1972

Store of 1970 here at last!

William D. Power

The "Store of 1970" here at last!

by William D. Power

The retail industry is in the throes of one of the most revolutionary changes in its history—the conversion from the faithful mechanical cash register that has served it for almost 100 years to the electronic terminal, or, to use the jargon, the point-of-sale device.

A PREDICTABLE CHANGE

The "Store of 1970" mentioned in the title of this article is an inside joke at Touche Ross. It refers to the Retail Presidents' Conferences we developed for the National Retail Merchants Association beginning in 1964. The central theme of that program was a hypothetical store of the future full of electronic wonders, and for the next five years or so we presented it many times in the U.S., Europe and Mexico. We called it "The Store of 1970" because in 1964 that seemed far enough away to be "the future." The future doesn't have to be too many years out to qualify in the area of computer technology.

With that short explanation, you can understand now when I say that the Store of 1970 has finally arrived—two years late, it appears. But not really, because in 1970 the death knell of the mechanical cash register could be heard clearly. Forward-thinking retail companies were placing orders for electronic units for new stores and planning for the conversion of registers in existing stores over the next several years. When Sears placed a reported $70 million order with Singer for electronic registers (and supporting minicomputer systems) the faint-hearted among retailers were convinced that the time had come.

Many more have followed suit—almost all of the big names in the department store group—Penney, Ward, Allied, Federated, Macy, Gimbel, May Company, Dayton-Hudson, Broadway. In fact, to be fair, one has to say that some of them preceded Sears in installation, though probably not in preparation.

Discounters have not been asleep, either. They saw the electronic terminal as a solution to their lengthening checkout lines, their increasing need for unit sales information, and the pressure on them to offer credit. Barkers, Korvettes, Woolco, Target (Dayton-Hudson), Treasury (Penney), Grandway (Grand Union) and more have installed electronic units and others continue to join the parade.

IMPACT ON CASH REGISTER INDUSTRY

While there has been a revolution in retailing, there has been an even greater upheaval in the business-equipment supplier field. NCR, the giant of the old cash register industry, has moved to electronic systems and Sweda, which maintained a distant second position, is scrambling to shift over to the electronic ballgame.

The other major players are, for the most part, newcomers to the point-of-sale field. Singer, which has grown far beyond its sewing machine days, was one of the first in the market with a completed product, announcing its point-of-sale terminal in the fall of 1969. From that lead (and the Sears order) it has moved to number one position at present. Alpex was a very early entry, working doggedly to develop and test its unit since 1968. When it joined with Pitney-Bowes to form PBA, it gained the stature and substance it needed to make it a first class competitor—and its sales performance bears that out. Uni-Tote (a General Instrument Company) is an exception. It is the one contender in the race (leaving out NCR and Sweda) that has been around for a while. Uni-Tote has offered an electro-mechanical "advanced cash register" since 1962 and there are some 3,000 of these in current operation. They now have a fully electronic terminal and minicomputer system to keep them in front-line competition. Regitel is another company that bears mentioning, particularly since it has been strengthened by substantial backing from Motorola.

Probably the most interesting situation of all is IBM. They avoided a direct entry into the retail terminal competition for years—when it was as plain as the nose on NCR's face that a tremendous market was bound to develop because of technological progress. But now they have dropped the veil and admitted that they are going to participate. Mr. Learson said so in plain language in the March issue of FORTUNE and IBM's actions with prospective customers show that they are ready to do business.

Various soothsayers in the security-analyst and marketeering fields predict sales of over a billion dollars for POS equipment over the next three or four years.

THE REASONS

What is the reason for all this hullabaloo around the cash register? Why not let NCR husband the retail industry as it has these many years? There are really two kinds of answers. One is rather intellectually satisfying. It says that retailers need greater capability to deal with the millions of transactions they are required to handle

Author William D. Power in his office with the old baroque cash register that has become the trade-mark of the Retail Services group. Power says that the mechanical register has seen its day and is being replaced by the electronic point of sale terminal.

—like the thousands of orders they place, for millions of items, to thousands of suppliers; like the millions of bills they send to their charge-account customers each month and the adjustments they handle as a consequence; like the millions of things that customers buy all the time and expect to be in stock. The problems that flow out of these areas are aggravated by all the characteristics of our rapidly expanding world. The other answer is simpler—rather like climbing the mountain because it is there. It says that business will use technology—will apply it to its problems—just because it exists at a reasonably economical price.

It is the latter of the two reasons that is the most interesting—and the one that permits the prediction of the future course of events in certain cases. If you are convinced that certain technological changes will occur—that the transistor will appear on the scene, for example, or that LSI (Large Scale Integration) will bring about miniaturization—then the rest is easy. You can visualize an adding machine (calculator) the size of a pack of cigarettes, or a wrist radio like Dick Tracy's or a cash register like the one described in the "Store of 1970."

So, while retailers are acutely aware of the problems that face them in the systems area, they are relatively powerless to do anything to improve their lot until technology is ready to nudge them forward. The millions spent on the so-called "AMC project" (or "Higbee project") of the late 1950s produced little in the way of tangible systems advances in retailing because it was ahead of technology. (This is not to say that the experiment did not benefit retailing—it did. It was an effort based on progressive, forward-looking principles and it is unfair and unjust to hear it referred to as a failure by the uninformed, or misinformed). Yet a simple "technological" advance like the invention of the Craig cycle billing system (just before computers came on the scene) caused a major upheaval in the industry and the change of the whole credit system from end-of-month descriptive billing to country club billing (the advent of computerized billing caused the change back again).

The electronic terminal is a sort of "presence" then, a fait accompli that retailers will accept and use because it is there. The point-of-sale terminal, the electronic cash register is only the thin end of the wedge though, a taste of things to come in retailing systems that will change the whole environment.

Charles Adams *(center)* president of Sweda International (a division of Litton Industries) discusses the Sweda point of sale terminal with Bernard J. Cianca and Arthur Michaels, Touche Ross senior retail partners. The occasion was a meeting of our Retail Services group in New York.

THE FULL SCALE SYSTEM IN RETAILING

When you consider the full cycle of activity in retailing it seems more logical to think of the placing of an order by a buyer, rather than the completion of a sales transaction, as the starting point. Starting there, then, we will see terminals designed for buyers' use which will permit interrogation of computer files for "on hand" positions, calling out of mathematical formulae to compute order quantities, and machine entry of order information for transmission to vendors. All this will be done *"on line"* or in the so-called *"man-machine"* mode.

The ordering process creates a by-product machine record which constitutes the store's *"on order"* file, as well as the criteria against which to produce receiving documents when goods arrive and computer-produced price tickets (unless goods are premarked by vendors).

Following along in this sequence, goods are sent to the selling floor where, at the point-of-sale, the machine-readable price ticket is read by a hand-held, pencil-like device—called a *"wand"* in the trade. These devices presently read either printed bar patterns (optical scanning) or magnetic encoding (much the same as that used on computer tape). The information read contains item identification information for inventory control. In more advanced systems, particularly in food stores, the system will look up the price of the item in a computer memory and flash it back to the POS where it will be printed on the terminal tape for the customer.

Backing up a minute, you can see that the accounts-payable system can be fed by the same data that are developed during the receiving and ticketing operation. This information is compared in the file with the on-order information already described and serves to initiate the process whereby the vendor is paid.

The credit and accounts-receivable functions are also impacted by these terminal-oriented retail systems. The same *"wand"* that reads the merchandise ticket can also read a credit card that contains the customer's account number. Using this number as an entry, a credit authorization file is interrogated and the sale is authorized to proceed if everything is O.K. The same number serves as the identifier for the charge to the customer's account and the eventual billing.

THE MINICOMPUTER

These systems also employ so-called *"minicomputers"* which are very small compared to the size of traditional computers. In spite of their size they are amazingly powerful and capable of performing many functions such as control of the POS terminals, monitoring communications, certain computation and processing functions, and control of peripheral devices such as printers, random-access files, etc. This whole concept is quite a departure from the "big central computer" that we are used to thinking of.

CREDIT AUTHORIZATION WAS THE FIRST STEP

In case this seems like a far-out appreciation of the situation, we can look at some of the evidence already before us on the terminal era.

Most of us are familiar with the so-called *"imprinters"* that transfer the embossed name and account number from our credit cards—Department Store Card, Bank Card, Oil Card, Travel Card, etc.—to the sales slip when we make a purchase. In the last year or two you may have noticed a couple of wires running out of the imprinter, a 10-key keyboard on top, and a couple of lights that flash red, green or yellow. This is an electronic terminal for credit authorization.

When you hand over your card to make a purchase, the clerk keys in your account number or inserts your card into the terminal where it is read automatically. Your number is sent to a little special-purpose computer over those wires. Usually the little computer holds a *hot list* in its memory and if your number is on that list, you get the red light. If not, the purchase goes through—it is *"authorized."*

Retailers have been so hard hit in recent years with bad credit risks, stolen cards, and other frauds that they have been installing these kinds of systems at a great rate. There are more than 30,000 of these terminals in use right now Undoubtedly the general-purpose point-of-sale terminal will ultimately displace the special-purpose credit-authorization terminal since it has all the capabilities, and more, to do the job.

The system typified by traditional mechanical cash registers is indeed a far cry from the terminal-oriented POS systems that are beginning to be installed.

STANDARDIZATION EFFORTS

Another consequence of this upheaval in retailing is the necessity to standardize certain technological approaches. One of the simplest illustrations is the need for a common technology in the so-called Source Marking Program of NRMA. In this program, goods are marked with an identifier (the current standard is the Kimball print-punch ticket—the ones with the little holes) at the time they are manufactured. It can be seen that this is the best time to perform the function—when the goods are all together, rather than when they are spread out in hundreds of store locations. Now, if all retailers are to be able to read the merchandise identifier it must be recorded in a standard common code. Another example is the necessity, or at least the desirability, of having the same encoding technology used for merchandise price tickets that is used for credit cards, employee badges, etc.

All this seems like a simple problem, but it is not easy to resolve on an industry-wide basis. To deal with it, NRMA has formed the Systems Specifications Committee. Touche Ross has played a prominent role in the organization and operation of this committee from its beginning. Recently, the effort has been brought into the National Bureau of Standards program in order to assure that the voluntary standards arrived at are fair to all of the manufacturers potentially involved and that the retail standardization effort is coordinated with similar programs in other industries.

THE CHECKLESS SOCIETY

Undoubtedly, the question arises in the reader's mind of the impact of all of this on such things as bank credit cards, oil company cards, travel and entertainment cards, etc. There is no question that technological advance will make it possible to interact among industries which are required to exchange information. The obvious one is the banking industry which provides an information and service bridge among businesses and between businesses and their customers.

The idea of the checkless society becomes very much more doable with terminal-oriented computer systems. The same argument mentioned above applies here—when the technology becomes available, business will use it. At the present time, the bankers and the large retailers are at odds over who is best qualified to handle the consumer-credit and accounts-receivable functions. The large retailers have resolutely maintained their position, up to now, of offering their own credit cards and maintaining their own credit systems. They have not accepted bank cards as many of the small retailers have done. Although this position is being eroded constantly, it will probably prevail for several more years. However, in due course, common systems which provide an interface between banks and the retail community will become a reality.

TOUCHE ROSS' ROLE

We, at Touche Ross, have had a long and continuous association with the development of advanced systems —particularly in retailing and banking. We plan to remain on the technological frontier as the implementation of these systems unfolds—realizing that the "end" will never really be achieved and that there will always be one more river to cross.