

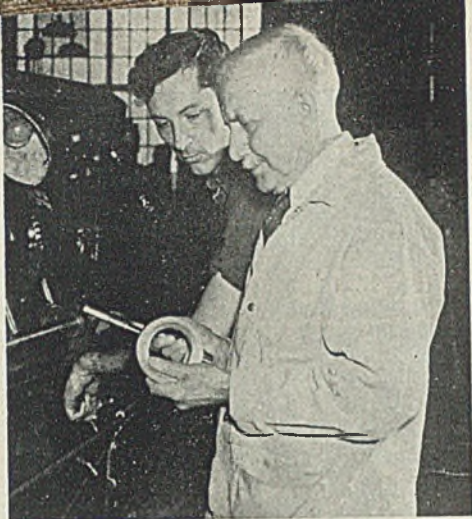
# STEEL

The Magazine of Metalworking and Metalproducing

## MARCH 15, 1943

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Number 11



Retired machinists are recalled to train white-collar operators. Page 56

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**MANPOWER** Acceptance of the split-shift plan, whereby white-collar workers employed full-time in their regular pursuits, work a half shift in a war plant, has been limited, a survey (p. 56) by STEEL reveals. Employers, however, are considering the plan for future adoption if the shortage of laborers becomes more acute. Contradicting statements by Washington officials, most war plant operators report no serious shortage of untrained workers as yet. They are reluctant to train two men for a job if full-time workers are available. . . The automotive industry has organized a committee (p. 59) to study the most effective utilization of available labor supplies. . . National War Labor Board has rejected (p. 62) a union demand for the "hiring hall" system of employment on the Great Lakes.

**FINANCIAL** Income on investments of the iron and steel producers declined approximately 3.4 per cent last year (p. 89). At the same time the aggregate net income of 57 iron and steel consumers in 1942 decreased by \$60,901,956 or about 23 per cent. A table shows the earnings of the companies in 1941 and 1942.

**SUBCONTRACTING** War procurement agencies last week were asked by Col. Robert W. Johnson, chairman of the Smaller War Plants Corp., to use their influence with prime contractors to extend (p. 63) farming out of war production work to smaller plants. . . Chrysler Corp. (p. 75) has subcontracted 58.2 per cent of its two billion dollars in war contracts, and is doing business with 8079 companies.

**AVIATION** Sixty per cent of this country's military planes are being produced by eight companies in southern California (p. 78). . . Principles of automotive mass production have been adapted to the assembly of large gliders (p. 80) at the Ford station wagon body plant. . . Steps are being taken by the WPB Steel Division to assure the aircraft industry of an adequate supply of alloy steels (p. 82).

**IN THE NEWS** Metallurgists report that the hardening influence of boron in extremely small amounts as an alloying element is a startling revelation (p. 83).

Recent action of the War Production Board authorizes production of additional farm equipment recommended by Food Administrator Wickard (p. 72).

Vital importance of postwar planning is indicated

by the amount of literature written on the subject by the country's outstanding educators and economists. Windows of Washington (p. 67) devotes its pages to the publication of a bibliography of material available on the subject as presented by the National Planning Association.

Steel ingot production in February was at the second highest weekly rate in history (p. 61).

**WAREHOUSES** General of Operations, Curtis Calder, Director WPB, has taken steps to place in operation by April 1 a plan for regional control of steel warehouses in the acute San Francisco Bay area (p. 85). . . This, it is believed, may be the solution to the problem of maintaining stocks needed to serve the small and emergency needs of essential industries there.

**TECHNICAL** Special alloy addition agents save important amounts of strategic alloying elements yet produce steels to meet specified tensile and impact values, are one of the "hot" developments in wartime steelmaking. Much information on performance of these addition agents (p. 94) is presented by the American Iron and Steel Institute.

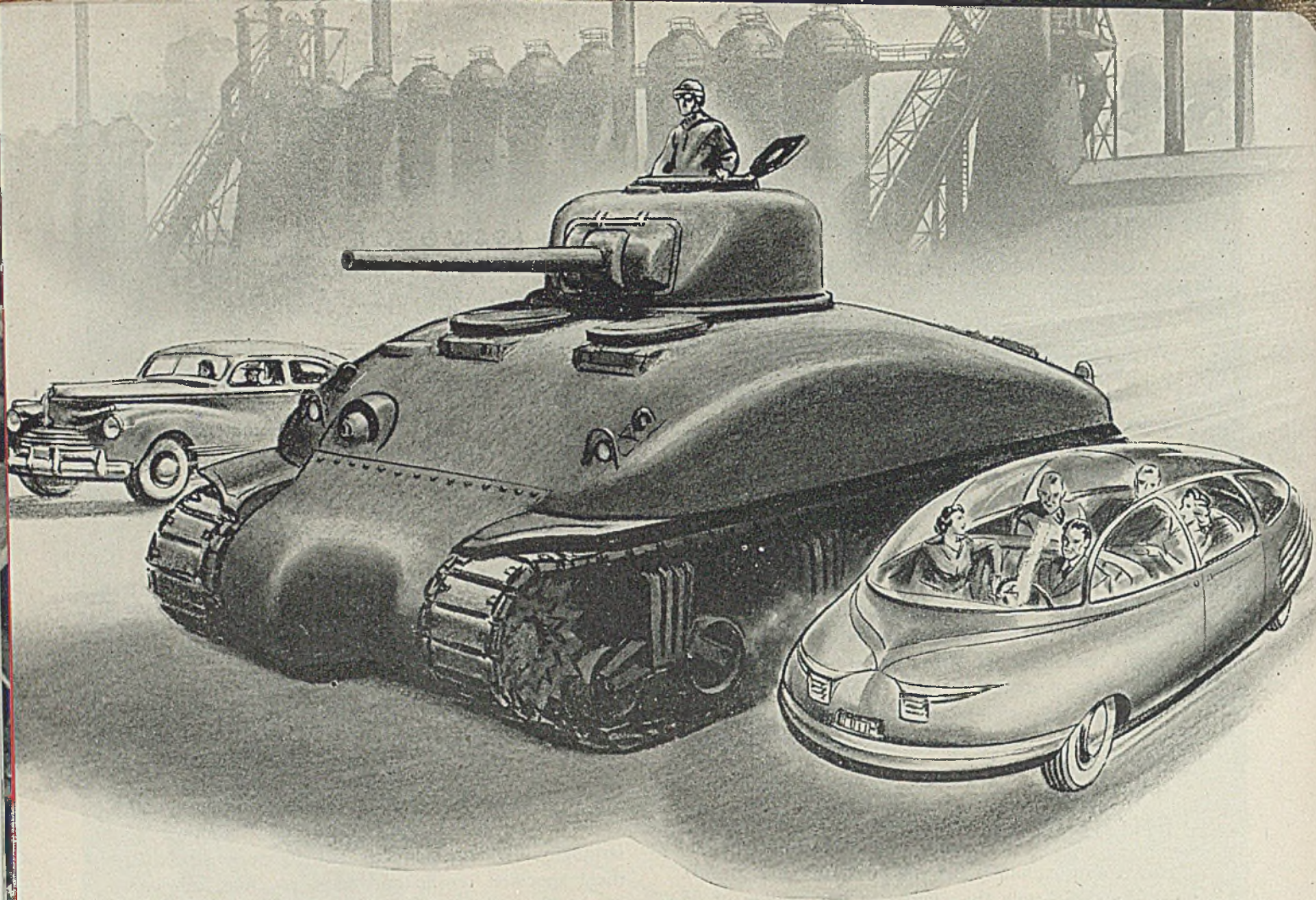
In user report No. 11 on experience with the NE alloy steels, A. S. Jameson details what International Harvester Co. has found out about the medium carbon NE-9440 and NE-9640 steels (p. 96). He also includes information on standard alloy compositions for which these two steels could be considered as substitutes.

An unusual drawing press (p. 104) was found the answer to the job of turning out more than 20,000 large cowl ventilators faster than shipyards on our three coasts required them for Liberty ships. Huge press draws ventilators in two sections, subsequently welded together.

Some concept of the volume of export boxing being done by large manufacturers is obtained when it is learned that Yellow Truck & Coach plant now boxes in one day more than it formerly did during the entire year of 1938. Obviously greatly improved methods are being used (p. 108).

Murray S. Kice presents the first part of a detailed discussion (p. 110) on industrial fans for ventilating, blast heating and air conditioning work. Many factors connected with industrial process fans and their application greatly influence plant earnings, he points out.

G. B. Berlien, in the first of a series of four articles on straightening heat-treated parts, gives some pointers on methods of controlling and correcting distortion in oil-hardening steels (p. 114).



## From Automobiles to Tanks and Back to Automobiles

Throughout the years before Pearl Harbor, Inland supplied great quantities of many kinds and forms of steel to the automotive industry. When a manufacturer wanted steel of special form, finish, or analysis, Inland research and mill men supplied those wants. Often original work by our research staff developed new steels, which were used to build better automobiles. Inland grew with the automotive industry and that industry grew with Inland.

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pared, with skilled men and modern equipment, to supply a vital part of the steel needs of the automotive industry, converted 100% to the production of army trucks, tanks, jeeps, shell, and many other kinds of war equipment.

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### Wages for What?

*If the government were to call in the ablest experts on methods of compensating industrial wage earners in wartime, and were to ask them to submit the worst plan of remuneration they could devise, the result could not be as bad as the hit-or-miss system which now prevails in this country.*

*Relatively few employes are being paid in accordance with the work they perform. For every man or woman whose paycheck is keyed to performance, there are scores who are compensated on the basis of other factors.*

*For instance, miners are asking for more money and part of the increase is intended to compensate the men for an increase in union dues. An effort is being made to break the "Little Steel" formula, which ties wages to a cost of living index and has little to do with the volume of work performed. Throughout industry one rate is paid for certain hours, time-and-a-half for others and double time for still others. These rates have no connection whatever with performance. In some instances, workers in featherbedded jobs are paid, not for what they do, but for what somebody would have to do if we were back in the horse-and-buggy days.*

*The nation winked at these absurdities in peacetime, but in wartime they assume a serious aspect. No longer are we in a make-work economy. We are in a do-all-we-can economy. Our plans for compensation should be geared to this new concept.*

*One way out of the present confusion would be to place less emphasis upon unit hourly wages and more upon real wages—the usable income one earns in a year's time. Another would be to pay according to results, which in many instances would mean relying more heavily upon incentive plans.*

*The experience of war has caused Russia and England to turn toward real wages and payment by results. We could profit by their example.*

*E. L. Shaner*

Editor-in-Chief

# Plan Wins Only Limited Acceptance in War Plants

*General manpower shortage apparently not yet acute enough to force part-time employment of white-collar workers. Employers studying experiences with plan as potential labor source in future*

SPLIT-SHIFT employment of white-collar workers in war plants, inaugurated on an experimental basis by a few companies several months ago to alleviate the widely heralded manpower shortage, has not yet been adopted to any great degree.

A survey by STEEL of leading centers of war production, including many designated as "critical" labor areas, reveals manufacturers have considered the plan but have deferred action because they still are able to obtain full-shift workers.

They freely admit the merits of the idea but ask: "Why should we train two men to do the job of one when we still are able to hire full-time employees?" They acknowledge the plan offers a tremendous potential supply of labor for war plants that may be called into service within the next three or six months.

Personnel managers generally agree that white-collar workers can be more easily trained and developed into better workers for many jobs than many people now being hired on a full-time basis.

"They may lack 'job knowledge,' but they possess initiative, intelligence, and generally good education," said one employer. "We have found that salesmen, office workers and similar people dislocated from their regular jobs by the war program adjust themselves readily to plant work. They require less training on new jobs and often turn out better work than the type of people who ordinarily apply for factory work."

## Fit Into Assembly Work

Seldom are the white-collar workers expected to acquire the skill of a highly-trained artisan. They can, however, acquire the skill necessary for assembly work and the simpler machining operations, thus releasing more highly trained workers for jobs requiring greater skill.

When the time comes for wide-spread adoption of the split-shift plan, there should be no dearth of applicants, according to present indications. In almost every war material manufacturing center

covered by STEEL's survey, spontaneous offers by professional and clerical workers to join in the plan were reported.

In Cleveland, for example, the Junior Chamber of Commerce proposed such a program and promptly obtained 150 volunteers for war plant work. About 125 industrial plant managers were approached, but practically all turned thumbs down on the plan for the present. Many said that future conditions might make the plan desirable.

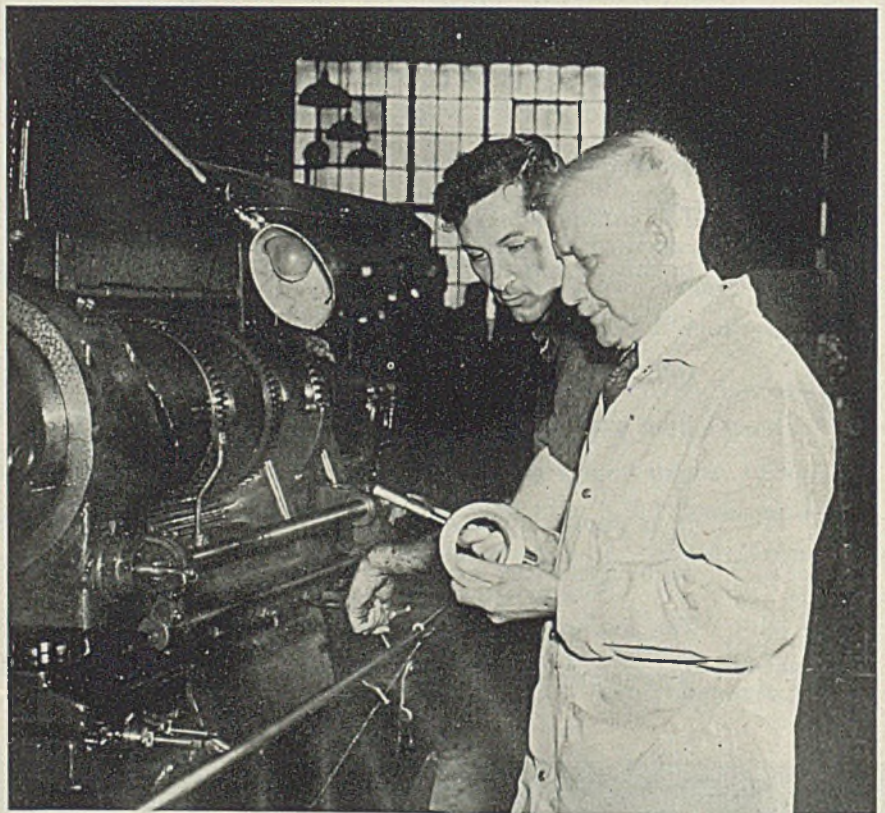
The New York regional WMC and district United States Employment Service reported they had many applications from persons employed in civilian industries. Many offered to work for nothing.

But in general, these agencies have been unable to place such applicants. A-USES official said the split-shift idea "simply hasn't taken hold with New York district plant managers." Employers in the New York area are not yet pressed for workers except in the highly-skilled classes.

Employment managers in the New York area, however, believe it will be merely a matter of time before an acute shortage develops and think that personnel directors would be well advised to make plans for utilizing white-collar labor. At present, New York proper has a labor surplus estimated at between 200,000 and 300,000. This situation is reflected immediately in adjacent localities.

In Detroit, the half shift plan has not progressed beyond the preliminary discussion stages. Current opinion is that the labor supply has not become sufficiently critical to make the split-shift worthy of adoption.

Vickers Inc. and Ex-Cell-O Corp. have discussed the plan tentatively within their personnel and employment departments, but have taken no definite steps toward adopting the idea as yet. Detroit employers are interviewing several hundred prospective workers daily and as long as this situation maintains the



*Veteran machine specialist, retired for ten years, is recalled to active duty to instruct new workers in the operation of automatic screw machines. Many of the new workers formerly were employed in white collar jobs*

split-shift plan will be tabled. Detroit's labor supply is running low on skilled workers and most new employes must be trained before they can become productive. However, this applies to office personnel and white-collar help as well as plant personnel.

Whatever labor shortages there are in the Detroit district appear to be in civilian services.

In Pittsburgh, personnel managers say that the manpower shortage is not yet critical enough to resort to the half-shift system. A number of companies are considering the plan and a few are experimenting with it on a trial basis.

The few companies which have inaugurated the half-shift system report that it is working very satisfactorily. One of the pioneers was the Warner & Swasey Co., Cleveland, which instituted the plan last November with several teams of white-collar workers on a purely experimental basis. In the past three and one-half months the number of teams has increased to 166 and more are being added daily.

The plan is regarded by Warner Seeley, company secretary, "as a definite help in production because of the critical shortage of manpower."

Warner & Swasey are hiring white-collar workers for the split-shift as rapidly as they apply. The company does no advertising for this type of worker but relies upon word-of-mouth promotion. Applicants must receive approval by their full-time employers, pass a physical examination and must be available to work four hours a day, six days a week. No women as yet have been hired.

#### Workers Like Plan

The split-shift workers contend that "long hours do not appear to be long hours because the industrial shift has a recreational quality similar to a hobby." Teachers, salesmen, coal company executives, attorneys, a cartoonist and several food and electrical appliance salesmen compose the "charter" teams of the split-shift program.

Attendance has been one of the most encouraging aspects of the Warner & Swasey experience with the split-shift plan. Absenteeism among this group of workers is at the amazingly low rate of one-half of one per cent. Whenever one of the team is unable to report for work because of illness or other cause the other member of the team works the entire eight-hour shift.

Walter C. Mason, assistant personnel manager, reports the company is expanding the size of the split-shift force because white-collar workers "fit in well,"

are well educated and ordinarily do not require long periods of training. They are easily adaptable to many types of mechanical work.

In age, Warner & Swasey split-shifters range from 28 to 50, with an average of about 35. Men over 50 have not been excluded but few have applied because, it is believed, they could not stand the physical strain of two jobs.

"At 48 I thought I was getting too old but after working here I feel I can do anything a young man can do," said a coal executive, one of the first split-shifters. "Naturally cocktail parties are out since I'm tired when I get home. But I really have an appetite and my wife can't seem to give me enough to eat. I lost 18 pounds and can afford it. I'm in better physical condition now than ever before."

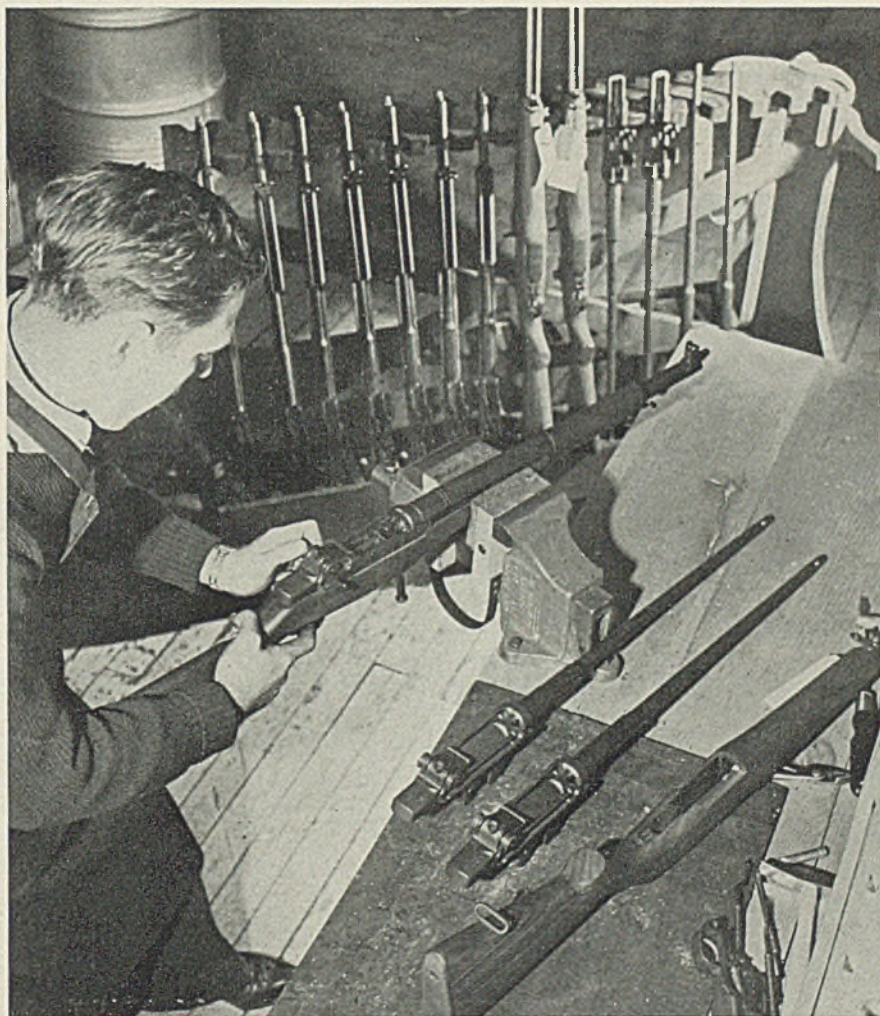
A cartoonist working on assembly said "for 15 years I've been an artist and teacher of drawing but if this work contributes to ultimate victory that is all that matters. However, since I'm still

able to do my own work this factory work provides a satisfying break in daily routine."

An attorney who dresses nattily during his business hours and later in the evening can't be recognized for a covering of grease and oil from his production job said that "for nearly three months I've been working here. The men all feel grateful for the opportunity to participate in war production. In fact they desire to learn quickly in order to increase production. Since most of these men are office workers ordinarily, the physical activity of the added four hours shop work is, to some extent, a relaxation and not a severe drain on physical stamina."

"The men are pleased with the attitude of the full-time workers who accept us and aid us in proficiency," he added. "These men consider it a patriotic privilege as well as patriotic duty to be the man behind the man behind the gun."

Watson Elevator Co., Edgewater, N. J., was one of the first metalworking com-



Winchester Repeating Arms Co., New Haven, Conn., draws on Yale University students for the first half of its split shift. Store owners, salesmen and others whose regular jobs keep them employed until late in the day make up the second half of the shift. Company is manufacturing Garand rifles

panies in the East to adopt the split-shift system. The company, which normally employs about 400, converted to war work and required more employes as well as a flexibility in employment due to design changes inherent in war work.

Due to the latter cause the split-shift, drawing upon persons who already held steady jobs, settled the company's problem.

Watson officials established close relationship with the USES and with two New Jersey vocational schools. USES is constantly advised as to the number of split-shift workers required and in turn advises applicants as to the type of work, schedules, wage rates, and other details concerning the available jobs. Interested applicants then are referred to the company for possible training and employment.

Training course expenses are paid by the government. During the early stages, training courses usually ran about six weeks. No one was sent out to a job unless the training school officials were satisfied that he could meet requirements. As the program progressed and needs became clarified the average length of the training course was reduced to three weeks.

Watson and school officials found that much depended upon the education of

the trainee. For some there was no need for training in elementary mathematics; they were started off with instructions for reading blueprints, use of micrometers, and more advanced but fundamental types of training.

Watson set up a 12-hour shift from 8 p.m. to 8 a.m., with a six-hour split for each member of the team. All employes are men ranging from 35 to 50 years of age. They have been recruited from various vocations, law, real estate, teaching, business.

Practically no absenteeism has been noticed at Watson and split-shifters say the extra hours do not constitute a physical burden.

### Employment Not Steady

Split-shifters are informed by Watson that their employment may not be steady. This constitutes no particular hardship because the workers are not dependent on the half-shift jobs for their living. Watson officials also emphasize the importance of not letting the split-shift program get out of balance, that is, not employing too many split-shifters for the number of supervisors and trained mechanics.

The split-shift system has been applied rather extensively in labor-short Connecticut. Last autumn manpower

officials in Hartford were "scraping the bottom of the barrel" for skilled workers. The area had a heavy concentration of war orders with more to come. Thousands of new workers were hired; more thousands were required. Meanwhile, selective service continued to drain off large numbers of skilled employes.

Connecticut, home of many life insurance companies, had thousands of white collar employes who, though reluctant to give up the security of their desk jobs, were anxious to do their part in winning the war. They applied to USES offices, seeking employment in war plants. For a time they were given no encouragement.

Finally, an USES manager approached a large aircraft motor manufacturer. He said: "We have here hundreds of conscientious men and women. Many are skilled, some are engineers, all of them want to have a part in winning the war. They will be good workers." The aircraft motor manufacturer agreed to take on a number of the applicants on the half-shift basis. It worked out satisfactorily.

In nearby New Haven, the Winchester Arms plant, manufacturing Garand rifles, has taken on scores of half-shift employes. For the first turn, from 4 p.m. to 8, many Yale University students are employed; for the second half of the turn the plant draws on store owners, salesmen, professional people and housewives.

Contrary to other centers where the plan has been tried, Connecticut factories employ about one-third women as part-time employes.

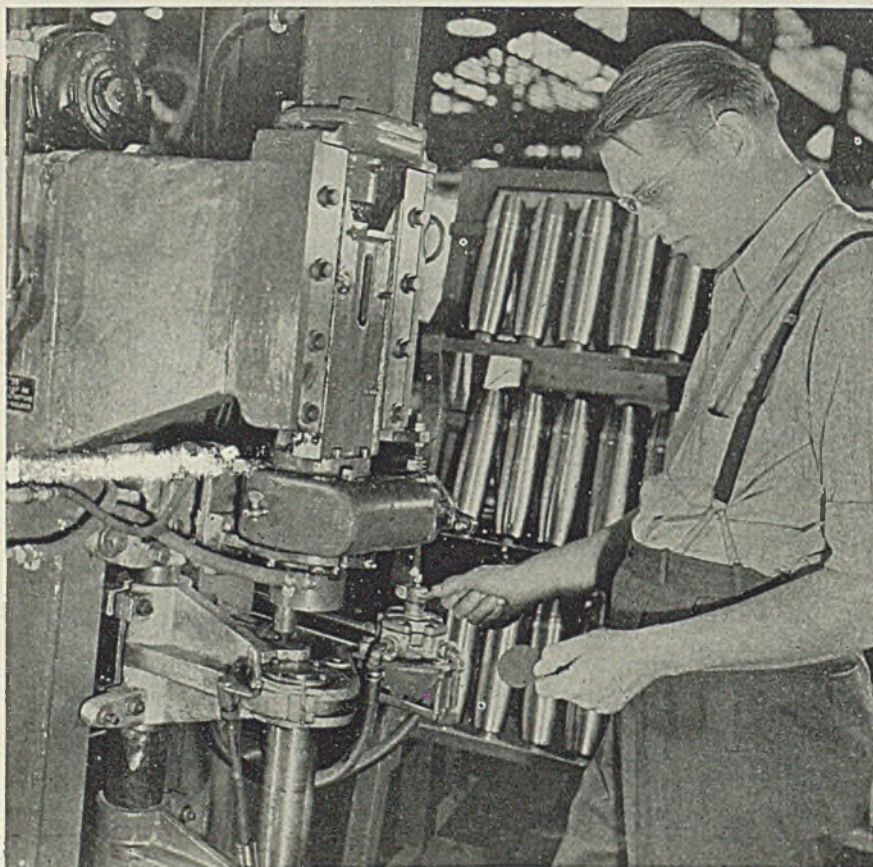
Connecticut half-shifters report they like the idea; and employers find it the best possible solution to an acute labor shortage.

## Only an "Idea" in Chicago District

### CHICAGO

The "half-shift" plan for expanding the manpower reservoir appears to be only an idea insofar as the Chicago industrial area is concerned. While many employers and others interested in the labor problem have some knowledge of the plan being utilized to good advantage in eastern sections of the country, few have a complete understanding of its mechanics or application.

Reason for this is that there is as yet no acute manpower shortage in Chicago and the adjacent midwestern area. Despite the fact that some of the nation's largest war plants have been constructed here, the supply of men to man them



White-collar worker welds a thin disk of steel on the base end of a 75-millimeter shell in an ordnance manufacturing plant



has thus far been adequate to meet demand. Several of the plants still are under construction, and the best informed sources feel that until they are completed and go into full operation—perhaps six months hence—the manpower situation will not become critical, if it does then.

Chicago, because of its size, offered a large potential reservoir of workers at the outset of the war effort. Despite depletions from men being called into the armed forces, the gaps have been filled quickly by men suffering dislocations in their former jobs in producing peace-time products, by men shifting from non-war to direct war work jobs, and by women stepping into industry for the first time. For example, many men, such as elevator operators in office buildings, are going into war plants, and this potential has been exhausted by no means. And neither has the supply of women been fully tapped

Furthermore, some war plants are employing fewer workers now than they did a year ago. This is a result of de-emphasis on certain items, such as ordnance, or changes in design which have involved retooling or revamping of production facilities. Workmen, so released, have migrated to other plants.

So, until present manpower supply becomes exhausted, or a near-critical stage is reached, it is not likely that the half-shift plan will receive serious consideration. It involves certain mechanical difficulties and drawbacks which employers are reluctant to confront until forced to do so. It is understood that the regional WMC advisory body has not given discussion to the half-shift idea in its approach to the local manpower problem. Likewise, it is apparent that other government agencies, such as the United States Employment Service, are not giving the plan consideration. In fact, it might be said they are unsympathetic, at least so far, to the few efforts which have been made to try out the half-shift. And it goes almost without saying that the attitude of labor unions is not conducive to adoption of the plan.

#### Attorneys Volunteer

Last fall, a group of attorneys, all members of the Chicago Bar Association, undertook to engage in war production work on a part-time basis, utilizing the half-shift plan. At the outset, the group numbered 480, which expanded to 600 as the organization was perfected. Many of these lawyers were already mechanically minded, either being technically trained, or were following such pursuits as hobbies, and all joined up in the movement with serious intent. They soon discovered, however, that industry was not yet prepared to under-

take the half-shift plan. Although they frequently received sympathetic audiences and interviews, they were unable to sell their idea and put it to work.

However, about 10 per cent of the group, or a total of about 60, did find war plant employment, but only on a full shift, or 8-hour, basis. In most cases, these lawyers work in plants on the second or third shift, which enables them to spend a few hours in their law offices each day to keep their practices established.

Spokesman for the group of attorneys, James P. Economos, states that at present about 280 members are pursuing training, in high school night classes,

trade schools, or other institutions, to prepare themselves for half-shift employment, if and when the plan is accepted. He asserts further that if the plan should go into use, his group would expand almost immediately to a total of 2000 available for employment, a reservoir which would represent the equivalent of 1000 men working full time. Mr. Economos pointed out that the policy of his group is to accept whatever labor conditions may prevail in shops which they enter. That is, half-shifters will join unions if that is a requirement for employment, for there is no desire to upset apperearts, or otherwise promote labor disharmony.

## Automotive Council Launches Manpower Utilization Study

DETROIT

IN AN effort to concentrate its managerial talents toward obtaining the most efficient use of manpower throughout the far-flung plants of the automotive industry, the Automotive Council for War Production, co-operative agency representing 400-odd plants in the industry,

has announced the organization of a manpower utilization division, headed by an 18-man executive committee.

Chairman of the committee is C. E. Wilson, president, General Motors Corp.; other top-ranking officials include:

W. F. Armstrong, vice president, Nash-Kelvinator Corp.

C. C. Carlton, vice president, Motor Wheel Corp.

George T. Christopher, president, Packard Motor Car Co.

W. J. Corbett, vice president, Sparks-Withington Co.

R. H. Daisley, vice president, Eaton Mfg. Co.  
Foster L. Fralick, vice president, Koestlin Tool & Die Corp.

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C. J. Reese, president, Continental Motors Corp.

W. Dean Robinson, vice president, Briggs Mfg. Co.

I. B. Swegles, vice president, Hudson Motor Car Co.

H. L. Weckler, vice president, Chrysler Corp.  
Ray Rausch, in charge of operations, Ford Motor Co.

Harold Vance, chairman, Studebaker Corp.

Mr. Wilson, at a press conference announcing the organization of the new activity, explained that the committee is essentially a fact-finding group which will attempt to analyze and correlate the knowledge of the broad cross section of industry it represents. Characterized as a "low-pressure activity," the committee's work will center on the compilation of factual data bearing on all phases of the manpower question, information which will point the way for subsequent action.

Up to this point, the automotive industry has not experienced any acute

### WORKERS' SERVICE STRIPES?



SERVICE bar pins similar to those worn by fighting men were suggested by Henry J. Kaiser as a means of combatting absenteeism in war plants. Appearing recently before the Senate committee investigating the war effort, the industrialist also proposed freezing union membership rolls for the duration. NEA photo

shortage of personnel, in fact is not even scraping the "bottom of the barrel" of available supply. But it is pointed out that with the national supply of manpower acutely strained by continued expansion of the armed forces and the heavy requirements of both industry and agriculture, it is only a question of time before the motor industry will be confronted



C. E. WILSON

Chairman, Automotive Council for War Production committee for manpower utilization

with major shortages in manpower, and it is to anticipate these eventualities that the new activity has been launched. It is likened to the council's similar co-operative activities in the fields of materials, machines and methods, where interchange of information among council companies has expedited war production.

On the immediate horizon for investigation are such subjects as absenteeism, training, housing and transportation, health and safety, employment of women workers, and the relation of employe attitude and morale to improved production. In short, all desirable methods, both inside and outside the plants, which assist the worker to increase output of war goods will be analyzed by specialists and transmitted to the industry as a whole.

One of the first specific tasks to be undertaken will be analysis of absenteeism, and before any causes and cures can be suggested it will be necessary to understand just exactly what is meant by absenteeism and how it can be expressed statistically to mean anything.

From the outset it is being recognized that men and women in plants cannot be handled like machines, that maximum co-operation of employes is dependent upon a minimum of restrictions. Of primary importance, also is the workman's attitude toward his job. Surveys taken in the Detroit district in recent weeks show that all workingmen are interested in turning out more production,

but are faced with many restraints, some of them real and some of them fancied. It will be a function of the new manpower committee to investigate this matter further to obtain factual information which may be of benefit to the industry.

Another knotty problem to study is how to absorb sudden cuts in production schedules without undue layoffs and the consequent disturbance to employe morale; likewise the upsetting effect of unanticipated materials shortages.

Opinion in Detroit is that much of the national agitation over absenteeism and other manpower problems is being magnified beyond reality and that in the concern over such troubles, the country is failing to appreciate the size of the production job which is being accomplished. In launching a detailed study of manpower utilization, the automotive industry is recognizing that problems in this field may become more critical as time goes on, and thus is attempting to be forehanded in meeting and solving them as they arise.

Prentiss M. Brown, OPA administrator, last week requested regional directors to form labor advisory committees to work with OPA officials in ironing out problems of price and rent control, rationing, and to handle future developments.

## Steel Corp. Shipments Set February Record

Finished steel shipments by the United States Steel Corp. in February were 1,691,592 net tons, an increase of 5599 tons over 1,685,992 tons in January. This was 75,000 tons greater than shipments in February, 1942, of 1,616,587 tons. The February total was the largest for that month in the history of the corporation.

For two months the total was 3,377,585 tons, compared with 3,355,480 tons in the corresponding portion of 1942 and the highest for this period in history.

(Inter-company shipments not included)

	Net Tons			
	1943	1942	1941	1940
Jan.	1,685,992	1,738,893	1,682,454	1,145,592
Feb.	1,691,592	1,616,587	1,518,451	1,009,256
Mar.	1,780,938	1,720,366	1,720,366	931,905
Apr.	1,758,894	1,687,674	1,687,674	907,904
May	1,834,127	1,745,295	1,745,295	1,084,057
June	1,774,068	1,668,637	1,668,637	1,209,684
July	1,765,749	1,666,667	1,666,667	1,296,887
Aug.	1,788,650	1,753,665	1,753,665	1,455,604
Sept.	1,703,570	1,664,227	1,664,227	1,392,838
Oct.	1,787,501	1,851,279	1,851,279	1,572,408
Nov.	1,665,545	1,624,186	1,624,186	1,425,352
Dec.	1,849,635	1,846,036	1,846,036	1,544,623
Total	21,064,157	20,458,937	20,458,937	14,976,110
Adjustment			*42,333	137,639
Total			20,416,604	15,013,749

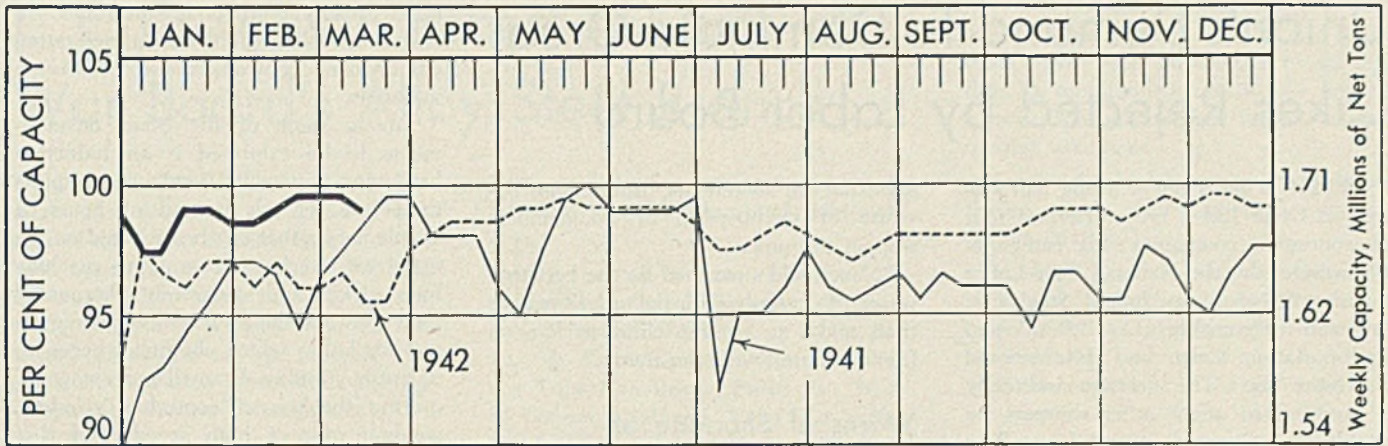
†Increase. \*Decrease.

## STEEL INGOT STATISTICS

	Open Hearth		Estimated Production—Bessemer		All Companies—Electric		Total		Calculated weekly production, all companies	Number of weeks in month
	Net tons	Per cent of capacity	Net tons	Per cent of capacity	Net tons	Per cent of capacity	Net tons	Per cent of capacity		
Based on Reports by Companies which in 1941 made 98.5% of the Open Hearth, 100% of the Bessemer and 87.8% of the Electric Ingot and Steel for Castings Production										
1943										
Jan.	6,563,317	97.5	478,058	85.9	367,369	94.9	7,408,744	96.6	1,672,403	4.43
Feb.	6,020,008	99.1	447,843	89.1	344,031	98.5	6,811,882	98.3	1,702,970	4.00
Based on Reports by Companies which in 1941 made 98.5% of the Open Hearth, 100% of the Bessemer and 87.8% of the Electric Ingot and Steel for Castings Production										
1942										
Jan.	6,328,128	95.4	490,864	86.0	305,930	96.3	7,124,922	94.7	1,608,335	4.43
Feb.	5,791,813	96.7	453,543	88.0	275,700	96.2	6,521,056	96.0	1,630,264	4.00
Mar.	6,574,701	99.1	493,294	86.4	324,916	102.3	7,392,911	98.2	1,668,829	4.43
1st qtr	18,694,642	97.0	1,437,701	86.7	906,546	98.3	21,038,889	96.3	1,635,994	12.86
April	6,346,707	98.8	454,583	82.2	321,023	104.4	7,122,313	97.7	1,660,213	4.29
May	6,600,376	99.5	454,054	79.5	332,460	104.7	7,386,890	98.2	1,667,470	4.43
June	6,247,302	97.2	452,518	81.8	322,335	104.8	7,022,155	96.4	1,636,866	4.29
2nd qtr	19,194,385	98.5	1,361,155	81.2	975,818	104.6	21,531,358	97.4	1,654,985	13.01
1st half	37,889,027	97.8	2,798,856	83.9	1,882,364	101.5	42,570,247	96.9	1,645,545	25.87
July	6,350,047	95.7	453,684	79.6	345,093	96.3	7,148,824	94.5	1,617,381	4.47
Aug.	6,420,496	96.6	467,313	81.8	345,642	96.3	7,233,451	95.4	1,632,833	4.44
Sept.	6,297,201	98.0	437,950	79.4	331,933	95.7	7,067,084	96.5	1,631,188	4.28
3rd qtr	19,067,744	96.8	1,358,947	80.3	1,022,688	96.1	21,449,359	95.5	1,633,615	13.13
9 mos.	56,956,771	97.4	4,157,803	82.7	2,905,032	99.5	64,019,606	96.4	1,641,528	39.00
Oct.	6,757,696	101.6	461,895	80.9	365,273	101.7	7,584,864	100.1	1,712,159	4.43
Nov.	6,378,661	99.1	458,426	82.9	347,473	99.9	7,184,560	97.9	1,674,723	4.29
Dec.	6,471,465	97.6	475,124	83.4	356,590	99.5	7,303,179	96.6	1,632,303	4.42
4th qtr	19,607,822	99.4	1,395,455	82.4	1,069,336	100.4	22,072,603	98.2	1,679,802	13.14
2nd hlf	38,675,566	98.1	2,754,392	81.3	2,092,004	98.3	43,521,962	96.8	1,656,717	26.27
Total.	76,564,593	97.9	5,553,248	82.6	3,974,368	99.8	86,092,209	96.9	1,651,174	52.14

The percentages of capacity operated in the first six months of 1942 are calculated on weekly capacities of 1,498,029 net tons open hearth, 128,911 net tons bessemer and 71,682 net tons electric ingots and steel for castings, total 1,698,622 net tons; based on annual capacities as of Jan. 1, 1942 as follows: Open hearth 78,107,260 net tons, bessemer 6,721,400 net tons, electric 3,737,510 net tons. Beginning July 1, 1942, the percentages of capacity operated are calculated on weekly capacities of 1,590,714 net tons open hearth, 128,911 net tons bessemer and 81,049 net tons electric ingots and steel for castings, total 1,710,674 net tons; based on annual capacities as follows: Open hearth 78,247,230 net tons, bessemer 6,721,400 net tons, electric 4,225,890 net tons.

Percentages of capacity for 1943 are calculated on weekly capacities of 1,518,621 net tons; open-hearth, 125,681 tons bessemer and 87,360 tons electric ingots and steel for castings, total 1,731,662 net tons; based on annual capacities as of Jan. 1, 1943, as follows: Open-hearth 79,180,880 net tons, bessemer 6,553,000 net tons, electric 4,534,980 net tons.



STEEL INGOT PRODUCTION BY MONTHS

	Net Tons, 000 omitted											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943	7,408	6,811										
1942	7,124	6,521	7,392	7,122	7,386	7,022	7,148	7,233	7,067	7,584	7,184	7,303
1941	6,922	6,230	7,124	6,754	7,044	6,792	6,812	6,997	6,811	7,236	6,960	7,150

PIG IRON PRODUCTION

1943	5,194											
1942	4,983	4,500	5,055	4,896	5,073	4,935	5,051	5,009	4,937	5,236	5,083	5,201
1941	4,666	4,206	4,702	4,340	4,596	4,551	4,766	4,784	4,721	4,860	4,707	5,014

## February Second in Weekly Ingot Rate

Only shortness of the month prevented the steel industry from making February the second largest month on record in steel production. An average of 1,720,970 net tons of steel ingots was produced per week in February, exceeded only in October, 1942, with 1,712,159 tons weekly average, the American Iron and Steel Institute reports.

Total production for the month was 6,811,882 tons, compared with 7,408,744 tons in January but substantially above 6,521,056 tons made in February, 1942. Average weekly production in January was 1,672,403 tons and in February, 1942, it was 1,630,264 tons.

During February the industry operated at an average of 98.3 per cent of capacity as of Jan. 1, 1943. In January the average was 96.6 per cent. In February last year the average was 96.0 per cent of the capacity then available.

## Plate Production Sets New Daily Record in February

Steel plate production during February reached a new high daily rate, Hiland G. Batcheller, WPB Steel Division Director, has announced.

Average daily shipments in February were 38,285 net tons, while shipments for the month totaled 1,072,001 tons. This compares with a daily rate of 36,626 tons and a total of 1,135,413 tons in January, a longer month. Shipments in

## DISTRICT STEEL RATES

Percentage of Ingot Capacity Engaged in Leading Districts

	Week ended Mar. 13	Change	Same week 1942	1941
Pittsburgh	100	+1	95	100.5
Chicago	101	None	103	99
Eastern Pa.	95	None	88	96
Youngstown	97	None	94	97
Wheeling	84.5	None	81.5	88
Cleveland	92.5	None	91	98
Buffalo	90.5	-2.5	79.5	90.5
Birmingham	100	None	95	90
New England	95	None	95	92
Cincinnati	85	-6	80	89
St. Louis	88	-3	83.5	93
Detroit	91	None	87	93
Average	99	-0.5	95.5	98.5

\*Computed on bases of steelmaking capacity as of those dates.

February, 1942, totaled 758,723 tons.

Schedules of plate mills indicate a new all-time record tonnage for March, thus keeping pace with the increased rate of shipbuilding operations and with other essential demands for plates.

## Approves Longer Work-Week for Mills Rolling Bars from Rails

Mills rolling steel bars from old rails may exceed the 40-hour week schedule to provide more steel for farm equipment, Director Batcheller, WPB's Steel Division, announced last week. These mills had been held to 40 hours to balance tonnage equitably. Re-rolling mills continue to operate less than 40 hours per week despite the fact there are no limits on reinforcing bars. Those on schedule above 40 hours have specific quotas.

## Ingot Rate 99 Per Cent, Off ½-Point

Production of open-hearth, bessemer and electric furnace ingots last week was at 99 per cent of capacity, down ½-point from the prior week. One district advanced, three declined and eight were unchanged. A year ago the rate was 95½ per cent; two years ago it was 98½ per cent, both computed on capacity as of those dates. Pittsburgh rose 1 point to 100 per cent, the first time it had touched that level since Aug. 30, 1941. Buffalo, Cincinnati and St. Louis made slight declines, all on account of need for open-hearth repairs.

## Book Record Number of Industrial Trucks in '42

Domestic bookings of electric industrial trucks and tractors rose to a record total of 5103 units in 1942, with combined value of \$21,881,510, according to the Industrial Truck Statistical Association, Chicago.

Included were 245 non-elevating platform trucks valued at \$569,962; 3735 cantilever trucks with total net value of \$15,556,994; 272 light and heavy-duty tractors worth \$500,027; 793 crane trucks with net value of \$4,969,851, and 58 special trucks worth \$284,677. Bookings in December increased to 591 from an all-year low of 188 in November. Peak month of 1942 was May when 760 units were booked.

# Union's Demand To Dominate Great Lakes Rejected by Labor Board

DEMAND for a union hiring hall system on Great Lakes ore carriers of four transportation companies was categorically rejected by the National War Labor Board. Affected are Inland Steel Co., Interstate Steamship Co., Bethlehem Transportation Corp. and International Harvester Co. The decision indirectly is expected to affect other shippers by establishing a precedent and forestalling similar demands on them by the National Maritime Union.

Clarence B. Randall, Inland Steel vice president, lauded the board's decision as wise, but confessed at the same time that "the text of the order leaves the subject in confusion."

Mr. Randall said, "We are ordered to maintain a certain percentage of union men," which he held was discrimination and a violation of the Wagner act because, in order to maintain that "certain percentage of union men" it is necessary to ask a man if he belongs to a union. In certain cases union men would be discriminated against; in others, nonunion men.

He stressed what he termed a "contradiction" to this in another part of the text which "expressly says that we should not discriminate because of membership or nonmembership in the union."

Mr. Randall's statement:

"The War Labor Board has categorically rejected the demand of the National Maritime Union for setting up the union hiring hall on the Great Lakes.

"To this extent the decision is wise. Those who believe in private management under the American system will be cheered at this news.

"Whether or not wages should be increased is solely a question of national policy in the time of war, but there could be no two opinions about the hiring hall with its rotary system of employment which would deny the captain the right to select crews on merit and grant promotion on merit.

"But I must confess that the text of the order leaves the subject in confusion.

"On the one hand we are ordered to maintain a certain percentage of union men. This is discrimination. It violates the Wagner act, and it violates the pledge which the President gave to the nation that no man would have to join a union to get a job.

"And the order itself is contradictory, because in another paragraph it expressly

says that we should not discriminate because of membership or nonmembership in the union.

"Nevertheless we shall do the best that we can to comply with the order, and we shall make an earnest effort to live on friendly terms with the union."

## Warns of Shortage of Inland Waterway Sailors

Warning that the tightening labor situation in inland waterway transportation threatens to become critical soon because of proposed oil transportation over lake and inland routes, Otto S. Beyer, director, Division of Transport Personnel, Office of Defense Transportation has appealed to men in nonessential occupations who have actual sailing experience to accept employment in some essential water transportation activity.

## WPB Orders Free Movement of Coal, Grain on Great Lakes

War Production Board last week ordered temporary suspension of preferential treatment of ore cargoes to permit a free movement of coal and grain on the Great Lakes before the heavy 1943 ore traffic begins.

Earliest ore shipping possible is believed to be about April 1 and the opening may be postponed further by continued cold weather. A 7 per cent increase in tonnage is anticipated over the 1942 ore traffic because of improved shipping facilities. About 95,000,000 gross tons is tentatively set for this season's movement.

## MEETINGS

### Production Shortcuts To Be Revealed at Milwaukee

An entirely new process for assembling aircraft structures figures prominently among the new developments to be revealed at the Machine and Tool Progress exhibition scheduled to be held at Milwaukee concurrently with the national meeting of the American Society of Tool Engineers March 25 through 27.

The process, it is understood, is neither welding nor brazing, but a combination of the two. It works through induction heating, it is said, and requires less skill than either conventional welding or riveting.

Main purpose of the exhibition is to

assist manufacturing organizations in current retooling problems, in facilitating employment of women and conserving materials.

Among some of the other developments to be exhibited is an induction hardening unit which hardens steel parts in a few seconds instead of hours; a simple fixture that can be mounted on the magnetic chuck of a grinding machine for quickly and accurately sharpening tools for automatic screw machines; a tool for lathes which eliminates necessity of finish grinding of small parts now requiring the use of centerless grinders; welding rods of high speed steel that serve to repair broken cutting tools; inspection devices which permit measuring surface finish even in holes as small as  $\frac{1}{16}$  of an inch in diameter and a new optical comparator which quickens the checking of precision parts.

Other developments to be witnessed at the national meeting include new lathes, refined vises, grinders, lubricants, educational films and other delicate instruments used in conjunction with precision work.

## Rounds Out Program for Open-Hearth Conference

"Sustained Production of Quality Pig Iron and Steels for Victory" will be the theme of the National Open-Hearth Conference, Hotel Statler, Cleveland, April 29-30. The tentative program follows:

### Thursday Morning, April 29

Chairman: G. Reinhardt, Youngstown Sheet & Tube Co.

Topics: Personnel Problems, with accent on absenteeism and safety.

### Thursday Afternoon

#### Refractories Session

Chairman: John Golden, Carnegie-Illinois Steel Corp.

Topics: Keeping Open-Hearth Bottoms in Condition, The Basic Roof, Furnace Maintenance, Hot Topping Steel.

#### Operations Session

Topics: How to Maintain Equipment During Full Operations, Control of Flush-Off Slags, How to Bottom-Pour on Ingot Cars, Present Status of Automatic and Other Control Equipment, Effects of Substitute Fuels on Rate of Production, Steel Cinder Pots, Handling Big Chunks of Scrap, Diesel and Oil Electric Diesel Engines Used in the Open-Hearth Shop, Use of Bessemer Blown Metal in the Open-Hearth Furnace, Use of Cupolas in Open-Hearth and Electric Furnace Practice and Maintenance of Hot Metal Mixers.

### Friday Morning, April 30

#### Raw Materials Session

Chairman: Harry Walther, Timken Roller Bearing Co.

Topics: Use of Steel Turnings in Open-Hearth and Electric Furnace, Standard Marking of Alloy Scrap, Use of Detinned Scrap, Cleaning of No. 2 Heavy Melting Scrap, Limestone versus Burnt Lime, Use of High Percentages of Hot Metal, Use of Spar, Progress in Reduction of Use of Aluminum and Ferromanganese, Reclamation of Scrap from Dumps, and Future Prospects of Scrap Collection.

### Friday Afternoon

#### Steel Quality Session

Topics: Report on open-hearth fellowship by Drs. Chipman and Fitterer. A symposium on the manufacture of NE steels, cause of flaking of NE steels, alloying effect of Boron, manufacture of cartridge steel, handling of sensitive or air-hardening steels, and use of natural graphite in runners as a recarburizer.

# L. E. Creighton Becomes Chief of War Board's Alloy Steel Branch

LOUIS E. CREIGHTON, Detroit, formerly vice president and general manager of the Rotary Electric Steel Co., has been appointed chief of the WPB Steel Division's Alloy Steel Branch. He succeeds William J. Priestly who has resigned to return to his post as vice president in charge of research and development, Electro Metallurgical Co., New York.

Mr. Creighton has been serving as chief of the recently created Aircraft Alloy Steel Section. He will continue to handle this section for the present.

Before joining WPB, Mr. Creighton had many years of experience as a production executive with the Union Drawn Steel Co. and Republic Steel Corp. From 1939 to 1940, he was manager of Republic's carbon bar division.

Steel Division Director H. G. Batchelder has appointed Robert W. Wolcott, president, Lukens Steel Co., Coatesville, Pa., as a special assistant to handle problems of procurement, allocation, and use of iron and steel scrap.

WPB Chairman Donald M. Nelson, on the recommendation of Col. Robert W. Johnson, chairman, Smaller War Plants Corp., has appointed J. A. R. Moseley, Dallas, Tex., as a director of the corporation. Mr. Moseley, who has had several years experience as a small manufacturer of airplane parts in Texas, has been serving as WPB regional financial manager at Dallas. He fills the vacancy on the SWPC created by the resignation of William E. Shipley.

John F. Fennelly has been appointed director of the WPB Program Bureau. Mr. Fennelly will continue to serve as vice chairman of the Requirements Committee and chairman of the Program Adjustment Committee. Mr. Fennelly replaces Donald D. Davis, who was recently named WPB vice chairman for operations.

John Hamm, senior deputy administrator of OPA, has resigned, effective July 1.

## Steel Tubing Committee Organized by Price Office

Ten executives in the steel tubing industry have been invited by Price Administrator Prentiss M. Brown to serve on a Steel Tubing Advisory Committee to counsel with OPA on pricing problems of the industry.

Committee will consider present and future problems arising in connection

with steel tubing under revised price schedule No. 6 on iron and steel products.

Those invited to serve: J. Ireland, Republic Steel Corp., Cleveland; R. Lawson, Summerill Tubing Co., Bridgeport, Pa.; E. A. Livingston, Babcock & Wilcox Tube Co., Beaver Falls, Pa.; W. F. McConnor, National Tube Co., Pittsburgh; Wm. A. McHattie, Michigan Seamless Tube Co., South Lyon, Mich.; Charles E. Miller, Michigan Steel Tube Products Co., Detroit; W. B. Moore, Timken Roller Bearing Co., Canton, O.; F. J. O'Brien, Globe Steel Tubes Co., Milwaukee; H. E. Van Huffel, Van Huffel Tube Corp., Warren, O.; Aaron Waines, Ohio Seamless Tube Co., Shelby, O.

## Truman Committee Charges War Contractors Hoarded Labor

The Senate's Truman Committee investigating the war program charged last week in its second annual report of more than 200 pages that some war contractors "have hoarded labor and pyramided costs".

The report, critical of the war effort but not disparaging of what has been accomplished, also declared that many large corporations which obtained the bulk of war contracts were "slow to spread subcontracts among smaller concerns".

The committee claims three weaknesses responsible for nearly all failures: 1. Delay in determining basic policies and conflicting authority resulted in "buck passing"; Inadequate overall planning with government agencies; 3. Hesitancy of government to adopt unpleasant policies long after facts clearly indicated such policies were necessary.

## Use of CMP Allotments of Aluminum Clarified by WPB

Companies receiving CMP allotments of aluminum are authorized to use the metal for a specified group of end-products by order M-1-I as amended.

Aluminum may be used for the purposes listed in the revised order without further authorization. Use of aluminum for any other purpose must have special authorization in addition to the receipt of an allotment.

Delivery of aluminum for April against CMP orders in many cases has been authorized prior to obtaining end

use information. Furthermore, in respect to class B products, mills and foundries have been authorized to fill orders for aluminum up to 30 per cent of a manufacturer's request for his second quarter allotment.

Amended M-1-I order establishes these controls, which are to become effective March 31:

1. High-grade aluminum may be used, without application for permission, only for certain specific purposes, among them combat end items, aircraft, alloys with other metals, and for additional listed purposes.

2. In a separate list of items, only low-grade aluminum may be used. Further, low-grade aluminum is permitted only for items on this list and in items for which high-grade aluminum is permitted.

3. Persons desiring specific permission to use aluminum for purposes not otherwise authorized by the order must apply by letter to the aluminum and magnesium division giving full details of the projected use and the CMP allotment number, if any.

## New Schedules for Machine Tool Deliveries Established

A new method of scheduling machine tool deliveries is established by General Preference Order E-1-b as amended by the War Production Board.

The amended order outlines the method in technical detail; its changes are confined to the scheduling of deliveries on purchase orders from "service purchasers" as defined in the order.

Seventy-five per cent of the total production of machine tools is set apart for delivery to service purchasers as in the original order. Seven service groups are named. Each service group's quota is arrived at on the basis of the ratio of each group's backlog of purchase orders to the total backlog for all service groups.

Backlogs are measured at certain specified dates; and purchase orders cannot be considered unless they bear preference ratings of A-10 or higher.

Under the amended order deliveries of machine tools are determined on the basis of backlogs, of urgency standing of each contractor and of required delivery dates of orders for specified sizes and types.

The term "machine tools" means any non-portable, power driven, metal working machine named on List A attached to the order. Existing schedules are frozen until May 1, 1943; the new provisions only affect deliveries after that date.

## Progress Not Satisfactory, Says SWPC, Appealing to War Agencies

FAILURE of some war procurement agencies to "sell" subcontracting in the greatest volume practicable to their prime contractors was the subject of identical letters recently addressed by Col. Robert W. Johnson, chairman, Smaller War Plants Corp., to the secretaries of War, Navy, the chairman of the Maritime Commission and director of Treasury Procurement. Attached to the letter was a list of 252 large corporations "which have the preponderance of war contracts to date", with the dollar volume of contracts they hold.

Colonel Johnson reminded the services that, under the provisions of the Smaller War Plants Act, it was his duty to take "appropriate action to bring about subcontracting upon fair and equitable terms in the greatest volume practicable." He referred to a memorandum dated Dec. 15, 1942, signed jointly by Under Secretaries Patterson and Forrestal and Chairman Nelson which was sent to prime contractors urging an extension of subcontracting. "Field reports", he added "fail to indicate any effective response".

"In order to carry out the Congressional mandate, we must know how effective subcontracting methods are," Colonel Johnson's letter stated. It went on to request a report to the Smaller War Plants Corp. which will show, as of March 1, 1943, for the corporations listed: (a) the number and dollar value of prime and subcontracts; (b) the methods being used by the corporations to increase subcontracting, and (c) methods used to insure that subcontracting is being done on a fair and equitable basis.

"I am well aware some of the services have succeeded in getting prime contractors to spread the work and that some contractors have set up adequate reporting systems so that the information requested will be readily obtainable," the letter said. "However, I feel certain others have not accomplished this so effectively."

Colonel Johnson closed the letter with the request that the report be furnished to SWPC not later than April 7, 1943, "in order to incorporate this information in the next report to Congress," which must be delivered by April 11 according to the provisions of the Smaller War Plants Act requiring a bimonthly report.

Preference ratings on projects totaling \$18,656,613 were revoked during the

week ended March 5, the War Production Board announced last week. Construction was curtailed on school facilities, communications, and petroleum products because they were not directly related to the war effort.

Total cost of projects halted since Oct. 23, 1942, is \$1,325,009,008. The action was ordered by the Facility Review Committee.

### ODT Appeals to Shippers for Co-operation in Cleaning Cars

In an effort to speed up movement of war materials and more fully utilize existing freight cars, Joseph B. Eastman, director of Defense Transportation, appealed last week through a letter to shippers to remove dunnage, nails, strapping, and other debris from cars in order to permit immediate reloading.

The nation-wide appeal was made to the Regional Transportation Advisory Committees, ODT, in major cities. Mr. Eastman paid tribute to the work done by the Shippers Advisory Boards and other shippers' organizations but he pointed out that there are opportunities for further co-operation in the conservation program.

A recent survey reveals that as many as 20,000 cars are handled over the cleaning tracks in one month. Mr. Eastman said that the practice of leaving cars unfit for loading is inconsistent with the effort to conserve equipment since it takes from three to five days for a freight car to be placed back into industrial use.

### Produced Shells at Rate of 50-a-Minute in February

America produced 1,932,000 high explosive shells of all calibers in February, according to the War Department. This is at a rate of 50 shells a minute, day and night, for the 28 days. In the same period shops and arsenals produced 419,000 bombs in all sizes up to block busters, enough to drop 15,000 a night on enemy ships and cities. The U. S. made 8000 cannon for aircraft and 2000 anti-aircraft guns.

Industry hung up a new record for small arms ammunition last month with a total of 1,244,000,000 cartridges in calibers .30, .45 and .50. This is at a rate of more than 500 cartridges a second for every second in the month. In Jan-

uary and February shops produced 150,000 machine guns and 134,000 sub-machine guns, against 132,000 machine guns of all calibers in all of the World War. In these months 5000 tanks, over 28,000 army trucks, 2000 anti-tank guns and 5,000,000 pairs of marching shoes were turned out. In February alone 7800 weapon-bearing combat vehicles were manufactured.

### 1,239,200 Tons of Merchant Ships Delivered in February

Surpassing all previous ship construction records, American shipyards during February delivered into service 130 new ships totaling approximately 1,239,200 deadweight tons. This brings the total number of vessels constructed thus far in 1943 to 233, totaling 2,247,600 deadweight tons. Number of ships delivered during January and February exceeds the number delivered during the first six months of 1942.

Of the 130 ships delivered, 81 were Liberty ships, 15 C-type cargo, nine tankers, 23 special types, one concrete barge and one coastal cargo ship.

West Coast yards still maintained the lead in the production of deadweight tonnage, delivering 52 per cent of the country's February production. East Coast yards accounted for 36 per cent, while the Gulf and the Great Lakes contributed 11 per cent and 23 per cent respectively.

### Suggests Retreading Floor Plates To Save Steel, Time

Suggestion that floor plates, machine pedals and similar non-slip steel surfaces be retreaded by welding instead of being replaced when the tread wears off has been commended by the War Production Board. The proposal was advanced by F. Honerkamp, Anemostat Corp. of America, New York.

Mr. Honerkamp pointed out that many tons of steel and many man-hours of labor could be saved if the non-skid projections were arc-welded to present plates. A welding electrode of mild impact and heavy abrasion quality "should fill the bill in every way."

Howard Coonley, director, WPB Conservation Division, said the suggestion should have many practical applications immediately. Present indicated supply situation in welding electrodes justifies such use, according to WPB officials.

Largest number of steel erecting cranes and crews ever brought together on one construction project are being assembled at the \$150,000,000 Geneva steel plant near Provo, Utah, the Columbia Steel Co., U. S. Steel subsidiary, reports.

# PRIORITIES-ALLOCATIONS-PRICES

Weekly summary of orders and regulations issued by WPB and OPA, supplementary to Priorities-Allocations-Prices Guide as published in Section II of STEEL, Dec. 14, 1942

## E ORDERS

**E-9:** Precision Measuring Instruments, Testing Machines, effective March 10. Restricts sales of specified precision measuring instruments and testing machines to orders assigned ratings of A-1-a or higher by specified certificates. The order covers balancing machines, bench centers, comparators, gaging machines and other types of devices listed in Schedule A having a retail price of \$200 or more. Freezes delivery schedules for 60 days prior to scheduled delivery unless otherwise directed by WPB. Supersedes E-5 and E-1-b with respect to items named in Schedule A.

**E-1-b (Amendment):** Machine Tools, issued March 10. Sets up new method of scheduling machine tool deliveries; freezes existing schedules until May 1. Provides that 75 per cent of total production of machine tools be set apart for delivery to specified service purchasers. Deliveries are determined on basis of backlogs, of urgency of standing of each contractor and of required delivery dates of orders for specified sizes and types.

## L ORDERS

**L-42 (Amendment):** Plumbing and Heating Products, effective March 3. Permits wider use of gray cast iron and malleable iron in pipe flanges. Lists sizes of pipe flanges in which gray cast or malleable iron is permitted. Allows malleable-iron screwed flanges, blind flanges, reducing screwed flanges, and lap-joint flanges in the pipe sizes listed. Permits gray cast lap-joint flanges in additional pipe sizes.

**L-23-b (Amendment):** Domestic Cooking Appliances, effective March 6. Requires clearance through WPB on form PD-556 of transfer of new electric ranges remaining in the stocks of manufacturers and distributors. Sets up new procedure for consumers' procurement of repair parts. Limits production of parts to those listed in the order, including heating units, thermostats, switches, relays, lead-in-wires, connecting wires, handles and hinges. Completely bans production of domestic electric ranges, including that to fill previously eligible high ratings.

**L-64 (Amendment):** Burial Equipment, effective March 3. Restricts use of metal in production of caskets and burial vaults to three pounds per unit. Limits use of iron and steel for reinforcing in concrete vaults to 15 pounds in vault of six or more sections; 10 pounds in those of less than six sections. Requires certification when purchasing metal liners to meet government or Army-Navy requirements.

**L-106 (Amendment):** Copper Use in Motor Vehicles, effective March 10. Prohibits use of copper and copper-base alloy products in manufacture of automotive parts, including replacement parts, except 15 specified items, and then only to extent indicated. Provisions and restrictions do not apply to parts produced for the Army or Navy where specifications of the prime contract call for the use of copper or copper-base alloy products.

**L-154 (Amendment):** Power, Steam and Water Auxiliary Equipment, effective March 1. Revokes Schedule III which restricted use of metals in manufacture of feed water heaters. Control now exercised through provisions of order L-172.

**L-170 (Amendment):** Farm Machinery, effective March 6. Permits production of slightly less than double the amount of farm machinery allowed under original terms of the order. Excludes water storage tanks from all limitations of L-170 as amended.

**L-254:** Air-Cooled Engines, effective March 15. Limits number of engine models which will be produced and establishes stand-

ardization and simplification practices. Prohibits manufacture or assembly of any air-cooled engines not listed in schedule A attached to the order. Exempts engines for aircraft and motorcycle propulsion as well as the following: completion of contracts entered into prior to March 15; use of parts which are processed to a point where other use is impracticable; manufacture of engine parts for repair and maintenance.

## M ORDERS

**M-9-a (Amendment):** Copper, effective March 4. Places control of warehouse sales of brass and wire mill products entirely under CMP Regulation No. 4. Warehouses are permitted to fill authorized controlled materials orders, or orders bearing preference ratings of AA-5 or higher for 500 pounds or less of any item to any one destination at any one time. No more than 2000 pounds of any one item may be delivered to a customer during a calendar month.

**M-21-b (Amendment):** Iron and Steel Warehouses, effective March 6. Permits those warehouses which were unable to maintain inventories because of inadequate receipts during 1942 to accept deliveries of any product classification until March 31, provided that the deliveries in excess of quotas do not exceed the deficiency on all product classifications for 1942. Defines "minimum carload" as one weighing not less than 40,000 pounds. Increases plate quotas from 100 per cent to 135 per cent of the base tonnage in the states of California, Oregon, and Washington; from 100 per cent to 125 per cent in all other states. Eliminates from the order quotas for wire rods. Permits warehouses purchasing "seconds" to obtain their quotas from any producer.

**M-39 (Amendment):** Cobalt, effective March 9. Places cobalt on a straight allocation basis, delivery being permitted only on specific WPB authorization. Persons desiring an allocation must file PD-581 and 582, as revised, with WPB. Exempts deliveries of 25 pounds of contained cobalt to any one person in any one month and deliveries of any amount to subsidiaries of the Reconstruction Finance Corp.

**M-112 (Amendment):** Antimony, effective March 8. Removes limitations on use of antimony in production of automotive batteries and alloys. Permits unallocated deliveries to individual customers up to a total of 2240 pounds, or one long ton, in each monthly period. Eliminates ban on use of antimony for manufacture of white pigments, opacifiers, or frits for non-acid-resisting ceramic enamels.

**M-227 (Amendment):** Copper Chemicals, effective March 5. Places allocations of copper chemicals on a quarterly instead of a monthly basis. Application for authorization to accept delivery of copper chemicals must be filed on form PD-600. Application for authorization to make delivery must be filed on PD-601 by the tenth of the last month preceding the quarter in which delivery is planned.

**M-9-b (Amendment):** Copper and Copper-Base Alloy Scrap, effective March 10. Prohibits dealers accepting copper material as scrap from disposing of it in any other form except with specific permission of WPB.

## PRICE REGULATIONS

**No. 125 (Amendment):** Nonferrous Castings, effective March 1. Postpones to April 1 the date on which nonferrous casting sellers must stop billing purchasers at higher prices specified in earlier contracts.

**No. 244 (Amendment):** Gray Iron Castings, effective March 13. Specifies following con-

ditions under which a seller of gray iron castings may apply for adjustment of his maximum prices for castings. He must be prepared to show that his maximum prices for the castings are below their production costs, or are inadequate to justify their continued production; and that castings are necessary to the war effort; and either that the seller has entered into or proposes to enter into government contracts or subcontracts under government contracts for sale of the castings; or that unless adjustment is granted he will stop or will refuse to undertake production of the castings, and that as a result the purchaser would be handicapped in his operations for certain specific reasons.

## CMP REGULATIONS

**No. 4 (Wire Mill Direction No. 1),** issued March 8. Enables warehouses distributing brass and wire products to make certain sales in commercial units weighing more than 500 pounds. Following deliveries in excess of 500 pounds of any item, to any one destination, at any one time may be made prior to April 1: wire and cable, sizes 4/0 and larger in full reels not exceeding 1000 feet each; condenser tubes; a single straight length of rod, tube, pipe, sheet or strip; welding rod. Orders for any of the foregoing must be accompanied by, or endorsed with, the appropriate form of certification, and the 2000 pound quarterly limitation on deliveries will continue in effect. Warehouses may apply to WPB for authority to make, and for the purchaser to accept, deliveries of other brass and wire mill products in quantities exceeding those listed in CMP No. 4.

**No. 7—Optional Form of Certification,** issued March 2. Provides single standard form of certification which may be used to validate any delivery under the Controlled Materials Plan.

## More Restrictions Placed on Casket, Vault Manufacture

New restrictions on sizes and designs of caskets and burial vaults, have been ordered by WPB. Restrictions will reduce the use of metal from 4 to 3 pounds per unit and result in an additional annual saving of 675 tons of iron and steel.

Use of iron and steel for reinforcing in concrete vaults, prohibited as of Dec. 30, is again permitted on a restricted basis until April 30. Restrictions limit such use to 15 pounds in a concrete vault of six or more sections, and 10 pounds in those of less than six sections.

Restrictions against the use of metal liners are continued with the additional provision that certification is required when purchasing metal liners to meet government or Army-Navy requirements.

Through its present provisions, L-64 is affecting a total annual saving in critical metals of 67,000 tons of iron and steel, 800 tons of zinc, 650 tons of copper and 1700 tons of antimonial lead.

War Production Board stated last week that it had seized approximately 600,000 pounds of nonferrous metal, mainly copper scrap, from A. B. Alpinn Co., Omaha, Nebr. The supply is believed one of the largest copper scrap concentrations in the country.

# WINDOWS of WASHINGTON

*Bibliography of helpful postwar planning literature presented by National Planning Association outlines methods by which government may create and maintain full employment and high productivity*

NEXT to the problem of winning the war the most important has to do with postwar economy. Two important questions most individuals are asking are: "Will I be in business after the war?" and "Will I have a job after the war?" Hence this department, over the past seven weeks, has been given over to a summation and analysis of the main feature or postwar planning which, as previously has been made plain, is aimed at creating and maintaining full employment and high productivity, and also at prevention of alternate booms and depressions.

It is important that business men and men in industry familiarize themselves with ideas advanced by planners. Many business men who have heard radio broadcasts and read newspaper and magazine articles have the impression that much of the planning is of an impractical, dreamy character. Careful study of the blueprint, however, reveals that it has a vast amount of merit. It should receive the thorough attention it deserves—for everybody involved freely admits that if we do go into the postwar period without plans, we will be inviting economic chaos.

## Each Item Described

So its readers may conveniently select postwar planning literature of particular interest to them STEEL, herewith, sets forth a bibliography on postwar planning. As will be seen, an attempt has been made to describe each item sufficiently to enable the reader to get a good idea of the nature of the subject matter. The bibliography was prepared by the National Planning Association, to which STEEL acknowledges its indebtedness.

Many readers who have followed this discussion over the past seven weeks have asked questions that indicate their doubts as to the complete practicality of the overall postwar planning as so far developed. In particular, they have questioned the possibility of utilizing private industry merely for full employment and high productivity while at the same time it must operate within a rigid framework of fixed prices and fixed wages and of severe profit limitations. It appears true that postwar plans as now formulated are weak in these important phases. The apparent weakness of the blueprint will be discussed here in next week's issue.

## SELECTED BIBLIOGRAPHY ON POSTWAR PLANNING

A Sampling of Books, Pamphlets, Magazine and Newspaper Articles by National Planning Association, Washington

(Unless otherwise specified, each government publication for which there is a charge may be obtained from the Superintendent of Documents, Washington. Free publications should be ordered directly from each issuing office.)

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**A SPECIAL REPORT TO INDUSTRY**

**POSTWAR PLANNING**

This is the eighth of a series of a detailed study of what is being thought about and accomplished toward making the postwar world a place in which the individual and industry may flourish.

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AGENDA (London School of Economics. U. S. distributor, Oxford University Press, New York) \$5 a year; \$1.50 a copy.

Vol. 1, No. 1—Jan., 1942, and all subsequent issues. A quarterly journal of reconstruction to provide basic sources of information on postwar planning throughout the world.

AMERICAN ASSOCIATION FOR SOCIAL SECURITY (22 E. Seventeenth street, New York)

"Can We Stop a Post-War Depression Now? Social Security in Wartime and After," Committee Report. 1942. 25 cents. 47pp.

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Regular reporting on postwar planning by cities. See especially October, 1942 and subsequent issues.

AMERICAN COUNCIL ON EDUCATION (744 Jackson place, Washington.)

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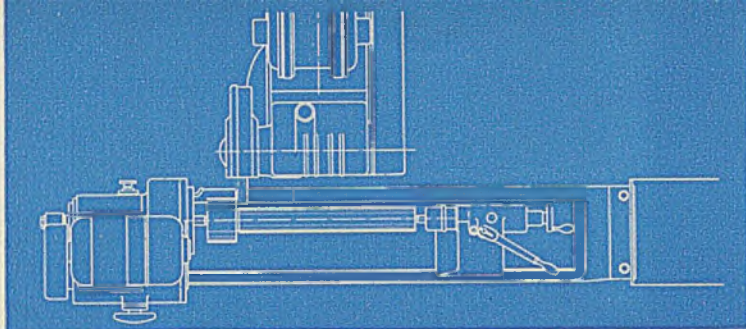
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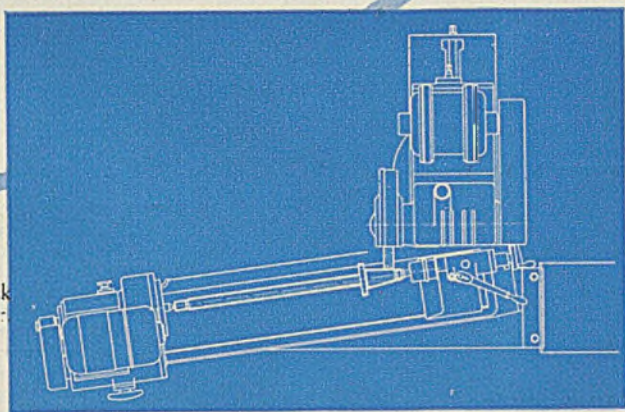


Conventional cylindrical grinding set-up,  
followed by grinding the shoulder.



# WIDE VARIETY OF PRECISION WORK *Quickly Set Up and Finished* ON CINCINNATI HYDRAULIC UNIVERSAL GRINDERS

Set-up for grinding taper shank  
end of a milling machine arbor

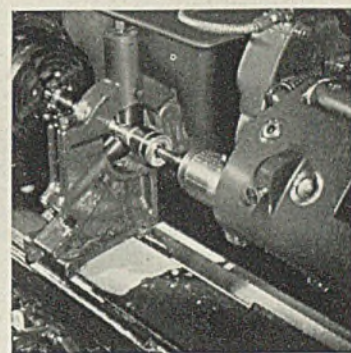
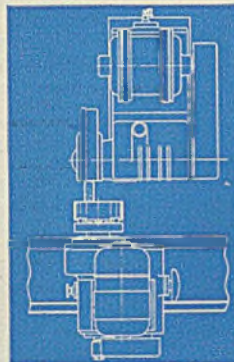


● Of the many factors to consider in the selection of a universal grinder, these two should receive first consideration: (1) how large a variety of work will the machine handle, (2) how fast can the work be accurately finished, including set-up time. An indication of the way in which CINCINNATI Hydraulic Universal Grinding Machines fulfill these requirements has been presented in the small illustrations on these two pages.

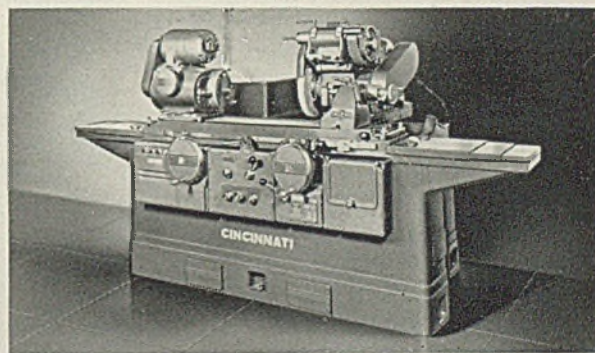
First of all, the CINCINNATI machine readily handles three basic types of precision tool-room grinding; cylindrical, internal, and rotary surface. Of course, many variations of these three classifications of work, such as steep tapers, may also be ground on the CINCINNATI. The second factor, set-up time, is exceptionally low for all types of work. For example, the internal grinding attachment may be set to grinding position by merely swinging it down and tightening one bolt.

All these features and many more are presented in catalogs which may be obtained on request: No. G-486 for the 12" machine and G-474-1 for the 14", 16", and 18" machines.

*Left: Rotary surface grinding a  
part held in the standard chuck.*



*Above: Grinding the bore of a sleeve.*



*Above: CINCINNATI 12" x 24"  
Hydraulic Universal Grinding Machine.*



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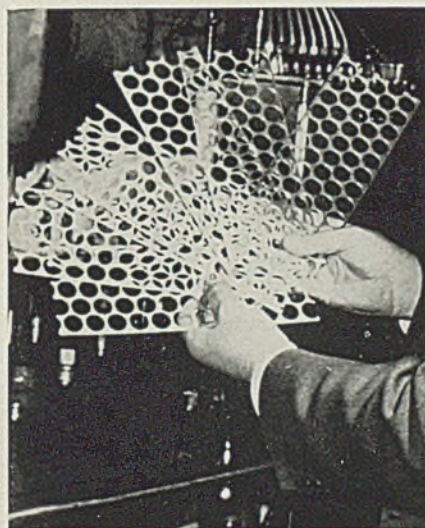
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Allocations of copper chemicals have

### PENNIES FROM STEEL



**NEW** wartime pennies are being struck from steel strip, a conservation measure estimated to save 4600 tons of copper annually. Coated lightly with zinc to prevent rust, the one-cent pieces are white when issued, soon turn black with use, which will help distinguish them from dimes whose size they approximate. NEA photo

been placed on a quarterly instead of a monthly basis by WPB through issuance of General Preference Order M-227, as amended, to enable producers and consumers of these chemicals to plan production and consumption over a longer period with resulting economies in operation.

Copper chemicals are used in agriculture as fungicides and in soil treatment. Industrial uses included electroplating, mining, and production of synthetic rubber, dyes, pigments, wood pulp, paper, pharmaceuticals, textiles, ceramics, glazes and glass. Copper chemicals are defined as copper sulfate, copper carbonate, copper oxide, copper nitrate, copper chloride, and copper cyanide.

Change to the quarterly period is important to producers of these chemicals because, as a result of the shortage of copper, they are not operating at capacity and previously had not known in one month what the next month's permitted production would be. The change also will save time and paper work for the industry and WPB.

### Use of Copper for Alloying With Silver Prohibited

Use of copper for alloying with silver has been prohibited since March 1, except on orders rated A-1-a, or higher, or with the specific authorization of the Director General for Operations.

Until March 1, persons using copper for alloying with silver had been permitted to use materials in inventory on Nov. 1.

### Search for Tropical Woods To Substitute for Metals

Tropical forests of the Americas to the south are being explored for woods to be used in war industries and as a substitute for steel and other metals, according to a report of Inter-American Affairs office.

Illustrative of the intensified hunt for timber resources is the departure of the United States mission of foresters for Central America, led by Dr. Arthur Bevan, director of the tropical experiment station in Puerto Rico. The mission has gone to Costa Rica, Honduras and Nicaragua in search of wood to replace steel and concrete in the construction of strategic roads in Central America.

Termite-resistant woods found in tropical forests are expected to serve well in bridges, pilings and road culverts. Balsa and other light woods are in demand for aircraft manufacture, shipbuilding and other industries. Use of tropical mahogany is found in the manufacture of planes, torpedo boats, landing boats and gliders.

# Production of Additional Farm Equipment Authorized

PRODUCTION of specific items of farm machinery and equipment up to the amounts recommended by Food Administrator Wickard is authorized by Limitation Order L-170 as amended.

Increase was made possible by the recent action of the WPB Requirements Committee which allotted additional critical materials for the manufacture of farm machinery during the second quarter of 1943. The new allotment will permit production of slightly less than double the amount of farm machinery allowed under the original terms of L-170.

Present amended order shows the percentage of increase authorized for 166 items out of the 312 listed in Schedule A attached to the order. Those that are not given an increase under this amendment have received sufficient increases through previous amendments to the original order or through the granting of appeals or other authorization in individual cases. Among other changes made by the present amended order are the following:

1. Producers who previously have been authorized by appeal or otherwise to manufacture additional quantities of any item increased by this amendment must deduct such previously authorized quantities from the increased quotas.

2. Producers granted increases must certify to WPB their intention to manufacture their entire quota including the increases. In cases where the producer will not be able to manufacture his full quota, he must notify WPB, and that part of the quota which he cannot manufacture will be placed with another producer.

3. The expiration date of the entire order L-170 is changed from Oct. 31, 1943, to Sept. 30, 1943, to make it conform to calendar quarters under which allotments of materials are made by the Requirements Committee.

4. Water storage tanks (item 218 in Schedule A of the original order) were eliminated from Schedule A of L-170 as amended Feb. 12, 1943. They are now specifically excluded from the definition of "farm machinery and equipment." This frees water storage tanks from all limitations of L-170 as amended.

## Use of PRP Ratings for MRO Supplies Clarified by WPB

Use of Production Requirements Plan ratings authorized for maintenance, repair and operating supplies to purchase

cranes, monorails, and similar equipment is the subject of an interpretation of Priorities Regulation No. 11 by WPB.

Provisions of Priorities Regulation No. 11 which cover MRO supplies permit use of assigned ratings to purchase minor items of productive capital equipment but exclude from this definition any item to be used for plant expansion. The interpretation points out that cranes and monorails costing less than \$200, intended to replace existing equipment or for minor relocation of plant machinery, may be considered "minor capital equipment" but that those costing more than \$500 would not be so considered. Use of the MRO rating for items costing between these two sums must be considered in the light of the size of the plant, the nature of the equipment, and similar factors. In case of doubt, an application for priorities assistance should be made on Form PD-1A.

The interpretation also calls attention to the fact that Priorities Regulation No. 11A provides that Controlled Materials Plan Regulation No. 5 will govern in the case of MRO supplies to be delivered after March 31. As the CMP Regulation sets a limit of \$500 on items of productive capital equipment and minor capital additions which may be purchased under its procedures, there may be some items which constitute maintenance, repair, and operating supplies under CMP Regulation No. 5 which do not fall within the definition of these contained in Priorities Regulation No. 11.

## Air-Cooled Engine Production Under Limitation Order

Production of all air-cooled engines, except those for aircraft and motorcycle propulsion, is controlled by Limitation Order L-254.

New order limits the number of engine models which will be produced. It also establishes standardization and simplification practices which will materially decrease the number of replacement parts are required by the armed services and essential civilian users.

On and after March 15, the manufacturer or assembly of any air-cooled engines not listed in Schedule A attached to the order is prohibited.

Basic models listed in Schedule A may be manufactured or assembled only when the engine parts used conform to the standard specifications prescribed in

Schedule B attached to the order.

Following exceptions are provided:

1. The completion of contracts entered into before March 15.

2. The use of parts which are processed by a point where other use is impracticable.

3. The manufacture of engine parts for repair and maintenance.

Order L-254 controls the manufacture of all air-cooled engines used by the armed forces as well as engines for essential civilian supplies, except those for aircraft and motorcycle propulsion.

## Limitations on Antimony Lifted by War Board

Limitations on the use of antimony in production of automotive batteries and alloys were removed and the weight-limit for small deliveries of antimony to any one person was substantially increased under an amended version of General Preference Order M-112. Restrictions previously applied to the antimony content of inorganic pigments, toys, and ornaments remain unchanged.

Unallocated deliveries to individual customers, which have previously been restricted to 25 pounds or less of contained antimony from all sources during any one month, will be permitted in the future up to a total of 2240 pounds, or one long ton, in each monthly period.

No change is made in the 50-ton limit on the permissible antimony content of unallocated ores and concentrates that may be shipped by a producer during any one calendar month from mines located in the United States or Alaska.

## Restrictions on Cobalt Eased By Amendment to M-39

Amended order M-39 covering use of cobalt, which will have the effect of relaxing restrictions previously in effect, was issued last week by WPB.

Previously, the use of cobalt—one of the important steel alloys—was prohibited except for eleven purposes listed by the order. It was found that this provision eliminated the use of the metal for many necessary products including certain items required by Army and Navy.

The order as amended places cobalt on a straight allocation basis, deliveries being permitted only on the specific authorization of WPB. Persons desiring an allocation must file Forms PD-581 and 582, as revised, with WPB.

However, deliveries of 25 pounds of contained cobalt to any one person in any one month or deliveries of any amount to subsidiaries of the Reconstruction Finance Corp. may be made without specific authorization.

# Applications for Expansions Approved by Defense Plant Corp.

CONTRACTS for new war plant facilities and equipment were authorized last week by Defense Plant Corp. In each case, DPC will retain title to the facilities which will be operated by the contractors. Figures are approximate. Contracts include:

Youngstown Sheet & Tube Co., Youngstown, O., to provide additional plant facilities at a plant in Indiana costing \$1,200,000.

St. Louis Smelting & Refining Co., St. Louis, to provide plant facilities in Missouri at a cost of \$580,000.

American Iron & Machine Works Co., Oklahoma City, Okla., to provide equipment for a plant in Oklahoma costing \$30,000.

American Aviation Corp., Jamestown, N. Y., to provide equipment at a plant in New York at cost of \$75,000.

General Motors Corp., Detroit, to provide additional facilities in Indiana at a cost of \$350,000, resulting in overall commitment of \$1,550,000.

McQuay-Norris Mfg. Co., Connersville, Ind., to provide equipment for

a plant in Indiana costing \$265,000.

Lion Oil Co., El Dorado, Ark., to provide additional facilities in Arkansas at cost of \$325,000 resulting in an overall commitment of \$1,365,000.

General Motors Corp., Detroit, to provide additional facilities in Indiana and Michigan at a cost of \$3,500,000, resulting in an overall commitment of \$63,000,000.

Empire Ordnance Corp., New York, to provide equipment for a plant in Pennsylvania at cost of \$475,000.

Bundy Tubing Co., Detroit, to provide additional facilities for a plant in Michigan at a cost of \$295,000, resulting in an overall commitment of \$1,135,000.

Mercury Motor Transport Inc., New Orleans, to provide automotive equipment for a plant in Louisiana at a cost of \$20,000.

Columbia Steel Co., San Francisco, to provide additional facilities at plants in Utah at a cost of \$3,300,000, resulting in an overall commitment of \$12,500,000.

Branch Motor Express Co., Allentown,

Pa., to provide facilities in Pennsylvania at a cost of \$120,000.

Westvaco Chlorine Products Co., New York, to provide plant facilities in California costing \$230,000.

Taylor Refining Co., Taylor, Tex., to provide plant facilities in Texas costing \$1,000,000.

Whitley Products Inc., Columbia City, Ind., to provide machinery and equipment for a plant in Indiana at a cost of \$215,000.

Kellett Autogiro Corp., Philadelphia, to provide additional equipment for a plant in Pennsylvania at a cost of \$56,000, resulting in an overall commitment of \$440,000.

Jensen Machinery Co. Inc., Bloomfield, N. J., to provide additional equipment for plants in New Jersey and California at a cost of \$27,000, resulting in an overall commitment of \$142,000.

## WPB Publication Covers Details of War Effort

Publication of *War Production News* by district offices of the War Production Board provides a clearing house for materials and equipment required or available and for subcontract opportunities by which manufacturers may obtain war work suited to their equipment.

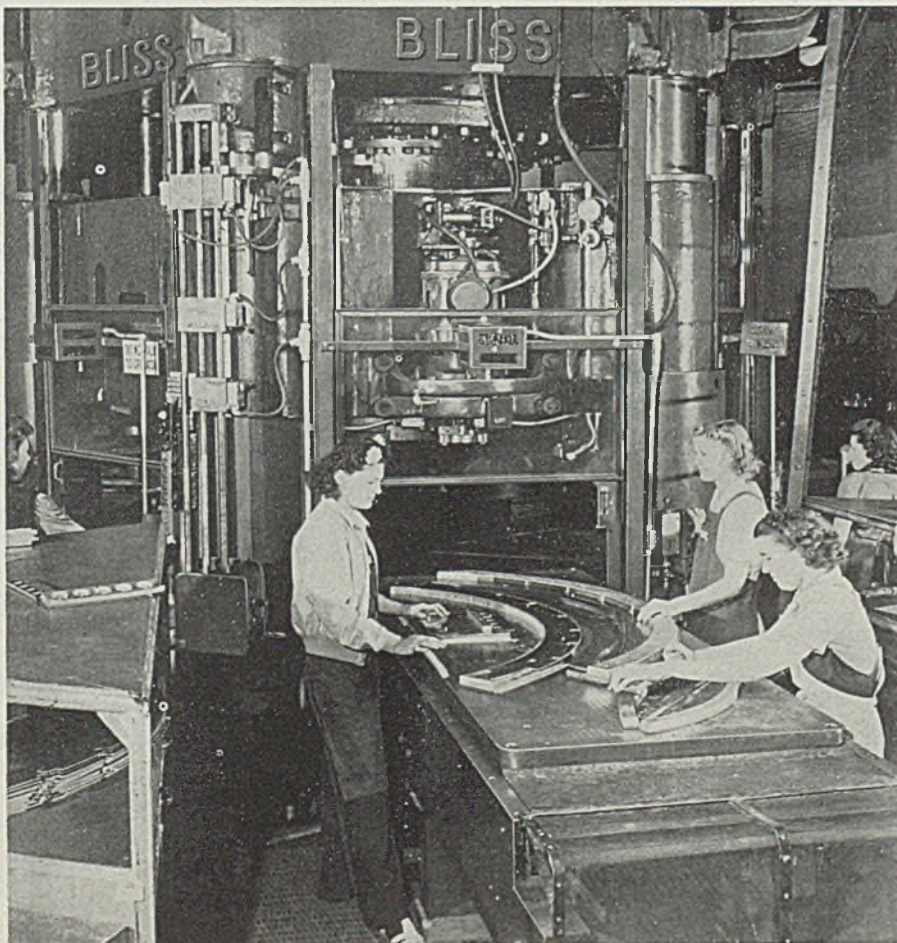
The publication also presents latest information on War Production Board orders, Controlled Materials Plan, priorities and various other matters of importance to those engaged in the war effort.

The publication is free to all interested and may be obtained by application to the nearest WPB district office.

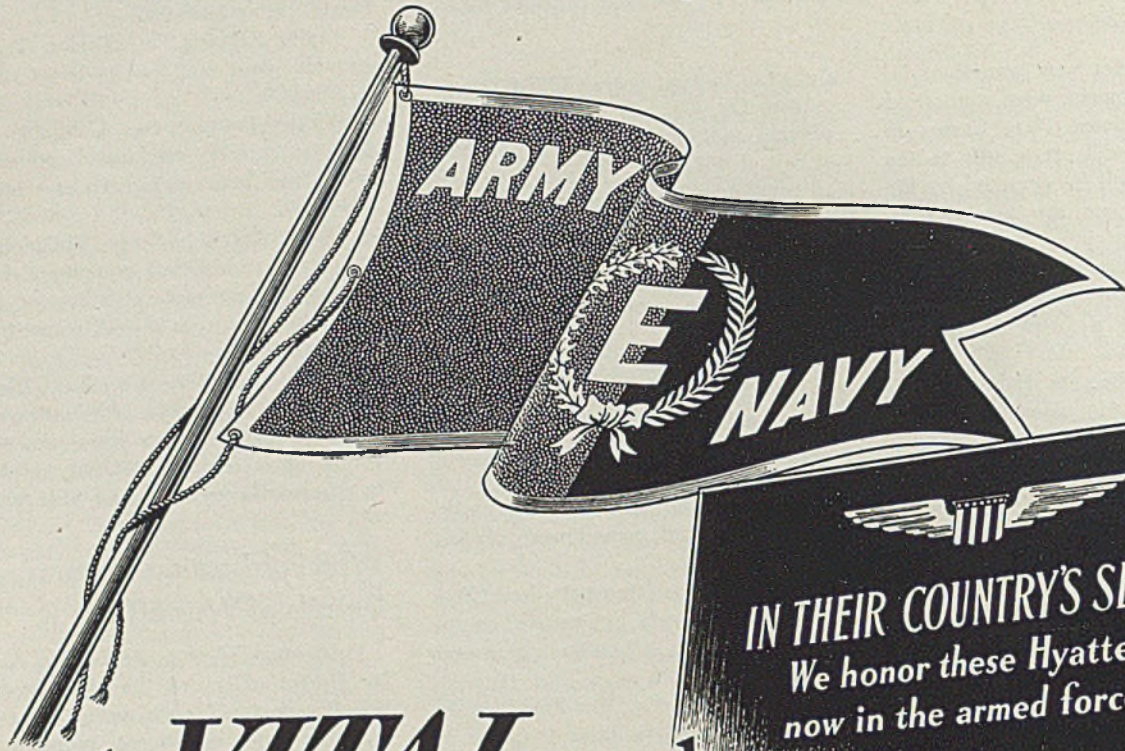
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## SAFETY PRESS FOR UNSKILLED OPERATORS

FULLY automatic, safety interlocked control of this 2500-ton six die slide aircraft press built by E. W. Bliss Co., Brooklyn, N. Y., makes possible its operation by inexperienced labor with very little training. Danger of accidents is reduced to a minimum by independent control of pressure on each station without the aid of a master operator, permitting heavy slides to be moved in and out of the press with ease. There is no need for arranging work or locating die slides inside the machine since three or four girls may be used on each of the six slides, insuring capacity loading of pieces and continuous high production at all times. The presses are in use at arsenals and aircraft plants



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and **VITAL** to them

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Like them, we know that without complete Victory on the production front, there can be no Victory on the fighting fronts.

That is why we people of Hyatt are cooperating intensively...working day and night...determined to help industry give our fighting forces greater and greater means of striking the enemy harder and faster...with an avalanche of many more millions of Hyatt Roller Bearings for planes, tanks, ships, trucks, guns and the equipment which helps build and transport them.

So at Hyatt...until we win...VICTORY IS OUR BUSINESS!

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**HYATT BEARINGS DIVISION**

General Motors Corporation, Harrison, New Jersey



*Believe subcontracting extended to limit. . . Chrysler has let 58.2 per cent of its two billions in war orders. . . Henry Kaiser reported considering production of \$400 postwar automobile*

#### DETROIT

LITTLE of a specific nature has been revealed about the extent of subcontracting in the automotive war production industries. It has been understood generally that subcontracting now is even more widespread than in prewar days, but even as late as a couple of weeks ago, a plan was advanced here to expand aircraft engine assemblies by stepping up the rate of subcontracting. There are some doubts subcontracting can be pushed much further.

Consider the case of Chrysler Corp. Of the more than two billion dollars in war contracts now being handled by this corporation, 58.2 per cent or about \$1-

300,000,000 is being subcontracted to smaller companies. At the present time, 8079 individual companies located in 856 cities and 39 states share Chrysler war work through subcontracting. Of this group, 4690 are relatively small business concerns, 1607 are medium size and 1782 are large organizations. It does not take much imagination to visualize the problems incident to following through on purchase orders scattered over these eight thousand suppliers.

As further evidence of how widely war work is subcontracted, take the number of piece parts involved in just 21 jobs which Chrysler is building. The total is 32,703 different parts, of which 19,611 are pro-

duced by Chrysler subcontractors, and 13,092 by the corporation's own plants.

One of the major contracts, combat tanks, involves 4500 separate parts, out of which 3000 are supplied by outside interests. Of the Bofors gun job's 950 separate parts 522 are furnished by subcontractors. Chrysler-built Martin B-26 bomber sections call for 11,542 parts and 5881 are from the outside. Dodge army trucks have 5101 individual parts and 3783 are obtained from subcontractors. Gyrocompasses have 406 different parts, 303 from suppliers.

Subcontractors also furnish thousands of other items which do not go directly into war products but which are necessary for their manufacture—cutting oils, machinery, tools, dies, fixtures, and the like.

The number of subcontractors which share war work with Chrysler is now more than five times the 1540 which participated in peacetime automotive programs. And in addition to the thousands of companies now working on Chrysler contracts, the corporation has detailed information on another 3000—lists of machinery, quality standards and performance ability—on master card records which permit buyers to select quickly when new sources are needed.

During the past year an average of 460 new suppliers was added monthly to the list of Chrysler subcontractors. Michigan has the largest number of the total list with 2805 in 120 cities; Illinois is next with 1039 in 56 cities; Ohio 917 in 95 cities; New York 668 in 67 cities; Indiana 608 in 61 cities; Pennsylvania 411 in 97 cities; California 296 in 32 cities; and the balance divided up in smaller numbers throughout 32 other states.

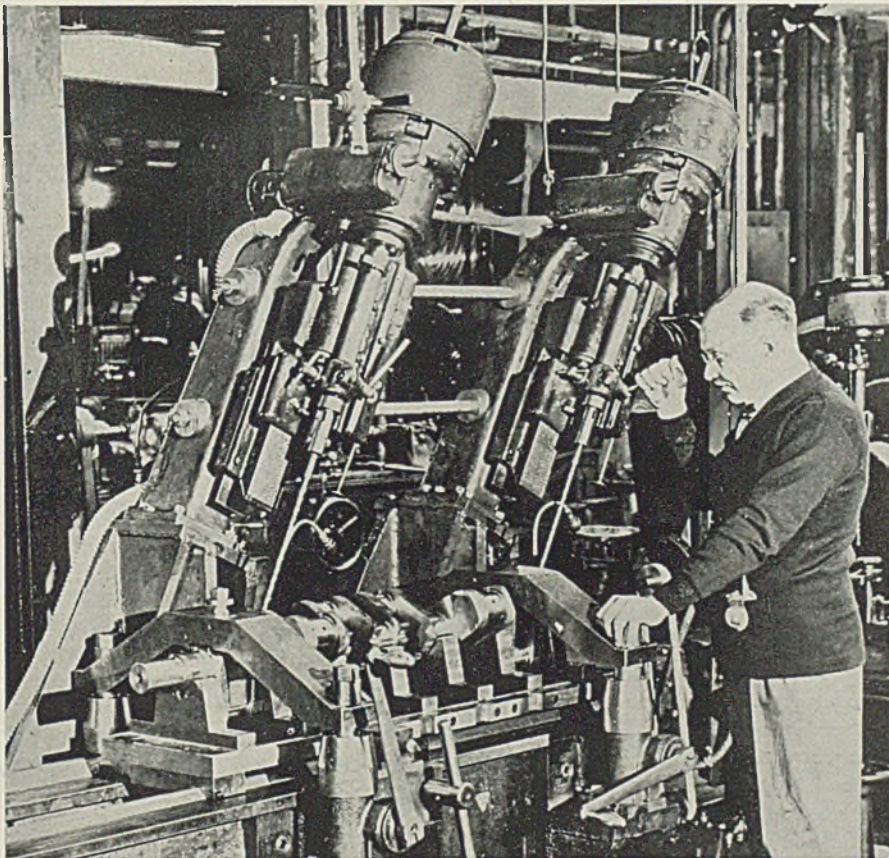
#### Perfect Subcontracting Technique

These brief statistics give an indication of the complexity of operations of a large motor corporation engaged in war production. Similar situations doubtless pertain with most other large corporations, although it is likely the technique of subcontracting has been perfected to a greater extent in the automotive field than in any other major industry.

Perhaps this is one reason why Henry J. Kaiser in recent weeks has been "looking into" the automotive situation as a postwar venture for his expanding operations. He has had personal conversations with Detroit interests regarding the organization of engineers, designers and manufacturing talent to undertake construction of a low-cost car, probably in the \$400 price range. Kaiser is known for his army of "expeditors" who chase around the country following through on orders placed with subcontractors.

First impressions of the West Coast tycoon on those he talked with here were

#### CONVERT SPARE PARTS INTO DRILL PRESS



QUICK ingenious conversion of standard machine tool equipment into special purpose machines in the war program is illustrated by this unit for deep-hole drilling of the force-feed lubrication holes through webs and crankpin of a crankshaft. Engineers of Hudson Motor Car Co., Detroit, assembled the equipment from parts of an engine lathe, two drill press heads and a specially built holding fixture. The shaft will be installed in engines for powering invasion barges. Better than 750 machines in the Hudson plant were converted for operations on the invader engine

distinctly unfavorable. He talked in the grand manner about buying up this plant or that plant and hiring this engineer or that engineer, as though all you had to do to start building automobiles was to keep spending the money. In one of these conversations, Kaiser was accompanied by a son to whom he turned occasionally for verification of some statement like, "But we won't need to make any dies for our car, will we Junior?" However, before the son could get a word in edgewise, his father would interrupt brusquely and state, "Shut up kid, I'll do the talking."

There is more than a suspicion that Mr. Kaiser is just the "front" man for an organization that includes some really capable engineers and production planners. His principal task appears to be to keep talking and let the hard-headed practical men in his company sift out from his running comment the ideas that are good and the ideas that smell.

It is understood one prominent automotive designer, formerly associated with Briggs, has been hired by Kaiser and is now going to work. But when the "old man" talks about how he can hire the best engineering and production brains in the business for \$25,000 a year, he just does not know whereof he speaks. And how he proposes to merchandise a small car once it is built is something else again.

#### Ford Produces Amphibian Jeeps

The War Department has permitted release of the information that amphibian jeeps are in volume production in this area, which may be news to those outside Detroit but is old stuff here. A few weeks ago, correspondents, including this one, were shown the Ford amphibian jeep assembly lines, and were taken for rides in the handy little conveyances which take to water like the proverbial duck. Test drivers took four passengers each, into the amphibians and drove down a wood ramp at the Rouge plant property into a slip where Ford ore boats are moored for the winter. A change gear permits throwing the propeller shaft when the jeep hits the water and while the speed naturally is slow there is no difficulty in moving a full load through the water.

Steering in water is accomplished through the regular steering wheel which is connected permanently to a rudder by cables. Body is welded steel, water tight, with stuffing boxes at the points where driveshafts pass through the body. The cars use the same motor as do the land version of the jeep. There is a minimum of spray in negotiating smooth water, but operations in a rough sea probably would be pretty wet. However, bilge pumps take care of any shipped water, and the occupants shift for themselves.

Preparation of Ford's Rouge plant for air raid defense has been completed, according to announcement last week. Every building in the Rouge can be blacked out in 1 minute and 45 seconds, including not only lights but the glow of furnaces.

In one building is a control room, manned 24 hours a day, where a command switchboard takes incoming warnings of approaching airplanes and dispatches the signals to all Ford plants within 60 miles of Detroit over a special air raid telephone system on which no other messages can travel.

#### Sirens Sound Alarm

Throwing two switches sounds every air raid siren in the plants, both inside and outside buildings. Many of the plants, particularly those with broad expanses of glass windows, have special shelter areas, in some cases within a few feet of workmen's machines. Steel benches or tables, with thick steel tops, on which parts and finished work are stored, are raised high enough off floors to permit several persons to find refuge under them. Other refuge areas are around the concrete foundations and piers installed below floor level to accommodate heavy machines, where special benches have been installed for personnel. Some of these areas will handle better than 100 persons. Another refuge spot is an abandoned brick tunnel once used in connection with the coke plant.

Every building roof has been provided with pails of sand, stirrup and force pumps and pails of graphite. It has been found that throwing sand recklessly in an air raid, particularly around a machine shop, causes excessive damage by infiltrating into gears, shafts and other lubricated metal surfaces. Graphite, of course, would cause no harm in such an event and hence is more suitable than sand.

The Ford fire department has set up a school for instructing employes in the use of standard fire fighting equipment and the handling of incendiary bombs, over 5000 having been trained already.

New type of nylon aircraft tire, claimed to be 100 per cent stronger than the best previous tires, has been announced by the United States Rubber Co. here. Nylon is used in the fabric to replace cotton and rayon, and the amount used for one medium-size airplane tire is equivalent to 186 pairs of ladies' hose. The new tires are now in action. Tests conducted two years ago on bus and truck tires with nylon fabric first brought to light the rugged qualities of the material in this application.

Need for standardizing gagemaker's tolerances, permissible gage wear and other variables in gaging practice has led

to the proposal emanating from the automotive industry for the American Standards Association to develop suitable standards for all industry, as outlined here last week. The extent of gaging operations and their importance is not generally appreciated. For example, a manufacturer of an airplane engine reports that each engine built requires more than 40,000 gage inspections which in turn requires the use at all times of about 100,000 gages. These must be checked at a rate of around 5000 gages a day and there are no general standards specifying what tolerances should be given the gagemaker in the manufacture of the gages, how these tolerances should be located relative to the limits of the part, and to what extent gages should be permitted to wear.

There is one tentative and incomplete gaging standard, B4a-1925, but it has not been accepted generally in industry. Common gaging practices vary from plant to plant and conceivably could account for discrepancies which would explain many difficulties arising between suppliers, subcontractors and procurement agencies.

#### Restrictions Continued on Use Of Copper in Automotive Parts

Restrictions on the use of copper and copper base alloy products in the manufacture of automotive parts have been extended by Limitation Order L-106 as amended.

Under the terms of the order these critical materials may not be used in the manufacture of any automotive parts, including replacement parts, except 15 specified items, and then only to the extent indicated. Thirteen of these were also exempted in the original order, issued in May, 1942. Despite the inclusion of two additional exempted items and of certain components of others, the amended order will result in considerable saving of copper and copper base alloy.

Added exemptions cover parts and components in which no practicable substitutes for copper and copper base alloy products can be used. The restricted materials may be used only to the extent necessary for the proper functioning of the parts. Authorization for the use of these products has hitherto been granted on appeal.

Exempted items are: radiators; cooling system control devices; electrical equipment; tubing, tube fittings and actuating parts; bearings, bushings, thrust washers; carburetor and fuel pump parts; plating; gaskets; transmissions; brazing materials; powdered copper; used as a minor alloying element in alloys other than copper base alloys; clutch facings and brake linings; speedometers, tachometers, heat indicators and oil gages; miscellaneous.