

height, and eliminated features that were wasteful of material. The various colors of leathers and fabrics to be used were standardized, and the introduction of new lasts stopped. This American program, which was carried out by the entire industry, guaranteed the maximum economy with a minimum of disturbance to the conditions and methods of production and market distribution.

I believe that I can best indicate the results accomplished by the conservation programs in this country by giving a few specific examples. In the manufacture of men's hats, for instance, the conservation program reduced the number of colors to be used to nine; several manufacturers previously had lines of hats in approximately one hundred colors. In the hat trade several features also were eliminated in order to save materials. In the felt shoe industry the product was restricted to four colors and four styles. Up to the time that this schedule went into effect, a single manufacturer often had a line including one hundred colors and a wide variety of styles. It was estimated that this program would yield an annual saving of fifteen per cent in the quantity of materials used in this industry.

The number of colors of book cloth was reduced fifty per cent and the length and width of the rolls was standardized. In the harness and saddlery business eighty-eight per cent of the styles and varieties of products were eliminated. Trunks of the ordinary sort were reduced to three sizes, and wardrobe trunks also were restricted to three sizes. All trunks manufactured under this schedule were limited to forty inches in extreme measurement, in order to permit the best utilization of transportation equipment. Trunks longer than forty inches are wasteful of space in baggage cars.

The rubber footwear manufacturers in their conservation schedule provided for the elimination of 5,500 styles and for economy in the packing and shipping of their product. The estimated annual saving from the observance of the conservation program in this business was 29,012,000 cartons, 30,380 gallons of varnish, and also heavy savings in other materials and in shipping and storage space.

The agricultural implements industry was one that afforded unusual opportunities for conservation. Typical schedules for the agricultural implement industry provided that the number of sizes and types of steel plows be reduced from 312 to 76, of planters and drills from 784 to 29, of disk harrows from 589 to

38, of buggy springs from over 120 to 1. Similar opportunities for economy were found throughout the agricultural implement business. One implement manufacturer, by making his production of farm wagons conform to the conservation schedule, reduced the variety of front and rear gears manufactured in his plant from 1,736 to 16. Under this restricted schedule the needs of the farmers were as well provided for as in the past. No really essential sizes or types of product were eliminated; yet large savings were realized by the implement manufacturers through the simplification of their operations.

In the pocket-knife industry the number of basic patterns was reduced from over 300 to 45, and the catalogue numbers from 6,000 to not more than 100 for each manufacturer. Similar conservation schedules were prepared for other hardware products, although many of them had not gone into effect when the armistice was signed. One hardware wholesaler previously had more than 90,000 items listed in his catalogue. He estimated that if all these conservation programs had taken effect, the number of items in his catalogue would have been reduced one-half.

In the stamped metal ware industry, manufacturing enamel ware goods, tin ware, and galvanized ware, 4,252 items were eliminated, with an eighty per cent reduction. In china ware one manufacturer cut his line from 1,696 items to 330. In the metal bedstead industry the program of elimination and standardization of product meant a saving of about thirty-three and a third per cent in the quantity of steel used, and one manufacturer stated that under this plan he could turn out ninety per cent of his normal product with seventy-five per cent of his normal supply of labor.

These examples are typical of many other industries with which the Conservation Division dealt. Although the estimated savings in some instances may seem to be large, our experience during the war showed that in practically every case in which the program was in effect long enough for a test, the savings actually were greater than the first estimates. In their ramifications the conservation schedules effected small savings that were not anticipated or foreseen.

Through this standardization of products, manufacturing operations were simplified. In filling the orders from farm implement manufacturers, for instance, under the conservation schedule the steel mills found it necessary to change their rolls less frequently than in the past. They could secure longer runs on a small variety of sizes. Inasmuch as it ordinarily is

a five or six hours' job to change rolls in a steel mill this saving was appreciable.

Economies in plant operation were realized in the various stages of manufacture. This standardization of products reduced the quantity of raw materials used and lessened the quantity that it was necessary to carry in stock; the smaller the variety of product turned out, obviously the fewer kinds and varieties of raw materials that must be kept on hand. The standardization programs made possible a reduction in the stocks of parts of finished products to be carried by manufacturers, and by retailers. The reduction in the number of sizes and types of automobile tires from 287 to 9, for example, obviously enabled retail dealers to operate with smaller stock. This lessened the amount of capital that had to be tied up in a business and in time it would have helped to reduce the losses from depreciation.

In working out these plans, all manufacturers and merchants who were interested were given an opportunity to take part in the formulation of each program in order that their interests might properly be safeguarded. I may add that the thousands of manufacturers and merchants with whom we had to deal showed a hearty spirit of cooperation. Occasionally the standardization of products involved real hardship. In a majority of instances, however, when the circumstances were explained to them, the manufacturers and merchants themselves were glad to be rid of most of the styles, varieties, and sizes of products that were eliminated. In every trade wasteful practices had crept in which it was mutually advantageous to stop.

The reasons for the existence of these wasteful practices were much the same in the various trades. In some cases the production of certain styles or types of product was due to the idiosyncrasies of a single manufacturer. One trunk manufacturer, for example, produced an odd-size trunk which he insisted was of peculiar merit, but we could not find anyone who would agree with him. In other trades the great variety of products was due in part to provincialisms in demand, such as the yokel trade in clothing which called for gaudy styles of peg-top trousers, diamond shaped lapels, and other folderols. Some varieties of farm wagons were produced by numerous manufacturers because of the persistence of a demand among the farmers in certain localities who were reluctant to have a farm wagon different from the sort that they

had used in the past. The left-hand plow is another illustration of a provincialism in demand, many farmers having an unfounded belief that a left-hand plow has some peculiar merit not possessed by a plow that turns the furrow to the right. It was but natural for manufacturers and merchants to cater to the whims of demand.

In several trades the variety of products was due to technical progress whereby new sizes and types had come into use, while the demand for the previous sizes and types continued on a small scale. This was particularly true in the case of such articles as automobile tires and electrical appliances.

The chief reason for the multiplicity of styles, varieties and sizes, however, was competition. The excessive variety originated far more commonly in the sales department than in the production department. We found numerous instances in which a manufacturer had introduced a new size of product merely in order to shade the price. The twenty-one-inch sewer pipe, for example, was first introduced by a manufacturer so that he could shade the price on a contract that nominally called for twenty-two-inch pipe. In other industries manufacturers had introduced variations in their products merely to create immaterial talking points or to provide an artificial stimulus to lagging sales. These innovations soon were copied by competitors and practically the whole trade continued to manufacture them. Thus barnacles accumulated of which the industry was not able to rid itself.

So much for the past. What is to be done in the future? In several industries, such as the farm wagon industry and the paint industry, the war-time conservation schedules have been continued in effect up to the present day with only slight modifications. One clothing manufacturer was led by his experience with the conservation measures of the war period to continue his search for new opportunities for economy, and by minor changes in designing he is making an additional saving of three per cent in the quantity of cloth used in each suit manufactured. While the saving on each suit is small, it will amount to an appreciable item for the business as a whole, and the trade is highly competitive. Although no canvass of various trades has been made, I have learned incidentally of numerous instances in which the conservation schedules still are being observed in whole or in part. Many manufacturers discovered such large savings from standardization that they have desired to have it continued.