

Containers used for merchandise shipped to large stores are now reclaimed and utilized over again so that very substantial savings have been effected through the reduction of the expense for purchases of new boxes, crates, excelsior and tissue. Recently, one store salvaged enough excelsior for its own needs and, in addition, sold 60 bales of surplus.

An interesting example of the use of a by-product by stores, is the utilization of waste paper for packing purposes. One store puts all its old duplicates of sales-checks and other forms through a paper shredder and uses the slit paper instead of excelsior for china packing.

The most noteworthy progress, however, is being made in the standardization of boxes used in connection with the sale of merchandise. In a survey made about a year ago, it was interesting to find that, although the merchandise sold in large stores comes only in standard sizes, the boxes purchased by the individual stores always varied in size, even when used for the same merchandise. In other words, although women's hosiery, women's gloves, men's tie, etc., were sold precisely in the same sizes in every retail store in the country, there were no less than 38 different sizes of boxes used for women's hosiery, 26 different sizes of boxes used for women's gloves, and 19 different sizes used for men's ties. Two or three standard sizes for each article mentioned will meet every need.

At the time this survey was made it was found that there were no fewer than 737 different sizes of Christmas boxes alone used in the various stores; whereas, every purpose can be served by an assortment of sizes that will total under 100, including jewelry boxes.

This survey resulted in establishing sizes for certain standard boxes for all stores and the adoption of these standard sizes has already accomplished large savings in the supply expense. For instance, it was found that the majority of stores were using a box for men's clothing that was really five inches needlessly long. In some cases, the weight of board was needlessly heavy. By adopting the standard sizes and weights recommended for suit boxes, one store saved \$500 on a single order.

It was found that folding boxes would serve certain purposes for which set up boxes were formerly used. The adoption of the folding box resulted in a saving of 20 per cent in box costs.

The adoption of the standard sizes enabled one store to discontinue ten sizes of boxes formerly carried.

By standardizing their gift boxes and adopting universal sizes, another store dropped 60 sizes.

Standardization studies are now in progress with reference to weights and sizes of wrapping paper. Cases were found where stores were using paper that was needlessly heavy for wrapping merchandise, particularly when customers carried the purchases. By substituting a paper ten pounds lighter to the ream than formerly used, a saving in wrapping paper expense of \$2,000 a year will be effected by one large store.

It was found to be a common practice to use a fair grade tissue paper costing from \$.80 to \$1.25 a ream for rough packing purposes. This purpose could be met by a tissue that could be obtained in quantities for \$.40 a ream. Standards were urged upon the stores for the use of each grade of paper so as to reduce this item of expense. Further economy is obtained by using for many purposes a smaller sheet instead of the 20 x 30 size which has been the traditional stock size.

A large item of wrapping expense is the heavier twines. The price of this has so risen at times as to make its use for certain purposes almost prohibitive. Twines have been standardized and stores now use only four or even three where formerly from five to ten different kinds were used. Cotton twines have replaced expensive heavier twines for certain purposes. Stores also have been urged to use gummed tape as a substitute for twine, since tape will serve many purposes with some savings in expense.

Standardization studies have also been undertaken covering the size and grade of merchandise bags and envelopes which are used so largely for "taken" purchases. This is now under way and it will result in considerable savings by having smaller-sized envelopes used in many cases as a substitute for larger and more expensive sizes.

The method of marking merchandise and the type of labels and tickets used have been studied and are gradually being standardized.

Standards have been set as to the best use of certain labels, marking tags and pin tickets for the marking of merchandise, which will result in a unit cost of marking lower than any standard of the past.

Labor saving appliances for making and attaching the marking devices are gradually becoming standardized in all stores.

In addition to the economy resulting from the standardization of materials, many extra savings have been made by more intelligent use of the materials that have been standardized. It had been a practice, for instance, in certain stores to wrap entirely certain large articles like rugs to be delivered locally. This has been

discontinued by certain stores, although, in some cases, the ends of the rugs are still wrapped. Elaborate protective wrappings on house furnishing articles, victrola records, etc., have been omitted, as these goods can be delivered locally in good condition without wrapping when the drivers use ordinary care in handling.

One store alone by a careful supervision of the use made of wrapping supplies reduced its supply expense from a cost of 1.3c per transaction to $\frac{3}{4}$ c a transaction.

III. REDUCTION OF WASTE IN EQUIPMENT

Much study has been devoted to the better use of labor saving equipment and the better utilization of mechanical appliances so as to save hand labor.

In the delivery department of one store, better planning and scheduling of the delivery equipment permitted more economical loading of trucks, which resulted in the removal of four wagons from certain routes during nine months in the year with a saving of \$5,000 a year.

In another store, by a re-arrangement of the physical layout of the shipping department and a change in the sorting table to permit more advantageous handling of packages, it was possible to reduce the personnel and save \$4,300 in salaries.

In a survey as to the locations where cash registers could best be placed, a number of departments in certain stores were found equipped with registers where they were neither desirable nor necessary. Recommendations were made as to the best placement of all machines so as to save the cost of needless additional equipment. The importance of proper placement of registers will be realized when it is stated that a certain register commonly used in large retail stores costs about \$800 each, and that many large stores will have in use from 50 to 100 such registers.

The laundry expense of four large stores has been reduced by the purchase of laundry machines and by doing the laundry work in the stores. One store estimates that the saving effected by doing the work itself as compared with the lowest contract it could effect with an outside laundry, is \$13,000 yearly. Another store accomplished a clear saving of \$708 within the first three months of operating its own laundry, and expects to save \$6,000 annually after the first year.

The layout of a number of departments has been changed to speed the flow of work. Portable tables have been installed in the marking rooms of most of the stores to save the expense of needless rehandling of goods after checking and marking. Such tables per-

mit conveying goods to reserve stock rooms without re-handling.

A special truck is in use in several of the stores to save rehandling and breakage of china when it is conveyed from the selling department to the packing room. One type of truck has reduced the breakage to 5 per cent of the former amount and it does the work of two men.

Many extra savings have been achieved by the adoption of labor saving devices to replace hand labor. Special reports have been furnished to each store on most of the devices which can be commonly used.

The savings represented merely by the instances given in this paper of the efforts made by one group of stores to reduce waste in their various departments aggregate over \$100,000. The figures quoted represent merely those savings that have actually been reported by certain stores as having resulted from their research studies. Naturally, these represent only a part of the savings that have rewarded the efforts of large stores throughout the country to reduce or eliminate waste in their operating departments.

In conclusion it should be emphasized that studies of the sort mentioned in this paper indicate that representative department stores throughout the country have followed the lead of industry and are showing a widespread interest in practical research work. At present, stores are more interested than ever in analyzing their established practices and methods; checking these up carefully with practices and methods found in other stores; weighing all facts impartially in the true spirit of research; and then changing their practices and substituting those which offer the most promise for more economical operation and distribution.

DISCUSSION

The Consulting Engineer's Point of View

IT IS generally agreed upon by the department store managers themselves that the retail store costs of distribution are too great, but the conception that it is possible to reduce this cost by research is quite a new one, and so far as I know, the Retail Research Association was the first organization to attack the problem in a systematic manner. There are a number of sources of information available to the department store man which enable him to determine the general average of expenses, but as is always the case with some managers, there seems to be a general tendency to use these figures to prove that the organization is as good as the average. It is comparatively simple for any well-