over the selling department itself, so that there should be as little handling as possible to get to and from the unit both on the reserve floor and on the selling floor. From the outlet of the elevator or chute on the selling floor the merchandise is taken to the selling department. After the merchandise has been sold and wrapped, it is taken again to these service chutes, to be sent down, via another blade, to the Main Sorting Table in the basement. On all floors above the first, the merchandise is taken by a collector to the unit, but on our first floor we have the various merchandise checkers' desk in the various selling fixtures connected with conveyors to our Main Sorting Table. This helps to eliminate at least one source of congestion on our most crowded floor.

At the Main Sorting Table the package becomes the property of the Delivery Department. In the Delivery Department are two underground driveways, one in the basement and another in the sub-basement of our new west building. Each of these driveways has two platforms, corresponding to certain large zones of the city, which are connected by conveyors and chutes with the Main Sorting Table. After the package is received at any one of these platforms it is again sorted into the individual Entry Clerk's Route Bin. Here the necessary entries are made and the package then placed in the driver's bin. These drivers' bins open out on a platform against which the driver backs his truck in order to load. After loading has been completed the vehicle is lifted to the street via one of four "Jumbo" elevators. Thus you have seen the complete route taken by a piece of merchandise from the time it enters the building until it is carried out.

Before closing I should like to take time to give an example of one of the most complicated moves which had to be made. This move involved the installation of fixtures on the first floor in the old or east building.

The work to be done involved:

1. The clearing of space, which meant temporary moves for most departments. These had to be scheduled and arranged for in the same way as permanent moves.

2. Removing old fixtures, ventilating ducts and conveyors.

3. Preparing the cleared space for fixtures, that is, doing the necessary electrical work for lighting showcases, conveyor work for carrying wrapped merchandise to the delivery department, ventilation work in accordance with our general ventilation system, and pneumatic tube work for conveying money to the central tube rooms.

4. The installation of new fixtures. This also meant a close follow-up of the forces engaged in completing the installation.

In order to have the proper control and to have the move completed in the time set, schedules were prepared which listed every move to be made and the various persons responsible for each step of the move, together with the starting date and the finishing date. In conjunction with this schedule we prepared a floor plan on which the moves and the progress of work were represented graphically. This made it possible for us to survey the situation as a whole and to guard against or overcome, by summoning an increased labor force, any delays which might disrupt the whole schedule. This floor in its entirety was changed between the Fourth of July and Labor Day. When one stops to consider that it took between ten and twenty days to complete the work in any one section, that thirty departments were moved, that an area of 59,000 square feet was in work, and that selling operations were not interrupted, one readily understands that the task was not an easy one.

There are many things that might have been said if there had been more time. However, I am particularly interested in emphasizing one point which I hope has already been made clear; and that is, that what we have done is not, we feel, a record of complete accomplishment but rather a statement of the general principles which underly our work and of some of the specific things we have accomplished during our first five years of pioneering.

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Management Problems in the Automotive Industry[1]

Distribution Replacing Production as the Dominant Factor

I. By HARRY M. JEWETT
President, Paige-Detroit Motor Car Company, Detroit

II. By JAMES H. COLLINS
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I. By HARRY M. JEWETT

NO OTHER industry in the world has attained the rapid growth of the automobile industry. There is a reason why. It was a demand for quick, efficient and economical transportation which forced the automobile industry to the pinnacle it holds today.

Is its position secure? I believe so. The development in this country in practically every section is continuing. More and better roads are being constructed. The increasing wealth of the country is increasing the demand for automobiles.

At the close of 1922 I was talking with a leading New York financier who said that the automobile industry would be one of the last to get on its feet because it is not an essential. The facts are that it was the first to regain its equilibrium and forge ahead to record-breaking production. The financier was wrong. The automobile is an economic necessity. Efficient, flexible transportation is more necessary than any other product of industry.

The future world's absorption of automobiles, I believe, is beyond our comprehension today. American manufacturers absolutely control the automobile industry in the world because of the economic advantage of enormous home consumption with resultant quantity production and efficient manufacturing methods.

As the world outside of America progresses and, growing wealthier, demands more and better roads, the foreign demand will increase and American manufacturers will be there to supply it. The growing volume of exports in our industry proves our present day ability to supply the world.

Conventional methods of management in an industry growing with such tremendous strides have had to be cast aside and more efficient methods developed. At least 75 per cent of administrative brains were until recently used in the perfection of manufacturing methods. For instance, a few years ago we could obtain 45 good cylinder castings per day from a pattern. Today 285 good cylinders per day is the production. The old-fashioned method of assembly of automobiles in a stall has passed and the wonderfully efficient progressive assembly is in vogue.

Within the past three years the public has demanded enclosed cars, and from 35 per cent closed car production the industry will go to 75 per cent in 1925. Progressive methods of assembly and production of enclosed bodies have brought down the price to the point where the public can afford to purchase the closed type. We scrapped a $100,000 enameling plant for one in which production was trebled and cost was lowered 33 1/3 per cent.

It has taken courage, good judgment and the casting aside of the ordinary conventional business management to keep forcing an increased demand and keep pace with increased demand by lowering costs to put needed transportation in the hands of every one.

I said 75 per cent of administrative brains have in the past been put into manufacturing. Today the wise administrators are dividing the brains of management between sales and manufacturing. As we develop into a buyers' market this change will be more and more in evidence.

A buyers' market and intense competition are now in evidence. There have been approximately 975 makes of automobiles placed on the market. At the New York Show in 1923 there were 113 exhibitors. In 1924, 71; in 1925, 52; and I predict in 1926 between 40 and 45. The weak and inefficient are falling by the wayside. Larger production in fewer plants is indicated.

The distribution of automobiles at the inception was largely by bicycle dealers, augmented by a sprinkling

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[1] Two papers presented at a meeting of the Taylor Society, Ann Arbor, Michigan, May 15, 1925. Mr. Jewett's paper is in abstract.