



newsletter

Ltd.

The management
Newsletter for all
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with bar-code
scanning and
related
technologies.

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The timing was terrible....

....but there is never a good time to announce the firing of 140 employees.

On August 20, Symbol Technologies acknowledged that it had decided -- in anticipation of "slower-than-expected-growth during the second half of 1992 -- to "eliminate a number of jobs as part of a cost-management program."

Since early this year, Chairman/CEO Jerry Swartz had been expressing his desire to try to "get a grip on the company's costs" (*Investor's Business Daily* - 2/14/92), but it wasn't until mid-August that the dramatic announcement was made of this 6% reduction in the workforce.

In this first layoff in its history, Symbol eliminated 50 jobs at its headquarters in Bohemia, New York and 50 positions at Costa Mesa and San Jose, CA. The remainder of the cuts were made at the company's other US and foreign offices. According to a reliable source at Symbol, all of these affected were "white collar workers including secretaries, middle managers and executives up to the Vice President level." During the current quarter, the company expects to include a \$6 million one-time provision to cover the costs of this action -- one unhappy, laid-off employee grudgingly admitted the severance arrangements were "pretty generous."

In its continuing effort to reduce costs, the company has also embarked on a mission to possibly relocate its Long Island headquarters to a less expensive locale. Symbol now occupies approximately 250,000 square feet in five separate buildings in Bohemia; it is looking to consolidate all of its operations into one 700,000 square foot facility. Although a search party is checking other locations and presentations are being received from other states, no decision has been made as yet. (It could also be just a ploy to negotiate improved tax/utility rates and other allowances from the locals.)

Of course, none of these cost-controlling moves -- and the underlying soft sales forecast -- are escaping the attention of the investment community. At the end of August, the stock was sitting at around \$13 per share, close to its 52-week bottom, and investment houses that had always been supportive of the company had become wary. In addition, those speculators who have held short positions in the stock for the past year or more (betting that it would decrease in value), are pointing to the current setback as proof that their dire predictions had been correct all along.



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INCLUDING THE INTERNATIONAL EDITION

On the other hand, Symbol's management continues to keep a stiff upper lip. In late August, one company spokesman told *SCAN*: "There is more business in the pipeline than ever before and this temporary softness in the retail sector will pass. The company will move ahead stronger than ever in 1993."

Even as its current financial pressures....

...were mounting, Symbol Technologies took a major step in the advancement of its two-dimensional symbology. The company introduced the PDF 1000, the first scanner to read its PDF417 symbol. The new laser gun (list priced at \$2,790) uses a raster pattern to scan and decode a complete PDF417 symbol in less than a second.

By all accounts, the broad-based acceptance of the principle of a "portable data file" -- as opposed to the traditional "license-plate" bar codes in use today -- figures very large in the company's future plans. The system opens up totally new applications and markets, and Symbol has mounted a full-court press to bring it to fruition.

For example, two technical articles, written by Symbol scientists (and peer-reviewed by IEEE) have appeared in *Computer Magazine*. The most recent analysis, in the June 1992 issue, was titled "Information and Coding with Two-Dimensional Bar Codes." It spelled out, in great theoretical detail, the encodation, information density and scanning methods of all of the available 2-D symbologies (Code 49, Code 16K, Identicode, PDF417, Softstrip, Vericode, Datacode and the Philips Dot Code).

Other articles extolling the potential of PDF417 have appeared in the consumer press -- notably *Fortune* (6/15/92) and *The New York Times* (4/24/92).

Last year, both Zebra and Monarch Marking announced the availability of devices that can print PDF417. Now, with the introduction of the new scanner, Symbol seems positioned to begin serious marketing of the system. At a recent demonstration in our office, the unit handled as easily as a single-line laser scanner and produced fast and positive results. Company spokesmen maintain that allegations that decoding requires a significant increase in computer power, disk capacity and software overhead are grossly exaggerated.

Symbol Tech suggests a significant number of possible applications for the new system, including: shipping/receiving for warehouse and factory; identification cards for corporate, medical, academic and government facilities; and quality control throughout production and assembly processes. "Beta" tests are already underway (although the company declines to reveal the locations). Production of the scanners is scheduled to begin in September.

Not everyone is a believer in the significant future of PDF417 or, for that matter, in any of the competitive 2-D systems. But Symbol's personnel seem to know something that us mere mortals are not yet privy to. From the Chairman of the Board to the marketing people on the firing line, everyone at the company that we've spoken with is enthusiastic about PDF417 and convinced that it represents a major part of the successful future of Symbol Technologies.

[On another 2-D symbology front, at press time we received the following announcements from Bob Anselmo, President of Veritec (Chatsworth, CA): "NASA has confirmed their approval of an actual in-flight test of

Veritec's Vericode Symbol made with ultrahigh thermal coating for the automatic identification of Thermal Protection Tiles on a 'soon to be scheduled' Space Shuttle Orbiter Vehicle." Vericode, according to Anselmo, can be applied to almost any surface (SCAN May 92).

Veritec's president also revealed that his company has sued International Data Matrix (Clearwater, FL) charging that the I.D. Matrix Datacode symbology infringed Veritec's patents. Both Veritec's Vericode and I.D. Matrix's Datacode are proprietary, two dimensional, "checkerboard" or matrix-type symbols that compete for much of the same market.]

Our first exposure....

....to multi-color, thermal printing was at ID Expo this past May, where Analog Technology Corp. demonstrated their ATC Model 8220C (SCAN July 92). The ATC unit is based on special rolls of transfer ribbon with successive 11" sections of red, yellow and blue. The substrate is printed one color at a time on an 11" section and then backed up for the second and third colors.

Markem (Keene, NH) has now introduced a true four-color thermal printer. The company's LP8400 has four separate printing stations, each with its own colored thermal ribbon. The label moves through all four stations as it would with a typical multi-color printing press and, according to the manufacturer, the colors are laid down with "precise registration."

According to Ben Nelson, in charge of Markem's Industrial Market Relations: "A typical label -- 2 1/2" x 4", complete with sequential numbers and/or bar codes -- is conceived, designed, printed in four colors, laminated, die cut, stripped and rewound in one continuous operation. No printing plates are required. Wet ink and registration problems are eliminated. Final label cost per 1,000 is approximately one-half the cost of the same label produced by flexo printing -- and delivery time is two hours instead of several days."

Nelson conceded, however, that the cost comparison shifts in favor of flexo printing when print runs of identical copy exceed 10,000 labels -- although the lead-time advantage of Markem's unit is still significant.

Nelson disclosed that the company has already sold 10 of these \$75,000 printers, mostly to established label printers who are attracted by the short-run, short-turnaround capability. Even at this fairly high price, we think this Markem multi-color thermal transfer printer may be a winner.

Although we were pessimistic....

....last month about the progress of the AIM International Task Force, and the timely reconciliation of the differences between AIM/US and AIM/Europe (SCAN Aug 92), there was encouraging news these past few weeks.

After cancelling their June meeting in Australia, the Task Force met in Halifax, England on August 23-24, with representatives attending from all of the concerned AIM International affiliates. While information about the specific results of that meeting is still sketchy, SCAN has learned that a compromise agreement was hammered out and was taken back to the various member organizations for approval.

Essentially, the original position of AIM/US was that membership in AIM/International should be restricted to companies only; AIM/Europe, on the other hand, wanted the AIM affiliates from around the world to be represented on the international body. The compromise stipulates that organization membership will be open only to companies, but the important Board of Directors will consist of both company members and AIM affiliates.

After all of the affiliates have reviewed this new structure, it will be presented "to all interested parties" during SCAN-TECH/US in Anaheim at open meetings scheduled for October 7 and 8.

At this same Halifax meeting, the members of the Task Force from the US and Europe took the opportunity to discuss their other outstanding differences. These problems related specifically to the pending loan that AIM/US had promised to AIM/Europe when their squabble about disenfranchisement was settled last February.

AIM/US had sent out a loan agreement in June which spelled out what they thought had been agreed to four months earlier: i.e. execution of a loan agreement, ongoing monitoring of AIM/Europe's financials and a payback plan. AIM/Europe rejected the proposal for being too lengthy and too restrictive. AIM/US wrote again asking for specifics and there the matter stood for the past two months -- both sides annoyed, and not understanding the other's position, and no one doing much about it.

It took a few hours of face-to-face discussion in Halifax to work out an agreement that both parties thought they could live with. The matter is scheduled to come up for review at the next AIM/US Board meeting (September 24) amidst cautious optimism that the entire matter will soon be resolved.

Our last report.....

....on bar coding scanning in Japan (SCAN Aug 90) described the very significant growth in the number of retail stores with front-end automation. At that time, about 80% of the worldwide total of scanning stores (outside North America) were in Japan.

The Distribution Code Center (DCC) administers the EAN program in Japan, which is referred to as JAN or Japan Article Numbering. In 1990, the DCC reported that there were 70,000 stores with 183,500 installed check-out scanners. It was significant that the average of 2.6 scanners per store is probably the lowest in the world, reflecting the fact that Japan's retail sales are dominated by small shopkeepers.

Most of the information for that 1990 report was from an official perspective provided by Hitomi Sekikawa of the DCC office in Tokyo. SCAN has obtained an updated report, this time written from the perspective of a western businessman who recently spent some months in Japan and who has a very good working knowledge of the automatic data capture industry. His dispatch follows:

"The people of Japan are very different in the way they think, conduct business, implement technology, and perceive the rest of the world. And there is every indication that they want to keep it that way.

"In retail, there is probably a higher concentration of scanning here than in any other country. Currently there are more than 100,000 scanning stores in Japan serving a population of 120 million. Even specialty stores, however small they may be, are scanning. The primary reason is accuracy and speed. Both translate into customer service, a very important factor in Japan. But the level of sophistication and diversity of applications is lower than in the West. There is very little use of the technology beyond POS. Applications like receiving, price verification and stock control are only slowly starting to come off the ground.

"Since CCD readers, which dominate this market, do not have a wide enough scanning field to read the 14-digit ITF shipping container symbol, these codes are rarely printed. Ironically, there is a great need to automate these receiving and ordering applications. For example, because real estate is so expensive, retail shops are much smaller and have less space to stock merchandise. Smaller inventory means very frequent deliveries, often five times per day. In effect, they practice Quick Response without a formal QR system being in place. Another consequence of this problem is that there are too many delivery vans in the city which clog up traffic no end. Everything is related.

"An additional factor is that the Japanese homemaker requires that grocery stores carry relatively more fresh food than packaged products. Grocery shopping is normally done every day and the reasons are again interlinked. With auto and truck traffic and parking the way it is, shoppers walk or take public transport and can only carry two small bags. Once they return home (which is much smaller than anything we are accustomed to), there is, typically, a small refrigerator (one-third the size of a standard US model) which cannot store too many items and thus also requires more frequent trips to the store.

"The distribution system in Japan is quite unique and involves many layers before a product gets to the store. Compared to the typical four steps between manufacturer and consumer in the US or Europe, here there are as many as ten middlemen. Each layer takes its profit, which is one of the reasons for the high prices paid by Japanese consumers.

"These factors, and high operating costs, are why so many Japanese products are cheaper in the US than here. For example, a particular model of a Japanese-made auto-focus camera, which has a list price in Japan of 35,000 yen (\$280), retails at the lowest discount on the street in Tokyo for approximately \$215. In the US, that camera is available almost anywhere for \$139; at a New York discount camera shop I have seen it sold for as low as \$119. That is why it is so difficult to prove the accusations of dumping against Japanese companies.

"There is a growing use of bar coding in factories and warehouses -- including signs that it is starting to be used in hospitals. But there is little activity in the field of transportation, which is puzzling, since the overloaded retail distribution system requires an incredible number of package delivery firms and millions of vans. What would normally be driven home in a car after shopping at an American supermarket, must be delivered in Japan. As a result, there are fantastic opportunities for auto ID systems to be integrated in Japanese transportation.

"There are 35 companies involved in portable terminal manufacturing, but the applications of these units are quite simple and memory size is much smaller than in the US. RF is very limited because the government closely regulates output power. There are changes underway in this technology area. For instance, early next year spread spectrum will be allowed in the 2.4 GHz band with output power limited to 10 Milliwatts per MHz. That shift will open some new opportunities and all manufacturers of portable terminals are already moving in that direction. At the moment, RF terminals can be found in some restaurants, where orders are keyed at the table by the waitress and then transmitted to the kitchen. Seiko, Epson and others are major suppliers of such systems.

"There is a great deal of interest in Japan in two-dimensional symbologies, most prominently Datacode (through C.Itoh) and Vericode (through Mitsubishi). Both of these symbols are particularly suitable for small item marking. The concept of portable data files is still new here, as it is in the US and Europe, but the Japanese are catching on.

"There is not as much official activity in Japan in the area of standardization, as there is in the US but there may be less need for such regulations. This is a harmonious society in a rather isolated country and standards are not as necessary. By nature, people here prefer to stay in line and not cause any discord. At this point, only JAN and Code 39 have been standardized by the Japanese Institute for Industrial Standards, which is also working on ITF and Code 128. Meanwhile, the Ministry of International Trade and Industry (MITI) has become less and less dominating and has not been paying much attention to bar code standards.

"Although there are no accurate market studies for the rest of Asia, it is estimated that the use of auto ID products in that region is currently about half of Japan's total. That situation is not going to stay that way. China is growing rapidly and there are Calls for Tender out by several government agencies, which are planning to purchase scanners, terminals and printers. Reportedly, the UN wants to help China become a better exporter which will require better packaging of its goods and that should include bar code labelling. The Chinese Coding Authority was established in 1989 and they became an official EAN member last year."

[Auto ID China 92 (in Shanghai) takes place this month followed by SCAN-TECH Japan. SCAN will have further reports from that part of the world in coming issues].

We would like to recommend....

....a book that has nothing to do with auto ID technology -- and has everything to do with the auto ID industry.

Whether you agree with his economic theories or not, we suggest that Lester Thurow's current best-seller, Head-To-Head (subtitled "The Coming Economic Battle Among Japan, Europe, and America") should be required reading for every business person. Professor Thurow is Dean and Professor of Economics at MIT's Sloan School of Management, author of the "Zero-Sum Society", and an advisor to previous Democratic Presidential candidates. If you agree with his theories, you'll be pleased to see your ideas presented in a very cogent, convincing manner. If you do not agree, you should at least be aware of what the other

side is thinking.

Thurow writes -- as he lectures -- in pithy, quotable sound bites. Here is a sampling to whet your appetite:

"It is an old axiom of history that the rules of trade are written by those who control access to the world's largest market...Britain wrote the rules of world trade in the 19th century. The United States did it in the 20th century. As the world's largest market, the House of Europe will be writing the rules of world trade in the 21st century, and the rest of the world will simply have to learn to play their economic game."

"In most of the proposed European Community's trading rules...the access of outsiders is at least slightly restricted."

"The route to success is not low wages. Germany, for example, is the world's largest exporter of textiles, despite wages that are \$4.00 per hour higher than those in the United States...Instead of disinvesting in the domestic industry or switching to offshore production, the Germans invested heavily in new technologies, labor saving machinery and new plants to turn out higher quality goods."

"If the world's population had the productivity of the Swiss, the consumption habits of the Chinese, the egalitarian instincts of the Swedes and the social discipline of the Japanese, then the planet could support many times its current population without excessive pollution or deprivation for anyone. On the other hand, if the world's population had the productivity of Chad, the consumption habits of the United States, the egalitarian instincts of India and the social discipline of Yugoslavia, the planet could not support anywhere near its current members. Unfortunately, most humans seem to fall into the America-India-Chad-Yugoslavia category."

"[American] plant and equipment investment per member of the labor force is half that of Germany, one-third that of Japan."

"Under competitive pressure, American firms first go to the low-wage, non-union parts of America, then on to a succession of countries with ever-lower wages. But the strategy seldom works...Low wages are easy to copy...To create the productivity that can justify high wages, American K-12 education will have to improve."

"Higher education...produces too few scientists and engineers relative to the total college population -- only 15-17% in the United States as compared to about 40% in Germany and Japan."

"America's high school dropout rate (29%) is positively Third World. Japan's rate is 6%; Germany's, 9%."

"While the tyranny of the quarterly profit statement is probably exaggerated as a deterrent to good management, it should be repealed as a symbolic measure."

It's tough medicine!

Are you ready....

....for SCAN-TECH 92? It's the tenth anniversary (eleventh show) since Dallas in '82. This year it's back to the West Coast -- Anaheim, October 6-8 -- the first revisit to that region since ScanQuake in San Jose in '89. An impressive 300+ exhibitors are expected to attract up to 13,000 visitors.

Business author, William H. Davidson, best known for his latest book *2020 Vision*, will deliver the keynote address on Tuesday, October 6 at 5:45 p.m. The subject of his talk will be "Using Information Technology to Turbo Charge and Transform Your Business."

Just prior to that address, the eleventh annual Percival Award -- sponsored by *SCAN Newsletter* and AIM/US -- will be presented to an individual or organization, selected from the user community, that has made an outstanding contribution to the auto ID industry. As is our normal practice, the name of the recipient will not be released until just prior to the award ceremonies.

As usual, SCAN-TECH/US is expected to again provide the most comprehensive, worldwide exhibition and seminar/education program, representing all of the automatic data collection and EDI technologies. Many manufacturers target this show to release their newest products and concepts and it is an excellent forum for the exchange of ideas.

SCAN Newsletter will be there, of course. Our November issue will carry full details of our findings and impressions.

Errata....

....The revenues and earnings forecasts of PSC (Photographic Sciences) attributed to Bob Anastasi in last month's issue (*SCAN* Aug 92) were actually those of Joe Arsenio of Hambrecht and Quist. Anastasi, who also follows and reports on PSC, is with Robinson-Humphrey (Atlanta, GA).

The front-page featured article....

....in the August 24 edition of *The Wall Street Journal* -- which described the next day's Unification Church wedding of 12,000 couples -- didn't promise to reveal too much about automatic data capture, so we skipped the second half of the report which continued on page four.

Fortunately, Bruce Wray (Computype), one of our reader-reporters, was more diligent. He sent in the full article, highlighting for us the section on how the manager of this affair matches up the couples, who have never met until the ceremony. "He used to do it all in person," a Church official explained, "but the number has grown so large that he now uses bar-coded photographs and a computer to help do the sorting."

[Unfortunately, Wray is also addicted to puns, and he couldn't resist noting in the margin: "If couples matched via bar codes don't like each other, would that be called an 'intercharacter gap'?"]

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PUBLISHER/EDITOR: George Goldberg • ASSOCIATE EDITOR: Jeff Goldberg • CIRCULATION DIRECTOR: Teddy Allen

INTERNATIONAL EDITOR: Paul Chartier • United Kingdom Office P.O. Box 7 • Cirencester GL7-1HY England
Phone: Int + 44-285-653011 • Fax: Int + 44-285-640401