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Work of War Department
Commodity Committee #45
Iron and Steel
by Maj Nix

May 7, 1928.

Purpose of Paper.

In connection with a conference on this subject before the Army Industrial College May 11, 1928, this report was prepared to explain the work of War Department Commodity Committee #45 in developing an industrial mobilization plan for iron and steel. Before describing the work being done, the need for this committee might well be pointed out.

Decentralized Operations.

The goal of our Procurement Planning effort is to develop such broad and flexible plans that there will be little need for overhead coordination and control. This principle applies not only between the seven Army supply branches but should also apply between the Army and the Navy. The backbone of this effort is the District system. Our work is decentralized in the 14 War Department Procurement Districts. Anticipated problems are solved on the ground by leading industrialists or competent officers with a thorough knowledge of local business conditions. The more of these problems we can anticipate, the more we can solve in the districts in time of peace, the less the need for overhead or centralized control in war. In striking contrast with this picture the Commodity Committee of the past war became the one and only fountain head of knowledge, the one and only all powerful center for operating and controlling every ton of steel in the United States.

Assuming, then, that our District Chiefs and their organization are decentralizing this knowledge, and are establishing the necessary liaison by inspections and surveys, and that they will be empowered to settle disputes in their procurement, inspection and acceptance of steel in war, what is the need for a Commodity Committee? What is the need for a Committee on steel when American production is 10% greater than that of the rest of the world combined?

Need for Central Control.

It is obvious that some problems which affect the industry as a whole cannot be anticipated in times of peace. The District Chief's interest and contacts are usually limited to the locality in which he serves. A broader aspect of the whole steel situation is required for the proper solution of these larger problems. The use of the by-products of coal and of seamless tubes for munitions are present examples. Obviously, also, the procurement of all steel requirements cannot satisfactorily be vested in only one supply branch.

Particularly in the case of steel there is adequate infor-

mation on the capacity of individual works in commercial classes of steel without enormous duplication of effort by way of district surveys. Information on such capacities is obtained by the committee from the steel industry and furnished the Chiefs of Supply Branches. As will be indicated later, the great bulk of our data on current capacities is obtained in this way.

Contact with the industry as a whole, moreover, insures an equitable and balanced program in steel distribution. Finally, this contact serves to capitalize and coordinate our World War experience. While many opportunities have been afforded to profit by the lessons of the past war in developing the steel plan, two of these examples will be called to attention at the start which emphasize the need for inter-district planning and overhead coordination.

War Examples of Central Control.

Cross-hauls and delays in production necessitated a complete reallocation of all orders for projectile steel by the Steel Committee of the War Industries Board and the War Service Committee of Industry before the end of 1917. To quote from page 122 "American Industry in the War" - Baruch: "There were hundreds of changes of this character, which, while difficult of solution, were fully justified by the transportation situation * * * Many millions of Ton-miles and an enormous amount of money and time were saved by these transfers." Two and a half million tons of projectile steel were shipped from American mills in 1917.

An artificial shortage in steel was created by exaggerated requirements and unbalanced programs on items having the highest priority. The largest war requirements for steel were for projectiles and ships. Over 120,000 tons of ship plates had accumulated at Hog Island, Pa., at the time of the Armistice. About four million tons of steel were shipped to the Emergency Fleet Corporation in 1918. No ships were delivered from "Agency" yards until January, 1919, and all these ships were not completed until May 12, 1921. Over two million tons of projectile steel went from our mills in 1918 for use in the United States. Less than 20% was consumed in machined rounds of artillery ammunition ready for loading at the time of the Armistice. Of the two million tons of projectile steel shipped abroad in 1918 the following report is pertinent: "Our program calls for more steel than is being used by the entire Allies put together and in figuring the number of guns which we will have at the front next May and the maximum rate of fire which we could hope to do, the program seems entirely out of proportion ****. I would use a little more care before converting over too many mills for the rolling of projectile steel." - Letter from U. S. War Industries Board Mission, dated Paris, October 1, 1918.

By establishing "allowances" on steel mills to agree with territorial requirements and by coordinating the steel requirements with the production of finished items given in specific procurement plans, cross hauls, exaggerated requirements and unsynchronized programs may be largely eliminated.

First Step in Steel Plan.

The first step in developing the steel plan was to define the commercial classifications into which Army, Navy and other requirements were to be assembled. This action not only assured uniformity and simplicity in procedure, but also enabled the Committee to talk the same language as industry and to profit by experience in utilizing classifications which proved workable in the past war. "Instructions for submitting requirements in iron and steel" were issued by the Assistant Secretary of War under date of Dec. 27, 1924. Requirements are called for in excess of 1000 short tons, monthly, by locality (War Department Procurement District) and for the purpose intended (finished article).

All War Department requirements were received by March 24, 1925. Bureau of Ordnance, Navy Department requirements were furnished by letter from the Secretary of Navy (Munitions) to the Assistant Secretary of War dated June 11, 1925. Other Naval requirements were obtained through contact with the Naval member of Committee A-2, Army and Navy Munitions Board, principally from the Engineering and the Material Division and the Bureau of Yards and Docks. Requirements for an Emergency Fleet were determined under the assumption that a complete mobilization of all ship yards of the country was called for. Contacts with the United States Shipping Board (Division of Statistics), Department of Commerce (Bureau of Navigation) and the United States Shipping Board (Emergency Fleet Corporation) were helpful in estimating these requirements.

Checks on Requirements.

During the accumulation of requirements the results were checked from the records of the War Industries Board. These records give estimated requirements, orders placed and shipments for all governmental services in the classes of steel as used in the steel plan. As a yard stick to check our present requirements, the actual shipments of steel in 1918 were, in general, used in preference to estimated requirements furnished the War Industries Board, or to orders placed with the mills. Estimated requirements exceeded orders placed and these in turn were usually in excess of actual needs. As far as known, no necessary activity was curtailed during the war because of lack of steel. An analysis of orders placed with steel mills during the war over a period of many months indicates that while the balances may show no great reduction in outstanding orders, neither do they show an increase at the termination of the period. On the average, it is reasonable to conclude that all essential needs in steel were being met during the period. Adopting actual shipments in 1918, therefore, as a yard stick, a number of cases developed where initial estimates of Navy and Army requirements on the present plan were revised - most of them downwards. These records, moreover, serve as a guide to essential civilian needs when curtailments and "rations" of steel are viewed in the light of present economic conditions.

Second Step in Steel Plan.

The second step in developing the steel plan was to determine the capacity of individual steel works in terms of the approved classifications of steel. The principal source of this information is contained in the "Iron and Steel Works Directory of the United States and Canada" (American Iron and Steel Institute). Other sources are: Surveys made in Industrial Planning, Trade Journals as "The Iron Age", Census of Manufacturcs general reports on Iron and Steel Production, Special report of Census of Manufactures on Army and Navy form 100 A, the Annual Statistical Report of Production of the American Iron and Steel Institute, and contact with the steel industry.

Check on Capacities.

Weekly reports of actual performance of steel mills during the war serve as a check on capacities, especially in non-commercial items such as shell steel. There is probably more detailed information collected during the war on the production of steel by individual mills than for any other commodity.

Third and Final Step in Steel Plan.

With requirements and capacities known by War Department Procurement Districts, there remained the relatively simple step of establishing allowances by the office of the Assistant Secretary of War on individual steel mills to meet the requirements in the locality. This step corresponds to the "Schedule system" adopted in July, 1918 to eliminate the necessity for priority on steel orders. The schedule system in effect established a monthly allowance, whereas in the steel plan the allowance is annual. Under the schedule system a trial balance was struck every month between war requirements and performance of steel mills. Requirements were adjusted to equal actual capacity and schedules of shipments arranged accordingly. Reports of shipment and delivery were required to obviate shortages.

The Steel Plan.

The plan for steel distribution as developed by the three steps indicated is a broad foundation for an industrial mobilization plan for iron and steel. It is simple and flexible. An equitable distribution is made on a broad knowledge of requirements and capacities. The load may be readily shifted territorily or increased locally to meet special emergencies. Orders need not be cleared through the steel committee during war, except when necessary to exceed allowances. The Army, Navy, and Emergency Fleet load under this plan equals about 20% of present steel production. During the war the corresponding load was 25%. In addition thereto there was a load of the Allies of 12% on 1918 production. The plan, therefore, calls for a mobilization of the steel industry on a slightly smaller scale than during 1918, (excluding the Allied load).

An Essential to the Steel Plan.

Assurance that the foundation of the steel plan is business like and sound and that the steel mills may be relied upon for allowances established has been provided by the hearty cooperation of the steel industry in each step in developing the plan. Contact was maintained with Mr. James B. Bonner, Vice Chairman of the Committee on Steel Distribution during the war. In this capacity Mr. Bonner directed the distribution of 17,000,000 tons of steel for the U. S. Government and the Allies. Mr. Bonner has interpreted to the Steel Committee the methods and procedure followed by the Washington office of the American Iron and Steel Institute during the war so that the Army might profit by these lessons. Under date of April 7, 1928 the Institute confirmed Mr. Bonner as official representative of the industry as a whole.

It is the intention to present the entire plan to the Institute in due course for examination and appropriate action. Complete sets of Requirements, Capacity, and Allowance Tables were circulated among the supply branches for criticism, over the past year. By November 1, 1927 these had been revised and recirculated, including copies informally to the steel industry and the Navy. The results have been tabulated on individual cards for each steel works (name of facility, location of works, allowances in 9 classes of steel for each of seven army supply branches and for the Navy and Emergency Fleet, together with Total Allowances and Total Capacity). A number of revisions of requirements have come in since October, 1927, which affected allowances. While these have been approved, the tables and cards have not been revised. Moreover, a large number of consolidations have taken place within the steel industry since that time. These have not been incorporated in the Capacity Tables. It is not considered necessary to issue revised tables oftener than once every two years. It is anticipated that when the tables are next revised to include changes resulting from a more accurate knowledge of requirements, including those of the Navy, and from studies being made under Special Problems indicated below that the plan will be formally presented to the Institute for appropriate action.

Special Problems.

Problems involving critical, non-commercial and specially fabricated steels are decentralized in the supply branches. Of the nine commercial classes of steel into which our requirements are grouped, (1. Steel Forging billets and forgings. 2. Rounds, squares and flats. 3. Structural shapes. 4. Sheared and U. M. plates. 5. Sheet and tin plate. 6. Tubular products. 7. Wire and wire products. 8. Rails. 9. Steel and Iron Castings), the only critical ones developed to date are Seamless Tubes under Class 6 and Fine wire and wire rope under class 7. The Ordnance Department is charged with surveys of seamless tube for shell. The Signal Corps handles the wire problems and the Air Corps specially fabricated steels. It is expected that some allowances now in effect will have to be revised as

a result of these studies. The office A.S.W. by letter of June 17, 1927 limited the allocation and survey of steel mills to the above purposes. Since that date supply branches have submitted requests for cancellation of the allocation of steel mills which had previously been made for the nine commercial classes of steel. For these commercial classes an allowance takes the place of an accepted schedule of production. When a supply branch desires to survey steel mills under the nine commercial classes of steel, or for other commercial fabricated products, the request is forwarded to the Assistant Secretary of War for coordination with the intentions and needs of other supply branches.

Related Activities.

In order to round out the conception of the general activities of the steel committee, a few important activities will be cited.

(1) The Chairman is advisor of the office of the Assistant Secretary of War on all matters relating to this commodity. Representatives of the committee are from all supply branches, except the Medical Department. Meetings are held once a month, copies of important minutes being furnished the Navy and the steel industry at the discretion of the Chairman.

(2) June 4, 1925 submitted Specific Procurement Plan for "Barbed Wire and Screw Posts" to steel industry for criticism. Plan returned to Corps of Engineers, with comments, by the Assistant Secretary of War August 4, 1926.

(3) In September, 1925 obtained information for Committee No. 19 on reserve of ferro-manganese usually carried by steel industry.

(4) April 20, 1926 Manganese Plan of Chief of Ordnance commented upon by Steel Committee.

(5) May 24, 1926 Mr. James B. Bonner and Dr. John S. Unger conferred with the steel committee, answering many technical questions on steel which had accumulated in the supply branches. The minutes of this conference were mimeographed and circulated.

(6) June 25, 1926 Problem No. 31, Army Industrial College, on subject of Steel Tubing commented upon.

(7) September, 1926 arranged for Mr. L. Becker, Chief of Iron and Steel Division, Department of Commerce, to place our committee on mailing list for Trade Information Bulletins.

(8) December, 1926 started turning over tables on nine classes of steel to industry informally for criticism.

(9) January, 1927 cooperation of Navy sought in criticism

of requirements and Allowance tables on steel plan. February 5, 1927 Naval representatives on Committee A and A-2 Army and Navy Munitions Board, agreed informally to criticise the steel plan from a Naval point of view.

(10) March, 1927 approval granted for Steel Committee to attend visit of Army Industrial College to Pittsburgh in May.

(11) April, 1927. Data collected from War Industries Board records was placed in suitably marked folders to constitute a foundation for accumulating information on the following subjects. (1) Current correspondence on steel plan - one folder for each supply service. (2) Special consolidated World War Requirements in 9 classes of steel. (3) General World War Requirements (Navy, Emergency Fleet, Allies, Civilians, etc.). (4) Summary of capacities of steel mills by classes of steel. (5) Allocation. (6) Conservation. (7) Substitution. (8) Price Fixing. (9) Priority. (10) Statistics. (11) Special Surveys of Steel Mills.

(12) June, 1927, questions on the subject of steel and ferro-alloys of particular interest to the office A.S.W. presented to Mr. C. B. Francis (Chief, Bureau of Technical Instruction, Carnegie Steel Co.) and his reply circulated.

(13) June 5, 1927 prepared inquiry which was sent from Assistant Secretary of War to Assistant Secretary of Navy (Munitions) regarding Navy requirements in wire rope for special products.

(14) December 27, 1927. Letter prepared for Assistant Secretary of War to Chief Signal Officer on Specific Procurement Plan "Wire and Cable 1925" to which reply was received March 7, 1927.

(15) April 18, 1928. Questions asked the steel industry regarding the use of by-products of coal for powder and explosives and its effect on the industry as a whole, and regarding allowances on the Sparrows Point Works of the Bethlehem Steel Company for shell billets. Reply to first question received April 24, 1928.

(16) Allocations of steel mills are made on the basis of recommendations of the Steel Committee.

In conclusion, it should be stated that such work as has been accomplished or inaugurated to date has resulted from the hearty cooperation of industry and the enthusiastic activity on the part of all members of the steel committee.

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