average family carries little reserve food on its pantry shelf and makes many of its purchases for each meal just before preparing it.

These peaks of customer incidence present one of the most difficult problems for the grocer to solve. If he has sufficient help to take care of the customers at the peak periods, he is certain to have considerable idle time during the lull in business. This problem is more pronounced in a purely cash-and-carry store than it is in a service grocery where the assembly and delivery of orders can to some extent be spread over the dull periods.

In the allocation of movement expense to individual commodities, considerable difficulty was experienced in using the data from these time studies. The actual allocation of the total functional expense disclosed by these time studies had to be on a more or less rigid basis. For movement costs this allocation was based on the number of sales items for each commodity. This sales item for each commodity had to be determined as the amount of the typical purchase by the typical customer. Against this basic allocation there had to be applied certain penalties or rewards to take account of certain portions of the expense for which they were or were not responsible. For example, in the case of milk and bread the wholesale supplier examines the merchant's stock and decides upon how much is required. This relieves the grocer of certain buying operations which should not be charged against these commodities. These adjustments were based on time studies in handling individual items and were sound in principle but difficult and time consuming to apply. Since the total expense of the store had to be charged against the commodities handled, the adjustment of the accounts on a single commodity required the readjustment of the accounts of all others.

This necessity for these adjustments and readjustments was the principal reason for a reconsideration of the accounting plan for use in the national drug-store survey. It was seen that the rigidity and inelasticity of the material produced in Louisville would erect, if applied to the drug trade, an insurmountable statistical barrier. There was seen the need for a more flexible procedure which would by some adequate machinery set up rewards and penalties in the first instance according to each commodity's responsibility for expense in its passage through the store. It was consequently decided that the time studies to be undertaken in St. Louis would be applied to individual commodity items rather than to a set of functions which individual items might or might not be in part responsible for. So it will be seen that there is a fundamental difference in concept between the methods employed in the two studies.

The method being used in St. Louis is, it is thought, the more scientific and it will be conceded that it is more simple and easy of operation. It involves as well a measure of the store's achievement of its theoretical capacity to sell merchandise.

We may look upon the processes through which merchandise passes on its way through the store as links in the expense chain. These processes in the retail-drug store were conceived to be as follows: ordering, receiving, checking in, paying for purchases, storage or distribution to retail stock, manufacture, apportionment, selling, wrapping, delivery, receiving reimbursement.

It will be at once clear that there is a wide difference between this list of functions to be measured and the list used in Louisville. The measure in Louisville was directed toward the function as such whereas in St. Louis it is directed toward the commodity and its particular responsibility for certain types of clerk activity. It will be clear that some commodities may skip certain of these links or processes on their way through the store. For example, goods on fixed order, such as ice cream, will not have to be charged with a unit of buying cost each time a shipment of such merchandise is received. The supplier of such products automatically delivers at fixed intervals and places in the merchant's stock a given amount without action on the part of the merchant himself. These goods may, however, pass through all other process links. Another exception is that goods sold as bought will not pass through the processes of manufacture or apportionment; goods purchased in less than case lots will not bear charges resulting from placement in the storage room; many will never receive a wrapping charge and many will be freed of the cost of delivery. While these are but a few examples, they are no doubt sufficient to point out the elasticity of the measure devised for use in St. Louis.

The five measures by which commodity responsibility for expense will be determined are as follows:

1. The first measure consists of observations of activities in buying. The activity of the individual store will be measured in this respect by observational and stop-watch tests showing what employe of the store buys what goods from what sources in what quantities and at what prices under what conditions. It will distinguish between routine or replacement buying and speculative buying (the introduction of new items of merchandise into the store's stock).

2. The second measure uses a composite form which provides the information necessary to the establishment of the expenses of the processes of receiving, pricing and shelf replenishment. This form makes provision for noting the time consumed and the nature of the operations observed. It notes what clerk performed the work, and consequently at what wage, the number of pieces involved, whether they be wholesale packages or retail units.

3. The third measure consists of observations of the activity of payment to suppliers. This measure will show the amount of time spent in this activity, the actual observations made, and the name of the supplier for whom the operation was undertaken.

4. The fourth measure covers the observation of the activity of delivery. This provides a measure of time spent as well as other useful information.

5. The fifth and by far the most important measure, since it is believed that the greatest variety in cost responsibility will be found here, is the measure of time spent in actually selling different merchandise items. The form used in obtaining this information provides complete data as to the sex and approximate age of each customer observed. It also shows the names of the sales persons, the article asked for, brand specified, article sold and brand sold. It also shows the actual value of the sale, and makes provision for a "yes" or "no" check concerning the necessity for persuasion or advice, busy or slack time of day, article easy or hard to procure, on special sale, process at time of sale, packaged, or delivered. The actual stop-watch measure of time applied to the individual sale is broken down into three parts: selling time, wrapping time, time spent in receiving payment from the customer. Provision is also made for the inclusion of the observer's comment, which permits the acceptance or rejection of a particular observation as a standard or an extraordinary performance. Separate space is provided for wrapping time and the time spent in receiving payment. It was desired to secure a measure of the time necessary for wrapping. It was also necessary to secure a measure of the time spent in receiving payment. No single commodity is likely to be responsible for excessive charges in either of these respects. It is substantially as easy to wrap one drug-store item as another, and it is not any inherent fault of any particular item which causes the customer to change a large bill or to spend much time in searching his pocket or pocketbook for the money.

These time-study cards will also be sorted for the time of day in which the transactions occur and particular emphasis will be laid upon activity rates during peak periods. These peak periods may be presumed to represent operations at capacity. The difference shown in the operating time at other periods will give a measure of the cost of idle capacity and should enable the determination of a sharper distinction between fixed and variable costs. It is hoped that by these methods it may be possible to develop a set of standard charges which can be used directly in cost calculations in drug stores throughout the country.

Trained observers stationed in each of the fourteen drug stores under observation are obtaining this information for a large number of the customers visiting each store. Ultimately we shall have a considerable number of such records for each important item handled in the drug store.

These selling observations should be productive of much valuable information other than that necessary to the establishment of expense. It is thought they will show to a very considerable degree the exact character of the store's selling effort and the habits of its sales people. They will show as well the degree of efficiency with which the physical plan of the store is set up. Since the measure of selling time required by different sorts of commodities can be compared to the total incidence of sale, this form has already been strikingly successful in providing information as to the excellence of store arrangement. Information secured from them in this respect has been included in Part I of the St. Louis Retail Drug-Store Survey, "Drug-Store Arrangement," now at the printing office.

Among other things these records will provide information on the amount of impulse buying and the customer-attracting character of store displays. Every movement of the customer is recorded including second and third purchases, if any, and the interest displayed in other merchandise whether purchased or not.

It will be understood that these are still pioneering efforts both in retail costing and in time studies to secure a more accurate picture of the operations which take place in a retail store. No doubt as we shall look back upon them from the vantage ground of a few years hence, they will seem extremely elementary and crude. We believe, however, that they represent a step in the development of scientific management in merchandising.