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A "tremendous amount of interest"....

...has been generated, according to a Pitney Bowes spokesman, in response to the surprise decision by the company to divest itself of Monarch Marking Systems (Dayton OH). The unspecified inquiries were said to be coming from "sources in the US and abroad -- from some companies in a related business and others in unrelated businesses."

When Monarch Marking was put up for sale in mid-September, George Harvey, Chairman/President of Pitney Bowes -- the world's largest maker of postage machines and mailing equipment -- stated: "We have decided to concentrate ...our resources on our businesses which include mailing systems, copying systems, management services and our financing business...Accordingly, we plan to divest two businesses: Dictaphone Corporation and Monarch Marking Systems...We expect to sell them for attractive prices to buyers able and willing...to invest in and build them."

Monarch's first product, when it was founded in 1890, was a mechanical pin-ticketing machine for retailers to mark merchandise. By 1916, Monarch was manufacturing a full line of pricemarking machines and supplies; it has since become an industry leader in bar code printing and data collection systems.

In 1968, Monarch was acquired by Pitney Bowes, headquartered in Stamford, CT. Today, Monarch employees 2,500 people worldwide, with manufacturing plants in Dayton, Canada, Mexico, England, Australia and Singapore. The product line includes price identification and tracking systems for retailers and automatic identification systems for industrial needs.

Monarch has been an innovator in automatic identification. In 1968-69, the company developed the Rotomark -- a rotary symbol with bars formatted like spokes on a wheel. In 1970, the company introduced Codabar -- described by one Monarch old-timer as a "straightened-out version of the Rotomark" -- a discrete symbology which was a brief contender for selection as the UPC symbol. Other developments followed, including scanners with fibre optics and the first design of a bar code reader incorporating a microprocessor. Codabar was ultimately adopted for use in libraries, blood banking, photo finishing and package tracking (by Federal Express).

Although Pitney Bowes absolutely refuses to release any financial data about its



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subsidiaries, knowledgeable sources estimate that Monarch's annual sales are currently running at approximately \$250 million and that the company has been operating in the black.

Mounting a major offensive....

...in the battle to enlarge its market share of the very competitive, lower-priced, thermal-transfer printers, Zebra Technologies (Vernon Hills, IL) made a number of aggressive moves in mid-September.

[Zebra separates its printers into two general categories: the Value Line and the Performance Line, which divide, roughly, at the \$3,000 mark. Included in the Value Line are Zebra's largest volume, least expensive units -- the S300 and S500 "Stripe Line" models, which were introduced early last year.]

According to President Ed Kaplan: "Although the Stripe Line contributed significantly to Zebra's 50% sales growth last year, our distribution has been limited. We have therefore decided to add a number of high-volume distributors who will be reselling to a broad range of VARs." The first two of these new distributors are Vision Data (Columbia, MD -- a subsidiary of Peak Technologies) and ScanSource (Greenville, SC). Kaplan expects Zebra to sign up an additional twenty such distributors by the end of this year.

To make these products more attractive at all levels of distribution, Zebra reduced the list prices of its Stripe Line models -- the S300 went from \$1,495 to \$1,395; the S500 from \$1,995 to \$1,795. Zebra also increased its discounts to the new high-volume resellers by an additional six percent.

"Competition has a lot to do with these decisions," Kaplan explained. "We have a number of competitors who have focussed on the lower price range. Although we have done well in this category, we now want a larger market share. We had made it difficult for people to buy our product because it had such limited distribution. Some distributors pleaded with us to give them more access to the Value Line products. We expect to get sales out of the hides of our competitors and also create higher demand."

Zebra's chief competitor in the lower-priced thermal transfer printer market is Datamax -- which purchased the product line of bar code printers from Fargo Electronics early last year (SCAN Mar 93). Fargo and Zebra had been jousting since the fourth quarter of 1992, when both had broken below the \$2,000 level and introduced thermal-transfer printers at the then-unheard of price of \$1,495. These moves had proven to be shrewd and timely; as a result, the industrial market for these low-end printers soared.

We asked Rob Strandberg, President of Datamax, for his reaction to Zebra's latest moves. "There is nothing that Datamax needs to do to react," he replied. "The Zebra change in policy [adding new distributors] could be expected, given the trend in the industry. Fargo/Datamax has been at the lower base point of the market for some time, with deep discounts and wide distribution. Zebra now recognizes that markets are getting more competitive in our direction. My quick observation is that it will not have much impact on our business or customers."

[In a significant afterthought, Strandberg added: "Thermal transfer printers are inching down toward the \$1,000 mark. In the old days, Bob Cummins [President of Fargo] might have been preemptive [in lowering prices] -- he was a long-term thinker leading the charge. I am not sure that is my philosophy. Nor do our resellers and distributors want us to take preemptive strikes at price-points. They may not want to create a commodity out of bar code printers -- nor does Datamax."

Datamax's largest distributor, Paul Covert of I-TECH (Flossmoor, IL), reflected Strandberg's concern. "We hope that Zebra's moves do not signal a general price war," Covert told SCAN. "Zebra and Datamax have outstanding reputations and right now there is really not much difference when comparing the performance of their printers. Can printers keep coming down in price? There is a bottom there someplace. If the price goes down too far it will no longer be profitable for the VARs."

Strandberg confirmed rumors that Datamax will soon be moving into the higher-priced category to challenge Zebra's Performance Line products. "Zebra may have become aware," he stated, "that Datamax is going into the 'non-value' -- \$3,000 and above -- end of the market. This may be their preemptive strike coming after us. We will announce and demonstrate these higher-end units at SCAN-TECH in Chicago [Nov 1-3]."

Strandberg's remarks seemed to be aimed directly at Zebra's newest printers in the higher-priced Performance Line. Kaplan had stated that the new models -- 90Xi (\$4,295), 140Xi (\$4,695) and 170Xi (\$5,495) -- will be in "full scale production within thirty days."

There are strong indications....

....that the focus on two-dimensional symbologies has shifted from an emphasis on standards to the implementation of marketing plans.

This past year has been largely devoted to refining 2-D symbol specifications (SCAN May 94, June 94, July 94). Up to now, few standards had been published and the availability of scanners had been severely limited. The result has been that users were, and still are, reluctant to invest in this relatively new technology that is still in a state of flux.

There are now significant changes that portend more rapid market penetration:

- **Symbologies and Standards:** In September, AIM's Technical Symbology Committee (TSC) completed and published two new Uniform Symbology Specifications (USS): USS-Code One (invented and sponsored by Ted Williams of Laserlight Systems); and USS-PDF417 (by Symbol Technologies). Code One is a matrix symbology that requires a two-dimensional imaging device (such as area CCDs) to scan the symbol. PDF417 is a multi-row, variable-length, bar code symbology that can be read by linear scanners, raster laser scanners or area CCDs.

Just behind these two symbologies, in the TSC pipeline, are Data Matrix (by ID Matrix) and MaxiCode (by UPS). A USS for each of these two matrix-type codes should be published by early next year. Unhappily, work on all of these specifications had been delayed by legal and bureaucratic wrangling over public

domain status. These issues have now been cleared up for all four of these symbologies.

We received a report about a new 2-D symbology that was introduced at SCAN-TECH Japan in Tokyo -- the first new bar code symbology ever introduced by a Japanese company. This matrix symbol, named Quick Response (QR) Code, is sponsored by Nippondenso. The QR Code includes three large finding patterns located in the top left, top right, and bottom left corners. The symbol reportedly has a capacity of 320 numeric digits, 194 alphanumeric characters or 134 binary bytes. A prototype camera and hand-held reader were demonstrated at the exhibition. The designation as a QR code, and the 2-D symbol's relatively limited capacity, suggest that it was specifically designed for the Japanese market to be used for material control and order confirmations.

● **Scanning Equipment:** Only a limited number of 2-D scanners are now available, including an assortment of fixed position and hand-held units -- which use linear and rastering lasers and area CCDs as their light sources. Many of these units are still prototypes; some are in limited production. The hand-held models are still tethered to a power source and computer. Since many of the important markets waiting for 2-D technology would be best served by hand-held portables, the emphasis has now shifted to this next generation of scanners -- and just about everyone is actively working on it.

For example, in September, International Data Matrix (Clearwater, FL) and Telxon formed a "strategic relationship" to develop a portable, hand-held scanner to read the Data Matrix symbol. Telxon made an equity investment in ID Matrix and will develop the hardware; ID Matrix will contribute the software. ID Matrix President Dennis Priddy told SCAN: "Their investment is very small -- just enough to make us good friends and strategic partners. They will definitely not be a controlling partner and they have no options to buy any more stock."

Priddy expects, with a portable scanner, that his Data Matrix symbology can move away from the factory floor -- where it has had some success -- to warehousing, distribution and backroom applications in the retail, semiconductor, pharmaceutical and automotive industries. He anticipates that Telxon will concentrate on their primary market in retail backroom operations.

● **Marketing:** The issuance of standards was the first step. Development of equipment -- based on those standards -- was next. We can expect to see a more rapid move to marketing programs now that the essential elements are in place.

On October 5, in Atlanta, the 2-D symbology standards committee of the Electronics Industry Association (EIA) voted unanimously to adopt Data Matrix for electronic components. The three major semiconductor manufacturers -- Intel, Motorola and Texas Instruments -- were present and agreed with the choice (in spite of reports that TI was working with Code One on a trial basis). These manufacturers had generally favored the matrix-type symbols (Data Matrix, Code One and Vericode were contenders) although PDF417 (the stacked bar code from Symbol) had been offered as a candidate.

The EIA had been pressing for a decision for many months because the valuable and readily fungible computer chips were being stolen in large quantities. A secure identification system -- based on a reliable, machine-readable code -- was needed immediately (SCAN July 94).

This selection may open the door for the designation of Data Matrix, later this month, by the Automotive Industry Action Group (AIAG) as the symbology for small component marking by the auto manufacturers. This would follow the decision, reached last month at a joint meeting of AIAG and EIA, that the two industries would adopt the same symbology. The expeditious moves by these two major groups -- after months of discussions and tests -- reflect the rapid progress being made to introduce 2-D scanning into working applications.

[And just as we go to press, on October 6, Symbol Technologies announces that PDF417 has been selected by the Association of Motor Vehicle Administrators for "encoding vehicle registration information for renewals, vehicle title documentation and motorist driver's licenses."]

The initial public offering....

....of 1.5 million shares of stock in Metrologic Instruments (Blackwood, NJ) was effective on September 29, 1994, and came out at \$9.50 per share (and "oversubscribed," according to the managing underwriter, Janney Montgomery Scott). The price of the stock spiked as high as 11¼ that first day and closed at 10%, where it remained for the next week (trading on the NASDAQ National Market -- under the symbol: MTLG).

At the \$9.50 offering price, the total receipts were \$14.25 million. After deducting underwriting expenses (\$500,000), paying off its bank loans (\$2.2 million), and repaying notes held by Founder/President Harry Knowles (\$2.2 million), the company realized about \$9 million for working capital. Knowles retains two-thirds of the voting stock of the corporation (SCAN Sept 94).

Not a bad deal all around -- including those short-term investors who bought at the offering price and sold off a large number of shares during the first two days, grabbing a quick 15% profit on their speculation.

Signalling an even greater....

....emphasis on market research studies of automatic data capture technologies, Venture Development Corporation (VDC) hired Girish Rishi away from its major competitor, Frost & Sullivan. As a senior industry analyst at F&S, Rishi completed several studies of the bar code scanner, RF/ID and smart card markets (SCAN Jan 94).

VDC completed a recent research study on the future of two-dimensional bar codes. Among their conclusions was that "Demand Paralysis" has been holding back the market. VDC's explanation is that "end users remain unfamiliar with the benefits of the technology...developments have been technology driven rather than user driven [and] the lack of scanner availability is a major impediment." The study estimates that sales of 2-D products were less than \$5.0 million in 1993 and will exceed \$40.0 million by 1997.

VDC also released data from a market study titled: "The U.S. Portable Data Collection Terminal Industry Planning Service 1994." One important statistic from the study was that a significantly larger share of the sale of RF portable data collection terminals is now based on spread spectrum versus narrow band.

In 1993, spread spectrum represented 61.4% of that market compared to 43.5% a year earlier. The study concluded that the "majority of sales growth in the RF terminal sector has come from spread spectrum terminals."

In VDC's most current research on bar code products and services, US shipments in 1993 were estimated to be \$3.1 billion. Over the next five years, the compound annual growth rate is projected to be 13.1%, reaching \$5.8 billion in 1998. The breakout by product sector:

<u>Product Group</u>	<u>1993</u> <u>(\$ Million)</u>	<u>1993-1998</u> <u>Growth</u>
Scanners	755.0	10.1%/yr
Consumables	648.6	12.1%/yr
Printers	549.7	11.4%/yr
Data Collection Terminals	522.5	20.7%/yr
Service	256.8	9.4%/yr
Software	204.8	14.1%/yr
Other	202.6	12.1%/yr
Total	3,140.0	13.1%/yr

[Note: VDC uniquely defines the US market as *total shipments* by US suppliers *plus imports into the US by foreign suppliers*. (Emphasis ours.)]

This is the season....

....of the major SCAN-TECH shows.

- SCAN-TECH Japan (Tokyo Sept 27-29), sponsored by AIM/Japan, was deemed successful -- although unofficial attendance estimates varied from "somewhat down, to around 10,000" to "increased about 20%."

One observer characterized the event as "the show of new bar code printers, showcasing models that were mostly from local [i.e., Japanese] manufacturers, varying in label output width from four to eight inches and all based on some form of thermal technology."

Two-dimensional symbologies were very much in evidence. This included: TEC's new hand-held reader, demonstrating the Data Matrix symbology in a real-time order-processing environment; Mitsubishi's new scanner for Vericode; Olympus Symbol's new PDF417 ID card reader; Intermec's hand-held 2-D scanner programmed to read Code One (with PDF417 promised for SCAN-TECH/US in November); and a new QR symbology invented by Nippondenso (see above).

- SCAN-TECH/US (Chicago Oct 31-Nov 3) promises to be the biggest ever in both space and attendance, according to the show managers (Reed Exhibition). Unlike the past two years, when Symbol Technologies and/or Intermec opted out, none of the major vendors will be missing this year.

SCAN Newsletter and AIM/US will present the Percival Award on Monday, Oct 31, at 4:00 PM, at McCormick Place. The "Percival" is awarded to an

individual or organization -- from the user community only -- who has made an outstanding contribution to the automatic data capture industry. This year's recipient, who will be announced at the ceremony, is a particularly outstanding choice.

AIM International is conducting its first "Global Summit" on Nov 1, during the SCAN-TECH/US show, and has invited two hundred of the industry's corporate executives with "international responsibilities." According to Brian Wynne, Executive Director, forty to fifty acceptances are expected. The agenda for this summit meeting includes: Global Growth Trends; Emerging Markets; International Standardization.

- Advanstar, managers of SCANTECH EXPO Europe 94 (Paris Nov 15-17), expects that show to draw 4,000 visitors to see what 100+ exhibitors have to offer this year. Although most European exhibitors are resellers, almost every ADC product from around the world will be on display.

An industry stalwart....

....has decided to rearrange his working and living priorities and has made the kind of move that many of us dream about. Roger Palmer has left his position as Intermecc's VP Technology and has moved to Victoria, British Columbia (he had never surrendered his Canadian citizenship). He now has a new home at the water's edge with his boat close at hand -- and he is still young enough to enjoy this new lifestyle.

Palmer will be available as a consultant under the banner of Palmer Technologies. He is committed to work on special projects for Intermecc until the end of next year. He will take on other clients -- that are not competitive with Intermecc -- as long as they do not require him to work full time. "I could retire," he told SCAN, "but I would get bored. Intermecc and a couple of other clients will keep me busy enough."

Palmer started with Intermecc in 1978. Since 1981, he was a vice president in various capacities, including Marketing, Research and, finally, Technology. He is currently completing the third edition of *The Bar Code Book* (Helmerts Publishing), which he hopes will be out by next Spring.

Roger Palmer has had a significant impact on many industry activities, particularly the development of new products and the establishment of industry standards. We wish him well.

The ubiquitous bar code....

....may receive its greatest media exposure ever during the coming months, as the OJ/LA extravaganza gets under way.

The courtroom in Los Angeles, where the Simpson trial is being held, will be equipped, by the defense team, with the Trial-Link automated system developed by inVzn Corporation (Gilbert, AZ). At the heart of the document retrieval system is a bar coded index which eliminates the distraction of using a keyboard and avoids the need to search through a data base to find the image to display.

Trial-Link's multimedia capabilities allow the attorneys to "interface audio, animation and full motion color images" which can be selectively transmitted to monitors for viewing by the judge and jury. The defense team -- which even includes an "information systems trial consultant" -- has retained an inVzn authorized systems integrator to provide full-service litigation support.

[This same technology has been used in other high profile cases, including the Exxon Valdez trial (where the plaintiffs reportedly scanned 40,000 documents into the system's CD-ROM disc) and RTC v. Lincoln Savings & Loan/Charles Keating.]

No estimate is available as to what this system will cost.

Probably the best-selling....

....book ever published on the subject of automatic data collection is *Reading Between the Lines* (Harmon & Adams, Helmers Publishing). It was first released in 1983 and has since been revised and reissued in a number of updated editions. Craig Harmon has rewritten the text extensively -- adding chapters on the latest technologies -- and a new volume has emerged: Lines of Communication; Bar Code and Data Technology for the 90s (Helmers Publishing).

Harmon now refers to his first book as "Lines I" and to the new one as "Lines II." In his characteristically challenging and confrontational style, Harmon writes in the Foreword: "I have learned not only about technology, but also about human nature: vested interests, long-range attitudes (or the lack thereof), primary and secondary agendas, and proactive/reactive perspectives in the adoption of global standards. I am thought of by some as the 'industry gadfly,' or as a 'bothersome, irksome fellow.'" This is not a reference that I find to be particularly offensive since I do challenge opinions."

In Chapter 1, in an efficient, workmanlike -- albeit somewhat wordy -- style, the author takes the reader step-by-step through all of the known automatic data collection methods: key entry, OCR, bar code, mag stripe, MICR, voice recognition, RF/ID and smart cards. Concluding that bar code is the clear winner -- when judged by speed, error rate and cost -- the nine chapters that follow concentrate on that technology. The author then addresses peripheral issues -- database management, RF terminals, EDI and implementation procedures -- and concludes with a 60-page potpourri of applications.

If for no other reason, *Lines II* belongs on everyone's desk for its excellent 110-pages of appendices. These sections include a complete source directory of associations and other organizations which provide bar code standards; a list of FACT Data Identifiers mapped to the UCC/EAN Application Identifiers; EDI Transaction sets; a comprehensive Glossary of Terms; a full description of the various check character calculations; and other valuable references.

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