One of the better ways....

....to feel the pulse of this industry is to regularly attend the annual SCAN-
TECH shows and seminars. Walking the floor, seeing and touching the products,
and exchanging ideas with vendors and users provides a flavor and nuance that is
not otherwise evident.

And that's what the editors of Scan Newsletter will be doing again this year
in San Francisco (October 15-17) and Basle, Switzerland (November 11-13). We
have participated in every SCAN-TECH in the US and Europe since they started,
including the presentation of our special annual awards to outstanding
individuals in the industry. We will again be circulating among the exhibits
and seminars to discover what's new and what's tired, what works and what
doesn't, who's hot and who's not.

We will share our thoughts and insights with you in the next few issues.

This story broke....

....just as we were going to the printer, but is much too important to hold
over to next month: On September 29 the US Department of Defense made its Army
T (for tactical) LOGMARS award to Syscon (SCAN Sep 86; May 86; Jan 86; Dec 85).
Syscon is a Washington, D.C. based company engaged in the development, sale and
management of computer systems, mostly for the US government. It is what is
often referred to as a systems integrator. Syscon (conservatively) estimates
that the 10-year indefinite quantity, open-end contract will be worth at least
$94 million.

As part of their bid proposal, Syscon included hand-held laser scanners from
Symbol Technologies. Jerry Swartz, Chairman of Symbol Tech, immediately
announced that their portion of the award will be at least $20 million, the
largest contract in the company's history. Delivery of initial units will be in
60 days, with volume shipments scheduled within 6 months and continuing for an
estimated 3-5 years.

We have not had the time to evaluate the results of the award on the unsuccess-
ful bidders -- Computer Identics, in particular (SCAN Sep 86) -- or on the
industry as a whole. We will be following up.

For the past three years....

....<u>Symbol Technologies</u> has been one of the star corporate performers in bar code scanning. Sales were $9 million in fiscal year 1984, $14 million in 1985 and $23 million in 1986. In an interview with President Ray Martino, he told us he is projecting $35 million for this fiscal year (ending 6/30/87) with over $12 million in net earnings. And although that rate of growth becomes more difficult to sustain as the numbers increase, he doesn't flinch from suggestions that the next couple of years will show similar gains.

With money in the bank (about $9 million) and more on tap ($10 million committed from investor Saul Steinberg/Reliance and the banks), the outlook at company headquarters in Bohemia, New York is positive. In addition, Rich Bravman, VP Marketing, revealed that the company now has 28 direct salesmen in the field (soon to become 38 if he can find the right bodies) and that they are in the process of building 60,000 square feet of new office and manufacturing facilities, which they expect to occupy by the spring of 1987.

And, of course, it's all built around the one basic product line, which the company has developed, re-worked, refined and patented. Think of hand-held laser scanners and Symbol Technologies comes to mind. The company believes it is the single largest user of he-ne lasers in the world, and expects to sell over 40,000 of these devices this fiscal year. By next year all manufacturing will be done in-house and contracts with outside vendors, such as Mars Electronics, will be phased out. Automated manufacturing facilities will be installed, and executives with strong outside experience in operations and long-term planning are being added to the staff.

The newer solid state laser diode is the latest chapter in the company's development of hand-held scanners. Laser diodes are smaller, cheaper, and use a fraction of the power required for the he-ne lasers, resulting in lighter weight and greater portability. This opens up engineering and application possibilities that Martino and Bravman believe will continue for years, although their difficulty with certain colors may limit their use with some UPC retailers.

Although there is competition from Metrologic (he-ne), Computer Identics (he-ne) and Optel (diode), Symbol Technologies believes that at least 8 out of every 10 hand-held laser scanners sold carry the S/T label. Optel is now offering their laser diode unit at $789, a few hundred dollars under Symbol Technologies' price, and launched a strong promotion program after the company was acquired by Photographic Sciences.

If everything seems to be coming up roses at company headquarters in Bohemia -- and the feeling is infectious after visiting and listening to management's presentation -- the fact that Symbol Technologies is still a one-product company comes to mind. For the moment, however, there is nothing on the horizon to threaten their dominant position in this area, with the product that is the hottest, by far, in automatic identification.

There <u>were</u> about 30....

....good and trusted people sitting around a large conference table a few weeks ago in one of the hotels that ring Chicago's O'Hare Airport. They came from all over the country and from many technological disciplines to discuss and resolve issues that will have a very significant impact on how we produce and scan bar code symbols in the future.

It was a meeting of the <u>American National Standards Institute (ANSI) Committee on Bar Code Print Quality</u>. This is a joint effort of two groups: X3A1 with its long history of standards development for OCR; and MH10.8, which developed the bar code specifications for unit loads and transport cases (SCAN July 83, Feb 85). Out of the work of this combined committee over the past 18 months has come a working draft incorporating many radical changes in how printed bar codes are to be evaluated and the equipment and methods necessary to do the job.

For the better part of two days the debates raged over such arcane and esoteric subjects as: ● Is it best to use a circular or rectangular image to determine bar/space edge? ● What is the best aperture size needed to isolate spots and voids? ● What are spots and voids? ● Should the formula to establish print contrast be changed from the current PCS algorithm (used by UPC/EAN, AIAG, LOGMARS and all other applications standards) to the new MRD approach? ● How many scans are necessary to determine the quality of a printed symbol? ● How is scannability affected by surface gloss? over-laminate? specular reflection? diffuse reflection? substrate opacity?

COMMENT

The critical point we are attempting to make is that complex subjects are being raised which have no absolute answers, and for which adequate back-up data is not always available. At the current pace, the work of this committee, by just about everyone's estimate, will take at least three more years before a final standard is hammered out, reviewed and published.

Meanwhile, companies and industries which need standards <u>now</u> are going with what's available -- and they are not all the same. The longer ANSI takes, the more difficult it will be to bring everyone back together -- in the US as well as internationally where parallel problems exist.

While recognizing the enormous amount of effort being invested by a few of the leaders of this ANSI group, the importance of this work at this stage in the development of the technology is much too important to let it drag on. We respectfully suggest that: 1. The committee meet more often. 2. Specific problems be assigned to smaller groups between meetings, for study and recommendations. 3. The apparent differences in perspective between the committee's OCR and bar code constituencies be reconciled to allow for a more unified approach to problems.

There will be a short meeting of the committee in San Francisco at SCAN-TECH, at which time future meetings will be scheduled. If you have anything to contribute, be sure to attend.

We <u>have</u> <u>often</u> <u>quoted</u>....

....from the reports and remarks of <u>Harry Burke</u> (SCAN Oct 85; April 86), whom we consider an independent voice, often crying in the wilderness. He wrote The Handbook of Bar Coding Systems (1984), which we believe belongs on the shelf of anyone interested in a well-organized presentation of bar coding scanning technology.

Burke had been launching his arrows and missiles from his position with NCR's Data Pathing Division. Earlier this year he left NCR and established his own consultancy. He continues to write provocative pieces (which he sends to his private and select audiences) in which he expresses his deep concern about the development of workable specifications and tolerances.

We asked Burke to send us some information about his new consulting venture, and we quote from his reply:

"Objectives: Regardless of application, bar coding is the instrumentation of management information systems, a means of collecting more information, faster, at lower cost, with greater accuracy and in a wider range of applications than is possible by any other means....It is my purpose to develop standards based on the work already accomplished by the Automotive Industry Action Group. My activities will include: (1) writing the Handbook of Bar Code Applications, intended to describe these standards in detail; (2) searching for a large, multi-divisional corporation, planning a true corporate bar code program where these standards can be developed and tested in the real world; (3) seeking a manufacturer wishing to furnish the required hardware/software packages."

You can reach Harry Burke c/o H. D. Cramer, 13445 Robleda, Los Altos Hills, CA 94022; 408/246-3617.

We obtained some interesting....

....bits and pieces of information about automatic identification in the health industry.

- One of the really difficult challenges in hospital care is the absolute control of medication and dosage right down to the patient. Many suppliers already deliver medications to the hospitals in unit-dose packages. At a recent meeting, sponsored by the Health Industry Bar Code Council (HIBCC), the newest proposal to bar code these unit doses was reviewed and accepted in principle. In many cases it will mean redesigning packages, equipment and manufacturing processes when the code and symbol are specified. Combined with bar coded patient wristbands, bar coded unit doses will go a long way toward reducing the alarming error rate in this area of patient care.

- A recent survey of US hospitals revealed that about 50% have included some funds for bar coding in their current budgets and many of these institutions also report they have appointed bar code coordinators. Some industry watchers suggest this indicates that progress in the health industry toward adopting HIBCC systems is on-track and moving ahead.

- In Japan, the blood banking centers have adopted the international bar code standard, incorporating the codabar symbology. Although code 39 is the symbol of choice in almost all non-retail applications, codabar is so successful and so deeply entrenched in the blood banks that there is little chance there will be any change.

The supermarket trade press....

....gave a great deal of front-page coverage recently to a new move to expand the Universal Product Code and symbol. Some commodity groups have felt confined by the 5-digit UPC product number and have been seeking a larger product code for years. These groups include a few general merchandise product areas (hosiery, shoes, general apparel), cents-off coupons and meat.

It was the meat industry which precipitated the current renewed and concentrated interest in expanding the code. The coding of random weight cuts of

meat, to include at least the type of product and weight, has been under study for many years and has so far led to total frustration. The information that the suppliers and retailers believe they need just couldn't be incorporated into the 12-digit UPC structure.

As an alternative, the proponents of a longer code have resurrected UPC <u>Version D</u>. This code variation was mentioned in the original 1973 UPC specifications and later abandoned. It is not, as some believe, a simple variation of Version A, and it is not scannable by the over 100,000 retail scanners installed and operating in the US. Dual symbology scanners would be needed.

Some proponents of an expanded code have suggested the Version A plus 5-digit add-on now used by the paperback book publishers. This is not an available alternative at all: The symbol is not omnidirectional; it has no check digit; it is lacking other security features; and, of course, none of the retail scanners are equipped to read that one either.

Everyone concerned agrees that, at best, this is a long-range program. But proponents feel that if not started, it will never get done. As the installed base of UPC retail scanners expands to include mass merchandisers, department stores and others, the standard Version A symbol will become more entrenched and virtually impossible to revise. Meetings are being held to explore alternatives, but there is little optimism.

COMMENT

This is not a new subject. The current product line of a major manufacturer of men's slacks, for example, includes about 100,000 SKU's covering 200 styles, each with about 500 variations in color, waist and in-seam sizes. That manufacturer would like a longer code. In spite of these real problems, however, we come down on the side of the original designers of the UPC code and symbol. Product information belongs in the computer and not in the code. There may be individual commodity problems, but they don't start to compare with the difficulties that would be introduced with code tampering at this stage of development -- and that is a worldwide consideration.

<u>I guess we should preface</u>....

....our remarks in this article by calling to your attention our opinion about the <u>NCR talking scanners (POSitalkers)</u> when they were introduced a few years ago. We couldn't see any possible attraction to a computer voice reading out the item and price as it was scanned, adding to the already overloaded hubbub in the supermarkets. Needless to say, NCR has sold a jillion of these talkers, and they now speak in many languages.

Now we come to the <u>self-scanners</u>. We first heard about them and reported on the homemade version in test by Ream's Superstore in American Fork, UT (SCAN Mar 86). The idea of customers checking out their own purchases had potential as a labor saving device that could speed up the checkout process and it offered an intriguing and attractive alternative for the consumer. Kroger is now testing a self-scanning system in Morrow, GA. This one is called Expressit, and is put together by CheckRobot of Deerfield, FL. It is built around an NCR POS system (which, by the way, includes a Positalker option).

At the moment this new self-service approach is seen by some as a gimmick or novelty that will only work in the limited-service environment of the warehouse store. One of the criticisms is that it presents a challenge to

innovative cheaters, and the last thing the stores want to do is act as monitors or policemen with the potential for embarrassing confrontations.

CheckRobot is a new company that was spun off by Sensormatic Electronics about a year ago in a public offering that raised about $3.3 million. CheckRobot was organized to complete the development, which was started by Sensormatic, and then to produce and market the systems to the supermarket chains. Sensormatic is one of the leading companies in electronic articles surveillance, and other systems designed to deter shoplifting in retail stores. (The last time we mentioned this company's name was back in February, 1983 after its aborted takeover attempt of MSI Data.)

So what do we forecast about self-scanning in US supermarkets? A dubious future, we think -- but remember, crystal balling is not one of our strongest attributes.

The first front-end laser scanner....

....designed specifically for the unique needs of the European retailers, was a product of Datachecker/DTS. Their SABR system was developed under a joint design venture with Migros, the Swiss retail chain, which now has these units in operation in one of their 18-lane stores.

The major difference between the SABR (Side Acquisition Barcode Reader) and conventional scannners is that it is designed to scan only horizontally, accommodating the sitting position of most supermarket checkers in Europe. In many countries, this is mandated by union or government regulation unlike the US, where checkers generally stand while working. Scanning performance is enhanced by the use of new optics and more scanning beams, allowing symbols to be scanned within a 160 degree arc. The project has generated much interest from European retailers since its launch a few months ago and regular shipments are expected in January, 1987.

Reflecting the fast growing market for retail scanning systems in Europe, Spectra Physics has followed right behind with their European version, the Flat Top SL, which is about half the size of the current Spectra Physics' 750F model. It has a new optical system, aspects of which may be patentable, according to the company. The Flat Top SL can be mounted conventionally, with the scanning beam projecting upwards or it can be mounted at 90 degrees so that the beam scans horizontally across the counter. Spectra Physics' Laser Systems Division (Eugene, OR), which manufactures bar code scanners, has been renamed Spectra Physics Retail Systems. It will now focus its activities on the retail sector, where it claims to be the undisputed market leader. The company's sale of the manufacturing rights of its hand-held laser scanners to Computer Identics (SCAN July 86) is part of this redirection.

We finally broke down....

....and bought a VCR -- and now we can preview the videocassette material about automatic identification being published by some of the trade groups. The 6-cassette package (3 hours long, in 30 minute segments) produced by the Automotive Industry Action Group (AIAG), is targeted for the auto industry and its bar code applications. It is suitable for anyone as a primer on the technology, and can be used as a training film for potential users, and even for the marketing and sales staffs of vendors. There is information at the engineering and at the non-technical level to provide a solid grounding in bar code scanning.

Almost all of the AIAG material is presented by one professional speaker, sitting behind a desk using charts and other visuals, with very few "location" shots taking the viewer into operating environments. This would have heightened the interest level and increased the viewer's attention span. We can recommend these tapes as a tutorial on bar code scanning. They cost $400 for AIAG members; $550 for non-members. Manuals are available to provide take-away reference material.

The set of four videos produced by Intermec does provide some interesting location scenes showing bar codes being used in a number of applications. The viewer is drawn into the use of the bar code scanning systems and can relate to its varied applications. The first 13 minute tape, Introduction to Bar Code Applications, takes the viewer into a number of operating locations demonstrating scanning procedures. (The cost of this tape alone is $25.) The other three tapes are not much more than Intermec commercials for specific products.

AIAG, 17117 West Nine Mile Road, Southfield, MI 48075; 313/569-6262. Intermec, 4405 Russell Road, Lynnwood, WA 98046-9702; 206/348-2600.

One of the more pleasurable....

....events we participate in each year is the selection and presentation of the Percival Award, sponsored by Scan Newsletter and AIM/US. The Percival Award is made to an individual who has made a significant contribution to the advancement of bar code scanning. It is restricted to the user community -- no automatic identification vendors are eligible. Previous awards were made to Michael Noll (1982); William Maginnis (1983); Uniform Code Council (1984); and Eric Brodheim (1985). The award ceremony this year takes place at SCAN-TECH at the Executive Session luncheon on October 14.

The recipient of the 1986 Percival Award will be Allan Gilligan of Bell Laboratories. His citation reads, in part:

"In recognition of his leadership and contribution to the advancement of automatic identification technology. Mr. Gilligan is a recognized authority on bar code scanning. He has made significant contributions to testing procedures, equipment evaluation and especially to the development of standards for the industry."

His involvement in automatic identification started in 1977 when he completed evaluations of bar code and OCR systems for his company. He is now the primary technical resource on bar code systems for AT&T and has been involved with the design and implementation of many projects dealing with factory and office automation systems. One of the key areas was the development of a bar code scanner evaluation program to determine the quality and capabilities of scanners which may be used within AT&T. These evaluations have provided many scanner manufacturers with valuable input.

Gilligan's most visible work outside his company has been as a member, and then Chairman, of the ANSI Committee (MH10.8), which developed bar code standards for the material handling industry. This same committee is now working on the very important print quality standard (see above).

We have often maintained that the work and dedication of individuals has enormous effect on the major events of history -- whether in government or

industry. In his quiet, informed and personal style, Allan Gilligan has made
such an important contribution. In our next issues we will report on the AIM/US
Dilling Award and on the SCAN Newsletter SCAN-TECH/Europe Award.

The strong move....

....by many growing companies in the industry (e.g. Intermec, Computer
Identics, Symbol Technologies, AccuSort) to hire direct sales forces has pointed
up a serious deficiency: the lack of experienced, trained personnel with
background in bar code scanning.

It is not suprising, considering the young history of the technology and the
almost total lack of college programs which address the subject. Many
companies, we are told, are deliberately seeking new people from outside the
industry: first, because there are so few trained individuals; second, because
many of those who have worked for bar code scanning companies are not very well-
rounded in the basics, and retraining is more difficult than starting with
fertile minds and bodies.

What to do about it? Education at the college and university level is one
important answer. AIM/US now offers a limited program including student
scholarships and help with course curricula to universities that ask about it.
This is a most important effort, but it is restricted by the limited size and
resources of the organization.

Another approach would be for individual bar coding companies to contact local
schools of higher education and offer their services. This could include:
● Engineering and marketing personnel conducting guest lectures in MIS, computer
sciences and packaging design courses ● Help with establishing course
curricula ● Lending or donating equipment to laboratories ● Awarding grants
to perform research or testing programs ● Scholarships to interested students
● Summer jobs for students.

The benefits are not always immediate, but any company participating in
programs of this kind would most assuredly have a recruiting edge on the
campuses where they are involved. In the long run it will build a reserve of
trained personnel who will migrate to other firms and to other related
technologies and help to broaden the industry base.

Reflecting the growing....

....importance of radio frequency (RF), as a means for automatic identifi-
cation, the Automotive Industry Action Group (AIAG) has scheduled a seminar on
the subject November 6, 1986 in Dearborn, MI. The conference is geared to
people involved in material handling, production, systems planning, inventory
and traffic control. The presentations will include principles of operation,
equipment configurations, applications and costs. There will be vendor exhibits.

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