

decided upon one make of machine, one of the oldest and best known. The salesman estimated that eighteen machines would be required, at a cost of \$22,000. It was decided, however, to make a thorough scientific test. Four leading manufacturers were asked to send machines for the test. The following conditions were submitted to the manufacturer and agreed upon:

CONDITION OF TESTS OF BOOKKEEPING MACHINES FOR COMPANY

- The test will be made at Company's premises.
- The plan to be tested will be the unit plan using a continuous itemized ledger.
- The copies to be made will be: (a) the bill; (b) the ledger.
- The information to be shown will be that given on the present bill plus the payments and the daily balances on both statement and ledger.
- A number of sales checks, credits, and payments will be provided sufficient to take an operator about one week to post.
- You will furnish the machine and the trays or other equipment needed in connection with the work.
- You will furnish the stationery to be used and bill Company for it.
- Two runs will be made, one by an operator furnished by you, the other by a Co. operator trained by you.
- As much time as is needed will be allowed for training the Co. operator, but not to exceed two weeks. The length of time required, however, will be recorded as one of the elements entering into the test.
- The training of the Co. operator is to be done on the Co. premises.
- The checking of the work will be done by clerks furnished by Co.
- Operators will head up both statements and ledgers.
- The sales checks, credits and payments will be so selected as to give a test of posting several times to an account and for several months.
- Each operator will be required to locate her own errors when out of balance, and to make her own corrections.
- During the operation of the test no salesman will be present. The demonstrator, however, may be present to straighten out any difficulties that may arise.
- You will furnish us with an estimate of the cost of stationery and equipment needed with your machines in the event of their being selected.
- During the tests our engineers will make unit time studies of all the operations performed.
- You will give us an estimate of the salary that must be paid to secure new operators.

The test lasted for a period of six weeks and the results are shown on the accompanying chart (See Figure 10):

It will be noticed that the machine which stood the highest in the test "A" had a record which would make only nine machines necessary. Naturally there could not be more than nine operators, whereas the original estimate of the salesman of the machine which was first considered was 18 machines and 18 operators.

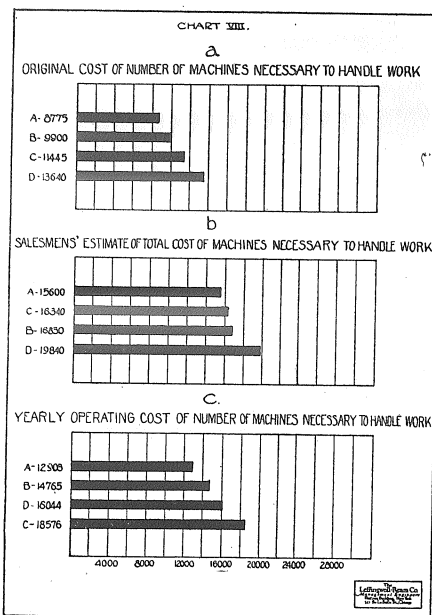


Fig. 10. Result of Tests of Bookkeeping Machines.

To get a line on the methods of office equipment salesmen, after the test had been completed, each salesman was given another opportunity to estimate the number required and all reduced their original estimates, knowing that we were dealing with facts and not theories. The machine which it had been intended originally to purchase, is third in rank of the four machine tested. The one with the best record had been originally not even considered as a dark horse.

The following is a conservative estimate of the saving resulting from this investigation:

Cost of 18 machines originally considered	\$22,000
Cost of nine machines with best record	9,000
Cost of 9 operators per annum	\$13,000
Cost of test; about	2,000
Net saving first year	\$20,000

The papers covering this one investigation number 125 sheets. It was amply demonstrated that such an investigation pays.

In the planning department of the department store the following standard method of compiling data is established:

Company. Planning Standard Practice No. 1.
METHOD OF COLLECTING AND PRESENTING INFORMATION

Par.

- In solving a problem there are three stages as regards the recording of information. These are:
 - Collecting initial data.
 - Arranging the information and statistics collected so they may be understood by anyone who reads them, and to permit the drawing of correct conclusions.
 - Writing a report to secure the approval of the executives to the proposed changes.

COLLECTING INITIAL DATA

- The notes taken and the information collected are intended to be merely temporary. As soon as the data have been recorded, the paper on which the notes were taken can be destroyed. For convenience in handling and carrying, a very light weight 3" x 5" card can be used for a variety of purposes such as:
 - Making observations.
 - Making notes of present routing, methods, suggestions, and so forth.
 - Making memoranda for tickler purposes, and so forth.
- When necessary to use a larger sheet, one 8 1/2" x 11" should be used.
- For making time studies or collecting statistics for which a standard form exists, such form should be used.
- For making tabulations that can be handed to a typist to be copied, a standard sheet 8 1/2" x 11" should be used.

ARRANGING DATA COLLECTED

- Initial data as usually taken are in such form that only the person who made the notes can understand them, and even he cannot be certain as to their significance after a lapse of time. For this reason it is important that all rough notes be worked up and dictated, and all tabulations be typed with adequate headings and explanation. When this has been done, the initial data may be destroyed except for such forms as Time Studies which do not need to be copied.
- Before dictating, considerable thought should be given to the arrangement and sequence of the material. The better organized this material is, the easier will be writing of the report and the more readily can it be understood by others.
- Whenever possible to do so, data should be listed in outline form as illustrated in the first paragraph.
- Further subdivisions of the outline should be:


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      a. x x x x x x x x x x x x x x x x
         (1) x x x x x x x x x x x x
      
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- The 1 should begin at the margin. The first word should start on the sixth space in from the margin. The indentation should start on the sixth space in from the margin and so on.

- Typing should be double spaced to permit interlining.
- Frequent use of main and sub-headings should be made.
- All papers should be dated.
- A standard 8 1/2" x 11" sheet should be used.
- Sufficient copies should be made to avoid danger of losing valuable data.

WRITING REPORT

- When all data have been collected and arranged in understandable form, they should be studied to bring out the solution to the problem. When this has been arrived at the report should be written and any necessary charts or diagrams made up.
- A report is intended to "sell" a new idea or method, and should be always considered from the selling point of view. Hence it is vitally important that the material be presented attractively, clearly and logically.
- In general the arrangement of the report should be:
 - Subject of the report in capital letters at the top of the page.
 - Introductory paragraphs, telling the purpose of the record and briefly what the proposed changes will accomplish, and any other necessary general remarks.
 - Description of present methods and statistics collected.
 - Description of proposed methods.
 - Advantages of proposed methods.
 - Conclusion, making specific recommendations and summarizing the advantages.
 - Closing, "Respectfully submitted."
 - Signature of whomever worked on the problem. If a representative of the Leffingwell-Ream Company worked on the problem, the signature of that company in capital letters should be shown and not simply his own personal signature.
 - Date at the left of the signature.
 - Under the date, the word "Approved" and space for the signatures of whatever Co. executives are required and the date of approval.
 - Charts and diagrams should be used as much as possible to present information graphically. These and tables too large or too detailed for inclusion in the body of the report should be numbered and attached after the last page of the report.
- The margins should be:
 - Top.
 - Left.
 - Right 1 3/4 inches.
 - Bottom 1 1/2 inches.
- Each page should be numbered in the middle at the bottom 3/4 inches up.
- Typing should be single spaced with two spaces between paragraphs.
- Block style of paragraphs should be used.
- Paragraphs should be short.
- When outline form is used, it should be done as described under "Arranging Data Collected."
- Center and side titles or headings of successive importance should be shown as follows:

CAPITALS UNDERLINED

CAPITALS NOT UNDERLINED

Small letters underlined

Small letters not underlined