perplexing problems facing the plater. Mr. Klinkenstein said that this problem may be classified in two ways: (1) Crystal spotting and (2) stain spotting. Solution of the problem lies in carefully performing each one of the necessary functions in turn. The underlying causes usually are due to improper cleaning, solutions, rinsing, or preparation of the product.

An extensive exhibit of plated products was held in connection with the convention. National Cash Register Co., Dayton, O., displayed many finishes it now uses on its products. This company uses coated steel stampings for register cases in place of the cast brass prevailing a number of years ago. National Screw & Mfg. Co., Cleveland, displayed bright copper and bronze plated screws, plated by the barrel process. Roessler & Hasslachler Chemical division of E. I. du Pont de Nemours & Co., New York, displayed a number of products plated with bright zinc, also by the barrel process. Yale & Towne Mfg. Co., Bridgeport, Conn., showed the variety of finishes which may be applied on zinc die cast locks, including brass, lacquered, chrome, etc. Brass, chrome and other finishes on steel, brass and bronze were shown by Sargent & Co., Bridgeport, Conn., maker of door handles, locks, etc. Phillip Sievering Inc., New York, has developed a new electrodeposit for reflectors which is expected to replace silver. Samples of this work also were on display.

As reported in the June 21 issue of STEEL, A. B. Wilson, Chevrolet division, General Motors Corp., Detroit, has been elected president of the society; Franklyn J. MacStoker, Medallic Art Co., New York, first vice president; Roy Goodsell, plater, Racine, Wisc., second vice president and Austin Fletcher, Ternstedt Mfg. Co., Binghampton, N. Y., third vice president. W. J. R. Kennedy, Springfield, Mass., continues as executive secretary of the society and editor of its publication, *The Monthly Review.* Additional details pertaining to the activities at the convention also were published in STEEL, June 21.

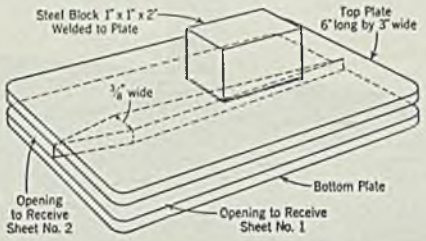
Prevent Silicosis by Adding Dust to Dust

University of Wisconsin geologists Prof. R. C. Emmons and Ray Wilcox believe a successful preventative of silicosis has been found by mixing small quantities of "protector dusts" with the silica dust often disastrously inhaled by mine workers. Carbon black, hematite and alkaline earth carbonates such as calcite and dolomite were named as minerals whose dusts will counteract the contaminating qualities of silica. Dust particles of the protector minerals being of opposite electrical charge, attract the dust particles of the silicosis minerals and facilitate their harmless removal from human lungs. At present silicosis prevention is attempted chiefly by means of ventilation but the new method, it is believed, would be thriftier and more direct.

Although quartz and asbestos are now the only minerals legally recognized as causing silicosis, further tests by the geologists on blood serums revealed that sericite, commonly occurring in ores and granite, yielded the most silica in the blood serum Biotite, talc and opal were also found to contribute to the disease.

For Welding Long Sheets Together

THE device shown in the accompanying diagram has been developed at one metalworking plant for welding long sheets together, says Nickelsworth, published by the International Nickel Co., 67 Wall street, New York. While used on monel metal and other nickel alloy sheets, it may be employed with other long sheets 1/16 to 3/16-inch thick. As indicated, it consists of a steel wedge with steel plates welded on both top and bottom. The sheets to be welded together are inserted in the openings between the top and bottom plates. The wedge allows the contraction of the



With this holding device the operation of welding long sheets together is simplified

welded metal to pull the sheets together at a predetermined rate of speed, keeping the proper space in the seams at the point of welding. The device also prevents sheets from overlapping. Too, the device keeps the sheets in line and one cannot pull above the other because of buckling from the applied heat. A 1 x 1 x 2-inch steel block welded on the top plate is used as a handle to drive the wedge along the seam.

Iron-Carbon Alloy Study In Its Second Volume

Alloys of Iron and Carbon, Vol. II; by Frank T. Sisco; cloth, 777 pages, 6 x 9 inches; published by the Engineering Foundation, New York; supplied by STEEL, Cleveland, for $8; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

This volume is a final correlation of data and a critical summary of the world's knowledge of the constitution and properties of carbon-iron alloys. The primary object of Alloys of Iron Research, under which these monographs have been prepared, is to provide monographs which are comprehensively critical summaries of the world's research on iron and its alloys and which should contain a discussion of all important available data.

The problem in this volume has been to choose what material should be included and what omitted, in the endeavor to present a complete survey of the field and at the same time avoid too great bulk.

The plan adopted in this volume is the same as that used in the first volume, to sift the literature carefully and select those data that would establish most readily the desired base line of properties which would indicate most clearly the engineering and other properties expected from commercial carbon steels and cast irons.

Preparation of this monograph on alloys of iron and carbon was started six years ago at Battelle Memorial institute as part of its contribution to Alloys of Iron Research. After gathering data it was decided to divide it into two volumes, of which this is the second. It is fundamentally a base line for the monographs on the other alloys of iron and is likely to be used most as a reference book.

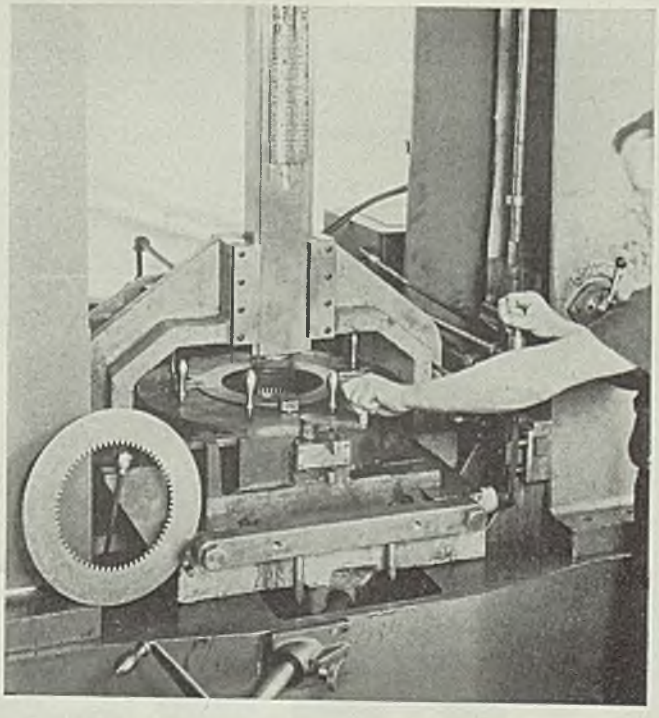
Issues Tap Drill Chart

Useful in machine shops, engineering, drafting or tool rooms is a new chart showing decimal equivalents and tap drill sizes of wire gage, letter and fractional size drills. Published by Whitman & Barnes Inc., Detroit, the chart shows nominal and decimal dimensions of all standard drills 1 inch in diameter and under, including fractional size and wire size drills and in addition shows national standard tap drill sizes, both in fine and coarse thread. Of wall type size the chart is on heavy cardboard and has a surface which has been impregnated with cellophane for resisting stains and easy cleaning.

Broaches 13 Clutch Plates Simultaneously

INTERNAL broaching of teeth or splines at a large tractor company is accomplished on this, a Colonial Broach Co. 20-ton power press. Designed for high-speed production consistent with heavy-duty work, a notable feature of the machine is that the arrangement is designed to permit broaching of six different sizes and types of rings. These include a cast iron ring 3½ inches high and 12-inch pitch diameter and several sizes of steel clutch plates, one of which is shown in the foreground, after broaching.

In broaching clutch plates 13 blanks are placed in the fixture at one time. The ram of the press travels downward, broaching some eight teeth internally at one time. Fixtures shuttle out of the cut and the ram returns to its upper position. During the return stroke the fixture is indexed by hand to a new position and shuttles back into cut. The broach ram again travels down cutting another eight teeth. Six strokes of the ram are required to complete the broaching cycle at the end of which internal teeth have been broached on the 13 clutch plates. At the end of the cycle of six cuts, the fixture automatically travels out 18 inches to unload and reload.



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MATERIALS HANDLING

New Applications Further Use Of Platform Lift Trucks

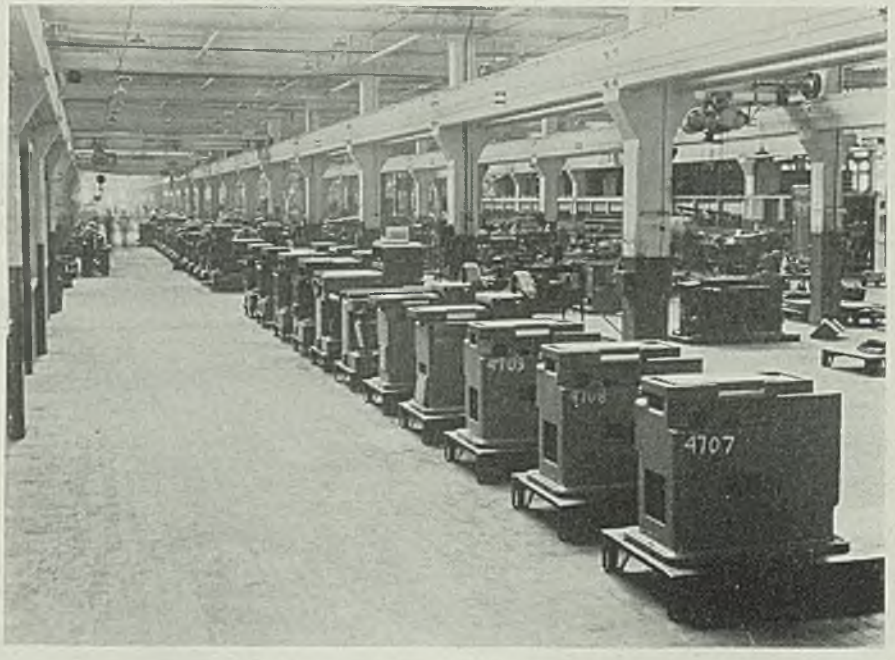
TWENTY-FIVE years have passed since the lift-truck and skid method of handling first came into being. Records show that the first hand-lift truck was introduced in Holyoke, Mass., in 1912. In the beginning, the combination of lifting unit and skid platform was devised for transporting and storing loads in and around paper manufacturing establishments. Its progress in the first few years was slow but steady, although it gave no indication of the later broad acceptance by industry generally of this efficient and economical handling aid. During the World war years, the use of lift-trucks and skid platforms received its first real impetus. Following the war, development was marked largely by addition of new outlets for the utilization of the system. In 1921, the first use of skids for shipping originated. One of the interurban lines in Ohio began to handle package goods on platforms, making drop deliveries along its line. Shortly thereafter, skid platforms were used for shipping solid carloads of sulphite pulp to finishing plants. Gradually, metalworking plants borrowed the idea from the paper mills and automotive manufacturers joined in the search for new economies by the use of skids.

One recent adaptation of lift truck and skid platforms is in the machine tool industry. The latter has been a consistent user of large quantities of lifting units and skids for many years, largely for transfer and storage of parts. Several tool builders have gone a step farther and are finding it worth while to utilize skid platforms in final assembly work and for storage of finished machines. The accompanying illustration, shows how this system of keeping machines off the floor and ready for truck transportation fits into the "good housekeeping" plan at the plant of the Heald Machine Co., Worcester, Mass. At least two other large eastern machine tool builders have purchased a large number of skid platforms in recent months and are now utilizing a similar method of assembly and storage.

In application, the hand-lift truck is outgrowing its original purpose in many directions. This development has transpired by reason of the ingenuity of both equipment manufacturers and users in designing and manufacturing a wide variety of skids. In some instances, these special units can be handled by standard trucks. In others, it may be desirable to utilize a special lifter.

Two unusual adaptations of lift-truck and skid platforms have come to the attention of a representative

VIEW of plant of the Heald Machine Co., showing neat and orderly arrangement of machine tools on skid platforms



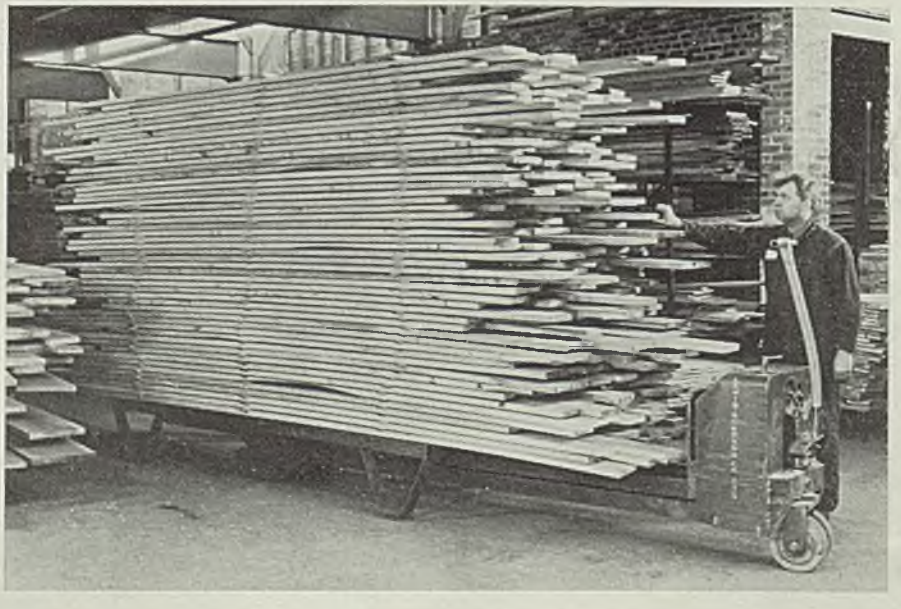
MATERIALS HANDLING

of STEEL in recent weeks. One of these is shown in a view of the lumber storage department in the plant of one of the lift-truck manufacturers, indicating that manufacturers in this line are sold on what they preach. This platform load of long lengths of lumber offers a suggestion for other manufacturers who may have a problem in storage of long lengths.

Another such adaptation is used in the plant of the National Stamping Co., Detroit, where standard hand-lift trucks supporting skid loads of stampings are coupled to a powered industrial tractor for longer hauling jobs. In this plant, raw material is heavy and so is the finished product. Both raw material and finished products are kept on skids as far as practical, and the combination of hand-lift units and powered tractors has resulted in important economies.

It is evident in sales records of various skid manufacturers that, even with the recent growth in application of pallets for various materials handling tasks, additional uses for platforms and countless new types such as rack body, stake and bin skids, are being developed constantly, and there is an indication that the future will see further utilization of this system of handling, which has passed its first quarter of a century of active service to industry.

A LIFT - TRUCK manufacturer makes good use of his own machines for storing long length stock on skid platforms



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Many Plants Still Need New Handling Equipment

DURING the course of inspection visits to numerous plants in recent months, two distinct impressions are outstanding among many carried away by a representative of STEEL. First of all, general all-around improvement in methods of handling and in application of equipment for this purpose is noticeable in most plants; second, there is still vast room for betterment in both methods and in equipment in many plants.

Here are a few of the glaring faults that stand out in one typical plant in the second category: Trailers and trucks overloaded; equipment originally installed several years ago, when stampings were lighter in weight, still being used with the result that an abnormally large percentage of the trucks is in the repair department at all times; floors in poor condition, resulting in jolting and jarring of loads with increased danger to operators and damage to materials being transported; aisles not clearly marked, with resulting lack of tidiness, overhanging storage piles and difficulty of maneuvering tractor-trailer trains at switch-track, due to the location of receiving and shipping departments at same point; lack of sufficient storage space, or inadequate use of cubic contents of warehouses; inefficient use of expensive production tools due to poor scheduling and routing of materials.

Many plants continue to use equipment which could be scrapped and replaced profitably by new.

• • •

Applies Laminated Bearings To Traveling Cranes

Applications of bearings of the molded, laminated, nonmetallic type are increasing, particularly in view of the fact that these bearings now may be subjected to a special process which enables them to stand up under higher temperatures. In addition to being used on main roll drives, where they are effecting 20 to 25 per cent reductions in the amount of power consumed, they now are being used on tables. In some cases such bearings are being installed on overhead cranes, in which instances oil instead of water is the lubricant. New developments in molded, nonmetallic bearings include a universal slipper bearing and a bearing designed to take up backlash.

• • •

Simple Traveling Monorail Hoist Serves Ten Lathes

ARRANGING a group layout for ten lathes in a midwestern manufacturing plant permitted the installation of a simple traveling monorail hoist to handle heavy work to and from the machines. About one-fourth of the work performed is too heavy for one man to handle alone. The ten lathes are arranged in pairs in five parallel rows with the heads of the lathes to the outside thus providing a rectangular or box layout.

An aisle extends lengthwise of the layout between each pair of lathes. Three parallel I-beams are mounted overhead about 15 feet apart and extending over the end and middle pairs of lathes. Another I-beam about 30 feet long and extending lengthwise of the layout is supported by trolleys on each of these three cross beams. A floor-operated electric hoist and trolley, fed by a portable extension cord on an automatic take-up reel, operates on this longer I-beam.

This arrangement provides the

(*Please turn to Page* 67)

Right There!"

EVERY batter wants the ball right down his groove . . . because he knows it is the kind he can hit for a home run. Remember this when you choose materials for manufacturing your products. Get only materials that are right "down *your* groove".

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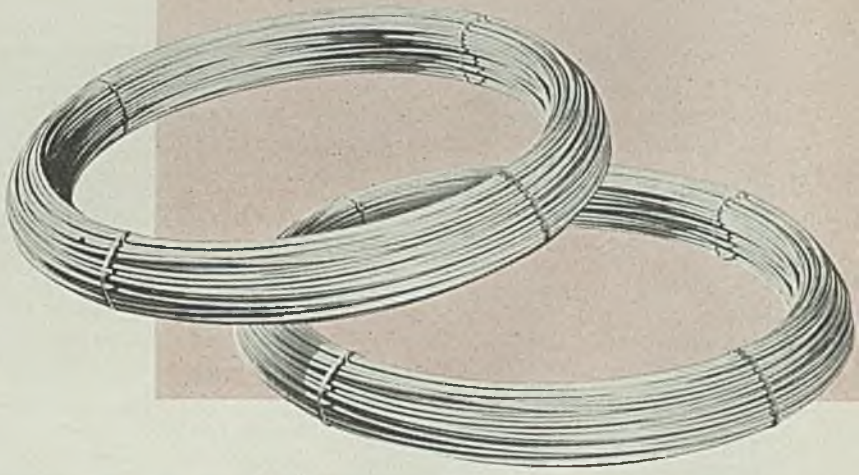

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UNITED STATES STEEL

SURFACE TREATMENT AND FINISHING OF METALS

Enamel Shop Production Problems Include Volume, Quality and Cost

BY JAY SIMONS*

PRINCIPAL functions of an enameling department, in order of usual importance, are to meet production requirements, to maintain quality of finish and to do both at a cost acceptable to the management.

First, the efficient assembly track is a motorized conveyor which has a definite production tempo set to a predetermined output. So it follows that all feeder sections must be synchronized to the speed of the conveyor. Furthermore the tendency today is to squeeze out the bulky store-room and force the supply of parts to a minimum cushion.

Sales Forecast Required

This condition means the management must, to the best of their ability, use all available data and sales forecasting agencies to plot the coming year's business, then take into account their peak sales period and warehouse facilities, thus arriving at the total requirements for the year which would then be broken down into monthly activity.

Simultaneously with this survey, the designing department should have their models for the new line ready for sales, engineering and shop approval. After approval by the sales department and the quantity of each style is estimated, a committee composed of representatives of the sales, engineering, production, tool design, enameling, assembly and inspection departments should meet to discuss their collective and individual problems. This committee, functioning as a balance wheel on each other's operations will anticipate and correct problems and misunderstandings, which are ordinarily not discovered until production actually begins.

At this committee meeting is the time and place for the enameler to put his cards on the table, so to speak, not after the job is rolling out in the shop. Here is when to determine the maximum and minimum requirements for his equipment, to request any change in design or finish, to do a selling job on one-coat ware or any other pet idea which he may have. A committee meeting of this nature may be somewhat hard on the nerves at the time of meeting but will certainly pay large dividends in smoother operation at a later date.

Plant layout is the next situation for the enameler to survey. While he is doing that he considers a consolidation of press-brake operation, gas and spot welding, polishing and metal finishing under the supervision of the enameler. If he looks at his layout board he will recognize it as a "natural." Here is a suggestion that will stop the continual passing the buck between the fabricating and enameling sections.

This would insure the following items of paramount importance to enameling success:

1. Clean steel for welding, either gas or electric.
2. A proper penetration of gas welding.
3. Spot welds that will hold yet will not burn through.
4. Proper polishing of welds.
5. Desirable amount of metal finishing.
6. An inspection just prior to processing.

By this system, work is fabricated and enameled in less than twenty-four hours. Work in progress is automatically held down to a volume so small that if an error is made it can be corrected with a minimum expense. This unit should be self-contained, even to its own glue room for setting up wheels.

Another important pick-up in this scheme of operation is a very desirable costing rate as against a full fledged press shop. In all cases of jobs transfered to a unit of this kind, the costs were decreased at least 15 per cent, principally because the so-called foreign department had been doing too much work on the wrong places. In addition, the

*Superintendent, porcelain enamel division, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Bright Zinc Inquiries

BECAUSE of the many inquiries received concerning the article "Bright Zinc Plating Process Produces Brilliant Deposits Directly from Bath" published in STEEL June 21, readers are informed that inquiries may be addressed directly to E. I. duPont deNemours & Co., Grasselli Chemicals Division, Wilmington, Del., who control this process known as the Zin-o-Lite process, under U. S. and foreign patents issued and pending. The use of solutions, organic brightener and controlled efficiency anodes, which were developed entirely by this company, is granted to purchasers of these materials

enamel processing costs were lowered because of better workmanship in fabricating.

If the enameler does not control these operations, he should insist upon this responsibility. A suggestion as to personnel, is to get a good enamel man as the final inspector and make a program to work several enamelers in this section and several metal workers in the enameling department for six to twelve months. Then send them back to their old jobs and note the mutual understanding and subsequent cooperation between departments which were once far opposite in viewpoint.

In the plant layout should be adequate facilities for storage and handling of blanked parts, brackets, panels, etc. For small parts, steel tubs may be used for storage in steel bins serviced with deckers, large wrapper sheets may be piled with a crane and a grab-hook and the fabricating section serviced as needed. Large parts may be stored in wooden crates and piled with electric hoists. After fabricating, the ware should be routed to the pickle or conveyors of such a nature that they feed into the pickle operators station.

Automatic Pickling Desirable

Automatic pickling facilities today are being emphasized and are commanding a wholesome respect from works engineering departments. The reason is quite obvious. It is the trend to larger parts and unit construction of refrigerator and range outer shells. The older type panels are being consolidated and each year we see an increase in the average size of pieces, which because of design reduce the capacity of the stationary type pickle room.

Pickle machines should be designed with future expansion in view and if this is done before the installation, increased production can be handled by adding sections to the machine and rearranging key solution tanks. This can be done without losing the expensive excavating, plumbing, ventilating and other costs of the first installation.

Here is some interesting data observed over a period of several years on two different types of machines, one known as the transfer type, running continuously, the other the high-lift type, running intermittently.

1. Both delivered ware of equal quality in regard to processing.

2. Material and labor costs are the same.

3. Sodium cyanide after pickle rinse is not necessary unless furnace conditions are conductive of copper-spotting.

4. Hot air drying is more desirable than gas muffle.

5. Filter presses on large neutralizer tanks are desirable and economical.

6. At least four-inch overflow drains on rinses are needed.

7. Maintenance costs are very low. However, on the high-lift type, especially designed hooks should be used to avoid shifting of ware which will cause breakage of alloy arms.

8. Cleaner cost is a large account and it was found that a cleaner with a base composition of 85 per cent sodium ortho-silicate was the fastest, cheapest and most satisfactory.

9. Due to the loading and unloading station being clean and healthy and a desirable place in which to work, a higher type of labor may be employed, resulting in better quality ware.

10. Pickle labor and material costs are largely controlled by the ingenuity of the supervisor.

A completely conveyorized plant has many distinct advantages. The most outstanding of which is, of course, the saving in direct labor in handling operations, which is generally reduced 50-75 per cent. The skilled workman is doing the job for which his rate classification pays him, rather than pushing a truck. In addition to this there are intangible improvements, such as reduction of work in progress, automatic pace-setting for the workmen, ease in following production and more accurate costing.

The three phases of conveyors are the layout, the installation and to make them work as planned, the latter being the most difficult. Here are some suggestions to improve their efficiency:

1. Train supervisors to become conveyor-minded. Those who cannot adjust themselves should be replaced.

2. Stock repairs for every part on chain and drive.

3. Use proper lubricants according to temperature requirements.

4. Provide protection to the ware by a snow-shoe plate arrangement just below the chain, also a mechanical device to clean the plates several times daily.

5. During week-ends tighten chain, replace broken wheels, overhaul drive and check each foot of truck for trouble.

6. Keep rejects down.

To elaborate on the last item is not the subject, but it still remains that when a reject occupies an active hook on the conveyor, its efficiency is that much lessened. The nearest approach to an answer to this problem is a complete control by the laboratory and mill room over enamels and processing.

Spray booth equipment has become a major problem in enameling plants today. First because of the trend to larger parts, thus making the requirements of porcelain spraying closer to those of lacquer. Second, the desire of management to protect employes from all dust hazards. Third, the possible savings in reclaimed material.

After six months study on the

(*Please turn to Page* 69)

Color Laboratory Tours Porcelain Enamel Plants

THE color service laboratory on wheels illustrated here has been sent out by B. F. Drakenfield & Co., Inc., New York to visit every porcelain enamel plant east of the Mississippi during the ensuing summer. When it swings into a company parking lot this trailer will be all set to handle almost any color problem. It contains spray booth, furnace, large and small grinding mills, balances, testing equipment and a complete assortment of basic oxides and other materials all arranged in neat compact style. The trailer is equipped to perform the entire porcelain enameling process from weighing out ingredients to final firing—all in air conditioned comfort

PROGRESS IN STEELMAKING

New Method Imparts Stiffness to Cold Rolled Tin Plate

HOT-ROLLED tin plate rapidly is being displaced by cold-rolled tin plate because can manufacturers have found the latter material more accurate to gage, more ductile and conducive to increased die life. Also, it has a better surface and an improved coating and requires less tin.

However, the commercial cold-rolled tin plate now being produced on the modern 4-high cold rolling mills does not meet all the requirements requisite for making both can bodies and can ends. Much research has been and is being done by tin plate producers in an effort to meet this demand on the part of tin can makers. This problem was described briefly in the April 26, 1937 issue of STEEL, page 61.

Most of these troubles arise out of the extreme ductility of the cold rolled plate. The problem is to increase the physical strength and not impair workability. In many cases the can manufacturers have found the cold rolled product to be entirely too soft for satisfactory body stock and they continually are demanding a stiffer cold rolled plate whereby fluting or paneling is avoided. Further trouble sometimes is encountered in the cannery due to the nonreturn of domed ends, as described in *Sheet Metal Industries* for Dec., 1936, page 937.

Some can manufacturers use the cold-rolled product for can ends only, still retaining the use of the hot-rolled product for the bodies.

Efforts have been made by tin plate manufacturers in some cases to stiffen the tin plate by alloying. Some manufacturers attempt to get the desired stiffness by cold rolling after heat treatment with heavier reduction than the conventional skin pass, sometimes using a reduction of 3 per cent for the skin pass in the cold-rolled product whereas the hot rolled product usually is given a reduction of approximately 1 per cent.

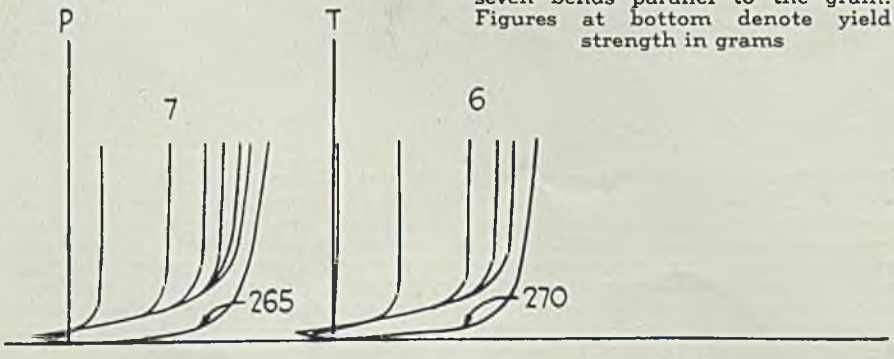

Fig. 1 — New cold-rolled tin plate 0.0065-inch thick, prior to tinning, failed in the Schopper test after six bends transverse to the grain and seven bends parallel to the grain. Figures at bottom denote yield strength in grams

One producer is endeavoring to overcome this difficulty by making a skin pass with total reduction as high as 6 per cent through two 4-high stands operated in tandem. Even after this amount of reduction the difficulties due to extreme ductility still remain. In some cases manufacturers try to stiffen cold-rolled tin plate by heat treatment at an unusually low temperature, 1000 to 1150 degrees Fahr.

When cold rolling more than 3 per cent it has been found that the ductility was reduced so greatly that soldering at the seam was difficult, with resultant danger of leaky seams. In extreme cases the can would crack along the seam in the high-speed body forming machines. These experiences showed that the loss of ductility when stiffening the cold-rolled tin plate must not reduce the workability to such an extent that the cans cannot be made satisfactorily with the high-speed can making equipment of the present day. An interesting case where greater physical strength is required is in the beer can. The pressure developed in this type of container is high so that in its manufacture a heavy plate, generally 75-pound plate, is used.

Experience has shown through many tests that tin plate varies widely in ductility, depending upon the kind of steel used, annealing treatment, rolling procedure and other factors. Always, however, the ductility of mild steel sheet or strip is high in comparison to its other properties. In considering the ductility of mild steel plate as used in

can making it is necessary to weigh it against other physical properties, for example, strength versus ductility and mass versus ductility.

After research work extending over many months, this difficult problem has been solved by the Cold Metal Process Co., Youngstown, O. The answer has been found as a result of precision control of heat treatment and cold rolling. By controlling heat treatment and the distribution of the cold rolling, it now is possible to produce plate with equal strength both with and across the grain, a highly desirable feature in connection with the manufacture of can ends. While the new plate is sufficiently ductile to serve as can ends, it also, being stiff, is suitable for can bodies. Because of its properties, the new product has been named High-Yield Resilient tin plate.

Plate Is Thinner

With this new development cans may be made of thinner plate than is customary but without loss of strength. The Cold Metal Process Co. recently had a full line of cans made up, using 0.0065-inch tin plate made by the new method. They ranged from ½-pint to 1-gallon containers. It was found that the material lent itself satisfactorily to the making of round can ends without any tendency to tear in the dies. No fluting developed during the forming of the can bodies. There was no breakage or springback at the seams. Resistance of the finished cans to denting was unusual. Dents caused by heavy finger pressurre returned to original shape when the pressure was removed. Filled with water, a 1-gallon can showed only minute dents after being kicked sharply.

In the development of this process the Schopper test for tin plate, developed some years ago by C. C. Willits, Continental Can Co., Canonsburg, Pa., was the means of control. Using both Olsen and Schopper tests, the problem was one of getting a plate of the desired ductility but which would have sufficient fatigue bend value. Tests with the resulting plate show that its yield point is higher than the conventional product of hot tin mills but its fatigue bend value is unusually high. By the Schopper tests its yield point is around 39 kilograms per square millimeter. This compares with an average of 24 to 30 kilograms per square millimeter for the average hot-rolled and cold-rolled tin plate.

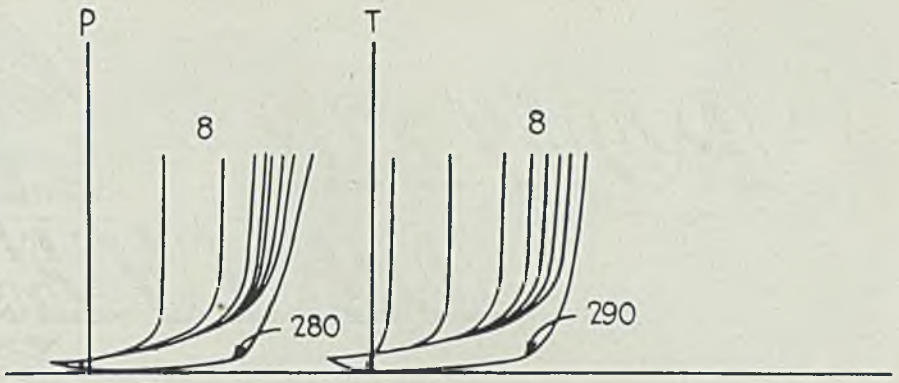

Fig. 2 — After tinning the plate failed in eight bends both in the transverse and parellel directions, indicating that in spite of the loss in ductility after tempering in the tin pot the fatigue bend value improves

In the accompanying illustrations are shown results of some recent tests of the new cold-rolled tin plate developed by N. P. Goss, physicist, Cold Metal Process Co. They show that in spite of a loss in ductility after heat treating in the tin pot the fatigue bend value improves. They also show that the new product, after processing, can withstand eight bends at right angles to the rolling direction and eight bends along the grain. The material tested was 0.0065-inch thick. Fig. 1 shows the results of tests made prior to tinning while Fig. 2 shows results after tinning. The figures at bottom in these illustrations denote the Schopper yield strength in grams while figures at top indicate the number of bends prior to bend failure. As shown, fatigue resistance after tinning increased rather than decreased. It is of interest to note, Fig. 3, that the Olsen draw value of the material before tinning is about 0.233-inch while the draw value after treatment in the tin pot is approximately 0.2-inch.

The choice of steels that can be used depends entirely upon the physical properties desired by the can manufacturer, according to the company. It may be made from bessemer or open-hearth steel, from copper-bearing steel or steel low in metalloids and with carbon below 0.057 per cent.

A feature of the process is that it may be varied. For special container requirements different combinations of properties with and across the grain may be had. The control is reported as so definite that plates produced by the process are entirely uniform.

♦ ♦ ♦

Reduces Defects in Ingots

Practice at a steel plant in Pennsylvania discloses that fewer snakes or cracks arise in plates rolled from killed steel ingots cast in corrugated molds. However, tests also indicate that ingots from plain molds converted into plates give better rolling practice. The life of the plain molds at this shop is about one and one-half times that of corrugated molds.

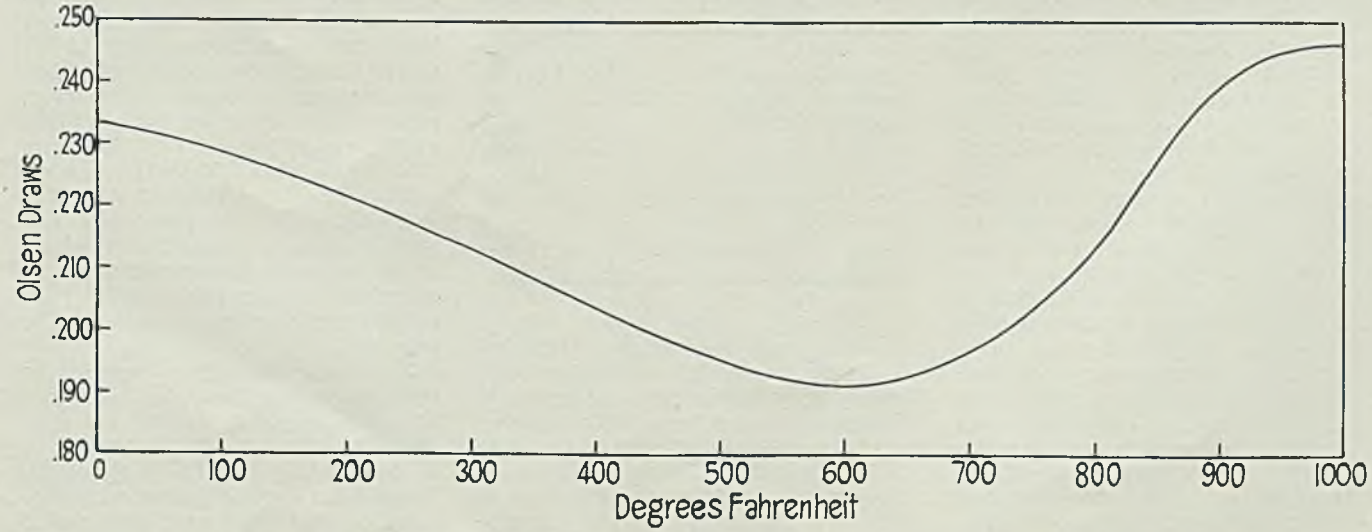

Fig. 3—Loss in ductility of cold-rolled strip heat treated below the recrystallization temperature

POWER DRIVES

Two Methods Give Different Results In Determining Lineshaft Losses

THAT the common method of determining group drive transmission losses is incorrect and that these losses are not so great as has been generally supposed is indicated by the results of some tests made by F. E. Butterfield, industrial equipment engineer, Commonwealth Edison Co., Chicago, as reported before the Chicago Power Transmission club.

The general method used for testing group drives to obtain friction losses of lineshafting, countershafting, clutches, loose pulleys and other group drive elements, has been to obtain power consumption of the motor alone, then add the load of the lineshafts unconnected to the machines. Commonly, machine loads are added one at a time and the increase in power consumption is assumed as the machine load. In some cases machines are added consecutively; in other tests only a single machine is connected up at a time.

Although these tests were made on a group drive of three washers in a laundry the results should be applicable to lineshaft operation of other types of equipment. Laundry washers have a horizontal rotating cylinder with compartments for "the wash." Cylinders rotate slowly for a fixed number of revolutions (usually four or five) in one direction and then are reversed automatically for a similar fixed number of revolutions in the opposite direction, and so on. This gives a heavy continuous load plus a reversal under full load. Reversal is obtained by shifting the belts on loose pulleys.

In these tests power consumption was obtained direct by meters in the line at the motor. The first series of tests were made on the unbelted, 10-horsepower, constant-speed, direct-current motor. The lineshaft was then belted up with all washer belts on the loose pulleys or idle position, and next each washer was operated alone. Then all three washers were put in operation and the power consumption recorded. The second series of tests will be described after giving the results of this first series.

Power consumption of the unbelted motor was 715 watts, which was assumed to be the inherent loss of the motor throughout the load range, because the field current of this type of motor is practically constant. Complete data is given in Table I. Replacing the motor belt and placing both open and crossed reversal belts on loose pulleys gave a meter reading of 2200 watts, or 1485 watts for the lineshaft and loose-pulley loads or the commonly assumed lineshaft friction losses. Operating each machine alone gave loads of 220, 550 and 550 watts respectively for each of the machines, or a total machine load of 1320 watts.

Table I

First Method of Determining Lineshaft Losses

Type of Load	Consumption Watts
Motor Field Losses	715
Lineshaft Losses	1,485
Machine No. 1	220
Machine No. 2	550
Machine No. 3	550
Total (By Addition)	3,520
Unaccounted for Load	530
Total in Operation	4,050

Adding these loads together gave a total load of 3520 watts. However, when the three machines were placed in operation the total power consumption, as recorded, was 4050 watts, or a discrepancy of 530 watts. Also, the power consumption of the machines, approximately 0.3, 0.73 and 0.73 horsepower respectively, was too low for commercial washers.

Usually in tests like this the unaccounted-for 530 watts would have been assumed to be increased friction losses resulting from operation under load. Adding this to the 1485 watts, previously determined as lineshaft losses, gave 2015 watts, which was approximately one-half of the total power consumption. This apparently proved the commonly assumed statement that lineshaft losses are about 50 per cent of the power load. Operating the two larger machines together, however, gave a total machine consumption of 990 watts instead of 1100 watts (550 watts plus 550 watts), as required when operating alone. This gain or saving of 110 watts disproved the assumption that the lineshaft losses increase with load. In other words, careful analysis indicated too many discrepancies to be reliable.

Mr. Butterfield then made the second series of tests by operating all machines and cutting off only one at a time, thus operating with about two-thirds of the useful load. These tests showed power consumptions of 860, 1020 and 1000 watts respectively (total 2880 watts) com-

pared with 220, 550 and 550 watts (total 1320 watts) for the same units as obtained by the first test. Using this new total machine load of 2800 watts and adding the motor losses of 715 watts gave 3595 watts. Subtracting this from 4050 watts (full load) left 455 watts as the new lineshaft friction loss. In other words, the friction loss, as determined by the second test, is only 11.2 per cent of the total power consumption instead of over 50 per cent (or 36.6 per cent, omitting the unaccounted-for consumption of 530 watts) as the first test indicated.

Mr. Butterfield is inclined to accept the second set of results as more nearly correct than the first set. The power consumption of the individual machines is approximately the rating normally considered as required for their operation. Also, the meter reading was taken while the meter pointer was stationary and not at the point of reversal, which incidentally was not as extreme a fluctuation as anticipated. The difference in motor field current at no load and full load would account for a very small percentage of the difference.

Table II

Second Method of Determining Lineshaft Losses

Type of Load	Consumption Watts
Motor Field Losses	715
Machine No. 1	860
Machine No. 2	1,020
Machine No. 3	1,000
Total	3,595
Lineshaft Load (Balance)	455
Total in Operation	4,050

Explaining Difference

In explanation of the difference in lineshaft friction losses in the two tests Mr. Butterfield offers the theory that "when operating at no load or light load the lineshaft has no reaction on the bearings to bring it into its normal running position where it has worn itself in, after years and years, and runs the freest." In other words, the load holds the lineshaft in its best "operating groove" as worn in during years of service. This may account for the high starting torque of lineshaft drives.

This group drive had been in operation for several years and was not realigned for the test. Also, the test was made sometime after the drive had been in operation for the day and conditions of load were not changed during the test. Obviously there is need for making additional tests to check whether similar conditions hold out on other installations. STEEL would like to hear from any readers who have investigated lineshaft friction loads by either or both methods and would welcome any discussion or opinions on the methods and results.

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Unexpected Conditions Shown by Graphic Meters

USE of graphic meters for recording operation of motors sometimes discloses unexpected conditions entirely outside of power problems. For example, in one steel mill in making routine tests on motors a graphic meter was attached to the feeder circuit of an alligator shears located in a remote spot in the scrap yard. The record indicated that on one of the night shifts, although the motor operated all of the time, it was engaged in actual shearing work only about 3 hours out of the entire shift. The remainder of the time it operated idle. The remedy was, of course, for the foreman to make his routine inspection trip irregularly and unexpectedly instead of at a set time, as had been his practice.

Meter Shows Idle Time

In another plant one expensive machine in the toolroom was a bottleneck to production. Most of the time several jobs would be tied up waiting for this unit. A test, made to determine if the motor was overloaded and if a larger motor would help, indicated that actual production time was only about 10 per cent of the total work day. Investigation showed that the remainder was layout and setup time. In other words, the operator was using the machine table as a $6000 layout bench. The remedy was to build a number of auxiliary tables or setup plates on which the work could be clamped down and laid out for machining, and then moved and clamped as a unit to the work table of the machine. This increased the productive time of the machine to about 60 per cent of the total time in use. Actually this one machine then became equivalent to 6 machines under the former method of operation. The auxiliary work tables cost only a fraction of adding one machine.

This one application of the graphic recording meter saved more than the cost of the meter. Although graphic meters were originally intended for power surveys to indicate overloaded or underloaded motors or improper application of drives, intelligent study of the charts often discloses other wrong conditions of machine operation entirely remote from the power problem. These by-products of the power surveys often show the need for improvements or changes in productive operations and result in much greater savings than the entire power cost of the machine.

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Make a Wiring Survey

POWER distribution lines in an industrial plant have been likened to the circulatory system in the human body. More truly they perform the combined functions of arteries and the nervous system. In both the industrial plant and the body when "organs" cease functioning everything stops; when impaired, both require careful "doctoring" to put into condition again.

As the body grows, the load on the arteries and nervous system increases until they may break down or weaken. Similarly the demand on an industrial power distribution system can be increased until it operates poorly and inefficiently. A power circuit, however, may be added to and patched up but in the end its condition impairs plant operation unless practically rebuilt.

Some plant engineers anticipate growth as much as possible, especially in feeder circuits, when planning and installing a distribution system. Even with the best information available radical changes in product or rapid growth may require extensive changes. Many plants have been in operation a number of years find their distribution circuits entirely inadequate for present operating requirements. Extra circuits from the incoming power source, to take care of expansion or changes, are expensive.

Make Survey of Facilities

The wise plant engineer before making extensive additions should make a survey of existing power service facilities to determine, first, the extent of their inadequacy and, second, whether the installation can be made serviceable or a new installation, planned to provide for growth, might not be more economical in the end.

To assist plant engineers and chief electricians in this work two worthwhile booklets have been issued recently by a manufacturer of wire and cable. One of these booklets, "Industrial Wiring Survey," shows how to make a scientific check-up of electrical circuits with an outline of points to check and space for recording data. The other, an "Industrial Guide," covers the selection of wire and cable for industrial power applications. Both of these booklets, which may be obtained without charge from Anaconda Wire & Cable Co., New York, are sufficiently comprehensive to be worth consultation by any plant operating executive.

WELDING, ETC.

BY ROBERT E. KINKEAD

Welding Cracks in Castings

THE case of a 35-ton steel casting in need of welding repairs on account of cracks discovered in the machine shop is illustrative of problems encountered in welding at the present time. The first question was: Will the customer accept the casting salvaged by welding? Obviously, the cracks were the result of improper foundry practice in flame cutting the risers. The cracks could have been avoided in the flame cutting. Failure of the casting in service would cause large financial loss to stockholders and wage earners. Delay in machining and delivery of the casting would cause considerable loss. The problem was to decide whether to make a new casting or weld the cracked one.

The fact that the casting had 0.40 per cent carbon added to the complications in the case. A special furnace, preheating and recrystallization afterwards involved heavy costs for welding.

The answer every welding man would give to the problem would be: Make a new casting! The answer of most steel foundry men would be: Weld it! As this is written, the customer has not decided, but his answer probably will be a new casting.

If anything is to be learned from this case it would seem to be that the foundry should have discovered the cracks before the casting reached the machine shop. They then could have been welded by proper procedure without question and the whole mess would have been avoided. Welding is in fact a usual and customary part of the process of making sound steel castings and unless specifications are written to prohibit its use, it will be used where it saves money.

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

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Good, But Not That Good

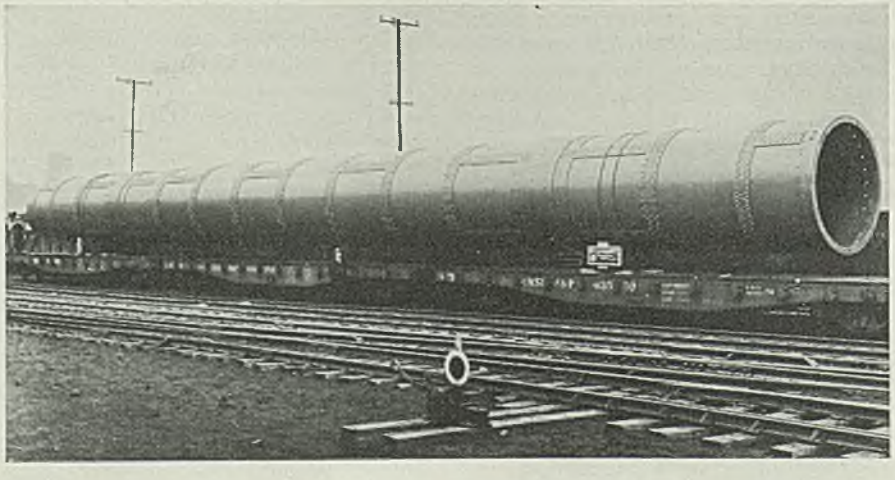
TO THOSE who live in a dream world in which "ought to be" is substituted for things as they are, the present wave of strikes is most disturbing. Strikes, conflict and confusion are normal conditions where human emotions, wants and frailties are as involved as they are in the economic world. Far from being the beginning of social revolution, these strikes are the preventative and curative measures Nature has provided to combat devastating social upheaval. They are cruel and destructive but not unnecessary as human nature is constituted.

Our own belief is that the men who are joining the "one big union" are being grievously fooled but the fact that many people see this will not convince them. The best way is the way it is actually working out so that they can see for themselves. There does not seem to be any other way. But there is somewhat of a paradox in the fact that men are out shedding their blood fighting for the right to strike while at the same time their own leaders must actually take that right away from them if the CIO is to accomplish its stated aims.

With some 50 unauthorized strikes between CIO and companies with which contracts have been signed, these labor leaders are busy now trying to convince the men that they have no right to strike. To believe that the men cannot see the irony in that situation is to underestimate grossly the intelligence of the men.

No one but some dumb hoodlum who can be handled easily by the police will fight to death for the right of having John Lewis say whether or not they have a right to strike. John Lewis is good, but he is not that good—nor is Mr. Roosevelt.

Kiln Shipped in One Piece



BEING shipped to a southern paper mill by Allis-Chalmers Mfg. Co., Milwaukee, is this rotary kiln shell weighing 144,000 pounds. It is one of two, each being 9 feet in diameter and 125 feet long. Kilns are used for recovery of lime in chemical pulp mills, converting filter cake, by heat process, again into caustic lime for further use

Atom-Smasher Being Built

World's largest unit for conducting experiments in the field of nuclear physics will be a 65-foot "atom-smasher" now in the process of construction by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. at its research headquarters. Structure will consist of a 2-story building, above which will be a pear-shaped tank, 30 feet in diameter and 47 feet high, housing an electrostatic direct-current generator and other required parts including a 40-foot vacuum tube, through which particles will be shot in the bombarding of various types of targets. Voltages generated in this atom-smasher will range to 5,000,000 and beyond. Such high voltage will accelerate particles of matter shot through the vacuum tube up to 100,000,000 miles per hour. Particles, leaping from the end of the vacuum tube through thin windows of metal, will strike the targets with velocity great enough to penetrate the hard centers, or nuclei, of the atoms, and new substances will be produced, according to Dr. L. W. Chubb, director of Westinghouse research laboratories.

NEW EQUIPMENT

Mechanical Scaffold—

DecoVator Scaffolding Corp., 2988 East Grand boulevard, Detroit, is manufacturing a demountable hydraulic scaffold that may be raised, lowered, extended or contracted, and driven from one vantage point to another by mechanical means actuated from the working platform. Made entirely of steel, the DecoVator scaffold combines in one unit, ladders, benches for tools and materials and the complete lifting and traveling mechanism. Two models are available, one permitting work up to 16 feet and the other on which men can service work up to 22 feet. Platform is elevated by the worker upon it at a rate of 8 feet per minute and lowered at 10 feet per minute. Entire scaffold structure, which comes with rubber tired wheels, may be moved by mechanical means from above in any direction at a ground speed of 50 feet per minute, while the unit, which may also be close-coupled for one-man work, is readily demountable. Manufacturers of the scaffold point to the safety factor as well as its time and labor-saving advantages.

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Gas-Tight Goggles—

H. S. Cover, South Bend, Ind., is manufacturing a pair of gas-tight non-fogging goggles for wear by workers in chemical fumes, dusts, gases and steam. Goggles fit face so snugly that outside air cannot penetrate to the eyes, while fogging is eliminated without the necessity of removal. A small portion of water is placed inside goggles at the time they are put on. Capillary action and patented rubber groove keep water away from and out of the eyes. An easy nod or shake motion at first evidence of fogging immediately removes all clouding and makes it possible for wearer to work almost indefinitely without having to remove goggles for any reason.

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Portable Pyrometer—

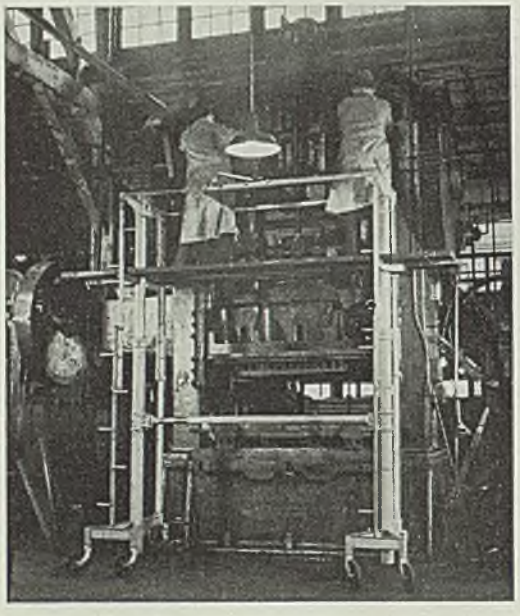
Bristol Co., Waterbury, Conn., is now manufacturing a new millivoltmeter-type portable indicating pyrometer for measuring temperatures up to 3000 degrees Fahr. using a thermocouple and extension leads. Use of a cobalt magnet allows exceptional design features including increased sensitivity and a widened scale for more accurate readings. High resistance millivoltmeter movement is double-pivoted and completely shielded to prevent effects of stray fields. Case of molded bakelite is moisture and dust-proof, while instrument is available in both single and double ranges.

Bristol portable indicating pyrometer is millivoltmeter type

♦ ♦ ♦

Phillips Screwdriver—

Bonney Forge & Tool Works, Allentown, Pa., has added to its line of screwdrivers, four new models to fit Phillips screws of all sizes. Blades, drop-forged from selected steel and carefully heat-treated, are firmly anchored in the handles and tips are accurately ground. Hardwood handles are fluted to provide a firm, comfortable grip. The No. WP1 screwdriver is designed to fit Phillips screws No. 4 and smaller, No.



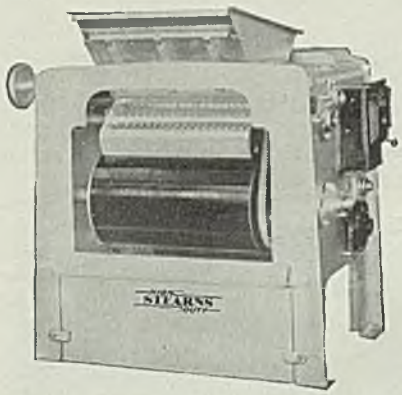
DecoVator scaffold may be raised, lowered or driven from one point to another by man on the platform

WP2 to fit Nos. 5 to 9 inclusive, No. WP3 for Nos. 10 to 16 inclusive and No. WP4 for No. 18 and larger sizes.

♦ ♦ ♦

Magnetic Separator—

Stearns Magnetic Mfg. Co., Milwaukee, is offering a new modern design of its type "L" magnetic separator, principal new feature of which is the self-contained complete drive. Motor is operated from alternating-current and the unit is also equipped with generator for use where direct-current is not available, motor being sufficiently large to drive both generator and separator. Operating units are entirely concealed so that all moving parts are protected and complete safety is provided for the operator. Anti-friction bearings are used throughout and transmission is new roller chain type with cut steel sprockets. Adjustable pin-type feed hopper has been lowered into the frame, giving an advantage where hand labor is used for feeding material. By removing division gate, separator can be transported readily with lift trucks. Having many uses in treatment operations, the magnetic separator is also efficient in separating metal borings and turnings and reclaiming brass, bronze and aluminum.



Safety was an important factor in design of the Stearns magnetic separator

♦ ♦ ♦

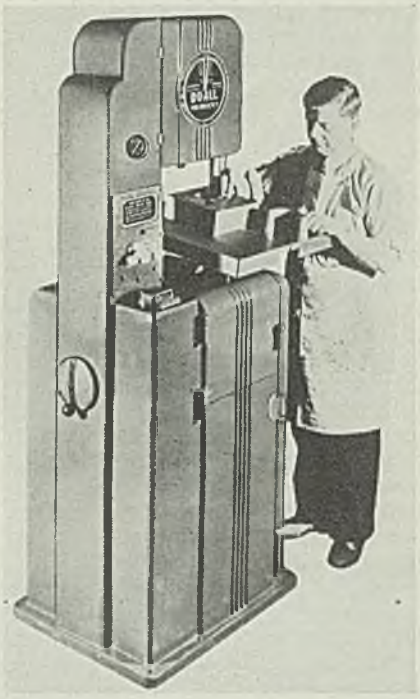
Casting Cleaner—

American Foundry Equipment Co., 555 South Byrkit street, Mishawaka, Ind., has placed on the market a new model Wheelabrator Tumblast unit in a 48 x 48-inch size and designed primarily for heavy duty service in cleaning reasonably compact castings and forgings weighing up to 300 pounds and having an operating load capacity of 20 cubic feet. Centrifugal force replaces compressed air in whipping steel abrasive on metal pieces being cleaned in the unit. Gentle tumbling and complete exposure of all parts in the blasting zone is accomplished by means of an endless type conveyor apron. Counter-balanced, power-driven door, opening and closing at the touch of an electric control button, is installed at a 65 degree angle to permit loading by either an American skip bucket loader or an overhead crane. An auxiliary hopper and screw conveyor, installed in a pit beneath the machine, reclaims abrasive which rebounds beyond the return abrasive conveying system and is included as standard equipment in this unit. A new suction type abrasive separator removes dust, broken-down abrasive, burned molding sand, forging scale and other foreign particles from the abrasive before it is delivered to the wheel. New safety method is utilized, preventing damage to the machine through carelessness of the operator. Controls are so arranged that door cannot be opened while machine is in operation; and the loader cannot be raised to charging position nor the conveyor reversed for discharging the load, while the door is in closed position.

♦ ♦ ♦

Machine Tool—

Continental Machine Specialties Inc., Minneapolis, has added the "Metalmaster," a unit of many functions, to its line of Doall machines. Rapid in machining, the new unit is also efficient in shaper operations, material being removed in one slab instead of being reduced to chips. Cutting is done continuously instead of with an oscillating motion. In milling, the Metalmaster does slitting and also removes slugs preparatory to milling, while in place of nibbler work the contour saw closely follows the line through thick sections, thin cut of the saw leaving no waste. In lathe operations contour saw cuts true circles of any diameter, not being confined by swing or throat, and material is also saved because rim is sliced off and not reduced to chips. Saw blade joining is done by a new, instantaneous butt welder. For speed control, covering a saw speed range of from 50 to 800 feet per minute, a job selector dial provides exact data on saw speeds and specifications and a tachometer indicates exact speed at which machine is operating. Provided with a four-way tilt table, Metalmaster models are built in two sizes, one with 14-inch throat and one with 30-inch throat.



Doall Metalmaster is a machine of many functions

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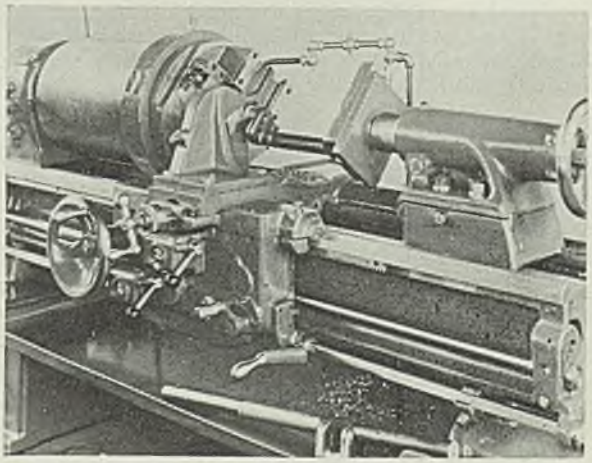
Crankshaft Lathe—

Reed-Prentice Corp., Worcester, Mass., has announced a 16-inch lathe with tooling for turning single-throw crankshafts. Capacity is shafts from 1 9/16 to 3½ inches in diameter while there is micrometer adjustment both on chuck and on tailstock for throw of crankpin. Maximum throw is 4 11/16 inches and minimum throw is 1 15/16



New Reed-Prentice lathe has tooling for turning single-throw crankshafts

inches. Machine also has ball bearing tailstock spindle, micrometer stop on bed for positioning tool for starting and automatic stop for end of cut.

♦ ♦ ♦

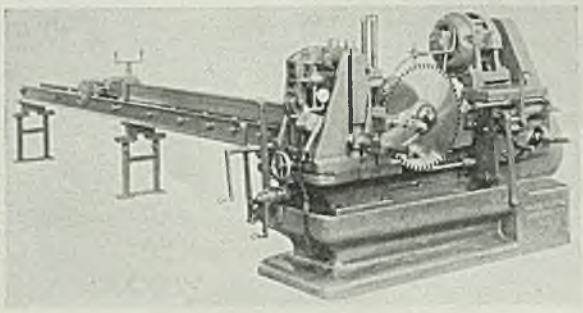
Truck Hoist—

Kyle Sales Co., Box 212, Decatur, Ill., is manufacturing a truck body hoist for general utility truck bodies that can be used not only to elevate the body and load but also as a hoisting mechanism, efficient in the loading of heavy equipment. Powerful lifting action is accomplished by means of segmented jackes which lock into rigid struts or tension members and are unwrapped, section by section, from the triplex pin spiders. Power of jacks is the same in either tension or compression and they automatically lock the body in any position. Hoist is driven from a conventional power take-off applied to the transmission through two universal joints to a bronze worm reduction gear. A hand hoist of the same type is available, which has no worm gear, but is locked with pawls rather than the worm.

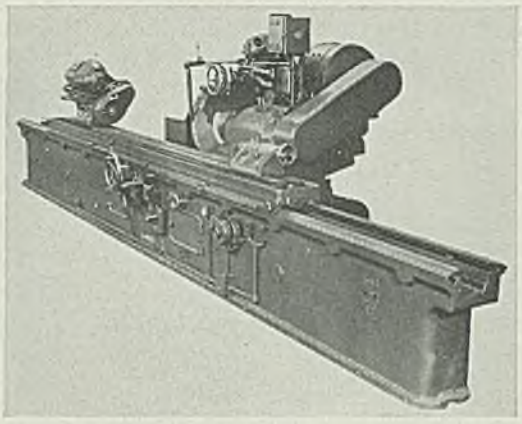
♦ ♦ ♦

Metal Sawing Machine—

Cochrane-Bly Co., Rochester, N. Y., has developed a special handling apparatus for square and rectangular bars that will grip the bundle of bars on the end and feed them all the way up to the saw blade. On the company's No. 55 sawing machine the fixtures are designed to hold 40¼ x 2-inch or 20½ x 2-inch cold drawn bars which are supported on rolls and held in the extended carriage which will reach over the bed of the saw up to the saw blade. Stock carriage is fed forward by chain and sprocket operated by a crank handle. Vise is air operated through a compound toggle link and is instantaneous in its movement, requiring less than five seconds to unclamp, feed to gage, clamp and start feed of saw. Vise is provided with a lateral clamp to keep bars in perfect alignment. Forty bars are cut 2 inches long and to close tolerance in cutting time of one minute and fifteen seconds, while apparatus is also adaptable to cutting numerous other sizes and lengths of square and rectangular bars.



Cochrane-Bly No. 55 metal sawing machine with new apparatus for gripping and feeding bars



Landis type BD hydraulic grinder is for long work having a relatively small diameter

♦ ♦ ♦

Tote Pan Truck—

All Steel Welded Truck Corp., Rockford, Ill., is manufacturing a new model Clark tote pan truck equipped with two vertical straps and electrically welded throughout. Two 6-inch semi-steel wheels have Hyatt-type roller bearings. Available for all standard size pans, truck has a capacity of 1000 pounds, while extended arms which set under tote pan flanges enable operators to pick up pans single or nested.

♦ ♦ ♦

Hydraulic Grinders—

Landis Tool Co., Waynesboro, Pa., has announced its new type BD hydraulic grinder for the grinding of relatively long work having small diameter. Dynamically-balanced, wheel-drive motor is mounted on rear of the wheel base, from which point the drive to the right-hand end of the wheel spindle is through multiple V-belts. Oil pump is driven by a gear on the spindle, while sight feed valves at the top of the wheel base enable operator to check and regulate the flow of oil. From the motor to the jackshaft and from jackshaft to face plate the drive is through multiple V-belts, one adjustment maintaining proper tension on both drives. Hydraulic system consists of a low pressure, variable flow pump and continuous motor. Type BD machine is available in sizes 10 x 96 inches, 10 x 120 inches, 14 x 96 inches and 14 x 120 inches, while a separate motor is required for work, wheel and pump drives.

♦ ♦ ♦

Time Devices—

National Acme Co., 120 East 131st street, Cleveland, has announced two new model "Chronologs", instruments for measuring and controlling down time. Applicable to any machine, process or operation, the model M Chronolog shows clock time in the upper right window and in the other registers the number of units produced. On a 4½-inch tape it prints starting time, count of units produced every ten minutes, symbols for interruptions, and records visits of foremen, inspectors and others, so that at the end of the day a complete printed record of the machine's activity is available. Model O Chronolog contains one set of digit wheels but also prints on a tape and, like the model M, can be adjusted for many different uses.

Model M Chronolog is a mechanical secretary for any machine or operation

MATERIALS HANDLING

Simple Traveling Monorail Hoist Serves Ten Lathes

(*Concluded from Page 49*)

equivalent of a traveling crane, the I-beam traveling across on the short beams and the hoist lengthwise of the long beam. Both hoist and traveling I-beam are hand operated.

When not in use, the electric hoist and longitudinal I-beam are set over the aisle between the lathes. The operator pulls the hoist to the work, lifts the work and carries it to his lathe, then pushes the loaded hoist to the side over his lathe. He is then in a position to locate the work by the inching button.

So far there has been little time lost through waiting for the hoist because heavy pieces generally are given only to a few of the operators. In this layout all machines are individually driven thus leaving the overhead free for the operation of the hoist. Setting the lathes with the heads to the outside results in shorter handling from the center aisle to the lathe and makes it unnecessary to lift the work over or around the lathe head.

♦ ♦ ♦

Lengthen Wire Rope Life

LONGER life for wire rope may depend upon proper application of equipment with which it is used. In a recent issue of *The Yellow Strand*, house organ of Broderick & Bascom Rope Co., St. Louis, is described a solution of a wire rope problem. An industrial plant had been experiencing frequent trouble, due to the necessity of replacing rope at what semeed to be too frequent intervals. An executive referred the problem to the engineering department of the rope company. The latter found that the manufacturer had been using a ⅜-inch 6 x 37 rope on a hoist carrying a maximum load of one ton, and that the difficulty was due to two factors: Grooves too small for the rope, and reverse bend. Rope was wound on two small grooved drums, and returned to the dead end through two 5-inch sheaves. The grooves were only large enough for ¼-inch rope, and this condition was causing most of the trouble. The engineers suggested that the user have the grooves ground out to a diameter to fit a 5/16-inch diameter rope, and, after this had been done, to change the installation to 5/16-inch instead of ⅜-inch rope. The reason for suggesting this latter change was that the grooves in the drums were suitable for 5/16-inch ropes, but too small for ⅜-inch sizes.

♦ ♦ ♦

Forks Serve as Rams

BY SIMPLY moving the forks close to one another, Acme Steel Co., Chicago, makes its battery-powered industrial trucks serve a double purpose, doing ordinary fork-truck duty on the transportation of pallet loads and serving as ram trucks for handling coils of steel.

RECENT PUBLICATIONS OF MANUFACTURERS

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

Welding — Lincoln Electric Co., Cleveland. Rotogravure pictorial section of eight pages dealing with welding progress.

Reamers—Whitman & Barnes, Detroit. Circular describing and illustrating new Altercut reamers recently introduced by the company.

Portable Registers—Egry Register Co., Dayton, O. Catalog illustrating and describing the Egry 400 line Handipak, portable register.

Roofing—Johns-Manville Corp., 22 East Fortieth street, New York. Brochure containing complete detailed specifications on all J-M built-up roofs.

Grinders — Landis Tool Co., Waynesboro, Pa. Catalog No. D-37, covering the Landis 6-inch and 10-inch, type C plain hydraulic grinders and profusely illustrated.

Castings—Duraloy Co., Pittsburgh. Bulletin dealing with centrifugal castings; also bulletin covering high alloy castings, chrome-iron, chrome-nickel and nickel-chrome.

Skid Platforms — Lewis-Shepard Co., 270 Walnut street, Watertown station, Boston. Circular No. 146, illustrating numerous types of skid platforms and lift trucks.

Cable Terminators—Delta Star Electric Co., 2400 block, Fulton street, Chicago. Price list No. 65-1, giving complete prices on cable terminators of various voltages.

Electrodes — Electroloy Co., 50 Church street, New York. Bulletin describing two new developments in standard tapered spot welding electrodes—cold formed and plated.

Copper, Brass and Bronze—Copper & Brass Research association, 420 Lexington avenue, New York. Booklet reviewing the home uses of copper and its alloys, brass and bronze.

Air Heaters—Surface Combustion Corp., Toledo, O. Bulletin form No. SC-70, dealing with standard gas-fired air heaters for drying and annealing purposes, low or high temperatures.

Industrial Maintenance Finishes—Everseal Mfg. Co., Ridgefield, N. J. Catalog covering a long line of floor finishes, mill whites, enamels, varnishes and aluminum finishes, all fortified with bakelite resins.

Diamond Dressing Tools—Koebel Diamond Tool Co., 1214 Oakman boulevard, Detroit. Folder, "Eggs, Some Fresh", discussing diamonds and illustrating and describing three kinds of diamond dressers.

Steel Unions—Rockwood Sprinkler Co., 38 Harlow street, Worcester, Mass. Descriptive pamphlet dealing with the new Rockwood Dualsteel union, heavy-duty forging of temper carbon steel.

Valve Control—Philadelphia Gear Works, G street, Philadelphia. Illustrated 48-page catalog, dealing with the Philadelphia Limitorque automatic valve control.

Carriers and Hoists — Cleveland Crane & Engineering Co., Wickliffe, O. Folder illustrating and describing Cleveland Tramrails, hand-propelled carriers with motor-operated hoists.

Optical Equipment — Bausch & Lomb Optical Co., Rochester, N. Y. Catalog D-22, "Optical Aids in the Metal Working Industries," covers many types of microscopes and other optical devices.

Diesel Engines and Tractors—Caterpillar Tractor Co., Peoria, Ill. Booklet dealing with uses of Caterpillar tractors and diesel engines in particular reference to petroleum industry.

Diesel Engines—Chicago Pneumatic Tool Co., 6 East 44th street, New York. Bulletin No. 768, covering new type 8 CP diesel engines, four models of which are in production and ready for delivery.

Air Eliminator—Gorton Heating Corp., Cranford, N. J. Bulletin No. 104, describing the Gorton high pressure air eliminator for automatically venting driers, steam coils and traps.

Power Equipment—Duraloy Co., Pittsburgh. Bulletin No. 3720, dealing with heat, corrosion and abrasion resisting soot blower tubes, baffles, dampers, superheater hangers and supports and miscellaneous parts.

Shims—Laminated Shim Co., 21 Forty-fourth street, Long Island City, N. Y. Catalog covering Laminum precision adjustment shims made of laminated brass that can be peeled down to adjustment.

Shafting—Union Drawn Steel Co., Massillon, O. Booklet discussing properties, characteristics and application of Union cold-finished shafting of various types for lineshafts and machine shafts.

Mercury Lamp Transformers—Jefferson Electric Co., Bellwood, Ill. Bulletin 371-ML, describing line of indoor and weatherproof, 60-cycle transformers for individual 250 and 400-watt mercury lamps.

Carbide Tools and Blanks—Carboloy Co., 2967 East Jefferson avenue, Detroit. Catalog M-37, blank prices; description of standard tools and full-scale drawings of the 96 standard blanks in three styles.

Sheet Metal Nails—Hillwood Mfg. Co., 21700 St. Clair avenue, Cleveland. Folder illustrating nails for various applications, among which is the heavy-duty sheet metal nail with lock shank.

Metal Goods—Edwin B. Stimpson Co., 70 Franklin avenue, Brooklyn, N. Y. Catalog covering a complete line of metal eyelets, fasteners, rivets and other metal goods as well as machines and equipment for assembly.

Pay Roll Devices — Todd Co., Rochester, N. Y. Folder illustrating and describing Todd Protectographs, for use in making pay roll checks and adding and listing amount of each.

Stainless Steel Specialties—Peter A. Frasse & Co., 17 Grand street at Sixth avenue, New York. Booklet containing list prices on stainless steel specialties and covering such items as nuts, screws, bolts and pipe fittings.

Power Distribution—Bull Dog Electric Products Co., Detroit. Bulletin, illustrating applications of Bull Dog BUStribution systems, busbar method of power distribution in industrial plants, and describing equipment and its installation.

Floor Grating—Standard Steel Spring Co., Gary, Ind. Catalog No. 14-P-20, illustrating and describing Gary Copperquad, Mech-Lock and riveted grating, as well as stair treads and other slip-proof surfaces for industrial installations.

Grating and Flooring — Dravo Corp., machinery division, Pittsburgh. Tri-Lok grating catalog No. 437 covering the products of the Tri-Lok Company—open steel flooring, concrete armoring, safety steps and T-Tri-Lok flooring.

Power Equipment—Sprout, Waldron & Co., Muncy, Pa. Section H, bulletin No. 134, cataloging line of Monarch pulleys, bearings, hangers, pillow blocks and gears for power transmission; also catalogs covering lines of belt, bucket and spiral conveyors.

Rustproofing Data — Flood Co., 6217 Carnegie avenue, Cleveland. Imprinted, file-size jacket containing numerous pieces of literature on Penetrol rustproofing compound, as well as a large booklet on rust by Jack Loomis.

Bus Supports—Delta-Star Electric Co., 2400 block, Fulton street, Chicago. Bulletin 34-B, catalog information on outdoor, high-tension bus supports and fittings, including center-bolt, 3-inch bolt-circle and 5-inch bolt-circle insulators, with many illustrations in color.

Stainless Steels—Horace T. Potts Co., East Erie avenue and D street, Philadelphia. Booklet "Stainless and Heat Resisting Alloy Steels," in which brief descriptions are given of the more frequently used steels and applications as well as sizes and gages carried in stock at the Potts warehouse.

Enamel Shop Production Problems Discussed

(*Concluded from Page* 55)

nozzle type spray, the centrifugal type and the electrostatic precipitator type the following comments were made:

1. Water washed booths of the nozzle type are quite satisfactory for use on a conveyor line. However, there still remains the problem of excessive material accumulating in front of the baffles and means should be devised to wet down and flush out this material.

2. For individual spray booths, the centrifugal type works well if water is to be used. There are still complications in operation of booths twenty feet or longer in frontage opening.

3. The most successful and adaptable to all kinds of booths is the electrostatic type. The main objection at the present is the high original installation cost which has excellent prospects of being lowered as mass production begins.

4. Workers enjoy and appreciate the use of dust eliminators.

5. Quality of reclaimed enamel is improved.

6. Cost of installation of all types of reclaiming apparatus paid for itself in less than one year's use.

Matching Is Difficult

Color matching always presents a serious problem, particularly if the shop is running one-coat ware. The first prerequisite is an adequate booth for this operation. This means that it should be enclosed as much as possible and will include a lighting combination that will not cast shadows under any circumstances. An example of how to obtain this ideal condition is one using standard illuminating bulbs interspersed with high intensity mercury bulbs and emitting at least a hundred foot candles in intensity. Walls of the booths should have a flat white finish and all articles incidental to inspection should be white. Inspectors themselves should dress in white uniforms. A ventilating system is a necessity in a booth of this construction.

The next step is to grade the color standards from the maximum thickness allowances, which will be the whitest downward to the minimum white color acceptable and match all parts to this basis.

The use of the thickness gauge, the color standards, the photo-electric color matcher in conjunction with spray weight control all facilitate even operation since all are dependent upon the deposit of enamel on the ware.

After color matching the servicing of the assembly line may be simplified if complete sets of one color are immediately packed and a running inventory kept of the balance of color and from this the spray department may be regulated. A limited floor space for packing and storage ahead of assembly will force this situation upon the enamel shop but it is very satisfactory from a management standpoint. The following are aids in efficiently servicing an assembly line.

1. Work from small cushions but keep them in balance.

2. Detail for enamel defects before packing and reject all defective ware overlooked by inspectors.

3. Do not pack chipped or scratched ware.

4. Insist that the assembly line hourly returns all defective and chipped ware so it may be repaired or scrapped, thus preventing overruns and keeping accurate inventory.

5. Reinventory and correct all color situations hourly.

6. Keep in contact with assembly line losses and renew their stock of replacements accordingly.

7. Incorporate the above items into the wage incentive plan, i.e., make deductions from the payroll for these controllable losses.

In conclusion it is appropriate to emphasize the value of an efficient production manager, a conveyorized plant, an enamel control system and a competent maintenance department, together with a trained organization of foremen. These factors will facilitate meeting schedules at a specified quality and cost.

Measures Acid Resistance Of Porcelain Enamel

A new publication which has been awaited with much interest by manufacturers, distributors and users of porcelain enameled products has been published by the Porcelain Enamel Institute. It is known as *Test for Acid Resistance of Porcelain Enamels*, and was prepared under the direction of the institute's committee on test standardization, of which W. N. Harrison of the national bureau of standards, is chairman.

The test, which has been in the course of preparation for the last year or more, is termed as a "tentative standard" and will continue in its present form until it is supplanted by a standard test for acid resistance.

Described in the new publication are the "room temperature test" and "boiling test." Complete instructions are given under each classification for simple methods of determining the acid resistance of porcelain enamels. Copies of the test may be obtained from the Porcelain Enamel Institute, 612 No. Michigan Ave., Chicago.

Applications of Unit Heaters in Metal Plants

(*Continued from Page 40*)

dampers so that outside air, re-circulated air, or any mixture desired can be obtained. This provides a simple, economical means of tempering air ventilation without drafts. In many steel and iron producing plants, there is much dust, dirt, fumes and heavy-laden air. One plant engineer contacted providing an interesting sidelight. His plant had been using unit heaters with air mixing boxes for some time. He said, "An engineer can figure the stress upon a steel girder to prevent a dangerous aftermath. The stress on the human system isn't so easy to compute, yet, over-burdening a workman with too little heat or laying a heavy load of bad ventilation on his system, also brings a dangerous aftermath, although of a different kind. A well ventilated, adequately heated plant has more chance of keeping profits at maximum, overhead at minimum and workmen morale at tops than a plant of the opposite type." Well said and worth consideration by all executives in the iron and steel producing and metalworking industries. A load of uncomfortable, dirt-and-fume-laden air, although invisible, may sap more physical energy than the visible work itself, hard as it may be. This is especially true around pickling vats. In a pressed steel plant we found two unit heaters that had been used for a number of years to dispell fog and noxious fumes around pickling vats. Since installation we were told that employes doing the pickling have been able to increase production more than 40 per cent and their morale and health are much better.

Modern Equipment Economical

One authority stated that steel plants could reduce the cost of heating by $30,000,000 yearly if they used modern equipment. We cannot verify nor deny this statement but from our research in the industrial heating field, we believe that more money is being lost annually in the iron and steel producing industries through inadequate heating facilities than in any other industry, the losses consisting of sub-standard production, high rejects and high fuel costs. There are definite reasons why iron and steel producing plants and metalworking factories are victims of heavy losses through inefficient heating systems. Many of these plants are long, high ceilinged structures, seldom, if ever insulated and often of poor construction. Add to these weaknesses the fact that most plants in these industries still use horse-and-buggy heating systems, such as pipe coils, and you have an ideal set-up for indirect losses via the heating equipment. Even if a conventional heating system throws plenty of heat it cannot control the placement of that heat. Cold, drafty spots are many in a large plant heated with an old fashioned heating system, regardless of how well equipped the boiler room or how much fuel is consumed. Unit heaters employ the convection principle of heating, focusing the heat on the working zones where it is needed with no wastage of fuel or human energy.

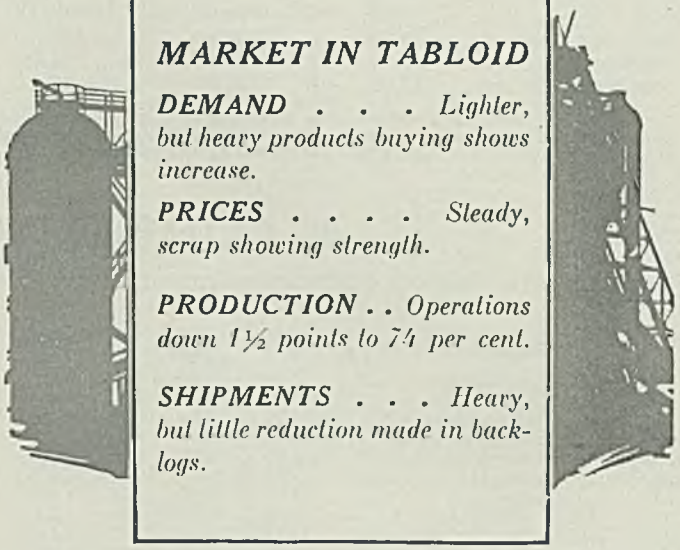
(To Be Concluded)

Pencil Marks Stay Legible

In the past, it has been difficult to find a chalk or lead whose markings would not be effaced by intense heat of routine operations. Swan Pencil Co., 221 Fourth avenue, New York, now announces that its metallic pencil, "Stabilo Silver," will produce the desired result. It is claimed by the manufacturers that markings made with this pencil on metal are preserved even through white heat and after the cooling processes due to the metallic main substance of the pencil.

Buying of Heavy Steel Products in Sharp Gain

Shape, Pipe Awards Make Large Total; Strike End Seen



MARKET IN TABLOID

DEMAND . . . *Lighter, but heavy products buying shows increase.*

PRICES . . . . *Steady, scrap showing strength.*

PRODUCTION . . *Operations down 1½ points to 74 per cent.*

SHIPMENTS . . . *Heavy, but little reduction made in backlogs.*

IN SPITE of some signs of a summer lull in steel buying mills continue production at a high rate to meet needs of consumers and little progress is being made in reducing backlogs.

As an offset to declining needs of automotive manufacturers, while new models are being prepared, projected needs in various other lines, largely heavy products, promise fairly early placing of substantial lots for late summer and fall delivery. With the large tonnages already on books this promises to keep production relatively high past the usual summer lull.

As evidence of the extent of backlogs, sheet mills in the Pittsburgh district offer delivery on hot-rolled galvanized sheets in 22 weeks and on cold-rolled sheets in ten weeks. Bar bookings at present are about equal to shipments, with deliveries at two to eight weeks at Pittsburgh and 30 days at Chicago. Inland Steel Co. has orders on books for three months from the date of resuming production. Some irregularity in operations will be met for the next few weeks because of vacations, some plants closing down entirely for one or two weeks for this purpose.

Largely due to closing of the Johnstown, Pa., plant of Bethlehem by order of the governor of Pennsylvania last week the national operating rate is off 1½ points to 74 per cent of capacity. Idleness of the Johnstown mill caused the Pittsburgh rate to drop 10 points to 82 per cent. Other changes were of little effect. Youngstown dropped one point to 29 per cent, Buffalo one point to 88 and Cincinnati seven points to 86. Cleveland made a gain of three points to 49 per cent, Detroit two points to 99 and New England ten points to 92. No change was made at Chicago, 63½ per cent, Eastern Pennsylvania 67, Wheeling 93, Birmingham 83 and St. Louis 93 per cent.

Resumption of production at plants idle because of labor blockades is expected to bring the operating rate sharply back next week.

Structural steel awards the past week were largest since the week of Jan. 30, totaling 59,641 tons. The largest was 19,800 tons for the Mississippi river bridge at Baton Rouge, La. Other large awards included 6800 tons for towers for the Bronx-Whitestone bridge at New York, 5500 tons for a Queens courthouse, 5000 tons of steel piling for a Mississippi river dam, 3100 tons for a hospital in New York and 3000 tons for a rayon plant in Ohio. A large tonnage is pending, some 24,000 tons being represented in six projects.

Considerable activity is developing in steel pipe, oil country demand being good, largely in small lots. Placing of 17,000 tons of 8-inch line pipe with National Tube Co. leads. This is for an extension line from Williamsport, Pa., to Buffalo, laying to be started about July 1.

Award of one battleship to the Brooklyn navy yard and one to the Philadelphia yard is a disappointment to private shipbuilders, as the plan had been to award one to an outside builder. About 26,000 tons of steel will be required for each ship. Of this 8000 to 9000 tons for each ship will be medium steel and the remainder specially treated steel. Placing of this tonnage will be delayed for some months until plans are completed. Bids of private builders were higher than navy estimates, which caused the change in plan.

Automobile production last week was the best during June, though below May totals, as was to be expected as the end of the 1937 model season approaches. Total production was 121,032 cars, compared with a revised total of 111,620 for the preceding week. Practically all this increase was due to General Motors, which raised its output last week to 46,190 units, compared with 36,450 the week before. Ford dropped slightly from 29,665 the previous week to 28,890. Chrysler was stationary at 28,775, compared with 28,875 the previous week. The aggregate for all other producers was 17,177, compared with 16,630.

For the first time since the decline started, the first week in April, the steelworks scrap composite last week remained unchanged, at $17. This is at the level of mid-December. Strength is appearing in eastern markets and some grades have made slight gains in price. The iron and steel composite lost 2 cents, to $39.78, through an adjustment. The finished steel composite continued unchanged at $61.70.

COMPOSITE MARKET AVERAGES

	June 26	June 19	June 12	One Month Ago May, 1937	Three Months Ago Mar., 1937	One Year Ago June, 1936	Five Years Ago June, 1932
Iron and Steel	$39.78	$39.80	$39.84	$40.06	$39.92	$32.79	$29.09
Finished Steel	61.70	61.70	61.70	61.70	60.70	52.20	47.64
Steelworks Scrap ..	17.00	17.00	17.12	18.49	20.95	12.55	6.62

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

A COMPARISON OF PRICES

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

Finished Material

	June 26, 1937	May 1937	March 1937	June 1936
Steel bars, Pittsburgh	2.45c	2.45c	2.40c	1.85c
Steel bars, Chicago	2.50	2.50	2.45	1.90
Steel bars, Philadelphia	2.74	2.74	2.74	2.16
Iron bars, Terre Haute, Ind.	2.35	2.35	2.25	1.75
Shapes, Pittsburgh	2.25	2.25	2.20	1.80
Shapes, Philadelphia	2.45½	2.45½	2.45½	2.01½
Shapes, Chicago	2.30	2.30	2.25	1.85
Tank plates, Pittsburgh	2.25	2.25	2.20	1.80
Tank plates, Philadelphia	2.43½	2.43½	2.43½	1.99
Tank plates, Chicago	2.30	2.30	2.25	1.85
Sheets, No. 10, hot rolled, Pitts.	2.40	2.40	2.35	1.85
Sheets, No. 24, hot ann., Pitts.	3.15	3.15	3.10	2.40
Sheets, No. 24, galv., Pitts.	3.80	3.80	3.70	3.10
Sheets, No. 10, hot rolled, Gary	2.50	2.50	2.45	1.95
Sheets, No. 24, hot anneal., Gary	3.25	3.25	3.20	2.50
Sheets, No. 24, galvan., Gary	3.90	3.90	3.85	3.20
Plain wire, Pittsburgh	2.90	2.90	2.85	2.40
Tin plate, per base box, Pitts.	$5.35	5.35	4.85	5.25
Wire nails, Pittsburgh	2.75	2.75	2.70	2.10

Semifinished Material

Sheet bars, open-hearth, Youngs.	$37.00	$37.00	$36.40	$28.00
Sheet bars, open-hearth, Pitts.	37.00	37.00	36.40	28.00
Billets, open-hearth, Pittsburgh	37.00	37.00	36.40	28.00
Wire rods, No. 5 to $\frac{9}{32}$-inch, Pitts.	47.00	47.00	46.20	38.80

Pig Iron

	June 26, 1937	May 1937	March 1937	June 1936
Bessemer, del. Pittsburgh	$25.26	$25.26	$24.85	$20.81
Basic, Valley	23.50	23.50	23.10	19.00
Basic, eastern del. East Pa.	25.26	25.26	24.76	20.81
No. 2 fdy., del. Pittsburgh	25.21	25.21	24.80	20.31
No. 2 fdy., Chicago	24.00	24.00	23.20	19.50
Southern No. 2, Birmingham	20.38	20.38	19.88	15.50
Southern No. 2, del. Cincinnati	23.69	23.69	23.19	20.2007
No. 2X eastern, del. Phila.	26.135	26.135	25.635	21.68
Malleable, Valley	24.00	24.00	23.60	19.50
Malleable, Chicago	24.00	24.00	23.20	19.50
Lake Sup., charcoal, del. Chicago	30.04	30.04	28.95	25.2528
Gray forge, del. Pittsburgh	24.17	24.17	23.75	19.67
Ferromanganese, del. Pittsburgh	107.29	107.29	90.80	80.13

Scrap

Heavy melting steel, Pittsburgh	$18.25	$19.55	$22.40	$13.80
Heavy melt. steel, No. 2, East Pa.	15.25	16.85	18.75	10.81
Heavy melting steel, Chicago	15.75	17.55	20.90	12.75
Rail for rolling, Chicago	18.75	21.45	22.25	14.00
Railroad steel specialties, Chicago	18.75	21.35	22.35	14.40

Coke

Connellsville, furnace, ovens	$4.65	$4.85	$4.05	$3.50
Connellsville, foundry, ovens	5.30	5.30	4.25	4.25
Chicago, by-product foundry, del.	11.00	11.00	10.25	9.75

Steel, Iron, Raw Material, Fuel and Metals Prices

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

Sheet Steel

Prices Subject to Quantity Extras and Deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

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

Hot Rolled Annealed No. 24

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

Galvanized No. 24

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

Tin Mill Black No. 28

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

Cold Rolled No. 10

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

Cold Rolled No. 20

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

Enameling Sheets

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

Tin and Terne Plate

Gary base, 10 cents higher.

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

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

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

Straight Chromes

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

Steel Plate

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

Structural Shapes

Pittsburgh	2.25c
Philadelphia, del.	2.45½c
New York, del.	2.50½c
Boston, delivered	2.63½c
Bethlehem	2.35c
Chicago Chicago	2.30c
Cleveland, del.	2.45c
Buffalo	2.35c
Gulf Ports	2.65c
Birmingham	2.40c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, del.	2.52c

Bars

Soft Steel
(Base, 3 to 25 tons)

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

Rail Steel
To Manufacturing Trade

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

Iron

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

Reinforcing

New billet, straight lengths, quoted by distributors

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

Rail steel, straight lengths, quoted by distributors

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

Wire Products

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

Base Pitts.-Cleve. 100 lb. keg.

Standard wire nails	$2.75
Cement coated nails	$2.75

(Per pound)

Polished staples	3.45c
Galv. fence staples	3.70c
Barbed wire, galv.	3.40c
Annealed fence wire	3.20c
Galv. fence wire	3.60c
Woven wire fencing (base column, c. l.)	$74.00
Single loop bale ties, (base column, c. l.)	63.00

To Manufacturing Trade

Plain wire, 6-9 ga.	2.90c

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

Spring wire, Pitts. or Cleveland	3.50c

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

Cold-Finished Carbon Bars and Shafting

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

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

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons*)

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

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

Piling

Pittsburgh	2.60c
Chicago, Buffalo	2.70c

Strip and Hoops

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

Hot strip to 23⅛-in. Pittsburgh	2.40c
Chicago or Gary	2.50c
Birmingham base	2.55c
Detroit, del.	2.60c
Philadelphia, del.	2.69c
New York, del.	2.73c
Cooperage hoop, Pittsburgh	2.50c
Chicago	2.60c
Cold strip, 0.25 carbon and under, Pittsburgh, Cleveland	3.20c
Detroit, del.	3.40c
Worcester, Mass.	3.40c

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

Rails, Track Material

(Gross Tons)

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

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

Bolts and Nuts

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

Carriage and Machine

½ x 6 and smaller	65-5 off
Do. larger	60-10 off
Tire bolts	50 off

Plow Bolts

All sizes	65-5 off

Stove Bolts

In packages with nuts attached 72½ off; in packages with nuts separate 72½-5 off; in bulk 80 off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts	60 off
Elevator bolts	50-10-5 off

Nuts

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

Hexagon Cap Screws

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

Square Head Set Screws

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

Rivets, Wrought Washers

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

Cut Nails

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

Welded Iron, Steel Pipe

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

Butt Weld

Steel

In.	Blk.	Galv.
½	59½	49
¾	62½	53
1—3	64½	55½

Iron

¾	26	8
1—1¼	30	14
1½	34	16½
2	33½	16

Lap Weld

Steel

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

Iron

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

Line Pipe

Steel

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

Butt Weld

Iron

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

Lap Weld

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

Boiler Tubes

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

Lap Weld

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

Seamless

	Hot Rolled	Cold Drawn
1" OD x 13 Ga.	$ 8.41	$ 9.46
1¼" OD x 13 Ga.	9.96	11.21
1½" OD x 13 Ga.	11.00	12.38
1¾" OD x 13 Ga.	12.51	14.09
2" OD x 13 Ga.	14.02	15.78
2¼" OD x 13 Ga.	15.63	17.60
2¼" OD x 12 Ga.	17.21	19.37
2½" OD x 12 Ga.	18.85	21.22
2¾" OD x 12 Ga.	19.98	22.49
3" OD x 12 Ga.	20.97	23.60
4½" OD x 10 Ga.	40.15	45.19
3½" OD x 11 Ga.	26.47	29.79
4" OD x 10 Ga.	32.83	36.96
5" OD x 9 Ga.	50.38	56.71
6" OD x 7 Ga.	77.35	87.07

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

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

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

Semifinished Steel

Billets and Blooms

4 x 4-*inch base; gross ton*

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

Forging Billets

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

Pitts., Chicago, Buffalo	43.00
Forging, Duluth	45.00

Sheet Bars

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

Slabs

Pitts., Chicago, Cleveland, Youngstown	37.00

Wire Rods

Pitts., Cleve., No. 5 to ⅜-inch incl.	47.00
Do., over ⅜ to 41/64-inch incl.	52.00

Chicago up $1; Worcester up $2.

Skelp

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

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$4.50- 4.75
Connellsville, fdry.	5.25- 5.50
Connell. prem. fdry.	6.00- 6.50
New River fdry.	6.50- 6.75
Wise county fdry.	5.75- 6.00
Wise county fur.	4.75- 5.00

By-Product Foundry

Newark, N. J., del.	10.85-11.30
Chi., ov., outside del.	10.25
Chicago, del.	11.00
Milwaukee, ovens	11.00
New England, del.	12.50
St. Louis, del.	11.00-11.50
Birmingham, ovens	7.25
Indianapolis, del.	10.50
Cincinnati, del.	10.50
Cleveland, del.	11.00
Buffalo, del.	10.50
Detroit, del.	11.10
Philadelphia, del.	10.60

Coke By-Products

Spot, gal. Producers' Plants

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

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

Phenol (200 lb. drums)	14.75c
do. (450 lbs.)	14.00c

Eastern Plants, per lb.

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

Per ton, bulk, f.o.b. oven or port Sulphate of ammonia	$28.59

Pig Iron

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

Basing Points:

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

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

Delivered from Basing Points:

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

†Over 0.70 phos.

Low Phos.

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

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

Silvery†

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

Bessemer Ferrosilicon†

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

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

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

Refractories

Per 1000 f.o.b. Works

Fire Clay Brick

Super Quality

Pa., Mo., Ky.	$64.60

First Quality

Pa., Ill., Md., Mo., Ky.	51.30
Alabama, Georgia	51.30

Second Quality

Pa., Ill., Ky., Md., Mo.	46.55
Georgia, Alabama	41.80

Ohio

First quality	43.70
Intermediate	39.90
Second quality	35.15

Malleable Bung Brick

All bases	$59.85

Silica Brick

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

Ladle Brick

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

Dry press	$30.00
Wire cut	$28.00

Magnesite

Imported dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags)	$45.00
Domestic dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags)	43.00
Domestic dead-burned gr. net ton f.o.b. Chewelah, Wash. (bulk)	25.00

Base Brick

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

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

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton	$23.50
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail	$19.00
Do., for barge	$20.00

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82%, tidewater, duty pd.	$102.50
Do., Baltimore, base	102.50
Do., del. Pittsburgh	107.29
Spiegeleisen, 19-21% dom. Palmerton, Pa., spot	33.00
Do., New Orleans	33.00
Do., 26-28%, Palmerton	39.00
Ferrosilicon, 50% freight allowed, c.l.	69.50
Do., less carload	77.00
Do., 75 per cent	126-130.00
Spot, $5 a ton higher.	
Silicoman., 2½ carbon	106.50
2% carbon 111.50; 1%,	121.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del.	10.50
Ferrotungsten, stand., lb. con. del. cars	1.80-1.85
Ferrovanadium, 35 to 40% lb., cont.	2.70-2.90
Ferrotitanium, c. l., prod. plant, frt. all., net ton	142.50
Spot, carlots	145.00
Spot, ton lots	150.00
Ferrophosphorous, per ton, c. l., 17-19% Rockdale, Tenn., basis, 18%, $3 unitage	63.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $3 unitage	80.00
Ferromolybdenum, stand. 55-65%, lb.	0.95
Molybdate, lb. cont.	0.80

†Carloads. Quan. diff. apply

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper: Electro, del. Conn.	Copper: Lake, del. Midwest	Copper: Casting, refinery	Straits Tin, New York: Spot	Straits Tin, New York: Futures	Lead New York N. Y.	Lead East St. L.
June 19	14.00	14.12½	13.75	55.25	54.95	6.00	5.85
June 21	14.00	14.12½	13.75	55.37½	54.75	6.00	5.85
June 22	14.00	14.12½	13.75	55.62½	55.10	6.00	5.85
June 23	14.00	14.12½	13.75	55.85	55.30	6.00	5.85
June 24	14.00	14.12½	13.75	56.50	56.05	6.00	5.85
June 25	14.00	14.12½	13.75	57.25	56.25	6.00	5.85

	Zinc St. L.	Aluminum 99%	Antimony American Spot, N. Y.	Nickel Cathodes
June 19	6.75	20.00	14.75	35.00
June 21	6.75	20.00	14.75	35.00
June 22	6.75	20.00	14.50	35.00
June 23	6.75	20.00	14.50	35.00
June 24	6.75	20.00	14.50	35.00
June 25	6.75	20.00	14.50	35.00

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 14.00c Conn. copper

Sheets

Yellow brass (high)	19.75
Copper, hot rolled	21.87½
Lead, cut to jobbers	9.50
Zinc, 100-lb. base	13.00

Tubes

High yellow brass	22.50
Seamless copper	22.62½

Rods

High yellow brass	16.25
Copper, hot rolled	18.62½

Anodes

Copper, untrimmed	19.12½

Wire

Yellow brass (high)	20.00

OLD METALS

Nom. Deal, buying prices

No. 1 Composition Red Brass

New York	8.50-8.75
Cleveland	8.75-9.00
Chicago	8.37½-8.62½
*St. Louis	8.25-8.50

Heavy Copper and Wire

New York, No. 1	10.50-10.75
Cleveland, No. 1	10.75-11.00
Chicago, No. 1	10.25-10.50
*St. Louis, No. 1	10.00-10.25

Composition Brass Borings

New York	8.00-8.25

Light Copper

New York	8.75-9.00
Cleveland	8.75-9.00
Chicago	8.25-8.50
*St. Louis	8.25-8.50

Light Brass

Cleveland	5.75-6.00
Chicago	5.25-5.50
St. Louis	5.25-5.50

Lead

New York	4.75
Cleveland	4.50-4.75
Chicago	4.75-5.00
*St. Louis	4.25-4.50

Zinc

New York	3.00-3.25
Cleveland	3.00-3.25
St. Louis	3.00-3.50

Aluminum

Borings, Cleveland	9.25- 9.50
Mixed cast, Cleve.	13.00-13.25
Clips, soft, Cleve.	15.00-15.50
*Mixed, cast, St. L.	13.25-13.75

SECONDARY METALS

Brass, ingot 85-5-5-5, lcl	14.00
Stand. No. 12 alum.	18.50-19.00

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

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

IRON BARS

Portland	3.50c
Chattanooga	3.96c
Baltimore*	3.25c
Cincinnati	4.05c
New York‡ (d)	3.65c
Philadelphia	4.00c
St. Louis	4.09c
Tulsa	3.35c

REINFORCING BARS

Buffalo	2.60c
Chattanooga	3.96c
Cleveland (c)	2.55c
Cincinnati	3.75c
Houston	3.25c
Los Angeles, c.l.	2.975c
New Orleans*	3.24c
Pitts., plain (h)	2.55c
Pitts., twisted squares (h)	3.95c
San Francisco	2.97½c
Seattle	2.975c
St. Louis	3.99c
Tulsa	3.25c
Young	2.30c-2.60c

SHAPES

Baltimore	3.90c
Boston††	3.92c
Buffalo	3.35c
Chattanooga	4.01c
Chicago	3.75c
Cincinnati	3.95c
Cleveland	3.86c
Detroit	3.95c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	3.97c
Philadelphia	3.90c
Pittsburgh (h)	3.70c
Portland (i)	4.25c
San Francisco	4.05c
Seattle (i)	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

PLATES

Baltimore	3.90c
Boston††	3.93c
Buffalo	3.47c
Chattanooga	4.01c
Chicago	3.75c
Cincinnati	3.95c
Cleveland, ¼-in. and over	3.86c
Detroit	3.95c
Detroit, ¼-in.	4.15c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	4.00c
Philadelphia	3.90c
Phila. floor	4.95c
Pittsburgh (h)	3.70c
Portland	4.25c
San Francisco	4.05c
Seattle	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

NO. 10 BLUE

Baltimore	3.95c
Boston (g)	4.00c
Buffalo	3.72c
Chattanooga	3.91c
Chicago	3.85c
Cincinnati,	4.00c
Cleveland	3.91c
Det. 8-10 ga.	3.93½c
Houston	3.45c
Los Angeles	4.50c
Milwaukee	3.96c
New Orleans	4.35c
New York‡ (d)	4.07c
Portland	4.25c
Philadelphia	4.00c
Pittsburgh (h)	3.75c
San Francisco	4.30c
Seattle	4.50c
St. Louis	4.39c
St. Paul	4.10c
Tulsa	3.80c

NO. 24 BLACK

Baltimore*†	4.50c
Boston (g)	4.75c
Buffalo	3.35c
Chattanooga*	4.06c
Chicago	4.45c-5.10c
Cincinnati	4.75c
Cleveland	4.66c
Detroit	4.68½c
Los Angeles	5.05c
Milwaukee	4.56c-5.21c
New York‡ (d)	4.82c
Philadelphia	4.65c
Pitts.** (h)	4.75c
Portland	5.15c
Seattle	5.35c
San Francisco	5.15c
St. Louis	4.84c
St. Paul	4.75c
Tulsa	4.85c

NO. 24 GALV. SHEETS

Baltimore*†	4.70c
Buffalo	4.10c
Boston (g)	5.30c
Chattanooga*	4.76c
Chicago (h)	5.10c-5.75c
Cincinnati	5.40c
Cleveland	5.31c
Detroit	5.40c
Houston	4.50c
Los Angeles	5.75c
Milwaukee	5.21c-5.86c
New Orleans*	5.75c
New York‡ (d)	5.47c
Philadelphia	5.30c
Pitts.** (h)	5.40c
Portland	5.90c
San Francisco	5.85c
Seattle	5.90c
St. Louis	5.49c
St. Paul	5.40c
Tulsa	5.20c

BANDS

Baltimore	4.20c
Boston††	4.25c
Buffalo	3.52c
Chattanooga	4.16c
Cincinnati	4.25c
Cleveland	4.16c
Chicago	4.10c
Detroit, ¼-in. and lighter	4.185c
Houston	3.35c
Los Angeles	4.80c
Milwaukee	4.21c
New Orleans	4.75c
New York‡ (d)	4.32c
Philadelphia	4.10c
Pittsburgh (h)	4.00c
Portland	5.00c
San Francisco	4.80c
Seattle	4.95c
St. Louis	4.34c
St. Paul	4.35c
Tulsa	3.55c

HOOPS

Baltimore	4.45c
Boston††	5.25c
Buffalo	3.52c
Chicago	4.10c
Cincinnati	4.25c
Detroit, No. 14 and lighter	4.185c
Los Angeles	6.55c
Milwaukee	4.21c
New York‡ (d)	4.32c
Philadelphia	4.35c
Pittsburgh (h)	4.50c
Portland	6.50c
San Francisco	6.50c
Seattle	6.30c
St. Louis	4.34c
St. Paul	4.35c

COLD FIN. STEEL

Baltimore (c)	4.50c
Boston*	4.65c
Buffalo (h)	3.70c
Chattanooga*	4.86c
Chicago (h)	4.30c
Cincinnati	4.50c
Cleveland (h)	4.30c
Detroit	4.30c
Los Ang. (f) (d)	6.85c
Milwaukee	4.41c
New Orleans	5.10c
New York‡ (d)	4.57c
Philadelphia	4.53c
Pittsburgh	4.15c
Portland (f) (d)	7.10c
San Fran. (f) (d)	6.80c
Seattle (f) (d)	7.10c
St. Louis	4.54c
St. Paul	4.77c
Tulsa	4.80c

COLD ROLLED STRIP

Boston	3.845c
Buffalo	3.39c
Chicago	3.87c
Cincinnati	3.82c
Cleveland (b)	3.60c
Detroit	3.43c
New York‡ (d)	3.92c
St. Louis	4.54c

TOOL STEELS

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

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

Uniform extras apply.

BOLTS AND NUTS

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

(a) Under 100 lbs., 50 off.

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

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

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

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, June 24

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

	British gross tons U. K. ports £ s d	Continental Channel or North Sea ports, metric tons Quoted in dollars at current value	**Quoted in gold pounds sterling £ s d
PIG IRON			
Foundry, 2.50-3.00 Silicon	$29.64 6 0 0	$32.60	4 1 0
Basic bessemer	19.39 3 18 6*	30.99	3 17 0
Hematite, Phos. .03-.05	21.61 4 7 6	.....	.....
SEMIFINISHED STEEL			
Billets	$38.90 7 17 6	$35.27	4 7 6
Wire rods, No. 5 gage	53.48 10 16 6	56.42	7 0 0
FINISHED STEEL			
Standard rails	$50.02 10 2 6	$48.36	6 0 0
Merchant bars	2.43c 11 0 0	1.82c	5 0 0
Structural shapes	2.35c 10 12 6	1.77c	4 17 6
Plates, †¼ in. or 5 mm.	2.55c 11 11 3	2.24c	6 2 6
Sheets, black, 24 gage or 0.5 mm	3.31c 15 0 0	3.09c	8 10 0††
Sheets, gal., 24 gage, corr.	4.14c 18 15 0	4.37c	12 0 0
Bands and strips	3.04c 13 15 0	2.37c	6 10 0
Plain wire, base	3.20c 14 10 0	2.73c	7 10 0
Galvanized wire, base	3.76c 17 0 0	2.91c	8 0 0
Wire nails, base	3.09c 14 0 0	3.09c	8 10 0
Tin plate, box 108 lbs.	$ 6.05 1 4 6	.....	.....

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

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$24.94	5 1 0	(a) $18.96	425	$27.88	825	$25.26	63
Basic bessemer pig iron	24.70	5 0 0	(a) 12.27	275	14.70	435	27.87 (b)	69.50
Furnace coke	8.77	1 15 6	7.05	158	6.25	185	7.62	19
Billets	38.90	7 17 6	29.21	655	28.22	835	38.70	96.50
Standard rails	2.24c	10 2 6	1.95c	975	1.80c	1,200	2.38c	132
Merchant bars	2.53c	11 9 0	1.77c	885	1.46c	975	1.98c	110
Structural shapes	2.44c	11 0 6	1.72c	860	1.46c	975	1.93c	107
Plates, †¼-in. or 5 mm.	2.59c	11 14 3	2.21c	1,105	1.87c	1,245	2.29c	127
Sheets, black	3.48c	15 15 0§	2.80c	1,400	2.19c	1,460‡	2.59c	144
Sheets, galv., corr., 24 ga. or 0.5 mm.	4.31c	19 10 0	4.30c	2,150	2.85c	1,900	6.66c	370
Plain wire	3.20c	14 10 0	2.72c	1,360	2.48c	1,650	3.11c	173
Bands and strips	2.70c	12 4 0	2.00c	1,000	2.33c	1,550	2.29c	127

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel, a del. Middlesbrough. b hemetite. ††Close annealed.

**Gold pound sterling carries a premium of 65.36 per cent over paper sterling.

Iron and Steel Scrap Prices

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

HEAVY MELTING STEEL

Birmingham†	11.50-12.50
Bos. dock No. 1, exp.	16.00
N. Eng. del. No. 1	14.75
Buffalo, No. 1	18.00-19.00
Buffalo, No. 2	16.00-17.00
Chicago, No. 1	15.50-16.00
Cleveland, No. 1	17.00-17.50
Cleveland, No. 2	15.50-16.00
Detroit, No. 1	14.50-15.00
Eastern Pa., No. 1	16.75-17.50
Eastern Pa., No. 2	15.00-15.50
Federal, Ill.	13.00-13.50
Granite City, R. R.	15.00-15.50
Granite City, No. 2	13.00-13.50
New York, No. 1	†13.00-13.50
N.Y. dock, No. 1 exp.	15.00-15.50
Pitts., No. 1 (R. R.)	19.50-20.00
Pitts., No. 1 (dir.)	18.00-18.50
Pittsburgh, No. 2	15.50-16.00
St. Louis, R. R.	15.00-15.50
St. Louis, No. 2	13.00-13.50
Toronto, dirs. No. 1	11.00-12.00
Toronto, No. 2	10.00-11.00
Valleys, No. 1	18.00-18.50

COMPRESSED SHEETS

Buffalo, dealers	16.00-17.00
Chicago, factory	15.00-15.50
Chicago, dealer	14.50-15.00
Cleveland	16.50-17.00
Detroit	15.25-15.75
E. Pa., new mat.	17.50-18.00
E. Pa., old mat.	14.00-14.50
Pittsburgh	18.00-18.50
St. Louis	11.00-11.50
Valleys	17.00-17.50

BUNDLED SHEETS

Buffalo	13.00-13.50
Cincinnati, del.	13.00-13.50
Cleveland	13.50-14.00
Pittsburgh	16.00-16.50
St. Louis	9.50-10.00
Toronto, dealers	8.00

SHEET CLIPPINGS, LOOSE

Chicago	11.00-11.50
Cincinnati	11.00-11.50
Detroit	10.50-11.00
St. Louis	9.00- 9.50

STEEL RAILS, SHORT

Birmingham	15.50-17.50
Buffalo	23.50-24.00
Chicago (3 ft.)	19.50-20.00
Chicago (2 ft.)	20.00-20.50
Cincinnati, del.	20.00-20.50
Detroit	18.50-19.00
Pitts., 3 ft. and less	24.00-24.50
St. Louis, 2 ft. & less	18.50-19.00

STEEL RAILS, SCRAP

Boston district	†14.00-14.25
Buffalo	19.50-20.00
Chicago	15.50-16.00
Cleveland	21.00-21.50
Pittsburgh	20.50-21.00
St. Louis	16.50-17.00

STOVE PLATE

Birmingham	9.50-10.50
Boston district	†9.00- 9.50
Buffalo	14.50-15.00
Chicago	10.50-11.00
Cincinnati, dealers	10.00-10.50
Detroit, net	11.25-11.75
Eastern Pa.	14.00-14.50
New York, fdry.	†9.50-10.00
St. Louis	11.25-11.75
Toronto, deal'rs, net	9.50-10.00

SPRINGS

Buffalo	22.00-22.50
Chicago, leaf	19.50-20.00
Chicago, coil	20.50-21.00
Eastern Pa.	24.00-24.50
Pittsburgh	24.50-25.00
St. Louis	19.00-19.50

ANGLE BARS—STEEL

Chicago	18.00-18.50
St. Louis	17.00-17.50

RAILROAD SPECIALTIES

Chicago	18.50-19.00

LOW PHOSPHORUS

Buffalo, billet and bloom crops	22.00-23.00
Cleveland, billet, bloom crops	24.00-24.50
Eastern Pa., crops	22.50-23.00
Pittsburgh, billet, bloom crops	25.00-25.50
Pittsburgh, sheet bar crops	24.50-25.00

FROGS, SWITCHES

Chicago	15.50-16.00
St. Louis, cut	17.00-17.50

SHOVELING STEEL

Chicago	15.50-16.00
Federal, Ill.	13.00-13.50
Granite City, Ill.	13.00-13.50
Toronto, dealers	9.00- 9.50

RAILROAD WROUGHT

Birmingham	12.00-13.00
Boston district	†10.00-10.25
Buffalo, No. 1	16.00-17.00
Buffalo, No. 2	18.00-19.00
Chicago, No. 1 net	15.00-15.50
Chicago, No. 2	15.50-16.00
Cincinnati, No. 2	14.25-14.75
Eastern Pa.	18.00
St. Louis, No. 1	13.00-13.50
St. Louis, No. 2	14.75-15.25
Toronto, No. 1 dlr.	15.00

SPECIFICATION PIPE

Eastern Pa.	16.50-17.00
New York	†12.50-13.00

BUSHELING

Buffalo, No. 1	16.00-17.00
Chicago, No. 1	14.00-14.50
Cincin., No. 1, deal.	14.50-15.00
Cincinnati, No. 2	8.50- 9.00
Cleveland, No. 2	12.50-13.00
Detroit, No. 1 new	14.50-15.00
Valleys, new, No. 1	16.50-17.00
Toronto, dealers	9.00

MACHINE TURNINGS

Birmingham	7.00- 7.50
Buffalo	11.00-11.50
Chicago	8.50- 9.00
Cincinnati, dealers	9.00- 9.50
Cleveland	12.50-13.00
Detroit	9.50-10.00
Eastern Pa.	12.50-13.00
New York	†8.50- 9.00
Pittsburgh	13.50-14.00
St. Louis	7.50- 8.00
Toronto, dealers	8.00- 8.50
Valleys	13.00-13.50

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†7.25- 7.75
Buffalo	12.50-13.00
Cincinnati, dealers	8.50- 9.00
Cleveland	12.50-13.00
Detroit	10.25-10.75
Eastern Pa.	12.00
New York	†8.00- 8.50
Pittsburgh	14.00-14.50
Toronto, dealers	8.00- 8.50

CAST IRON BORINGS

Birmingham	7.00- 7.50
Boston dist. chem.	†9.50-10.00
Boston dist. for mills	†9.00
Buffalo	12.50-13.00
Chicago	9.00- 9.50
Cincinnati, dealers	8.50- 9.00
Cleveland	12.50-13.00
Detroit	10.25-10.75
E. Pa., chemical	14.50-15.00
New York	†8.00- 8.50
St. Louis	7.00- 7.50
Toronto, dealers	9.00

PIPE AND FLUES

Cincinnati, dealers	11.50-12.00
Chicago, net	13.00-13.50

RAILROAD GRATE BARS

Buffalo	14.00-14.50
Chicago, net	12.00-12.50
Cincinnati	10.50-11.00
Eastern Pa.	14.00-14.50
New York	†9.50-10.00
St. Louis	11.50-12.00

FORGE FLASHINGS

Boston district	†10.75
Buffalo	16.00-17.00
Cleveland	16.50-17.00
Detroit	13.25-13.75
Pittsburgh	16.00-16.50

FORGE SCRAP

Boston district	†6.50- 7.00
Chicago, heavy	19.50-20.00
Eastern Pa.	15.50-16.00

ARCH BARS, TRANSOMS

St. Louis	18.00-18.50

AXLE TURNINGS

Boston district	†11.00-11.50
Buffalo	16.00-16.50
Chicago, elec. fur.	15.50-16.00
Eastern Pa.	16.00-16.50
St. Louis	12.00-12.50
Toronto	9.50

STEEL CAR AXLES

Birmingham	18.00-20.00
Buffalo	22.00-22.50
Boston district	†20.00
Chicago, net	22.00-22.50
Eastern Pa.	25.00-26.00
St. Louis	21.50-22.00

SHAFTING

Boston district	†18.00-18.50
New York	†20.00-20.50
Eastern Pa.	23.50
St. Louis	14.00-14.50

CAR WHEELS

Birmingham	16.50-17.50
Boston dist., iron	†15.00-15.25
Buffalo, iron	18.50-19.50
Buffalo, steel	22.50-23.00
Chicago, iron	18.50-19.00
Chicago, rolled steel	18.50-19.00
Cincinnati, iron	18.00-18.50
Eastern Pa., iron	19.00-19.50
Eastern Pa., steel	22.50-23.00
Pittsburgh, iron	19.25-19.75
Pittsburgh, steel	24.50-25.00
St. Louis, iron	18.00-18.50
St. Louis, steel	19.00-19.50

NO. 1 CAST SCRAP

Birmingham	12.00-13.00
Boston, No. 1 mach.	†14.50
N. Eng. del. No. 2.	16.50
N. Eng. del. textile.	18.50
Buffalo, cupola	17.50-18.00
Buffalo, mach.	18.50-19.00
Chicago, agri. net	13.00-13.50
Chicago, auto	14.00-14.50
Chicago, mach. net.	14.50-15.00
Chicago, railr'd net.	14.00-14.50
Cincin., mach. cup.	15.00-15.50
Cleveland, mach.	19.00-19.50
Eastern Pa., cupola.	18.50-19.00
E. Pa., mixed yard	17.00-17.50
Pittsburgh, cupola	18.50-19.00
San Francisco, del.	13.50-14.00
Seattle	12.00-13.00
St. Louis, No. 1	14.50-15.00
St. L., No. 1, mach.	14.00-14.50
Toronto, No. 1, mach., net	16.00-17.00

HEAVY CAST

Boston dist. break.	†13.00-13.25
N. Eng. del.	15.00-15.25
Buffalo, break.	15.00-15.50
Cleveland, break.	13.50-14.00
Detroit, break.	13.50-14.00
Detroit, auto net.	14.50-15.00
Eastern Pa.	17.50
New York, break.	†14.00-14.50
Pittsburgh	14.50-15.00

MALLEABLE

Birmingham, R. R.	12.50-13.50
New England, del.	20.00
Buffalo	20.00-21.00
Chicago, R. R.	18.50-19.00
Cincin., agri. del.	15.00-15.50
Cleveland, rail	20.50-21.00
Detroit, auto, net	15.00-15.50
Eastern Pa., R. R.	19.00-20.00
Pittsburgh, rail	19.50-20.00
St. Louis, R. R.	18.00-18.50

RAILS FOR ROLLING

5 feet and over

Birmingham	16.00-18.00
Boston	†17.50-18.00
Buffalo	19.50-20.00
Chicago	18.50-19.00
Eastern Pa., R. R.	21.00-21.50
New York	†17.00-17.50
St. Louis	18.00-18.50

LOCOMOTIVE TIRES

Chicago (cut)	20.50-21.00
St. Louis, No. 1	17.50-18.00

LOW PHOS. PUNCHINGS

Buffalo	22.00-22.50
Chicago	19.50-20.00
Eastern Pa.	24.00-24.50
Pittsburgh (heavy)	22.75-23.25
Pittsburgh (light)	22.25-22.75

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer	$5.25
Mesabi nonbess.	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbess.	5.10

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56.63% con.	9.00-10.00
Cop.-free low phos. 58-60%	nominal

Foreign Ore

Cents per unit, f.a.s. Atlantic ports

Foreign manganiferous ore, 45.55% iron, 6-10% man.	*17.00
No. Afr. low phos.	17.50
Swedish low phos.	nominal
Spanish No. Africa basic, 50 to 60%	*16.00
Tungsten, spot sh. ton, unit, duty pd.	$22.00-22.50
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f.	$24.50-25.00

*Nominal asking price for spot.

Manganese Ore

(Nominal)

Prices not including duty, cents per unit cargo lots.

Caucasian, 50-52%	44.00-45.00
So. African, 50-52%	Nominal
Indian, 50-52%	Nominal

Sheets

Sheet Prices, Page 72

Pittsburgh — New business in sheets showed a decline last week, largely due to seasonal conditions and uncertainties, but the falling off resulted in little change in the large backlogs of producers in this district. In hot-rolled and galvanized deliveries range as high as 22 weeks; in cold-rolled sheets, around 10 weeks. Automotive requirements are likely to be slacker in the next few weeks, with renewed buying next month, unless unforeseen circumstances arise. Miscellaneous consumers continue active. The steelworks labor situation has not resulted in any undue demand upon producers here, largely because of the extended delivery situation.

Cleveland—Shipments this month are on a par with the corresponding period during May. Backlogs in most instances declined as new business failed to maintain the steady rate reported last month. However, in cold-rolled sheets some improvement in demand has been noted recently, resulting from the renewed buying from some automotive concerns. Deliveries range from four to five weeks on cold-rolled material, to 23 weeks in some instances on hot-rolled galvanized annealed sheets.

Chicago—A seasonal recession in sheet consumption is without effect on operations as heavy backlogs still necessitate capacity output among those plants still operating. Deliveries extend six weeks or more and heavy schedules are in prospect for the new quarter. Automotive requirements are expected to decline more rapidly during the coming 60 days.

Buffalo—Sheet inquiry continues heavy although some hold orders have been received on automotive material. Refrigerator manufacturers have recently been in the market for sheets and continue to absorb heavy tonnages. Producers of metal furniture are also heavy buyers, many having large government orders for equipment for nearby delivery. Plants of this type in western New York are working on the highest production schedules of recent years.

Cincinnati—Considerable pressure for shipment of sheets is being exerted and district mills are at capacity rolling schedules. Backlogs assure this level at least for another 30 days. Little tonnage is being diverted because of crippled output elsewhere, but some strike effect is noted in a moderate slowing of future commitments. Jobber and miscellaneous specifications tend to offset lighter automotive requirements.

Philadelphia — Sheet mills still have substantial backlogs with deliveries on hot-rolled grades eight to ten weeks and cold-rolled six to eight weeks. Inquiry is slackening perceptibly though demand in some directions is holding up better than had been expected. Stove makers are buying above seasonal levels and the radio industry is buying for new models.

St. Louis—Specifying on sheet tonnage continues in substantial volume, but a moderate recession, seasonal in character, is noted in new buying. Miscellaneous demand and purchasing by warehouses lead in current business. Movement of galvanized material to the south and southwest is reported the largest for this particular season in a number of years. The tin plate situation is described as satisfactory.

Strip

Strip Prices, Page 73

Pittsburgh — New specifications for strip steel held steady last week, without much change over previous period. Increased demand which might have been anticipated as a result of steel strikes has generally been below early expectations. A fair volume of business is being received from miscellaneous consumers, most of it for early third quarter. Automotive requirements have been lighter in the last few days. Deliveries on hot-rolled pickled range around three weeks, and on cold strip around six weeks. Hot strip is 2.40c, Pittsburgh, and cold strip, 0.25 carbon and under, 3.20c.

Cleveland—Pressure for deliveries eased considerably during June as most mills report little recession in shipments during the month, while a rather marked decline in new business was apparent. Most consumers have been content to use stocks accumulated during March and April.

Chicago — Strip mills still have fairly heavy backlogs despite some seasonal letdown in consumption. Some mills are unable to make shipment on hot strip within less than six weeks though the delivery situation has improved during the past two months. Automotive requirements are expected to decrease more rapidly during the coming quarter but maintenance of total consumption at a better than usual rate for this period is in prospect.

Boston—Incoming volume of narrow cold strip is reaching mills in slightly heavier volume. While a substantial portion of orders ask for delivery as early as possible, more business is being placed for late third quarter shipment, or through September. Consumption of strip by most users has held generally better than expected. Cold strip shipments on some specifications can be made in four weeks. Prices are firm.

New York—Cold strip volume diverted to producers unaffected by labor suspensions, while light, appears to be mounting. This has been confined primarily to a relatively few consumers caught with small stocks. New business holds at about the current rate of the last two weeks with a good part for early shipments. Deliveries are back to practically normal with some producers on a wider variety of specifications. Demand continues widely diversified for narrow widths from manufacturers of consumer goods. Users of hot strip are covering for next quarter estimated needs.

Philadelphia—New business continues relatively light and some producers are able to offer two to three weeks delivery on cold-rolled and even better on hot-rolled.

Plates

Plate Prices, Page 72

New York—Developments in the shipbuilding industry were important in the week's plate news. The strike of 15,000 employes at various yards in the metropolitan district continued, with resultant increasing suspension of steel shipments, although no cancellations are reported.

The Brooklyn navy yard was awarded one of the two battleships for the navy, with the other going to the Philadelphia navy yard. The decision to build two in navy yards instead of one as originally proposed, with the other going to a private yard, was based on belief that the private bids submitted recently were too high. The Brooklyn navy yard's estimate of cost for one battleship, it was said, was $36,560,000 and the Philadelphia navy yard's estimate, $37,265,845. These estimates compared with the New York Shipbuilding Corp.'s low outright bid of $55,875,824 for construction at Camden, N. J., and the Newport Shipbuilding & Dry Dock Co.'s bid, permitting adjustment for labor and materials over the four years scheduled for construction, of $46,212,500. Private yards claim they have to take into account certain cost factors which the navy yards do not.

Pittsburgh—Most producers here report the delivery situation in plates has improved recently. In the case of one mill, the transfer of tonnage to another plant has been partly responsible for the easier

tone. Tank fabricators continue active and requirements of miscellaneous consumers account for a small but fairly steady volume of new business. Barge work continues inactive. Plates are priced at 2.25c, base, Pittsburgh.

Cleveland—Plate demand is limited to small structural jobs and miscellaneous specialty requirements from manufacturing interests. Large tank work and railroad buying has been noticeably lacking for some time now, with little encouragement offered along this line for the immediate future. However, most mills report only a slight improvement in deliveries, with backlogs varying from around 6 weeks to as high as 12 weeks in some instances.

Chicago—Plate demand is brisk here, with mills booked until late August or early September. In addition to active demand from railroad shops and freight car builders, orders for structural purposes are heavy, having shown a moderate improvement recently. Specifications from tank fabricators continue active and operations of this industry are expected to be well sustained for the next 60 days.

Boston—Plate demand, new buying and specifications are less active. Due to wide variation among eastern mills as to deliveries some volume is being diverted by regular customers from those unable to supply material as soon as desired.

Electric Boat Co., Groton, Conn., received the award for two submarines, on bids of June 17, taking several thousand tons of plates, shapes and bars. Portsmouth, N. H., navy yard was allotted two submarines direct.

Philadelphia — Sinclair Refining Co. is reliably reported to have dropped plans for two tankers, for which plates were to have been placed this week, due to rising costs. Miscellaneous business is maintaining backlogs at close to recent levels. Some mills still are able to offer no better than 10 to 12 weeks delivery, though some tonnage could be worked into mill schedules. At least one producer can offer four to six weeks delivery, with most offering seven to eight weeks.

San Francisco—Pending plate business is confined, with one exception, to lots of less than 100 tons. So far this year 27,742 tons have been booked, compared with 87,963 tons for the corresponding period in 1936.

Seattle—Involving 300 tons of plates, the largest ship repair job in months has been taken by the Albina Marine Iron Works, Portland, Oreg., which will rehabilitate the damaged Italian motorship FELTRE, sunk in collision in the Columbia river. The vessel has been purchased by American interests for cannery service. Commercial Boiler Works, Seattle, is building a 29-foot diameter spherical accumulator for the Olympic Forest Products Co., Port Angeles, Wash., involving 110 tons of plates. Deliveries are improving, since June 1 eastern suppliers having reduced guaranteed deliveries from 10 to 14 weeks and now offer eight to 10 weeks.

Plate Contracts Placed

600 tons, two 186-inch welded steel pipes, specification 724, All-American Canal project near Calexico, Calif., to Southwest Welding & Mfg. Co., Alhambra, Calif.

300 tons, repairs to motorship FELTRE, awarded Albina Marine Iron Works, Portland, Oreg.

110 tons, spherical accumulator for Olympic Forest Products Co., Port Angeles, Wash., to Commercial Boiler Works, Seattle.

Plate Contracts Pending

Unstated tonnage, 100,000-gallon elevated tank on 125-foot tower, Pilot Mountain, N. C.; bids July 2.

Bars

Bar Prices, Page 72

Pittsburgh—Hot-rolled bar bookings held fairly close to shipments in this district last week, although large tonnages were infrequent, the volume of smaller requirements was fairly well maintained. The delivery situation in the various mills of this district varies, with promises ranging from two to eight weeks, depending on size and quantity. Requirements of farm implement manufacturers are steady, but the automotive field is not expected to make any large commitments until possibly next month. Certain jobbers have been restocking. Hot-rolled bars are quoted 2.45c, base, Pittsburgh.

Cleveland—Despite the fact that some bar mills are closed because of strikes, requirements for commercial and cold-drawn carbon steel bars continue to decline moderately, with the result that mills are able to make deliveries within four to five weeks. Demand from the agricultural trade is holding well with still further improvement anticipated over the next 60 days.

Chicago—While bar sales are well maintained a definite slackening is shown compared with the average for the year. Automotive requirements are tapering and there is an occasional letdown in demand from miscellaneous users. Shipments to farm equipment builders are unusually heavy considering that operations in this industry ordinarily are on the down-grade at this time of the year. Farm equipment operations have been bolstered by resumption of work at the Rockford, Ill., plant of J. I. Case Co. following a 13-day strike. Bar deliveries average around 30 days.

New York—Commercial bar specifications are sufficient to equal shipments, deliveries undergoing no change. Shortage of raw steel at one large producing plant is having effect on its deliveries. Specifications from bolt and nut manufacturers are particularly good.

Philadelphia—Incoming business shows further decline and most producers can offer shipment in about three weeks. It is reported some bar tonnage, including alloy bars, has been shifted from Ohio plants to western New York mills.

Pipe

Pipe Prices, Page 73

Pittsburgh—Prolonged steelworks labor situation has been reflected in tubular materials. Oil country goods continue under strong demand, while line pipe has been more active recently and other products are moving well. In seamless oil country lines, backlogs of two months are not uncommon. National Tube Co., Pittsburgh, has been awarded the 8-inch pipe for a 220-mile extension of the Keystone Pipe Line Co., subsidiary of Atlantic Refining Co., from Williamsport, Pa., to Buffalo, N. Y. Construction of the line will start about July 1. Approximately 17,000 tons are involved. Tubular goods prices are steady.

Cleveland — Mills not hampered by strikes report continued decline in specifications since the first of the month. Aside from the Industrial Rayon Co.'s plant at Painesville, O., involving close to 500 tons, cast and steel pipe major requirements in this district have been limited to relatively small tonnages for minor repairs and extensions, from industrial sources. Domestic demand while well above a year ago is still disappointing. Cast pipe awards are small and few, with most foundries able to remain in operation only through building up stocks. Outstanding pending project includes 1100 tons, for water extension development at Akron, O.

Chicago—Small lots predominate in cast pipe orders and inquiries. Bookings disclose no definite change in volume and the trade looks for little early improvement in buying. Shipments against contracts are fairly steady. Low bidders have been announced on 358 tons of fittings and offset bends for Chicago.

New York—Except 1000 tons for

New York City borough yard stocks, closing July 2, inquiry and buying of cast iron pipe is confined generally to small fill-in lots. A 300-ton contract for Queens, N. Y., has been placed with the Burlington, N. J. foundry. Cast pipe prices tend to be firmer. Shipments are substantial, but foundry operations are slightly lower.

San Francisco—Cast iron pipe market is quiet on the Pacific coast and awards and inquiries are light. Only letting over 100 tons went to Pacific States Cast Iron Pipe Co. and involved 206 tons. Bookings totaled 351 tons and brought aggregate to date to 16,951 tons, compared with 13,891 tons for the same period a year ago.

Seattle—Conditions are not improving in the cast iron market, few inquiries of any size being received. Pacific Northwest cities are planning extensions but definite plans are slow in developing.

Steel Pipe Placed

17,000 tons, 8-inch pipe for 220-mile extension, by Keystone Pipe Line Co., subsidiary of Atlantic Refining Co., from Williamsport, Pa., to Buffalo, N. Y., to National Tube Co., Pittsburgh.

Cast Pipe Placed

300 tons, 20-inch, cement lined, Queens, N. Y., to United States Pipe & Foundry Co., Burlington, N. J.; awarded through contractor.

206 tons, 6-inch two projects for treasury department, Invitation W-203 and 204 for delivery at Yerrington, Nev., to Pacific States Cast Iron Pipe Co., Provo, Utah.

Cast Pipe Pending

3500 tons, 24 and 30-inch, Charlotte, N. C.; bids July 6.

1000 tons, 12 and 20-inch, mostly former, cement-lined, borough yards stocks, New York; bids July 2 to department of purchase, contract including furnishing, delivering and stacking.

835 tons, 2 to 16-inch, San Francisco; Pacific States Cast Iron Pipe Co., Provo, Utah, low on 2-inch, Central Foundry Co., low on 4-inch and United States Pipe & Foundry Co., Burlington, N. J., low on 6, 8 and 16-inch pipe.

203 tons, fittings, Chicago, United States Pipe & Foundry Co. low; 155 tons, offset bends, Alabama Pipe Co. low.

100 tons, 6 and 8 inch and accessories, Molalla, Ore.; bids June 28.

Tin Plate

Tin Plate Prices, Page 72

Pittsburgh — Increased inquiries for immediate shipments have been noted by some tin plate producers from consumers who apparently are affected by the steelworks labor situation. Unfortunately, capacity is so tightly booked that little can be done to alleviate distress. Mills here con-

tinue operating as high as 18 turns per week. With the canning season under way in certain sections, pressure for shipments for packers' cans remains heavy. Mills, in turn, are forced to exert pressure for sheet bars and skelp.

Ferroalloys

Ferroalloy Prices, Page 74

New York—Ferromanganese deliveries this month will be heavy, in all probability exceeding May. This prospect is due to the $7.50 increase which most contract buyers will face July 1 and which will drive these buyers to specify to the limit of their contracts. Were it not for the steel strikes, the movement would be close to, if not a record breaker, some trade interests declare. Spiegeleisen is also moving well in view of the $3 increase many contract buyers will have to pay beginning with July 1. Current prices on both of these products were reaffirmed for third quarter, but in each case most of the contract buyers were protected at lower prices.

Transportation

Track Material Prices, Page 73

Railroad buying is light except for miscellaneous steel needs for repair and routine requirements. Some further equipment and rail buying is expected before fall. Most rail tonnage bought late last year has been shipped and roads are not pressing for delivery of the remainder. Some mills have sufficient tonnage to continue rolling on a reduced schedule through July and into August.

New York board of transportation is expected to inquire shortly for 100 subway cars for the Eighth avenue line, following a hearing July 2. These cars are in addition to 150 placed a few weeks ago.

The Pennsylvania will close July 7 on its requirements for steel axles and tires. Chicago & North Western, Union Pacific and Southern Pacific, jointly, have placed a streamlined train with Pullman-Standard Car Mfg. Co., Chicago.

Rail Orders Placed

Mississippi river bridge, Baton Rouge, La., 170 tons rails, 60 tons fastenings, to Bethlehem Steel Co., Bethlehem, Pa.

Car Orders Placed

Canadian National Railway, 10 mail and express, to Canadian Car & Foundry Co.

Chicago & North Western, Union Pacific and Southern Pacific, streamlined passenger train, to Pullman-Standard Car Mfg. Co., Chicago, subject to court approval.

Chicago, Rock Island & Pacific, ten passenger coaches, to Pullman-Standard Car Mfg. Co., Chicago, subject to court approval.

Wire

Wire Prices, Page 73

Pittsburgh—Some sellers report a slight pickup in merchant products, partly due to depletion of stocks. Certain consumers have not ordered since April and apparently stocks are running low. Little incoming business has been traceable to steelworks labor situation so far. Wire mill operations in next two weeks will be off considerably due to vacations. Prices are generally steady.

Cleveland — Requirements for both manufacturing and merchant wire products have declined only slightly so far this month in contrast to May. Backlogs in most mills assure continued high operations through the next 60 days, during which time marked improvement in new business is anticipated, since

most consumer stocks are well below normal.

Chicago — While consumption of manufacturers' wire has been receding, new business has been aided by some consumers who were previously curtailing their stocks entering the market for additional material. A seasonal letdown in demand is in prospect for next quarter, however, though production is expected to hold better than usual. Prospects for farm buying of merchant products continues favorable.

Boston—Trend in wire buying is unchanged with demand for manufacturers' wire maintained. New business in specialties is somewhat spotty. While still high, operations in some finishing departments are easing off. Deliveries improve steadily as backlogs are reduced. Most mills are behind on billet stock and open hearths are operating near 100 per cent to catch up. Prices are firm and unchanged, and, assured of stable quotations through next quarter, some consumers with still ample stocks are not yet buying for late third quarter delivery. Hy-Way Fence Construction Co., Hartford, Conn., is low on close to 16,000 feet of wire rope railing for that state.

New York—Replacement orders for wire, notably manufacturers' stock, are appearing in slightly better volume as consumers' stocks, lowered by heavy operations in some instances, need balancing. Buying for late third quarter delivery, however, is not heavy. The mild gain in new business which appeared two weeks ago is maintained. Spring wire specifications are lower, partly a seasonal development. Rope, cable and heavier goods continue to move steadily. Some spotty improvement in merchant wire goods is also noted due to filling in of stocks bought earlier.

Bolts, Nuts, Rivets

Bolt, Nut, Rivet Prices, Page 73

While June shipments of bolts, nuts and rivets compared favorably with those of May, new business has receded and some letdown in deliveries is in prospect next quarter. Consumption is seasonally heavy, particularly among farm equipment builders, and requirements of railroad shops and freight car builders are holding well. Jobbers' specifications still are restricted by adequate stocks. Third quarter contracts are being received with prices moderately higher on nuts and small rivets. Bolts and structural rivets are unchanged.

Bolt, nut and rivet makers in the Pittsburgh district have noted a reflection of the steelworks labor situation and diversion of orders has increased activity somewhat. Producers, however, are gradually catching up on their backlogs. Several large automotive specifications have been received recently.

Shapes

Structural Shape Prices, Page 72

New York—Contracts for approximately 20,000 tons of structural steel involved only a few projects, the largest being 6800 tons for the Bronx-Whitestone bridge, to American Bridge Co., Pittsburgh. Bids close July 21 on the anchorages. Bethlehem Steel Co. is low on two of the largest schools closing June 22. While pending tonnage is still substantial, such volume is lower and new work, except for small state bridges, is coming out less briskly.

Although fabricated structural steel awards declined during May, the total booked during the five months, were 16 per cent larger than last year, according to American Institute of Steel Construction, New

York. Total shipments for the same period were 14 per cent larger than a year ago.

Boston — An active Massachusetts bridge building program, will be bolstered shortly by inquiry for several larger structures. Bids are being taken on such work weekly, four closing July 6, the largest at Orange, Mass. Awards are slightly lower, but include 325 tons for a foundry addition, Springfield, Mass.

Philadelphia — Awards display definite easing and rolling schedules at some mills have been reduced. A number of miscellaneous jobs are running below 100 tons, but are insufficient to bolster backlogs. Considerable work is ahead but is slow to materialize. Bids on 8000 tons, for government printing office was postponed to July 7.

Pittsburgh — Awards include a number of fairly large tonnages, such as 2100 tons for General Motors Corp. at Rochester, N. Y., and 1300 tons for Firestone Steel Products Co., Riverview, Mich. Pending projects include 4000 tons for Chrysler Corp., building at Detroit, and 1300 tons for an operating bridge deck for the Chickamauga and Guntersville dams in Alabama.

Cleveland—The largest local project of the year was recently placed with Bethlehem Steel Co., Bethlehem, Pa., involving approximately 3000 tons of structurals, 2000 tons of reinforcing bars for the same project is expected to be placed with a Cleveland concern this week. Most recent inquiries are well under 100 tons from private sources with large projects noticeably lacking, particularly in public work. Most mills are unable to make deliveries under six weeks.

Chicago — Fabricated structural steel awards and inquiries show no improvement and are principally of moderate tonnages. Bridge work still predominates. Shape mills are able to effect delivery in about 30 days in most instances.

St. Louis — Structural activity has been abruptly lowered by strikes at six fabricating plants. Prior to the strike these plants had been operating at about 50 per cent of capacity, and have unfinished orders sufficient to maintain that pace for six or eight weeks.

San Francisco — Columbia Steel Co. is low on 3100 tons for the San Francisco terminal facilities of the San Francisco-Oakland bridge and an award is expected within two weeks. Awards totaled only 696 tons, bringing the aggregate for the year to 104,957 tons, compared with 76,784 tons last year. Pending business exceeds 6000 tons.

Seattle — Only award over 100 tons went to the Pacific Car & Foundry Co., Seattle, which booked 225 tons involved in two state highway projects in Snohomish county, Washington. Prospects for third quarter are not promising as few important projects are planned. For the Quartz creek, Oreg., state bridge, 700 tons of shapes and piling are pending. Montana will receive bids June 30 for 12 highway projects.

Shape Awards Compared

	Tons
Week ended June 26	**59,641**
Week ended June 19	**22,080**
Week ended June 12	**15,403**
This week, 1936	**39,340**
Weekly average, 1936	**16,332**
Weekly average, 1937	**27,350**
Weekly average, May	**19,607**
Total to date, 1936	**536,449**
Total to date, 1937	**711,087**

Includes awards of 100 tons or more.

Shape Contracts Placed

19,800 tons, including five 50 ton steel castings, superstructure, main river bridge, Mississippi river, Baton Rouge, La., state project 2606, to Bethlehem Steel Co., Bethlehem, Pa.; bids May 26.

6800 tons, towers, Bronx-Whitestone bridge, Triborough Bridge authority, New York, contract WB13, to American Bridge Co., Pittsburgh, $1,128,800; bids June 23.

5500 tons, court house, Queens, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.; John J. Kennedy & Co., New York, general contractor. Reported in June 21 issue of STEEL as 550 tons.

5000 tons, piling, dam, Cap au Gris, Mo., to Inland Steel Co., Chicago.

3500 tons, plant building, Industrial Rayon Co., Painesville, O., to Bethlehem Steel Co., Bethlehem, Pa.; through Hunkin Conkey Construction Co., Cleveland.

2170 tons, Memorial hospital, East Sixty-eighth street, New York, to Harris Structural Steel Co., New York; Marc Eidlitz & Sons, New York, general contractors.

2100 tons, Delco appliance plant building, General Motors Corp., Rochester, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.

1500 tons, reconstructing chain bridge, Potomac river, Washington, D. C., to Bethlehem Steel Co., Bethlehem, Pa.; Tuller Construction Co., Red Bank, N. J., general contractor.

1300 tons, manufacturing building and boiler house, Firestone Steel Products Co., Riverview, Mich., to American Bridge Co., Pittsburgh.

1100 tons, state bridge over Merrimack river, Lowell, Mass., to American Bridge Co., Pittsburgh.

850 tons, bridge, Shepherdstown, W. Va., to Bethlehem Steel Co., Bethlehem, Pa., through M. J. Grove Lime Co., general contractor.

810 tons, bridge, Batesville, Ind., to Central States Bridge & Structural Co., Indianapolis.

580 tons, court house, Brooklyn, N. Y., to Lehigh Structural Steel Co., New York; through Psaty & Fuhrman Inc., New York.

550 tons, operating bridge for Pickwick Landing dam, Tennessee Valley authority, Corinth, Miss., to Mississippi Valley Structural Steel Co., Decatur, Ill.

550 tons, bridge, Sheffield, Ala., to Milwaukee Bridge Co., Milwaukee.

545 tons, phosphate plant, Swift & Co., Bartow, Fla., to Ingalls Iron Works, Birmingham, Ala.

500 tons, Milwaukee filtration plant, to Milwaukee Bridge Co., Milwaukee.

423 tons, substructure, Mississippi river bridge, Baton Rouge, La., to Kansas City Bridge Co., Kansas City, Mo.

400 tons, Erie county jail, Buffalo, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.

385 tons, bridge FAP 133, Kimble county, Texas, to Mosher Steel Co., Dallas, Tex.

372 tons, bridge and highway project, Canadian river, Potter county, Texas, to Bethlehem Steel Co., Bethlehem, Pa.

350 tons, Nassau river bridge, West Palm Beach, Fla., to Ingalls Iron Works, Birmingham.

340 tons, boiler framing, Consolidated Edison Co., New York, to Eggleston Bros. & Co., Long Island City, N. Y.

333 tons, bridge, Crittenden county, Arkansas, to Virginia Bridge Co., Roanoke, Va.

325 tons, addition, foundry and storage shop, Westinghouse Electric & Mfg. Co., Springfield, Mass., to Haarmann Steel Co., Holyoke, Mass.

300 tons, Market street station, New Orleans Public Service Co., New Orleans, to Jones & Laughlin Steel Corp., Pittsburgh.

270 tons, warehouse, Owens Illinois Glass Co., Columbus, O., to Pittsburgh Bridge & Iron Works, Pittsburgh; through H. K. Ferguson Co., Cleveland.

270 tons, state highway bridge, route 61038, Russell, Pa., to Lackawanna Steel Construction Corp., Buffalo.

255 tons, building, Linde Air Products, South Chicago, Ill., to American Bridge Co., Pittsburgh.

248 tons, bridge over Middle Fork, Flathead river, Flathead county, Montana, to unnamed interest.

230 tons, store and office building, Talbot Realty Co., Dayton, O., to Bethlehem Steel Co., Bethlehem, Pa.

230 tons, steam station, Dallas, Texas, to Mosher Steel Co., Dallas.

225 tons, two state highway spans, Snohomish county, Washington, to Pacific Car & Foundry Co., Seattle.

205 tons, bridge, WPGM 948-A, Potter county, Texas, to Virginia Bridge Co., Roanoke, Va.; J. F. Buckner, Cleburne, Tex., general contractor.

185 tons, Fluett-Peabody building, Atlanta, Ga., to Ingalls Iron Works, Birmingham.

180 tons, bridge project, 1734 WPGM 317, Louisiana, to Mosher Steel Co., Dallas, Tex.

160 tons, stack and alteration, Duquesne Light Co., Pittsburgh, to Pittsburgh Des Moines Steel Co., Pittsburgh.

150 tons, highway bridge 70, Crittenden county, Arkansas, to Arkansas Foundry Co., Little Rock, Ark.; F. Luttjohn, Topeka, Kan., general contractor.

150 tons, Lerner Shops, Ohio Store building, Cincinnati, to L. Schreiber & Sons Co., Norwood, O.

145 tons, warehouse and office building, Detroit, to Roura Iron Works, Detroit.

140 tons, building addition, Michigan Bell Telephone Co., Highland Park, Mich., to R. C. Mahon Co., Detroit.

130 tons, Dusenbury hotel, St. Petersburg, Fla., to Aetna Iron & Steel Co., Jacksonville, Fla.

115 tons, bridge project, 6752 WPGM 145-D, point 2, Louisiana, to Mosher Steel Co., Dallas, Tex.

110 tons, addition, Drexel Institute,

Philadelphia, to Morris-Wheeler Co., Philadelphia.

110 tons, machine shop, Trenton, N. J., to Belmont Iron Works, Eddystone, Pa.

100 tons, steel truss state bridge and approaches, Bloomfield, Vt., to Vermont Structural Steel Co., Burlington, Vt.; H. E. Hunt, Hudson Falls, N. Y., general contractor.

100 tons, addition, Paul junior high school, Washington, D. C., to Dietrich Bros., Baltimore; John W. Hunt Co., Washington, general contractor.

100 tons, miscellaneous improvements, Goodrich Tire & Rubber Co., Akron, O., to Burger Iron Co., Akron, O.

Unstated, state bridges in Mineral and Belton counties, Montana, to undisclosed interests.

Unstated, 532 foot bureau of roads bridge, Idaho, to unnamed interests.

Shape Contracts Pending

5200 tons, plant, Ternstedt division, General Motors Corp., Trenton, N. J.

4000 tons, building, for Chrysler Corp., Detroit.

3200 tons, direct steel bids, fabrication and erection, Lafayette high school, Brooklyn, N. Y., Bethlehem Steel Co., Bethlehem, Pa., low, $264,000; bids June 22, board of education, New York.

3100 tons, San Francisco terminal facilities, San Francisco-Oakland bridge project; Columbia Steel Co., San Francisco, low.

3000 tons, direct steel bids, fabrication and erection, Christopher Columbus high school, Bronx, N. Y., Bethlehem Steel Co., Bethlehem, Pa., low, $262,250; bids June 22, board of education, New York.

2510 tons, including 1900 tons, carbon and copper-bearing steel and 610 tons, silicon steel, New Jersey approach, Lincoln tunnel, Weehawken, N. J.; George M. Brewster & Son, Inc., Bogota, N. J., $2,287,205, bids June 22 Port of New York authority.

2250 tons, plant, Bendix Aviation Corp., Teterboro, N. J.

2000 tons, anchorages, Bronx-Whitestone bridge, contract WB-4, New York; bids July 21, Triborough Bridge Authority.

2000 tons, bridge, Ottawa, Ill.

1500 tons, open-hearth plant, Republic Steel Corp., Alabama City, Ala.

1300 tons, operating bridge deck, Chickamauga and Guntersville dams, Alabama.

1000 tons, manufacturing building, for Philip Morris & Co., Richmond, Va.

900 tons, direct steel bids, fabrication and erection, public school 191, Brooklyn, Harris Structural Steel Co., New York, low, $87,950; bids June 22, board of education, New York.

880 tons, school, Ogontz and Olney avenues, Philadelphia; John Mac Shain Inc., general contractor, Philadelphia.

750 tons, trash racks, Grand Coulee dam, Wash.; Arthur J. O'Leary & Son Co., Chicago, low.

654 tons, dam gates, Guntersville, Ala.

565 tons, fabricated structural steel, pony truss bridge, Westmoreland-Armstrong counties, Pennsylvania; C. L. Johnson & Son, Mansfield, Pa., low on general contract, at $129,979. Also, 15,899 pounds plain steel bars and 16,140 square feet open mesh steel flooring.

500 tons, for underpass, East St. Louis, Ill., Fruin-Conlin Construction Co., St. Louis, general contractor.

500 tons, Rayon plant, Williamsport, Pa.

450 tons, biological science building, University of Kentucky, Lexington, Ky.

400 tons, structural steel for flue, American Smelting & Refining Co., Garfield, Utah.

400 tons, substation, Pickwick Landing, Tenn., for Tennessee Valley authority.

400 tons, coal bunker, Great Lakes Steel Corp., Detroit.

400 tons, dormitory, Pennsylvania state college; bids July 7.

350 tons, state highway underpass, Clarksburg, W. Va.

325 tons, piling, bulkhead, Manasquam river, N. J.; bids July 23, U. S. Engineer second district, New York.

300 tons, paper storage building, Cunco Press Inc., Chicago.

300 tons, bridge, Pottstown, Pa.

250 tons, breakwater extension, Presque Island Harbor, Mich., for U. S. government.

250 tons, fabricated structural steel, reinforced concrete overpass, Erie county, Pennsylvania; bids to state highway department, Harrisburg, Pa., July 2.

225 tons, state bridge, Canaan, Conn., route U. S. 7; B. A. Gardetto, Inc., Boston, low $94,057.62; bids in.

213 tons, bridge, Shelburne Falls, Mass.; bids June 29.

200 tons, state bridges, Colrain and Orange, Mass.; Charles I. Hosmer, Inc.,

Greenfield, Mass., low on both, bids June 22, Boston.

178 tons, Yellowstone river bridge, Sweetgrass county, Montana; bids June 30.

175 tons, bridge, WPFR 18, Millers river, South Main street, Orange, Mass.; bids July 6, department of public works, Boston, G. H. Delano, chief engineer. Two concrete bridges, Fitchburg and Leominster, Mass., close same date.

130 tons, four utility buildings, Government air depot, Sacramento, Calif.; Golden Gate Iron Works, San Francisco, low.

130 tons, state bridge, Swift river, Belchertown-Palmer, Mass.: Frank T. Westcott, North Attleboro, Mass., general contractor, bids in.

100 tons, plant addition, Delaval Steam Turbine Co., Trenton, N. J.

Unstated, three state bridges, Park and Sweet Grass counties at Glendive, Mont.; bids at Helena, June 30.

Reinforcing

Reinforcing Bar Prices, Page 73

Pittsburgh—Awards include 2800 tons for a sewer in Flushing, N. Y., placed with Bethlehem Steel Co., Bethlehem, Pa. Inquiries include 1500 tons of rail bars for a postoffice garage in Chicago, and 500 tons for a girls' dormitory at State College, Pa. Prices are steady.

Cleveland—Reinforcing bar requirements remain comparatively inactive in contrast to a year ago, when considerably more public work was in prospect. Most mills are able to make deliveries within two or three days. Pending work includes 2000 tons for the Industrial Rayon Co.'s plant at Painesville, O., contract is expected to be awarded next week. However, by far the majority of other projects are from private sources with but a few requiring over 100 tons.

Chicago — Shipments continue heavy but new business includes few large lots. State highway work is expected to be productive of larger orders during the coming 60 days, than for the past two months. While prices are slightly steadier, some irregularities still prevail.

Boston — Including small-lots reinforcing steel buying is sustained. With most of the larger pending tonnages awarded, new work is coming out slightly heavier, the aggregate volume for bridges being outstanding. Mill prices on billet steel bars are generally steady, but scattered shading prevails among distributors.

New York—Tonnage involved in more numerous reinforcing steel contracts is heavier; 1750 tons for a Tallmans Island sewage project is outstanding. Part of the sewer work up for New York city, several thousand tons, is being rebid. New inquiry is coming out slower.

Philadelphia—Current tonnage is mostly in small lots for alteration and addition jobs. However, one or two fair jobs are pending and considerable buying is seen ahead. Prices are generally steady although concessions are reported in some instances.

Buffalo—Several road resurfacing and construction projects of good size have been bid by contractors who will enter the market shortly for reinforcing steel. Several waterfront construction projects here are expected to result in sale of large tonnages.

San Francisco — Awards of rein-

Concrete Awards Compared

	Tons
Week ended June 26.....	11,133
Week ended June 19.....	9,355
Week ended June 12.....	10,403
This week, 1936.....	4,345
Weekly average, 1936.....	6,005
Weekly average, 1937.....	5,588
Weekly average, May.....	7,773
Total to date, 1936.....	165,689
Total to date, 1937	145,290

Includes awards of 100 tons or more.

Behind the Scenes with STEEL

Excitement

BEST scenes of the week to be behind were in Cleveland's hotel Hollenden where met the bigwigs of steel, labor and the administration to hash, thrash and otherwise dash off a settlement to the so-called strike of steelworkers. There were the men of STEEL, on the spot to give youse all a story of what happened and why, and to figure out just where all this hashing will lead. Will Tom Girdler go back to his apple farm? Will Lewis get his contract signed? Will Roosevelt catch any fish in his next vacation? Will Madam Perkins endorse Camels? Will Senator Guffey find out what he is talking about? For the answer to these and 1001 other interesting questions, consult the oracle of labor, speaking to you from out of page 15 in this week's book.

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Boss

BADGED by the newspaper guild, affiliate of Lewis' CIO unions, were several of the newsmen covering the labor fracas the past week in Cleveland. Smiling when they said it, they called Lewis "Our Boss."

• • •

Peace

RECENTLY in a secluded home in Oklahoma City was found E. W. Hill, one time millionaire and president of Rotary International. During the dark days of '32 Mr. Hill became as common folk, lost his money, and has since been living a peaceful and easy life, turning for support to writing. After hearing Mr. Hill's statement that his new profession has brought him peace and contentment, we heaved a large sigh of relief and cast aside all our fears of dying while attempting to fill that last long paragraph.

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Chiseled

OUR vice president in charge of licking stamps reported the case of a gentleman who is in the office of a large body building plant (no connection with Bernarr Macfadden) and recently took a 2-year subscription to STEEL. The gentleman wants the weekly book addressed directly to him instead of to the company. It seems the office helpers, anxious to keep up on the doings of industry, were devouring STEEL with hungry eyes, leaving the original subscriber holding the check stub. The address will be changed and this service also made available to other subscribers, or, if they prefer, the magazine can be mailed direct to their home—in a plain wrapper.

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Amazed

WE feel like a rate in a psychology laboratory, running through a maze, after untangling the following message sent to our desk by some fiend in human form: —"answering yours of the 10th, we would refer you to ours of the 11th in answer to yours of the 7th." We'll bet it took the guy who wrote it just about as long to get it out as it took us to decipher it.

• • •

Tanks

WANDERING across the country last week we stopped at an interminable number of stations to fill up that gaping tank on the rear of our car. Not the least interesting of all was the one down in Tennessee, where there is a 7-cent state tax in addition to the penny Federal tax. The sign read, "TAXES COLLECTED HERE. We also sell gas and oil".

• • •

Whoa

NO DEVELOPMENT for steel this year, says the American Institute of Steel Construction, in calling off the sixth annual international congress for steel development. The congress was to have waged into steel developing in New York next week, but the AISC says no soap. Reason? Too much prosperity — nobody could leave his business long enough to develop anything new. Looks like the boys developed so much in the first five meetings they can't keep even.

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Swingtime

RIGHT in line with all the propaganda we are hearing about "this thing called swing" is the U. S. Steel ad on pages 52 and 53 of this week's book. Their products, they say, are right down the groove—practically out of the world, as it is known to the trade, strictly fine.

—STIRDLU

forcing bars were the smallest for any week in over a month with only 797 tons placed. This brought the year's total to 42,163 tons as compared with 108,711 tons in 1936. Interest centers around the outcome of close to 3200 tons for the San Francisco terminal facilities of the San Francisco-Oakland bridge.

Seattle — While pending tonnage is fair, no new projects of importance are developing. Mills are approaching the end of their backlogs and operations will be reduced next month unless increased business is placed. Prices are firm.

Reinforcing Steel Awards

2810 tons, sewer, contract 1, project 2, Queens, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.; through Charles F. Vachris Inc., Brooklyn, N. Y.

2800 tons, sewer, World's fair, Flushing, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.

1767 tons, substructure, Mississippi river bridge, Baton Rouge, La., to Kansas City Bridge Co., Kansas City, Mo.

1750 tons, Tallmans Island sewage treatment works, Queens, N. Y., section 2, contract 2, to Bethlehem Steel Co., Bethlehem, Pa.; North Eastern Construction Co., New York, general contractor.

620 tons, building, Milwaukee Western Malting Co., Milwaukee, to Worden Allen Co., Milwaukee.

418 tons, Mississippi river bridge, Baton Rouge, La., to Bethlehem Steel Co., Bethlehem, Pa.

400 tons, plant, Chevrolet Motor Co., River road, Tonawanda, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.

400 tons, building, Kansas state college, Manhattan, Kans., to Sheffield Steel Corp., Kansas City, Mo.

395 tons, All-American canal project, bureau of reclamation, Calexico, Calif., to Truscon Steel Co., Youngstown, O.; noted in STEEL, June 7, to unnamed interest.

270 tons, Gila project, Potholes, Calif.; 135 tons to Carnegie-Illinois Steel Corp., Pittsburgh, and 135 tons to Bethlehem Steel Co., Bethlehem, Pa.

250 tons, wharf, Fort Baker, San Francisco, to Soule Steel Co., San Francisco.

220 tons, rail bars, diesel engine division, General Motors Corp., Detroit, to Truscon Steel Co., Youngstown, O.

190 tons, bridge, Shepherdstown, W. Va., to Bethlehem Steel Co., Bethlehem, Pa., through M. J. Grove Lime Co., general contractor.

160 tons, addition, Paraffin Companies, Emeryville, Calif., to Colorado Fuel & Iron Co., Denver, Colo.; noted in STEEL, June 7, to unnamed interest.

160 tons, building, Central Mfg. Co., Chicago, to Calumet Steel Co., Chicago.

158 tons, Salt river project, Mesa, Ariz., to Carnegie-Illinois Steel Corp., Pittsburgh.

156 tons, Irvington school, Indianapolis, to Hugh J. Baker Co., Indianapolis.

150 tons, plant addition, Keasby & Mattison Co., Ambler, Pa., to American Steel Engineering Co., Philadelphia; through McNickol Contracting Co., Philadelphia.

150 tons, Bills Brook dam, Barkamsted, Conn., to Bancroft & Martin Rolling Mill Co.

150 tons, William Cullen Bryant high school, Astoria, N. Y., to Carroll McCreary Co., New York.

143 tons, highway work, in three counties in California, to unnamed interest.

139 tons, Boise-Fayette project, Boise, Idaho, to Inland Steel Co., Chicago.

125 tons, building, International Harvester Co., Fort Wayne, Ind., to Joslyn Steel Co., Fort Wayne, Ind.

115 tons, including 20 tons cutting edges, bridge and highway project, Canadian river, Potter county, Texas, to North Texas Iron & Steel Co., Fort Worth, Tex.

102 tons, highway work, Clear Creek and Chaffee county, Colorado, to unnamed interests.

100 tons, state highway project, Nassau county, New York, to Carroll-McCreary & Co. Inc., New York; Grant Park Construction Co., Hulett, N. Y., general contractor.

100 tons, sanitarium, Moose Lake, Minn., to Standard Salt & Cement Co., Duluth, Minn.

100 tons, building, International Harvester Co., Moline, Ill., to Joseph T. Ryerson & Son Inc., Chicago.

100 tons, reservoir, East Moline, Ill., to Laclede Steel Co., St. Louis.

100 tons, state bridge, McGuires, Ida., to unnamed interest.

Reinforcing Steel Pending

3400 tons, sewer, Flatbush avenue, Brooklyn, N. Y.; rebid, P. Tomasetti Contracting Co., Brooklyn, again low.

2075 tons, sewer, Williams avenue, Brooklyn, N. Y.; being rebid.

1500 tons, rail bars, postoffice garage, Chicago.

1175 tons, also 100,000 linear feet, reinforcing trusses, New Jersey approach, Lincoln tunnel, Weehawken, N. J.; George M. Brewster & Son Inc., Bogota, N. J., low.

800 tons, bridge over Connecticut river, Northampton, Mass.

500 tons, girls' dormitory, State college, Pa.

500 tons, building, American Safety Razor Co., Brooklyn, N. Y.

480 tons, anchorages, Bronx-Whitestone bridge, contract WB-4, New York; bids July 21, Triborough bridge authority.

450 tons, Columbia avenue viaduct, Cincinnati; Middle West Construction Co., Cincinnati, general contractor.

375 tons, reinforced concrete overpass, Erie county, Pennsylvania; bids to state highway department, Harrisburg, Pa., July 2.

300 tons, building, Dunbarton college, Washington.

275 tons, sewage plant, Baltimore.

225 tons, plant, Bendix Aviation Corp., Teterboro, N. J.

220 tons, building, Hunter-Baltimore Rye distillery, Baltimore.

210 tons, six highway bridges, various locations, Lansing, Mich.

175 tons, bars and shapes, state bridge, Ware river, Palmer, Mass.; B. A. Gardetto Inc., Boston, general contractor.

120 tons, John Sexton building, Chicago.

119 tons, bridge, Salt Lake county, Utah; bids opened.

100 tons, bureau of roads bridge, Lincoln county, Montana; Frank J. Haas, Missoula, low.

100 tons, state highway work, Wallingford, Vt.

100 tons, United States engineer office, San Francisco; bids opened.

Unstated, cold storage warehouse, Hoods river, Oreg.; L. H. Hoffman, Portland, general contractor.

Unit Steel Bids, to Triborough Bridge Authority

Tower Piers and Foundations for Anchorages and Approaches, Bronx-Whitestone Bridge, New York, Bids June 8

Material	Unit	A	B	C	D	Lowest Total
Structural steel in floating caissons	1,790,000 lbs.	$0.15	$0.12	$0.10	$0.15	$179,000
Structural steel cutting edges	350,000 lbs.	0.15	0.12	0.25	0.15	42,000
Anchor bolts and frames	114,000 lbs.	0.15	0.15	0.10	0.10	11,400
Reinforcing steel	2,635,000 lbs.	0.07	0.08	0.08	0.07	158,100*

A—Frederick Snare Corp., New York, awarded general contract, $1,893,558; B—Dravo Corp., Pittsburgh, second low, $2,081,380; C—Pacific Bridge Co., San Francisco, third, $2,309,280; D—Senior & Palmer Inc., New York, fourth, $2,442,450.

Structural steel awarded Dravo Corp., by general contractor; reinforcing steel awarded, Bethlehem Steel Co., Bethlehem, Pa.

*Submitted by Tully & Di Napoli Inc., Long Island City, N. Y., sixth low bidder quoting $0.06 per pound in place.

Pig Iron

Pig Iron Prices, Page 74

Pittsburgh — Although spot demand is light and there has been little reflection of the labor situation in other districts, pig iron production and shipments are well maintained here in comparison to last month. Seasonal influences have begun to force a lessening of foundry operations. Prices are steady.

Cleveland — Shipments during June are expected to show a small decline from May, while a still further recession is looked for in July. Auto foundry requirements will probably taper during the next 60 days, as the model changeover period nears. Most foundries are placing minimum orders against contracts, for the indefinite labor outlook has made it undesirable to acquire extensive stocks. Some have been drawing upon their own stocks, which in many cases are considerably below this time last month.

Chicago—Pig iron shipments during June showed a moderate gain over May but some tonnage under contract will be carried over into third quarter. New business for next period is fairly heavy although shipments during the next three months are expected to be smaller than those of second quarter. Foundry operations are off slightly, being influenced by the season and by labor troubles. Farm equipment foundries continue busy.

Boston—Pig iron buying for third quarter delivery lags. Small-lot spot buying is also light. Some consumers having contracts with strike-affected producers, are showing concern as to deliveries and as a precaution are feeling out other sellers. Little tonnage actually has been diverted yet. Export shipments against old contracts are steady. About 1000 tons of Indian iron arrived this week, mostly against orders, although some will go into stock for nearby truck shipment.

New York—While there is steady pressure for deliveries, pig iron consumers are contracting slowly for next quarter, as many are already covered for some time. A number of foundries are expected to close down through July 4 week, with some likely to be down for a fortnight. A number will use the occasion to take semiannual inventory.

Buffalo—Pig iron is quiet with no purchasing of consequence. Producers are catching up with back orders and laying aside iron for storage. Canal movement of iron has dropped sharply, shippers feeling present asking rates are too high. Consequently many barges are tied

up here pending settlement of differences of opinion on rates between here and tidewater. Third quarter contracts are being taken without pressure, as a rule.

Philadelphia — Recently reported large inquiries for pig iron made by French interests have been withdrawn, due to unsettled political conditions in France and prospects for further devaluation of the franc. No tonnage has been placed, as reported by error last week. Consumers are still well covered, with first and second quarter commitments, and many sufficient for third quarter needs. Pipe makers are also well covered. Considerable foreign iron bought at lower prices is still due on contracts.

Cincinnati—Pig iron continues inactive, new business being held to spot orders. General labor situation beclouds summer demand so that melters hesitate on future contracting. Declining melt is shown by much lighter coke demand. Some furnaces are cleaning up old contracts this month, requiring fairly heavy shipments.

St. Louis—Buying of pig iron has subsided noticeably, but shipments continue at a high rate, with indications that total tonnage this month will fall only slightly below its predecessor, and show an increase of about one-fourth over the June, 1936, aggregate.

Uninterrupted by strikes, activities at mills and foundries are maintained at, or around the highest levels of the recovery period.

Toronto, Ont.—Local blast furnace representatives have opened books for third quarter and melters have started to cover. Inquiries are appearing in good number and pig iron contracts for the coming quarter may show minor increase. Spot sales continue in good volume with current demand running chiefly to foundry iron which has been aided by scrap scarcity. Sales total around 1700 tons per week.

Coke By-Products

Coke By-Product Prices, Page 73

New York — Early announcement of phenol prices covering last half is expected. Most coke by-products are less active, although there has been no marked slump. Seasonal factors are responsible for decline in demand for some items. Distillate buying is more spotty with some distributors having difficulty in meeting demand because of curtailed output by several producers. This is especially true of xylol and toluol. Naphthalene for household needs is less active, but demand from chemical outlets holds. Sulphate of ammonia is seasonally dull. Prices are firm and unchanged.

Scrap

Scrap Prices, Page 76

Pittsburgh—Scrap marked time in this district last week, with only a few grades losing ground despite the labor situation. Dealers found it hard to buy No. 1 heavy melting under $18, indicating that the market might have hit bottom for the time being. Apparently little distress material has been dumped on the market here as a result of the steelworks strikes. For the most part prices were nominal in the latter part of the week.

Cleveland—The quieting effect of labor stoppages continues and dealers are not soliciting new business, awaiting outcome of the mediation effort. Some scrap continues to move under contracts. Prices are unchanged but are largely nominal, due to lack of sales.

Chicago—The scrap market here continues to drift and the trade sees little prospect of better activity until the re-opening of plants now closed by strikes. Some scrap producers are having difficulty holding their accumulations but find little success in attempting to dispose of them. Prices still lack strength but most quotations are nominal.

Boston—While inquiry for several grades of scrap, notably No. 1 machinery and textile cast, has improved, little buying has actually developed because of low bids. Consumers in New England and Pennsylvania frequently refused to pay current prices. Steel mill buyers generally are resisting prices and not pressing for tonnage. Most activity continues to be for export with quotations for dock delivery steady.

New York—Though domestic buying continues light several small inquiries for No.1 machinery and heavy breakable cast have mildly strengthened prices in those grades. On the whole domestic prices are nominal but no weaker. For export $15 is the lowest bid for No.1 heavy melting steel. Most activity is buying against export orders.

Buffalo—There are reports that a local melter has quietly entered the scrap market and has been buying No. 1 heavy melting steel for third quarter delivery. Estimates of the price paid range all the way from $18 to $19 with no official word obtainable as to the tonnage involved or the actual quotations. Dealers see in this purchasing a strong trend in the market and predict it will continue. There probably have been some other purchases of old material at prices quoted in current nom-

inal lists. Dealers are buying with caution, however, in view of the lack of quick turnover for old material of some types.

Philadelphia—Scrap is definitely showing strength, one important consumer being reported to have paid a minimum of $16.75 for No. 1 heavy melting steel. Some fill-in buying by nearby Philadelphia mills is reported at $17.50 but is understood a tonnage could not be had under $18. Dealers are paying $17 against contracts. It is reported $16.50 has been paid for No. 2 steel for Pencoyd. Reduced dealer accumulations add strength to the situation. Mills are still comfortably covered.

Detroit—Iron and steel scrap remains quiet and while some small tonnages are moving, they are not in sufficient volume to give an indication what current price levels should be. Meanwhile quotations are unchanged.

Cincinnati—Prices of iron and steel scrap are firmer, as if they had levelled off, after a precipitate and almost steady decline. Recent railroad offerings went at bids close to those in May. Offerings have dried up as compared to volume at recent peaks. Meanwhile district mills, unhampered by strikes, have been avid consumers but making no heavy future commitments.

St. Louis—Buyers and sellers of iron and steel scrap are marking time, transactions during the past week being in smallest volume in several months. Consumption, however, continues heavy. In the absence of sales, prices remain unchanged, and in most instances, nominal. The last transaction in No. 2 heavy melting steel, involving 8000 to 10,000 tons, was reported at the low figure of the present downward movement.

Seattle—While the market is weak and buying restricted, the city sold a quantity of steel scrap this week at $12.50 net. The mills have withdrawn and will not resume buying for at least 30 days, being fully stocked meanwhile. Old commitments for export are being cleared away. Japan is buying sparingly on import permits but the activity of recent months is absent. Rails and cars for export are fairly strong.

Toronto, Ont.—Conditions are unchanged in the scrap market. Consumers show interest and take all the materials offered and dealers are endeavoring to add to their stock holdings but with only limited success. Steel Company of Canada is in the market for heavy melting steel and turnings and large shipments have been made recently against contracts. There also is a good call for steel scrap from Montreal mills. Iron scrap is scarce and dealers are unable to fill all orders for machinery cast and stove plate. Local dealers state that they are not taking contracts for iron scrap for future delivery. Prices are firm and unchanged.

Warehouse

Warehouse Prices, Page 75

Pittsburgh—Warehouses reported business spotty last week and lacking strength of previous period. Distributors anticipate increased demand as a result of steelworks strikes may be more apparent soon if strikes continue. To date houses here have been hampered in obtaining supplies as result of strikes and stocks have been dwindling. Prices are steady.

Cleveland — Warehouse distributors report a slight improvement in demand, possibly due to strikes in some mills. However, aggregate tonnage for June is expected to be less than in May, with a still further recession anticipated through July. Activity seems to be centered in sheets and small structurals, although demand for the majority of other products continues well above a year ago.

Chicago—Warehouse sales continue to resist seasonal influences, business holding better than usual for this period. Strikes are having only a moderate effect in stimulating warehouse business.

Detroit—Sales of warehouse iron and steel products are holding up fairly well considering the season. June totals probably will be below those for May, but not enough to cause concern.

Philadelphia—While sales volume is tapering number of orders shows little reduction. June buying is somewhat under the May rate but above that of June a year ago.

Cincinnati—Mill conditions continue to yield benefits to warehouses, with June volume likely to equal or exceed that of earlier 1937 months. Stocks are now being replenished more easily.

St. Louis—Hot weather and other seasonal influences have had less than ordinary effect on business of warehouse and jobbing interests. Demands are well diversified. Railroads are purchasing on a liberal scale, particularly shop materials. Carlot buying from the southwest is reported in considerable volume.

Seattle—Jobbing trade is in the mid-season lull, buying confined to

small tonnages for immediate needs. Lack of construction and continued labor troubles are affecting volume. Higher costs, including labor, are retarding new construction, both industrial and residential, while governmental expenditures are dropping. Prices are firm.

Steel In Europe

Foreign Steel Prices, Page 75

London—(*By Cable*)—Great Britain is receiving supplies of forge and foundry pig iron from India, basic from Canada and foundry from the United States but the tonnages are small and prices are high. Two hematite stacks have been relighted on the East Coast, making 34 in that district. Pig iron melters have sought to place contracts for fourth quarter delivery but without success, producers having as much on books for that delivery as they care to accept.

Shortage of semifinished steel is not relieved and quota importations from the Continent are in arrears. Some rerollers have been forced to become idle from lack of steel. Finishing mills have been making record output, including heavy tonnages for government defense works.

The Continent reports domestic consumers are more cautious but order books are filled for several months and deliveries are extended.

Cold-Finished

Cold Finished Prices, Page 73

Pittsburgh—Except in the case of one or two producers, cold finished backlogs have dwindled and some consumers report they are able to obtain immediate shipment. New business last week included some fill-in orders two or three times in the last month. Inquiries from textile manufacturers in New England are active. Sellers in this district have noted little diversion caused by steelworks strikes. Cold-finished bars are quoted 2.90c, base, Pittsburgh.

Semifinished

Semifinished Prices, Page 73

Inquiry for semifinished steel continues active for both domestic and foreign shipment. Some mills in the Pittsburgh district have been booking odd-lot tonnages for delivery in 60 to 90 days, but most producers are still under pressure from their own finishing departments, and hard pressed by tin plate mills for sheet bars. The accumulation of substantial inventories is not easy. Semifinished prices are steady.

Metallurgical Coke

Coke Prices, Page 73

Adverse factors, such as the steelworks strikes have contributed to the reaction in the Connellsville, Pa., region, but furnace coke prices have held up fairly well despite slackened demand. One blast furnace, which broke out some time ago, will be ready to resume around July 15. Another furnace, which broke out several weeks ago, will probably be ready in August. The former furnace is in the 12,000-ton classification, while requirements of the latter are around 18,000 tons. H. C. Frick Coke Co., Pittsburgh, has completed preliminary work toward driving two 10-foot tunnels under the Monongahela river near the Ronco shaft, which will enable it to open its reserves on the Green county side of the river, using the Ronco shaft and river loading facilities which are on the Fayette county side. The company is paying a small royalty to the state for the coal under the Monongahela.

Iron Ore

Iron Ore Prices, Page 76

Cleveland—All of the 312 American lake ore carriers were in commission June 15. This compares with 240 on June 15, 1936, according to the M. A. Hanna Co., Cleveland.

Stocks of iron ore at the lower lakes ports and furnaces June 1 were approximately 450,000 tons less than on the comparable date last year, despite the record shipments from the upper lakes for the first two months of the current season. The Lake Superior Iron Ore association's report follows:

	Tons
Consumed in April	5,114,177
Consumed in May	5,321,011
Increase in May	206,834
Consumed in May, 1936	3,882,173
On hand at furnaces June 1	16,255,378
On Lake Erie docks June 1	2,544,190
Total on hand at furnaces and Lake Erie docks June 1	18,799,568
Reserves, total June 1, 1936	19,242,493

Loeffler-Greene Supply Co., Oklahoma City, Okla., has been appointed local distributor for automatic controls, sensatherms, thermostats, and the complete line of controls manufactured by the Mercoid Corp., Chicago.

Nonferrous Metals

Nonferrous Metal Prices, Page 74

New York—Sentiment in domestic nonferrous metal markets improved markedly late last week but, with the exception of tin, prices were unchanged. Prices on the London Metal Exchange moved steadily higher with the appreciation in lead futures amounting to about $12 and in standard spot copper about $21 per ton. Among the factors supporting higher prices were: the threat of a major war in Europe, buying of metals as a hedge against devaluation of the franc, and more favorable news on the labor situation here.

Copper—Export copper sold as high as 14.10c, c.i.f. European ports at close of the week compared with 13.50c at the end of the previous week. Domestic sales increased with those for Tuesday alone amounting to 1783 tons. All leading sellers quoted electrolytic firm at 14.00c, Connecticut.

Lead—Inquiry picked up late in the week following dullness as consumers awaited developments in the labor situation here and the political crisis in Europe. Prices held at 5.85c, East St. Louis, and 6.00c, New York. Stocks of refined lead were reported lower at only 115,843 tons, or slightly more than two months' requirements at the prevailing average rate of consumption.

Tin—Straits spot tin advanced steadily from 55.25c on June 19 to around 57.25c at the end of last week. Demand was only fair.

Zinc—Sales continued light but prices held firm at 6.75c, East St. Louis, for prime western. Supplies of metal available for spot delivery remained tight in both the domestic and foreign markets.

Antimony—American and Chinese spot eased ¼-cent per pound on Tuesday to the basis of 14.50c, New York. Very little buying interest was noted.

New Shape Extras In Effect July 1

New York—Long under consideration, with distributors favoring and most fabricators opposed, quantity differentials on shapes will become effective July 1, according to reliable reports here. Details are expected to be announced shortly.

Moreover, there will be new cutting extras on lengths under eight feet and the flat stopover charge of three cents in connection with milling-in-transit will be paid by the fabricators, instead of being absorbed by mills. The latter point out that this was the usual practice before inauguration of the Steel code.

The apparent decision of leading shapemakers to apply quantity differentials at this time comes as a surprise to many fabricators, who over several years, have always opposed and have undoubtedly been largely instrumental in forestalling such action. However, with July 1 only a few days off and with some of larger producers apparently intent upon establishing differentials at this time, it is doubtful, according to trade opinion, if the fabricators will be able to cause further postponement.

One of the principal reasons stated for opposition of fabricators was that they fabricated for specific jobs and that to lay in the larger stock necessary in order to compete would impose a substantial burden, particularly on the smaller shops, in the matter of investment in materials and hence in overhead.

Relative to the proposed switch in the 3-cent stop-over charge from the mills to the fabricators, it is pointed out that fabricators at basing points and at the end of the line will not be affected; it will be the fabricators at the intermediate points.

Equipment

Boston—While new machinery orders dropped slightly, one grinding equipment builder estimating volume this month at about 75 per cent of May, inquiries are substantial. Some business is evidently held up by uncertain labor outlook. Production is as high as most machine building plants are physically able to effect. Deliveries, however, show no improvement. Foreign buying of grinding machinery is active. Bearing plants are rushed to capacity. Labor difficulties in the metal-working industry have increased.

New York—Machinery buying continues brisk although a few dealers noted slight slackening last week. Several large eastern industrial plants, already having bought heavily during past six months, again are placing orders. Deliveries on some lines are five to six months. While some business is apparently being delayed by uncertain labor and political factors, inquiry is still active and shop operations high.

Pittsburgh—With new business lighter, a few machine tool manufacturers have been able to improve deliveries slightly. Large lists are infrequent. The labor situation apparently has created uncertainties for some buyers, who now prefer to mark time until present issues are settled.

Seattle—Heavy items required for mining operations, road building and certain types of construction remain in good demand. Pumping equipment and electrical supplies are also active. Dealers report inquiry still active although some proposed projects are being postponed because of labor disputes and general business uncertainty.

Construction and Enterprise

Ohio

BUCYRUS, O.—City, George M. Birk, mayor, plans construction of sewage disposal plant, costing approximately $140,000. Paul M. Uhlmann, 2083 Dayton avenue, Columbus, O., consulting engineer.

FINDLAY, O.—Central Ohio Light & Power Co. will soon take bids for electric power plant, costing over $1,000,000. Sargent & Lundy, 140 South Deaborn street, Chicago, engineers.

GENEVA, O.—City plans sewage disposal plant, costing $100,000. Council is considering bond issue to finance project. G. B. Gascoigne, Leader building, Cleveland, consulting engineer.

LORAIN, O.—Linde Air Products Co., R. S. Donnellon, in charge of construction, 30 East Forty-second street, New York, plans erecting factory here. Cost to exceed $40,000.

MIDDLETOWN, O. — Bevis Machine Co. will soon let contract for plant addition, costing approximately $40,000. Pretzinger & Pretzinger, Riebold building, Dayton, O., architects.

ORRVILLE, O.—J. M. Smucker Co. is building a plant addition costing approximately $40,000 with equipment. Contract has been awarded to Austin Co., Cleveland.

PERRYSBURG, O.—Metal Stampings Inc., William L. Peters, owner, is making alterations to a building here for manufacture of fenders, tops and other automobile parts.

SPRINGFIELD, O.—Ohio Edison Co. is erecting two-story power plant addition, contract for which has been awarded to A. G. Samuelson, Springfield.

VERSAILLES, O.—City, Ralph Pittsenbarger, clerk, is having plans drawn for sewage disposal plant, costing $80,000. P. A. Uhlmann, 2083 Dayton avenue, Columbus, O., consulting engineer.

WAUSEON, O.—Village is making plans for construction sewage treatment plant, cost of which will exceed $25,000. Champe Engineering Co., Nicholas building, Toledo, O., engineer.

Pennsylvania

JOHNSTOWN, PA. — Berkebile Bros., Johnstown, have started construction of a $50,000 plant here for Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

JOHNSTOWN, PA.—City has retained W. A. Goff, consulting engineer, Philadelphia, to prepare plans and specifications for combination sewage disposal plant and garbage incinerator. H. Lee Wilson, city engineer.

LOCK HAVEN, PA.—Taylor Aircraft Co. is planning expenditures totaling $300,000 for alteration and equipment of its recently purchased local plant.

MIDLAND, PA.—Air Reduction Sales Co., 60 East Fifty-second street, New York, is planning erection of an industrial building here.

PHILADELPHIA—Philadelphia Electric Co. has taken out permit for proposed three-story addition to steam-electric generating plant, estimated to cost $5,000,000. Installation will include a 50,000-kilowatt turbogenerator unit and auxiliary equipment.

PITTSBURGH — Duquesne Light Co. has plans maturing for extensions and improvements in local steam-electric generating station, including installation of new 60,000-kilowatt turbogenerator unit, high pressure boilers and auxiliary equipment. (Noted June 14.)

READING, PA.—Parish Pressed Steel Co. plans installation of motors and controls, loaders, electric hoists, conveyors and other equipment in new addition to its mill. Cost approximately $125,000. (Noted June 7.)

READING, PA.—Metropolitan Edison Co., E. H. Werner, takes bids in three months for power plant improvements, additions, etc. Total cost $3,000,000. E. M. Gilbert Engineering Corp., 412 Washington street, engineer. (Noted June 7.)

New York

BUFFALO—Marie C. Dickman, 339 Leroy avenue, plans purchasing 550 and 1000-gallon steel gasoline tanks and pumping equipment. Cost over $1000.

BUFFALO—J. E. Kelly, 440 M & T building, plans purchasing 550 and 1000 gallon steel gasoline tanks and pumping equipment, costing about $1000.

BUFFALO — Socony-Vacuum Oil Co., 1103 Elk street, plans construction of an oil distillation plant. E. B. Badger Sons Co., 75 Pitts street, Boston, engineer. Cost will exceed $25,000.

BUFFALO—Lake Erie Foundry Co. has awarded contracts for an addition which will double the productive facilities of its general foundry on Chicago street. Construction is to start immediately.

BUFFALO—Frontier Fuel Oil Corp. has awarded contract to the Frontier Engineering Corp. for erection of a $150,000 oil refinery and storage plant on River road. Construction is under way.

NEW YORK—Brown Vintners Co., 630 Fifth avenue, has purchased the plant previously occupied by Bristol Patent Leather Co. at Bristol, Pa., and will alter same into a distillery for its own use. Estimated cost $40,000.

NIAGARA FALLS, N. Y.—E. I. du Pont de Nemours & Co., Buffalo avenue, plans to construct a three-story, 30 x 122 foot addition to its chemical plant here, costing about $50,000.

SCHENECTADY, N. Y.—Kellam-Shaffer Co., Maxam road, plans repairing and altering plant at an estimated cost of $40,000, with equipment.

Massachusetts

PEABODY, MASS.—City, P. H. Tumelty, manager, electric light department, is making preliminary survey for municipal electric light plant. Cost to exceed $40,000.

SPRINGFIELD, MASS.—New York, New Haven & Hartford Railroad Co., E. E. Oviatt, chief engineer, Water street, New Haven, Conn., is preparing plans for erection of coaling plant, including installation of handling equipment. Estimated cost $30,000.

WALTHAM, Mass.—Jundon L. Thomson Mfg. Co., South street, will soon let contract for erection of four-story, 50 x 85-foot steel machine shop addition, cost of which is estimated at $60,000. A. F. Gray, 20 Fayette street, Watertown, Mass., architect.

WORCESTER, MASS. — Norton Co. is to construct a new building estimated to cost $300,000 at its plant here. The building will be occupied by the grinding wheel and finishing departments.

New Hampshire

WOLFEBORO, N. H.—Municipality will soon let contract for diesel electric power plant addition, including installation of 450-horsepower diesel engine. Cost to exceed $40,000.

New Jersey

JERSEY CITY, N. J.—Metro Glass Bot-

tle Co., Westside avenue, plans improvements to its plant. Cost will exceed $40,000, including equipment.

Michigan

FLINT, MICH.—Fisher Body division of General Motors Co., General Motors building, Detroit, plans one and two-story autobody plant addition, to cost approximately $300,000.

Illinois

ELGIN, ILL.—McGraw Electric Co. has plans maturing for new one-story plant, estimated to cost $225,000, with equipment.

Indiana

INDIANAPOLIS — International Harvester Co., 606 South Michigan avenue, Chicago, plans installation of motors and controls, transformers and accessories, electric hoists, regulators, conveyors and other equipment in new motor truck manufacturing plant here. A steam-electric power station will also be built. Estimated cost $3,500,000.

FORT WAYNE, IND.—Caldwell Well Screen Co. Inc. has been formed to manufacture well pumps and machinery by F. M. Caldwell, S. M. White and A. L. Goodall.

District of Columbia

WASHINGTON—Bureau of supplies and accounts, navy department, will take bids until July 2, schedule 1061, for one motor-driven precision bench lathe, delivered Washington; schedule 1062, for nickel-copper-alloy forgings, delivered Washington; schedule 977, for motor-driven air compressor and air receiver, delivered Oakland, Calif.; until July 9, schedule 1070, for one motor-driven radial drill press; schedule 1071, for one motor-driven centering machine.

Kentucky

SHELBYVILLE, KY.—J. W. Holland, Shelby county agent, has allocation of $100,000 for rural electrification in Shelby county. Will apply for additional $100,000 to erect and equip transformers to all farms.

VERSAILLES, KY. — City plans early purchase of diesel-driven pumping unit and accessories for waterworks station now under construction. H. K. Bell, McClelland building, Lexington, Ky., consulting engineer.

Georgia

ATLANTA, GA.—Evans Metal Co., C. F. Evans, Club drive, R.F.D. 6, is erecting a plant for manufacture of sheet lead, lead pipe and mixed metals. Expenditure estimated at $100,000, including machinery.

COMMERCE, GA.—J. C. Verner, chairman of building commission, plans one-story reinforced concrete steel manufacturing plant, costing $50,000.

North Carolina

ASHEBORO, N. C.—Town plans waterworks system, costing $87,545, for which PWA has granted loan.

BADIN, N. C.—Carolina Aluminum Co., Gulf building, Pittsburgh, S. A. Copp, general superintendent, has plans completed for constructing concrete dam and power house in Yadkin river, near Tuckertown. Work to be under company's supervision.

CHARLOTTE, N. C.—International Harvester Co., 606 South Michigan avenue, Chicago, is considering establishment of quarters here for its implement branch. L. F. Springmeier, Charlotte, is branch manager.

CHARLOTTE, N. C.—City, J. B. Marshall, city manager, takes bids July 6 on laying 30-inch additional line to Catawba river, construction of concrete foundations for three elevated tanks and remodeling and installing new pumping equipment at Catawba river pumping station. Estimated cost of expansion $1,000,000.

South Carolina

CHARLESTON, S. C.—General Asbestos & Rubber Co., 61 Willett street, Passaic, N. J., plans improvements to its plant here, costing $40,000 with equipment.

DARLINGTON, S. C.—PWA has approved grant of $33,545 to town for sewage disposal plant. Project, estimated to cost $73,545, consists of construction of sewer lines, sewage lift pumping station and treatment plant.

Louisiana

LAKE CHARLES, LA.—City voted $160,000 bonds for building sewage disposal plant. J. M. Fourmy, Hammond, La., engineer.

LAKE PROVIDENCE, LA. — Town, W. M. Moore, clerk, receives bids July 1 for furnishing and installing complete diesel engine generating set, deep well pump, crane, building and miscellaneous equipment for water and light plant.

MONROE, LA.—City votes July 8 on $1,500,000 bonds for improving water, light and sewer system, including installation of generators, boilers, cast iron pipe lines and remodeling office building.

NEW ORLEANS—New Orleans Public Service Inc., 317 Barrone street, has permit for $264,500 alterations and additions to Market street power station.

Tennessee

CLARKSVILLE, TENN.—PWA has approved grant of $157,000 for improvements to waterworks system. Total cost of system is estimated at $350,000. Thomas H. Allen, 65 McCall street, and Robert H. Hoshall, 789 North Evergreen street, both of Memphis, Tenn., are consulting engineers.

KNOXVILLE, TENN. — Director of purchases, Tennessee Valley Authority, receives bids until July 1 for two 36,000-horsepower hydraulic turbines for Chickamauga power plant and for two similar turbine units each 34,000-horsepower for Guntersville generating station.

MEMPHIS, TENN.—Continental Steel Sales Corp., Kokomo, Ind., has had plans prepared for a new $50,000 factory here. The structure will contain about 25,000 square feet of floor space.

Virginia

BLACKSTONE, VA. — City plans extensions to municipal electric station, including installation of 800-horsepower diesel and generator. Fund of $60,000 is being arranged.

GALAX, VA. — City has plans for municipal electric plant, costing about $237,000.

RICHMOND, VA.—Southern Distilling Co., recently incorporated with capital of $500,000, will build a distillery. H. Lester Dietrich is president.

WAVERLY, VA. — City plans municipal electric plant, costing about $91,000.

Missouri

SPRINGFIELD, MO.—Springfield City Water Co. has been granted permission to sell $700,000 securities to finance remodeling and enlarging waterworks plant at Fulbright Spring.

Oklahoma

BLACKWELL, OKLA.—Plans are un-

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der way for expansion and improvements in municipal electric power plant, including installation of new 4000-kilowatt turbogenerator unit and auxiliary equipment. Black & Veatch, 4706 Broadway, Kansas City, Mo., consulting engineers.

TULSA, OKLA.—Ozark Chemical Co., W. N. Smith president, Platteville, Wis., plans erection of furnace building, 60 x 80 feet; production of first unit 60 tons acid daily.

Texas

BEAUMONT, TEX.—Oil City Brass Works, 326 Neches street, sustained severe damages by fire to its plant recently.

CORPUS CHRISTI, TEX.—G. W. Fraser, 8 Cedar Lawn circle, Galveston, Tex., plans erection of cottonseed oil mill. Estimated cost $450,000. Owner is in market for machinery and equipment.

HOUSTON, TEX.—City, Walter Pierson, commissioner, plans $200,000 improvements to water distribution and storage facilities, including a 500,000-gallon steel elevated storage tank.

LAMESA, TEX.—City, W. L. Marr, mayor, will construct a sewage disposal plant, including installation of sedimentation sludge digestion tanks, and chlorinator. H. N. Robe[illegible] engineer, 2415 Twentieth stree[illegible], Lubbock, Tex.

PASADENA, [illegible]EX.—Champion Paper & Fibre Co., Hou[illegible]n division, plans installation of mot[illegible], transformers, loaders, conveyors an[illegible]other equipment in new addition to local sulphate pulp mill, estimated to cost $1,500,000. Main offices of company are in Hamilton, O.

RIO HONDO, TEX.—Moseley-Markham-Rettinger Canning Co. plans erection of two-story canning plant and installation of modern equipment and machinery.

Wisconsin

CHIPPEWA FALLS, WIS.—Wisconsin Power Co-operative plans construction of steam generating plant and transmission lines in 11 counties at cost of from $800,000 to $1,000,000. E. B. Wayts, 314 Tenney building, Madison, Wis., is chief engineer in charge.

MILWAUKEE—John Westwick & Son Inc., Claude street, has begun construction of a steel addition to its foundry.

MILWAUKEE — Allis-Chalmers Mfg. Co., West Allis, Wis., is considering bids for construction of two-story employment office, 40 x 70 feet, to cost about $40,000.

MILWAUKEE — Westinghouse Air Brake Co., Pittsburgh, has sold the old National Brake & Electric Co. works here to Freese Engineering Co., which plans to sell or lease some units, including gray iron and steel foundries, and raze obsolete buildings. L. C. Jordan is in charge.

South Dakota

SANATOR, S. DAK.—State board of charities and corrections, L. F. Craig, president, state penitentiary, Sioux Falls, S. Dak., is taking bids until July 1 for construction of building alterations, machinery and foundations at power plant and installation of 125-kilowatt steam engine generating unit. D. W. Loucks, Pierre, S. Dak., is state engineer and Charles A. Trimmer, Madison, is consulting engineer.

Iowa

BELLEVUE, IOWA.—G. J. Bittner, mayor; Lester J. Gaylor, city clerk, is taking bids due July 15 for construction of alterations to municipal light and power plant, including foundation for a new generating unit and furnishing one diesel engine with capacity of not less than 400 horsepower nor more than 450-horsepower complete with electric generator, accessories auxiliary equipment. Young & Stanley Inc., Muscatine, Iowa, consulting engineer.

DES MOINES, IOWA.—City, C. R. Hansen, city clerk, has applied to WPA for funds to finance construction of a sewage disposal plant, including trickling filters and four primary settling tanks. John Tippee is city engineer. Approximate cost is about $1,200,000.

POCAHONTAS, IOWA—REA has allotted $75,000 to the Central Electric Federated Co-operative association to finance construction of a generating plant. Young & Stanley Inc., Muscatine, Iowa, consulting engineers.

WEBSTER CITY, IOWA—Receives bids until July 5 for extensions in municipal electric power plant, including 2000-kilowatt turbogenerator unit with condenser and auxiliary equipment; 30-kilowatt non-condensing steam-turbo exciter unit and miscellaneous equipment; also for addition to present power house building. Entire project will cost close to $132,000. E. R. Compton is city manager.

Nebraska

OMAHA, NEBR.—Paxton-Mitchell Co. will construct a three-story brick addition, 70 x 70 feet, to its foundry at 2614 Martha street. Total cost of building and equipment will be about $35,000.

Pacific Coast

HIGHLAND PARK, CALIF.—B. Lane, manager, Highland Park Public Utility district, 442 Arvin street, will soon take bids for furnishing deep well and turbine pump.

LOS ANGELES—Franklin Shuey, vice president, Johns-Manville Corp., New York, is making arrangements for construction of a $1,000,000 plant at Alameda avenue and 283rd street, here, where a 50-acre tract has been purchased.

PORT CHICAGO, CALIF.—Carquinez Fisheries Co., Port Chicago, plans rebuilding sardine reduction and canning plant at a cost of more than $50,000, including equipment.

REDONDO BEACH, CALIF.—Interstate Engineering Corp., which recently acquired the Moreland Coach factory building here, will install equipment to cost $200,000 and will erect an addition to house the offices and drafting rooms at a cost of $7500. The company will manufacture airplane parts.

TORRANCE, CALIF.—General Petroleum Corp., 108 West Second street, Los Angeles, plans installation of two 134,000-barrel and three 80,000-barrel steel tanks at its refinery here. Estimated cost $145,000.

SEATTLE—T. M. Klement announces plans for erecting a saw mill and dry kilns at Fortson, Snohomish county, replacing plant destroyed by fire six months ago.

STEVENSON, WASH.—Wesley Small and H. A. Bell, Portland, Oreg., plan construction of a 60,000-foot daily capacity saw mill, and probably a box factory at a later date.

HOOD RIVER, OREG.—L. H. Hoffman, Portland, Oreg., has the contract to construct proposed $350,000 cold storage plant for Hood River Apple Growers' association. Initial unit will be four stories, 160 x 362 feet, equipped with latest refrigeration, ventilation and insulation.

Canada

MONTREAL, QUE. — Lake Sulphide Pulp Co. Ltd., 132 St. James street, is having plans prepared by C. D. Howe Co. Ltd., 712 Public Utility building, Port Arthur, Ont., for construction of a pulp mill at Red Rock, Ont. Estimated cost of project $6,000,000.