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Accounting-EDP Center

Robert M. Smith

Much has been written about accounting firms which use electronic data processing centers. But to date there's been comparatively little about the accounting firm that has installed its own computer. Here's the story of one—

ACCOUNTING-EDP CENTER

by Robert M. Smith
Editor

WHEN A SALESCLERK in a retail store enters a transaction on a cash register, she is in effect doing more than providing the correct change and a receipt for a customer. She is also providing, on the internal cash register tape, a complete record of the transaction — what was sold, or at least the general classification of what was sold, the department that sold it, the price for which it was sold. A basic record has been created, the record on which all the important merchandising records of the store are based. The all-important data about the individual sale have been captured at the time the sale is made. Ideally, those data for each individual sale in each department can give the store information needed for sales reports, sales and inventory reports, sales analyses, even sales projections.

"Ideally" is the catch. For, unless the store has a computer, or access to one, the task of producing such records on a timely basis from hundreds or thousands of bits of information about individual sales is almost insuperable. An electronic data processor is a requirement if the best use is to be made of such information. Yet it is prohibitively expensive for all but giant stores in terms of hardware cost and the knowledge and experience required.

This situation is the background for the recently announced decision (see news story, M/S, March-April, '65, page 9) of the National Retail Merchants Association to offer centralized electronic data processing facilities to process machine-sensible data submitted by member stores and return hard copy reports to the stores.

But behind this simple statement of fact, there's a lot of time and hard work. There's also the story of a small, local CPA firm, Lennox and Lennox, of Staten Island, New York, which was finally picked as the data processing facility to handle the NRMA account over such corporate giants as IBM's Service Bureau, Litton Industries, and the National Cash Register Company.

Lennox and Lennox have been

deeply involved in automation since 1960 and have had their own computer since July of 1962. The firm's principals, Cyril J. Lennox, John E. Lennox, and E. Keith Danischewski, had become convinced relatively early that a computer could solve that perennial problem of small accounting firms: handling a large volume of write-up work without building an unwieldy and expensive staff. As part of the preparation for installing their own computer, they began sending some of their routine work out to service centers. They quickly ran into difficulties because of lack of understanding of accounting terminology and techniques on the part of those who ran the centers.

Accounting service bureau

Experience with commercial service centers only reinforced the accountants' twin beliefs that automation did offer great advantages in speeding the flow of detailed paperwork and that CPAs, if they had the proper equipment, preparation, and machine knowledge, could do a better job of mechanically preparing financial reports of all kinds than could nonaccountants.

Lennox and Lennox decided they were going to get that knowledge.

They approached the leading computer manufacturers to evaluate various types of EDP equipment, while simultaneously defining exactly what they wanted the equipment to do. The three partners realized from the first that it is a fatal mistake in installing a system to order the computer first and then fit the procedures to the equipment. After careful analysis of their clientele, mostly small- and medium-size companies in the immediate area of Staten Island, and their present and projected future needs, Lennox and Lennox chose the National Cash Register Company's 390 as their digital computer. Detailed diagrams of all the steps necessary to process material, all the way from journals of original entry to hard copy financial statements, were perfected in terms of the 390, which was installed in July of 1962, under a lease-purchase agreement.

Meanwhile selected staff members had attended programing school, and others had studied EDP applications in other ways. New York State Society and American Institute of CPA meetings and seminars were visited, and literature from manufacturers was carefully reviewed.

It is to this careful and painstaking preparation for installation that John Lennox gives primary credit for the success achieved with the project almost from the beginning.

Trained as an engineer as well as a CPA, he probably had some advantages in adapting so quickly to computer techniques. Yet perhaps the main advantage was his early acceptance of the fact that the computer is here to stay and all accountants had better learn what it is and what can be done with it, even if they have no plans for computers of their own.

Growth

When the computer was first installed, it was used only to process financial reports for the firm's regular clients. However, as clients saw the speed with which their work could be done, they began requesting such additional services as cost and sales analyses, inventory control, budget comparisons, profit and loss statements, and other statistical analyses. All these assignments could be handled easily by the 390, so Lennox and Lennox found that they could take additional data processing work from new clients who saw the advantages of a service center run by CPAs. As word of the new installation spread, other CPAs also began sending data to be processed just as Lennox and Lennox had earlier sent tape-punched information to a commercial service center. By the end of 1964, the total of such outside clients, over and above the firm's regular clients, had risen to 39 companies and accountants.

Thus, for their original clients, Lennox and Lennox did the entire assignment from original creation of data through finished product. For the new clients, they did the final part of a job already partially completed by someone else.

Gradually, as the firm became more widely known, they began to accept consulting work on other EDP installations. Sometimes they would be called in by another CPA to evaluate work he had done, sometimes by the company itself. They added the first non-CPAs to their management for this consulting work.

The cost picture

All of this increased the firm's expenses, of course, but the increased business generated by the computer more than compensated for it. Gross volume increased by 40 per cent while the staff increase was only 19 per cent. By the end of 1964, the firm had the same three CPAs and ten staff accountants they had had for some time, but they had added two EDP programers and four clerks.

An idea of the basic costs of the venture: First of all, in order to get the 390 on a lease-purchase arrangement, Lennox and Lennox had to show a Dun & Bradstreet rating of a minimum net worth of $150,000. Expenses, purely for the computer installation and staff, after the machine was installed were as follows:

1. Monthly lease cost of the 390 and peripheral devices, $1,750
2. Purchase price of one input-tape-producing accounting machine for error correction and preparation of input data, $9,000
3. EDP personnel (two programer monitors) — annual salary, $18,000
4. One clerk — annual salary, $5,000
5. Average monthly overhead, $750.

This was the situation as of 1964. But already the firm was working on their most ambitious project to

SALES REPORT — WEEK JAN. 24-31, 1964

CLIENT NO. 10-002-051 — REPORT # 1

CODE	PRICE RANGE	DEPT.- CASUAL DRESSES	WEEK UNITS	WEEK $	MONTH TO DATE UNITS	MONTH TO DATE $
700	8.98	DRESSES-MISSY	17	153.00	61	549.00
702	10.98	DRESSES-MISSY	20	220.00	40	440.00
704	13.98	DRESSES-MISSY	25	350.00	56	784.00
706	19.98	DRESSES-MISSY	20	400.00	78	1,560.00
707	26.98	DRESSES-MISSY	8	216.00	34	918.00
708	36.98	DRESSES-MISSY	4	148.00	17	629.00
		TOTAL-MISSY	94	1,487.00	286	4,880.00
710	8.98	DRESSES-JUNIOR	22	198.00	76	684.00
712	10.98	DRESSES-JUNIOR	27	297.00	95	1,045.00
714	13.98	DRESSES-JUNIOR	21	294.00	81	1,134.00
716	19.98	DRESSES-JUNIOR	10	200.00	42	840.00
		TOTAL JUNIOR	80	989.00	294	3,703.00
		TOTAL CASUAL DRESSES	174	2,476.00	580	8,583.00

THIS SALES REPORT CAN BE CREATED FROM POINT OF SALES RECORDING OF DATA ON PUNCHED PAPER TAPE (RECORDING ON WIRED CASH REGISTERS), OR BY BACK-OFFICE DATA RECORDING ON TAPE-PUNCHING MACHINES OR ACCOUNTING MACHINES.

RECORD OF SALES CAN BE IN DOLLARS, UNITS, OR DOLLARS AND UNITS.

EXHIBIT I

Report I, a weekly sales report, can be compiled either from point-of-sales recording data or by back office recording. The record can be either in dollars or units or both.

date. One of their regular clients was Garber's, a small but highly efficient Staten Island department store. Garber's had for a long time been taking full advantage of Lennox and Lennox's computer capabilities. And Garber's was active in the Smaller Stores Division of the National Retail Merchants Association.

NRMA proposal

The NRMA, fully conscious of the advantages computers offered the large stores which could afford them, had evolved a plan: to develop a package program under which small stores could prepare their basic data in the form of machine-sensible records that could in turn be sent to a data center for further processing. NRMA would own the basic program, which would be made available to those stores that were organized, or could be organized, to use it. Each individual store would pay the service center a fee based on the volume of its transactions that were handled by the bureau.

Lennox and Lennox were approached. Would they be interested?

They had a choice. They could "go for broke" – take a chance, put in the time and effort to work out a basic program for the NRMA in the hope that eventually they would get the assignment. The reverse side of the coin was that they were a small, local firm; they were not nationally known as a data processing center; they were not centrally located; and they had no branches. Furthermore, and perhaps as damaging as anything else, they had only one computer, the medium-scale 390, which could not conceivably handle the records of a great number of stores.

Moreover, if they did not get the job, all the time and expense spent in preparing a program for NRMA would be in vain. Lennox and Lennox would be in exactly the same position as any other of the service centers that had sought the contract unsuccessfully.

It was a major decision, and the decision was yes. The three partners decided to take the chance, reasoning that their experience in working on the processing of records for Garber's and other stores gave them some advantages. They

SALES AND INVENTORY REPORT MONTH ENDING JAN. 31, 1964

SMALLER STORES DIVISION REPORT # 2

National Retail Merchants Association
100 West 31st St., New York N.Y. 10001

CLIENT NO. 10-002-051

CODE	PRICE RANGE	DEPT. - CASUAL DRESSES	B.O.M. BALANCE 1/1/64	PURCHASES $	SALES $	MARK UP/ DOWNS $	MARK UP/ DOWNS % TO SALES	E.O.M. BALANCE 1/31/64	PURCHASES TO DATE	SALES TO DATE	MARK UP / DOWNS TO DATE
700	8.98	DRESSES-MISSY	742.00	608.00	549.00	30.80	5.4	771.00	3,120.00	2,760.00	146.00
702	10.98	DRESSES-MISSY	616.00	480.00	440.00	35.00	8.0	621.00	2,390.00	2,307.00	175.00
704	13.98	DRESSES-MISSY	1,320.00	925.00	784.00	49.00	6.3	1,412.00	4,625.00	3,820.00	250.00
706	19.98	DRESSES-MISSY	3,214.00	1,726.00	1,560.00	179.00	11.5	3,201.00	8,630.00	7,800.00	898.00
707	25.98	DRESSES-MISSY	2,087.00	1,100.00	918.00	149.00	16.2	2,120.00	5,420.00	4,582.00	750.00
708	36.98	DRESSES-MISSY	1,485.00	610.00	629.00	57.00	9.00	1,409.00	3,080.00	3,050.00	294.00
		TOTAL MISSY	9,464.00	5,449.00	4,880.00	499.00	10.2	9,534.00	27,265.00	24,319.00	2,513.00
710	8.98	DRESSES-JUNIOR	700.00	520.00	684.00	42.00	6.1	496.00	2,600.00	3,542.00	210.00
712	10.98	DRESSES-JUNIOR	1,493.00	1,100.00	1,045.00	84.00	8.0	1,468.00	5,625.00	5,225.00	418.00
714	13.98	DRESSES-JUNIOR	1,970.00	1,320.00	1,134.00	130.00	11.4	2,026.00	6,700.00	5,570.00	647.00
716	19.98	DRESSES-JUNIOR	2,143.00	1,008.00	840.00	60.00	8.1	2,251.00	5,030.00	4,100.00	301.00
		TOTAL JUNIOR	6,306.00	3,948.00	3,703.00	316.00	8.5	6,235.00	19,955.00	18,437.00	1,576.00
		TOTAL CASUAL DRESSES	15,770.00	9,397.00	8,583.00	815.00		15,769.00	47,220.00	42,756.00	4,089.00

THIS REPORT SHOWS THE PURCHASES, SALES AND MARK UP/DOWNS AT RETAIL PRICE LEVELS FOR A MONTH (OR OTHER SPECIFIED PERIOD OF TIME), AND THE CALCULATED RETAIL VALUE OF THE INVENTORY CATEGORIES AT THE END OF THE PERIOD (MONTH END IN THIS EXAMPLE). IT ALSO SHOWS PURCHASES, SALES, MARK UP/DOWNS TO DATE.

EXHIBIT 2

Report 2, a periodic sales and inventory report, shows purchases, sales, and markdowns at retail prices for the period covered, as well as retail value of inventory categories at the end of the period.

met with NRMA and undertook to prepare a program with the association, with the clear understanding that the association committed itself to nothing.

The joint work with the NRMA committee was a revelation to the accountants. Now in contact with representatives from stores all over the country, they found that there was not even a common merchandising language among them all. Stores were found that did not have either a cash register or an adding machine; all receipts went into a box, and such records as were kept were posted by hand.

Coding

So almost the first job was to set common terms on which all could agree and at least a form of coding of merchandise classifications.

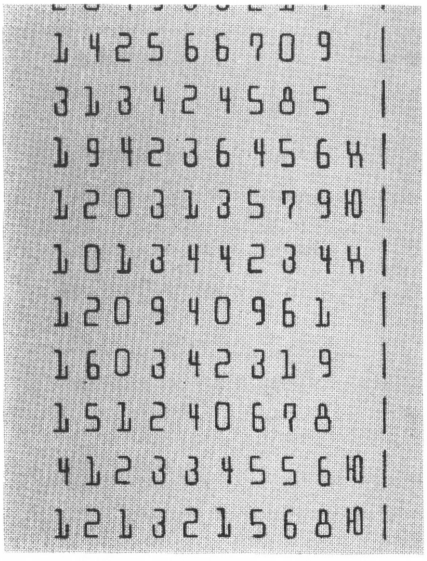
The terms, ranked by position, most commonly used in inventory and merchandise reports were finally established as these:

Store
Merchandise Division
Department
Classification
Price Line
Vendor
Style
Color
Size

An ITEM is defined as the unit on which control is exercised, and this can vary between stores and even among departments within stores. Thus a Men's Furnishing Department may reflect sales by Classification, or type of article, only. Here each ring on a sales register or each line item on a sales check, reflecting Department and Classification code numbers and dollar amount of the sale, would be considered one ITEM. In Women's Coats, on the other hand, much more detailed Unit Control records might be maintained showing Vendor, Style, Color, and Size. Here each item of merchandise is considered one ITEM.

Each ITEM handled is accumulated in one SKU (stock keeping unit). Thus if a store with twenty departments reports sales by department only, there would be only 20 SKUs. If, on the other hand, each department broke sales down by ten classifications, there would be 200 SKUs, etc.

The system as it evolved simpli-



This is a sample of type which may be optically scanned, and which is also legible to humans. The scanner reads as a human does, from left to right, but it does so at a much higher speed—26 lines a second. The reading head identifies each symbol by matching each vertical line in the upper and lower portions of the individual character with a zoned configuration of the character stored in its memory . . .

fied the coding problem by making it flexible enough to cover the finest as well as the roughest breakdowns.

Another surprise to Lennox and Lennox was the primitive state of most smaller stores' merchandising records. A crude form of sales analysis was all that most of them attempted.

Equipment

Even so, it became apparent that the accounting firm, if they were to be the data processing center selected by NRMA, would have to have a computer of much larger capacity than the National 390. An NCR 315, which could accept paper tape input like the 390, was tentatively selected. But that in turn posed new problems. Lennox and Lennox were not large enough to finance the 315, nor would they particularly need it if the NRMA project did not materialize. An agreement was worked out with National Cash whereby the larger computer would be delivered on a lease-purchase agreement if the NRMA work went to the Staten Island firm.

All of this planning took the better part of a year – and still no final selection of a data processing center had been made. And, as more companies had become aware of NRMA plans, the competition grew hotter. Other stores which had some experience with other data processing centers advanced the merits of their entries. To add to the confusion, National Cash Register, the same company which made the equipment selected by Lennox and Lennox, offered a basic and quite complete accounting package for small retail stores through its regional data centers and put all the publicity behind it that it could.

The NRMA electronics committee that was to make the final selection of the data processing center gave only one reassurance: Cost of the service was not the only consideration, although it was important. However, all other things being equal the CPA firm would not be ruled out of the running unless the price they quoted was out of line with that of the lowest competitor.

Lennox and Lennox gave an estimate based on minimum numbers of items to be processed for each store and the quantity of reports required by the stores. Under their program, each participating store would furnish data in the form of punched paper or optical character font tapes prepared at the store via cash register, adding machine, or accounting machine. If the form used to collect data was punched paper tape, such tapes would be fed directly into the computer on paper tape readers; if the data were in the form of optical font characters, the tapes would be converted by optical scanner to punched paper tape at Lennox and Lennox. Each store would be started on Report 1, a weekly sales report, and then given Report 2, a monthly sales and inventory report. Four other reports would be optional.

Magazine helps firm

At this point an entirely unforeseen factor entered the picture. Some time before, John Lennox had written an article for this magazine, explaining in some detail how and why he had originally established his service center and giving some information on the type of work it enabled him to do. At that time, the NRMA project was not even in the planning stage.

After some consideration, the editors of MANAGEMENT SERVICES, feeling the article would be of greater interest to readers of its sister publication, *The Journal of Accountancy*, turned it over to the *Journal* staff. They liked it but could not schedule it for some months. It finally appeared in the November, 1964, issue.

It is John Lennox's belief that the article, explaining in some detail how long he had been involved with EDP and how his staff had prepared for their installation, was a strong deciding factor for the

NRMA. Now Lennox and Lennox had the one thing they had lacked, recognition on a national basis. In January of this year, the NRMA announced the decision. The data processing center chosen was Lennox and Lennox.

Potential

Now, three months after the start of the program, Lennox and Lennox are processing records for twenty stores. Installation procedures are being prepared for twenty-seven more, and a total of 102 stores are currently at one stage or another in their plans for an EDP installation. And, as staff time is available, additional stores will be added. The potential number is enormous. The Smaller Stores Division of the NRMA has 4,300 member stores and specialty shops, and the total NRMA membership approximates 7,500 member stores.

Not all of these, of course, either qualify for or necessarily want data processing services. Some are much too small to require it; others cannot fit their procedures to the NRMA program or do not have the necessary equipment of their own to produce cash register or adding machine tapes, which is a first essential to participating in the plan. Some—a very few—have equipment so elaborate that it cannot be used economically. One optimistic candidate was sure he had exactly the right input equipment, since he had just installed new cash registers that printed on their tapes dollar amount of the sale, local sales tax, money tendered, and amount of change made. The only difficulty was that this was many times the amount of information needed for merchandise reports, where the only sales analysis figure needed is amount of sale. For this client, the data processing service would have been prohibitively expensive without modifying existing machines.

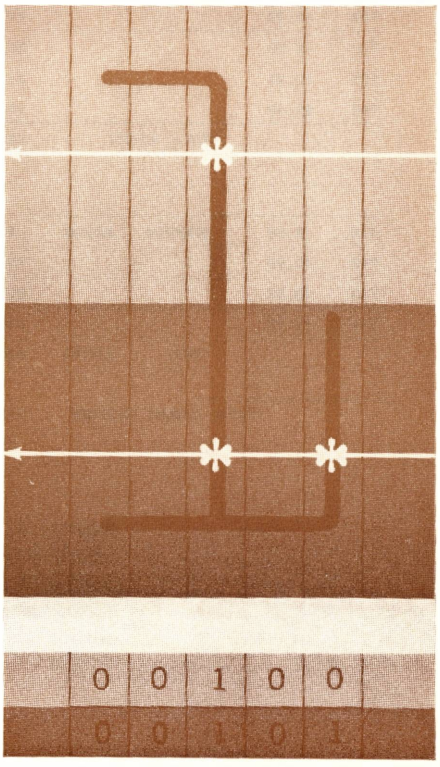
On the whole, the program has proved to be valuable to stores far smaller than was originally thought possible. As originally projected, it was thought that only stores with an annual volume of at least a million dollars would be interested. Lennox and Lennox are currently preparing merchandising reports for stores varying in annual volume from $350,000 to $38 million. Cost to each store is approximately 10 to 30 per cent lower than the store would have to pay for a custom program at an individual data processing center.

Costs to a store in the one to two million dollar range are between $2,000 and $2,500 annually for data processing alone, between $3,500 and $4,000 annually for all costs — data processing, store equipment costs, and clerical labor in the stores. Initial set-up charges range between $55.00 and $400.00, plus the cost of any new equipment the store might need.

Optical tape

Equipment in the stores has been another surprise factor. As originally projected, the program envisaged that the majority of stores would use tape punching cash registers and adding machines and that the perforated tape would be sent to Lennox and Lennox for direct computer input. A second option was offered: The store, if it wished, could send in tapes produced with NCR figures acceptable to an NCR optical scanner. It was thought, however, that this would be used only by a very small minority of stores.

Actually, more than 50 per cent of the stores using the program have installed NOF (NCR machine readable printing) equipment. This means Lennox and Lennox must use their optical scanner to translate the printing on the tapes to punched tape for computer entry. Therefore it raises the cost of the service to the store. However, a store can often adapt its present cash registers and adding machines to NOF type by having NCR make modifications, whereas buying new tape punching equipment or attachments for present machines would be considerably more expensive. Most merchandisers would



. . . thus, the symbol "1" above is recognized by the scanner by its three vertical lines—one each in the upper and lower portions of the third zone, one in the lower portion of the fifth zone. This is translated by the scanner as the figure "1."

REPORT #3

PHYSICAL INVENTORY, SHORTAGES AND TURNOVER REPORT — JANUARY 31, 1964

PERIOD COVERED-- AUGUST 1, 1963 TO JANUARY 31, 1964

CODE	PRICE RANGE	DEPARTMENT & ITEM	E.O.M. BALANCE 1/31/64	PHYSICAL INVENTORY 1/31/64	INVENTORY DIFFERENCE OVER SHORT	SALES FOR PERIOD	OVER SHORT % OF SALES	MARK UPS/DOWNS % OF SALES	COMBINED SHTGE MARK DOWNS % OF SALES	ANNUAL TURN/OVER RATIO	SIX MONTHS TURN/OVER RATIO
700	8 98	DRESSES MISSY	771	792	21	2760	.7	5.4	4.7	8.9	8.3
702	10 98		621	584	37	2307	1.6	8.0	9.6	7.6	7.4
704	13.98		1412	1327	85	3820	2.2	6.3	8.5	6.5	6.6
706	19.98		3201	3198	3	7800	.0	11.5	11.5	4.8	4.7
707	26.98		2120	2104	16	4582	.3	16.2	16.5	4.6	4.5
708	36.98		1409	1400	9	3050	.3	9.0	9.3	4.2	4.8
		TOTAL MISSY	9534	9405	129	24319	.5	10.2	10.7	6.1	6.1
710	8.98	DRESSES JUNIOR	494	488	6	3542	.2	6.1	6.3	8.6	8.3
712	10.98		1464	1450	14	5225	.3	8.0	8.3	7.3	7.4
714	13.98		2026	2020	6	5570	.0	11.4	11.4	6.7	6.7
716	19.98		2251	2255	4	4100	.1	8.1	8.0	5.1	5.2
		TOTAL JUNIOR	6235	6213	22	18437	.1	8.5	8.6	6.9	6.9
		TOTAL CASUAL DRESSES	15769	15618	151	42756	.4				

EXHIBIT 3

Report 3, which like Reports 4, 5, and 6, is only used for a store which has been on the EDP system for a year or more, is a six-month summary of inventory, shortages, and turnover. It is based on information stored in the computer's "memory" from earlier data accumulated from Reports 1 and 2 for the store.

prefer to pay higher processing rates and use their capital for the goods they can sell.

This was the least of the surprises. Far more serious has been the problem of transmitting the information. Originally, when it was thought that punched paper tape would be the stores' most common medium, stores were told they could use Data-Phone or the mails to send their data to Lennox and Lennox. The mail offer still holds good, but Data-Phone — which transmits punched paper tape information by electrical signals that produce an identical tape at the receiving end — is useless with information that must be optically scanned. The accounting firm has had to make an arrangement with NCR by which the NRMA program will be run at regular NRMA rates by West Coast or Deep South NCR centers for stores with NOF equipment that feel distance makes the mails impracticable. Bell System engineers are now working on this problem so that eventually it will be possible to transmit visual information over a Data-Phone, but to date they have not made the solution available.

Store data

Sources of the data sent in to Lennox and Lennox depend on the accounting practices already in existence at participating stores. Some very small stores use only a very simple coding system and a tape punching or optical font printing cash register, and all hard copy reports are based on this information. A slightly larger store might use a few such cash registers and also a tape punching or optical font printing adding or accounting machine in its back office. A quite large store is likely to use any combination of paper tape or optical font cash registers plus back office input machines. The system can accept input data from any and all of these machines.

With these data Lennox and Lennox can give each participating store a sales report and a sales and inventory report (Exhibits 1 and 2, pages 36, 37) for the time period the store finds most useful. As information is stored in the computer files about any particular store it will become possible to give a complete accounting picture covering past periods of time for that store. Thus, after a store has been under the system for some time, there will be enough information about it stored by the computer system to allow Reports 3, 4, 5, and 6 (Exhib-

SEASON MERCHANDISE PLANNING REPORT — REPORT # 4

		HISTORICAL INFORMATION					PLANNED INFORMATION				
MONTH	CODE	BEGIN OF MONTH INVENTORY	SALES	SEASON TOTAL M/D ON SALES %	ANNUAL TURNOVER	STOCK SALES RATIO	PLANNED STOCK SALES RATIO	PLANNED SALES	ANTICIPATED MARK/DOWNS	CALC. B.O.M. INV.	OPEN TO BUY
FEB.	700	771	490			1½	1½	500	40	750	630
MAR.		750	520			1½	1½	560	40	840	360
APR.		774	619			1¼	1	600	55	600	905
MAY		800	800			1	1	850	85	850	935
JUNE		840	840			1	1	850	85	850	585
JULY		388	310			1¼	1¼	400	—	500	100
	TOTAL		3,579	10.3%	8.9						3515
FEB.	702	800	400			2	2	425	30	850	505
MAR.		870	435			2	2	450	40	900	565
APR.		1,103	630			1¾	1½	650	55	975	1,080
MAY		1,335	892			1½	1½	900	80	1,350	530
JUNE		1,120	901			1¼	1	700	80	900	450
JULY		435	350			1¼	1	370	—	370	
	TOTAL		3,608	11.1	7.6						3,130

THE HISTORICAL SECTION OF THIS MDSE. PLANNING REPORT IS PREPARED BY THE COMPUTER CENTER FROM DATA COLLECTED FROM LAST SEASONS MERCHANDISING DATA. IT IS THEN FORWARDED TO THE RETAIL STORE, WHERE THE PLANNED STOCK-SALES RATIO, PLANNED SALES, AND ANTICIPATED MARK-DOWNS ARE FILLED IN AS PLANS FOR THE COMING SEASON. WHEN THIS "PLANNING DATA" IS RETURNED TO THE COMPUTER CENTER, THE REPORT IS COMPLETED SHOWING THE CALCULATED B.O.M. AND OPEN TO BUY FOR THE NEXT SIX MONTHS.

THE PLANNING ACCOMPLISHED IN THIS REPORT SERVES AS THE BASIS FOR FORECASTING THE "OPEN TO BUY" REPORT # 4.

EXHIBIT 4

Report 4 is supplied to the store to aid merchandise planning of purchases. The store concerned completes the report, filling in beginning-of-the-month and open-to-buy figures for the succeeding six-month period. Report 4 is the basis for calculating Report 5 (page 42).

its 3, 4, 5, and 6, pages 40, 41, 42, 43, respectively) to be furnished to the store if it wishes them.

A store will have to be in the new system for at least a year before it can progress to these reports.

Many stores have such a simple classification system that they can get all the information they need for merchandise orders and detection of trends in sales from Reports 1 and 2 alone. Others, however, with elaborate systems covering thousands of items, will have a degree of control through the more sophisticated reports never possible before.

Although technically the program is available to any NRMA member store, in reality some limits have to be set. Some stores simply do not have enough basic information, or accurate enough information, to use the program. Other stores have a system of their own which cannot fit into even the very liberal limits set by the NRMA plan. Some stores aren't interested, others don't have the proper data recording equipment and are unwilling to get it.

Screening

All this requires a very thorough analysis of a store's equipment and system before it can be accepted in the program. As of now, there is a three-step screening process which a store must go through before acceptance in the plan. It must first fill in a short questionnaire, which is returned to the NRMA. If the answers to the questions look hopeful, the store is then referred to Lennox and Lennox, who send out a far more detailed, 17-page questionnaire to the retail establishment. This questionnaire, which is divided into eight sections, investigates the store's merchandising pattern, its accounting methods, and the type of equipment it is currently using.

When the store completes this

OPEN TO BUY REPORT — REPORT # 5

MONTH ENDING FEB. 29, 1964

CODE	PRICE RANGE	E.O.M. INV. 1/31/64	FEB. ON ORDER	AVAILABLE FOR SALE	PLANNED SALES	ANTICIPATED MARK-DOWNS	PLANNED 2/29/64 INV.	OPEN TO RECEIVE FEB.	MAR. ON ORDER	APR.	MAY	JUNE-JULY	OPEN TO BUY MAR-JULY
700	8.98	771	100	871	500	40	750	419	300	800	1000	100	2885
702	10.98	621	85	706	425	30	900	649	500	1000	250	0	2625
704	13.98	1412	210	1622	800	70	1500	748	200	1400	1400	50	3410
706	19.98	3201	610	3811	1600	120	3000	909	800	800	0	0	4310
707	26.98	2120	350	2470	1000	80	2500	1110	1000	750	500	0	4820
708	36.98	1409	300	1709	600	50	1200	141	150	150	100	100	2530
TOTAL MISSY		9534	1655	11189	4925	390	9850	3976	2950	4900	3250	250	20580
710	8.98	494	500	994	700	50	1050	806	1000	1000	500	500	3405
712	10.98	1464	1000	2464	1000	80	1500	116	850	850	550	550	4460
714	13.98	2026	800	2826	1100	100	1700	74	1500	1200	700	0	4795
716	19.98	2251	100	2351	850	70	1500	69	1000	200	100	0	3620
TOTAL JUNIOR		6235	2400	8635	3650	300	5750	1065	4350	3250	1850	1050	17280
TOTAL CASUAL		15769	4055	19824	8575	690	15600	5041	7300	8150	5100	1300	37860

THE MONTHLY (OR OTHER PRE-DETERMINED INTERIM) OPEN TO BUY REPORT SHOWN HERE IS BASED ON THE CURRENT RECORDING OF ORDERS PLACED, MERCHANDISE RECEIVED, GOODS SOLD, COUPLED WITH SALES AND INVENTORY LEVELS PLANNED IN REPORT # 3. THIS REPORT ENABLES THE BUYER AND MANAGEMENT TO MAINTAIN AN OVERALL BALANCE OF STOCK.

EXHIBIT 5

Report 5 shows current information on orders placed, goods received, and merchandise sold. When combined with the sales and inventory data contained in Report 4 (page 41), it helps the store buyer to maintain his overall stock balance.

phase of the program, it is then visited by a Lennox and Lennox staff member. This step would be essential in any event in order to prepare the store for absorption into the system; it has also proved necessary to learn whether the answers given to the questionnaire were correct. Often the written forms are filled in by the store president or controller who honestly believes his store is doing things a certain way. Investigation often shows that the method he has described exists only in his mind, or, at best, in an operating manual that is completely ignored by store personnel.

If this should be the case, or if the store's methods and equipment need major alterations to fit into the NRMA pattern, suggestions are given for such changes. When the changes have been made, Lennox and Lennox will return to the store for a re-evaluation. When such necessary changes are really extensive and require outside help over a period of time, the store is advised to consult its own CPA in adapting its accounting methods to the NRMA pattern.

A store that is in relatively good shape will be accepted by the firm but there will always be final adjustments that must be made. Wiring diagrams for the store's mechanical equipment must be compatible with the NRMA program; the accountants design these individually and supply them to the manufacturer of the machines.

Personnel

The accountants have had their own difficulties with the program, too. A real trouble has been enough personnel. Even though stores that do not fit readily into the NRMA program are advised of the changes that must be made and told to work them out for themselves or with their own CPA, nevertheless the work load for a staff as small as that of Lennox and Lennox has been overwhelming. And people skilled in and knowledgeable about computers are in short supply and high demand. Still, the firm is add-

CLIENT NO. 10-002-051 — UNIT CONTROL REPORT — REPORT # 6

BY DEPARTMENT, MANUFACTURER, PRICE RANGE AND STYLE — WEEK ENDING JAN. 31, 1964

CODE DEPT. MFG. PRICE/STYLE	DEPT-CASUAL DRESSES CURRENT STOCK	OPENING BALANCE	RECEIVED	SOLD	ENDING BALANCE	ON ORDER	RECEIVED TO DATE	SOLD TO DATE
7 - 094 - 01	DRESSES-MISSY	37	15	17	35	24	116	81
7 - 094 - 03	DRESSES-MISSY	26	12	14	24	0	94	70
7 - 094 - 14	DRESSES-MISSY	24	16	14	26	36	82	56
7 - 126 - 22	DRESSES-MISSY	41	44	30	55	144	192	137
7 - 126 - 39	DRESSES-MISSY	20	10	12	18	2	62	44
7 - 243 - 06	DRESSES-MISSY	24	12	14	22	9	50	28
7 - 274 - 99	DRESSES-MISSY	4	0	0	4	0	4	0
	TOTAL CURRENT MISSY	176	109	101	184	215	600	416
	NON-CURRENT STOCK							
7 - 000 - 19	DRESSES-MISSY	12		2	10	0	14	4
7 - 000 - 39	DRESSES-MISSY	17		5	12	0	22	10
7 - 000 - 59	DRESSES-MISSY	7		6	1	0	13	12
7 - 000 - 79	DRESSES-MISSY	10		0	10	0	10	0
7 - 000 - 99	DRESSES-MISSY	3		2	1	0	5	4
	TOTAL NON CURRENT MISSY	49		15	34	0	64	30
	TOTAL MISSY	225		116	218	215	664	446

THIS REPORT CONTROLS MERCHANDISE ON A UNIT BASIS, THROUGH A WEEKLY REPORT, INDICATING THE ACTIVITY OF STOCK BY THE FOLLOWING DESCRIPTIVE CATEGORIES.

(A) DEPT (1ST CODE DIGIT, "7", IN THE EXAMPLE SHOWN)

(B) MANUFACTURER (UP TO 999 MANUFACTURERS IN EACH DEPT. FOR EACH STYLE/PRICE RANGE)

(C) PRICE RANGE (BY ASSIGNING GENERAL RANGE OF, "00" THRU "19" TO UNDER $ 10.00 SALES PRICE CATEGORY, AND "20" THRU "39" FOR $ 20.00 SALES PRICE RANGE, ETC. TO A MAX. OF 5 PRICE RANGES.)

(D) STYLE NUMBER (BY ASSIGNING, WITHIN A PRICE RANGE, A MANUFACTURER'S STYLE NO. FROM "00" THRU "19", THIS INDICATING; TWENTY STYLE RANGES WITHIN A TEN DOLLAR PRICE LIMIT; ETC.)

APPENDIX TO CODE	CODE
7- DEPT.-CASUAL DRESSES	7 - 000 - 00
7-094 CASUAL DRESSES-JONES CO.	7 - 094 - 00
7-094-01 - $10 PRICE RANGE	7 - 094 - 00 TO 19
7-094-01 - $10 RANGE, STYLE # 1	7 - 094 - 01

THIS UNIT CONTROL REPORT CAN BE ADOPTED FOR AN ENTIRE STORE, OR FOR SPECIFIC DEPARTMENTS THAT MAY REQUIRE UP-TO-THE-MINUTE STOCK CONTROL.

BY CAREFULLY SELECTING ONLY MERCHANDISE CATEGORIES THAT MERIT "UNIT CONTROL", IT IS NOW ECONOMICALLY FEASEABLE TO TIE-IN "UNIT CONTROL" WITH YOUR TOTAL MERCHANDISING DATA PROCESSING PLAN.

EXHIBIT 6

Report 6 permits merchandise control on a unit basis, and shows stock activities by coded descriptive categories. Thus, the code number "7-094-01" in the first line identifies the department of the store, the manufacturer of the merchandise sold, its cost, and the style number of the goods sold.

ing them just as fast as they can. They have managed to get them by offering extremely attractive incomes. They have devised a fairly elaborate profit-sharing system which makes it possible for non-CPAs to earn nearly as much as partners, even though they cannot, of course, become partners.

Another difficulty has been equipment. Lennox and Lennox had laid their ground with NCR when the NRMA contract first seemed a possibility and had confirmed their order as soon as they were sure of

doing the NRMA work. But the inevitable delivery delay prevented getting the 315 and optical scanner until May of this year, while they have had to process data from participating member stores since January. Their solution was to put the 315 programs on the 315 at NCR's New York data center. But every computer must always have a back-up unit, an identical machine that can accept the same program, process it, and come out with the same output. Then, if for any reason the original machine breaks down, the program can be maintained with a minimum of delay as long as the computer owners have a standing exchange arrangement. Since there are a number of 315s in the New York area, this doesn't seem much of a problem.

Actually, it was a very serious one as Lennox and Lennox learned when the 315 at the data center did break down. The 315, like most modern computers, is a modular machine, with varying peripheral equipment conformations of varying capacities and speeds. Lennox and Lennox, which anticipated a relatively simple program for a large amount of information from a large number of stores, had decided that they would design a system with a large "core" memory for sorting data, with updating files maintained through magnetic tape storage on 33KC Drives. Compatibility in this instance, for back-up, means that it is necessary to find a similar unit of the same internal memory "core," as well as external magnetic tape drives in the same quantity and speeds. They finally found identical machines in Philadelphia and Hartford.

Another unforeseen equipment difficulty showed up at the store level. Although many existing cash registers or adding machines can be adapted for use with an optical scanner simply by replacing type bars with optical font type bars, the mechanisms that activate these bars do not always strike with equal pressure in very old machines. So at the beginning optical tapes were coming into Staten Island that could not be read by the scanner. That difficulty has been solved now by adjustments in the store, but it illustrates the range of unexpected troubles that can occur in a program like this.

How could Lennox and Lennox, with such a small staff, write six programs for the six merchandising reports in the short time span covered by the entire NRMA venture? The answer is: They didn't. They knew such programs could be written; after all they had already written them for their old 390 for Garber's on Staten Island. So they concentrated on Reports 1, 2, and 6, which were completely rewritten for the 315. Then they programed Reports 3, 4, and 5 knowing that only the first reports could be prepared for any store anyway until the store had gathered one year's data required for the inventory reports, seasonal planning reports, and the open-to-buy reports. By the time a store has been operative for the required period of time, all reports will be available for NRMA members.

Their confidence in the future is best illustrated by their actions. Already foreseeing the day when their present machine will be inadequate, they have begun to investigate equipment which can do several jobs simultaneously.

The future

All of this has been a lot more expensive than the 390 installation. All expenses for the 315, the optical scanner, and data processing personnel will run to $251,000 for a twelve-month period. Still Lennox and Lennox have charted their course and so far see nothing to regret. They now have five other associations, similar to the NRMA, for which they are devising programs, and they have turned down one. They eventually hope to do association work and their own and other CPA financial statement work almost exclusively.

Their confidence in the future of their accounting-data processing center is perhaps best illustrated by their actions: They already foresee the day when the one 315 will be inadequate to meet their needs. They have therefore already begun to explore the newest generation equipment which is more powerful and can do several jobs at one time.