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Ltd.

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

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## The first time we ever heard ....

....of Bud Albers was at an industry conference (in Arlington, VA in February, 1989). The meeting had been called by the National Wholesale Druggists' Association (NWDA) to tell the pharmaceutical manufacturers to bar code their products -- and to get it done by the end of that year (SCAN Mar 89).

[Albers is President of Albers Inc. (Knoxville, TN), an independent drug wholesaler, supplying medical goods and services to 3,0000 health care providers in 30 states. He stood up at that meeting and told the assembled pharmaceutical manufacturers that he was tired of outdated inventories and out-of-stocks on critical items. He was the wit who described the four inventory procedures used by drug wholesalers: the traditional FIFO and LIFO, plus the two special versions unique to his industry, "FISH (First In, Still Here) and ASWO (Aw S--t, We're Out)."

Albers, it turns out, was ready to put his money where his mouth was. By the end of the summer, 1989, his company had installed a comprehensive bar code system for ordering, inventory control, distribution and payment procedures. Many active NWDA drug wholesalers have visited the Albers site this past year to learn how to start implementation of this technology. [The system was designed by Laserlight Systems, Inc. (Dedham, MA).]

We were reminded of last year's NWDA meeting, and Bud Albers' powerful presentation, when we reviewed the results of the just-completed, mid-June HIBCC '90 annual conference in Dallas. One of the highlights of this recent symposium was a roundtable discussion attended by the pharmaceutical wholesalers and manufacturers, during which the Albers system was discussed.

The country's three largest wholesalers -- McKesson, Bergen Brunswig and FoxMyer -- were in attendance and strongly supported the Albers approach. As a result of this demonstration of wholesaler commitment, the major manufacturers of prescription drugs and pharmaceuticals, who were also present at the meeting, agreed to move quickly to bar code their products (including inner packs and shipping cases).

The NWDA white paper issued early in 1989 -- which directed the drug manufacturers to follow the UCC guidelines and to place the UPC symbol on their individual packages -- has now been updated and expanded. Titled "NWDA



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INCLUDING THE INTERNATIONAL EDITION

Background and Position On Numerical and Automatic Identification of Drug Product In Distribution and Patient Care," the booklet goes beyond the basic stock keeping unit (SKU) and specifies the codes and symbols to be used on intermediate packaging and shipping containers. (Although the NWDA continues to follow the basic UCC approach, it has added an optional four-digit, Code 128 symbol to encode quantity in order to simplify database maintenance and avoid quantity lookup.)

[Note: The NWDA guidelines refer specifically to pharmaceuticals (i.e. those products which are under the control of the Food and Drug Administration). Each item has been assigned a National Drug Code which has been integrated into the UPC numbering scheme.

The chief advocate of the NWDA position -- which has always been to retain UPC as the symbol of choice for this product group -- has been Bill Shultz. Since the first meetings of the HIBCC in the early 1980's, Shultz, who worked for Schering Drug at that time, has appeared at every industry forum to promote the NWDA viewpoint. He is now VP Systems Applications for Laserlight Systems. It is generally acknowledged that his single-mindedness and tenacity on this issue were largely responsible for the UPC now appearing on prescription drugs.

On the other hand, medical devices and equipment (including anything from syringes and test tubes to CAT scanners), will be marked with the alpha-numeric, random-length, HIBC code and symbol. This symbol, in Code 39 or Code 128, incorporates the manufacturers' LIC identification number, product number and unit of measure.]

The situation facing the so-called health care providers (hospitals, nursing homes, health maintenance organizations and others) is still far from clear. According to Robert Hankin, President of the HIBCC: "Six years [after the founding of the Health Industry Bar Code Council], surprisingly few hospitals have yet to become involved in bar coding. Unfortunately, some may never be."

Laserlight's Shultz and HIBCC's Hankin differ as to the best route that should be followed to achieve the successful implementation of bar coding in the hospitals. Shultz believes this market can be driven from the bottom up; i.e. as the wholesalers implement their internal systems and require the product manufacturers to bar code their merchandise, the hospitals' inventories will be automatically source-marked and automated systems will naturally follow.

Hankin sees a much larger challenge. In HIBCC's publication, *Lines* (Winter, 1990 edition), he states: "HIBCC's historic mission has been to set and maintain standards for the industry." Driving his point home, he continues: "As a standards setting organization, our narrow focus can sometimes cause us to lose sight of the bigger picture...Our job is not to simply document technical standards. That's the easy part. Our job is to be visionary. We're not only describing the present, we're mapping the future."

#### COMMENT

*Is Bud Albers a visionary? Not really. We would rather characterize him as a pragmatist and an activist. He had a problem and set about solving it for himself. Along the way, he provided an entire industry with leadership and insight as to how the job could get done.*

We agree with Bob Hankin that the HIBCC should expand beyond just being a "standards setting organization." We believe that expansion, however, should take the form of promoting the advantages of the systems, rather than deprecating bar coding.

Hankin's approach to bar coding always seems to be negative and self-defeating, as when he told SCAN last year (SCAN July 89): "EDI has more pizzazz than bar coding...Bar coding is misunderstood and devalued by hospital executives, and the technology has no champions in these institutions. When the medical professionals want their new toys, they get them, but no one is pushing for bar coding."

This is a market that needs automation, is ready for it and is looking for more leaders like Bud Albers.

#### Completing the cycle of litigation....

....on the hand-held laser scanner patents, Photographic Sciences issued the following terse statement on July 2: "PSC announced today that it has filed a complaint of patent infringement against Symbol Technologies, Inc. for infringement of PSC patents #4,603,262 and #4,652,750, related to bar code scanners."

This counter-action had been expected following Symbol's legal move against PSC on May 30 (SCAN June 90). Now that these legalities are out of the way, there are unofficial indications from a number of sources that the principals of both companies will meet soon to settle the matter through direct negotiations (with no need for courtroom involvement).

#### It might be a mistake ....

....to write off Metrologic as an important player in the laser scanner business. The recent legal developments in New York may have had direct consequences on the company, but this is not the first time that it has suffered near-fatal blows and come back stronger than before.

[In 1985, the company had declared bankruptcy as a result of over-extension of its resources in funding product and market development. Harry Knowles came out of the laboratory at that time and re-established his control of the company he founded. He quickly restored positive banking relationships and brought the company out of Chapter 11 in less than a year (SCAN Feb 86, March 86, Aug 86).]

Metrologic's annual rate of sales has grown to an estimated \$15-\$20 million. The company's well-designed hand-held and mini-slot laser scanners have enjoyed moderate success competing head-to-head with Symbol Technologies and others. Knowles has been price-competitive and, working with key distributors such as POSdata, had succeeded in capturing some significant accounts -- notably K mart.

The setbacks of the last few months have been devastating. The Court decision in favor of Symbol in the Opticon patent case (SCAN May 90, June 90) forced Metrologic to pull its hand-held lasers off the market and caused K mart and others to cancel their orders. (Montgomery Ward had reportedly placed an order

for 1,800 Metrologic hand-held scanners -- with a follow-on letter of intent for an additional 5,000 -- and changed their plans after the bad news broke.) For the same reasons, distributors could no longer handle that part of the product line.

Fujitsu, in an apparently unrelated development, was selected to replace Metrologic as the supplier of mini-slots to K mart. The company seemed to be effectively blocked at every turn.

But, according to Monroe Dorris, Metrologic's National Sales Manager, the ever-resourceful Knowles is now busy completing development on two new series of products. The 900 Series of hand-held laser scanners has been designed to avoid the three patents successfully prosecuted by Symbol in the Opticon case. These units have no trigger mechanisms (they are activated by a "presence" sensor); and they have no curved oscillating mirrors (instead they use the older type of rotating polygon mirrors).

Metrologic, of course, will have to be wary of Symbol's extensive patent position. As one knowledgeable marketer of systems to the retail trade commented to us: "Symbol has surrounded the hand-held laser scanning technology with an entire family of related patents -- and patents pending -- beyond the three that were in litigation, and it remains to be seen whether they can all be circumvented."

The other product group under development by Metrologic is the 700 Series of top-of-the-counter laser scanners for non-grocery retailers. According to Dorris, these "projection scanners" are smaller (6 1/2" x 6 1/2" x 3") and more aggressive (20 scan fields) than others currently on the market. At a list price of \$1,195, he expects the 700 Series scanners to compete effectively against other similar products from Spectra Physics, NCR and Micro Video.

Both new products have already been shown as working prototypes and demo units are expected by mid-summer, with production in the fall.

#### COMMENT

*Few will question Metrologic's capabilities to develop innovative laser scanning products. Under the guidance of Harry Knowles, the company has been doing it for over 15 years.*

*But Metrologic faces two major hurdles before it can regain its footing. The Symbol patent suit against Metrologic is still pending. The Court has scheduled a preliminary hearing to take place within the next few weeks to see if the companies can come to a settlement agreement before going to trial. At this point, Knowles is reportedly receptive to accepting a Symbol license -- a position he disdainfully rejected in the past. Symbol has steadfastly refused any such settlement and could be pursuing the ultimate treble damages as the winner of the suit. The outcome of this case will be most significant for Metrologic's future.*

*The second obstacle to Metrologic's success will be regaining credibility in the marketplace. Overcoming this challenge will not only depend on the absolute clarification of the patent issue (neither distributors nor customers will accept products under that cloud), but the company is back to almost ground zero with gaining acceptance for a totally new product line. K mart, for example, will not consider purchasing any equipment*

until it has been out in the field under normal operation for a minimum of 500 man-months (e.g. 50 scanners at 10 months each).

The industry needs an aggressive innovator, such as Knowles, to compete with Symbol, to keep prices in line and to stimulate the technology. On an optimistic note, Metrologic's Dorris put it this way: "The patent decision in favor of Symbol may wind up being beneficial to the end user. It has forced companies to examine new approaches and to leapfrog current technology which may result in products which are easier to use and maintain."

#### A brief item....

....to be added to the "Justice will [sometimes] prevail" file.

In a recent issue (SCAN Apr 90) we wrote about Refac Technology Development Corp. -- which, according to *The New York Times*, is a company that "acquires obscure patents that have little real value and do not hold up in Court and uses them as weapons to create enough fear and confusion to force settlements."

Refac has started legal actions against a number of companies in the automatic identification business based on patents (that are presumably related to bar code scanning) issued to Jerome Lemelson. A number of companies have signed up with Refac to pay what they see as relatively painless license fees, when compared to the costs of fighting these cases in Court. The *Times* characterized this type of action as "patent blackmail."

But not everyone has yielded to such legal pressures. In a separate case, Refac had sued 6 major software companies (Lotus, Ashton-Tate, Borland, Computer Associates, Microsoft and Informix) for violating a patent held by Canadian-based Forward Reference Systems. Refac had bought 5% of that patent. Only this time, the companies that were sued did not roll over (as some auto ID companies in this industry have done) -- and the software firms won!

In a decision against Refac, just a few weeks ago, US District Judge Michael Mukasey ruled that it is illegal under New York law to buy interest in a patent solely to pursue patent-infringement lawsuits. According to the judge, such arrangements amount to "nothing but a hunting license." The judge continued: "The primary purpose for the assignment here was to enable Refac to commence action as [Forward Reference's] surrogate plaintiff."

Henry Gutman, Lotus' lawyer, was quoted in *The Wall Street Journal* (May 30) as saying: "The decision could have implications for other companies that have been targeted by New York-based Refac for alleged patent infringement. If someone wants to bring a patent infringement case, they have to bring a patent infringement case. They can't bring in a hired gun like Refac."

#### For the statistical-minded....

....who want to keep up with the grocery industry in the US, here are the latest data about the food retailers (based on the *Progressive Grocer Magazine's* 57th Annual Report):

- There are 147,000 grocery stores in the US. Of these, 30,750 (21%) are classified as supermarkets (annual volume of \$2 million or more); 57,000 as convenience stores; and 60,000 as others.
- Total grocery sales in 1989 were \$351 billion (up 6.7% over 1988) with \$257 billion (73.4%) going to supermarkets.
- There were scanning check-outs in 65% of all supermarkets. *Progressive Grocer* reports: "Retailers, especially independents, continue to replace outdated registers with scanners. The number of stores with scanners has jumped 101% since 1984, and some stores using older scanners are investing in new generation equipment."
- The installation of scanners is highly correlated to the size of the stores. In the smaller (\$2-4 million) stores, about 36% are scanning; the larger (\$12+ million) units are up to 95% with automated front-ends.
- Based on our own estimate (derived from these raw data), one of the most significant figures -- when evaluating the current penetration of front-end scanning in food retailing -- is that 79% of all supermarket dollar sales are being scanned at approximately 200,000 automated check-out counters.

As this market sector has become more saturated, the rate of conversion to scanning has inevitably slowed down. The supermarket industry's total acceptance of front-end automation, however, is most impressive.

#### After five years of intense study....

....the important, and very controversial, ANSI Guideline for Bar Code Print Quality (X3.182-1990) has been approved by the ANSI Board of Standards Review.

In 1983, when this X3 Committee was first formed, there was a recognized need for a definitive standard to measure the quality of printed bar codes. The industry was confused at that time by non-specific conflicting methodologies and tolerances. Examples abounded: the Uniform Code Council would not approve the use of any verification equipment; Code 39 had at least 3 versions (AIM, LOGMARS and automotive), each requiring different testing parameters; there was no agreement on such critical verification elements as light source and aperture size; testing programs (e.g. AIM/Stony Brook and Bell Labs) were undertaken with jerry-rigged testing equipment and procedures which ultimately were flawed and/or not comparable to each other.

In our review of the progress of the Committee in the Fall of 1986, we forecast that the final standard would take three more years to complete. Since this study was the first serious, in-depth analysis by any group to determine what was necessary to accurately measure bar code print quality, questions naturally arose that had never been addressed before. As a reminder of these challenges, we quote from our October, 1986 issue which reported on one Committee meeting:

"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?

In November, 1986, X3 co-chairmen Chuck Biss (Photographic Sciences) and Allan Gilligan (Bell Labs) recognized that the problems had become too complex to be resolved at meetings attended by 30 members and held at 3-month intervals. A 10-member Work Group was formed, recommendations were submitted for consideration by the full Committee and, finally, the draft of July 25, 1988 was put out for review and comment. The standard's most significant new feature is a "Scan Reflectance Profile Grading" scheme, with assigned grades of A, B, C, D and F, which recognizes relative levels of print quality, as opposed to the previous pass/fail criteria.

There are many interested individuals, both inside and outside the Committee, who find this new ANSI Guideline to be confusing and overly complicated. One question that continually comes up is whether equipment can be designed which will conform to these new ANSI requirements and still sell at a marketable price. In a 5-page Technical Bulletin from Photographic Sciences (a leading supplier of verification devices), Chuck Biss explains how his company has incorporated much of the new methodology into their new Quick Check 500 verifier. He winds up his explanation with: "It's complicated at first....but easy in the end!!" We sure hope so, Chuck.

#### The special efforts underway....

....to make this year's SCAN-TECH a memorable event are shaping up quickly.

SCAN-TECH 90, October 2-4 at Atlanta's World Congress Center, is being led by General Chairman, Jim Dooley (IBI); Seminar Chairman, Bill Shultz (Laserlight); and Show Chairman, Ben Nelson (Scanmark). AIM expects 13,000 attendees and there will be 200 exhibitors, who are taking a record-breaking 75,000 square feet or more.

The keynote speaker to open the event on Tuesday morning will be *Forbes* Publisher (former U.S. Secretary of Defense) Caspar Weinberger. In his address, "Global Competitiveness in the International Marketplace," Weinberger will discuss the need for U.S. industry to improve productivity, and the role of technology in maintaining America's productive edge -- a topic that should relate well to SCAN-TECH attendees.

[Immediately preceding Weinberger's address, *SCAN Newsletter* and AIM will present the ninth annual Percival Award to an individual or organization from the user community who has made an outstanding contribution to the auto ID industry.]

Over 150 speakers will conduct 54 seminars on all of the auto ID technologies and applications. Bill Hakanson, AIM's Executive Director, is particularly enthusiastic about the new Productivity Improvement track added this year. These sessions, scheduled for October 3, will feature three 2-hour sessions highlighting the managerial, behavioral and technical strategies used to improve productivity, stressing the vital role of auto ID technology.

According to Hakanson: "The Productivity Improvement Series should attract repeat attendees and higher level attendees to SCAN-TECH."

One last point about SCAN-TECH 90. What has all of the above got to do with this year's silly theme: "Both went to Harvard...which one went to SCAN-TECH!" We knew we didn't like it when we first saw it, but we did not realize why until an associate of ours remarked at a meeting recently: "It almost seems to advocate the use of steroids." She went on: "In this time of struggling feminism, this is sending the wrong message to women." She was upset with the illustration on the front page of the show's promotional material which pictures two young men side by side; one a scrawny 90-pound weakling -- the other, a brawny muscular Adonis.

During the early SCAN-TECH years, there were only modest attempts at creating memorable visuals for the shows. In 1982 (Dallas) and 1983 (San Diego), there were only stylized printed bar codes. In 1984 (Cincinnati), the bar code was printed on an egg. By 1985 (Baltimore) the egg had hatched a small chick. The San Francisco skyline highlighted the 1986 show held in that city.

Starting in 1987 (Kansas City), the efforts to distinguish each show intensified. That year, a Superman facsimile bared its chest to reveal a bar code, while declaiming "The Power is Yours." It was the moonwalk in 1988 (Chicago), with an astronaut's boot leaving a bar coded imprint in the lunar sands ("Auto ID for Now and the Next Century). The hot pepper logo in 1989 (San Jose), with the "Hot Stuff" theme, grossly understated the earth-shattering impact that SCAN-TECH would have on the area up and down northern California.

And now this! It's neither funny nor memorable. And, unfortunately, probably too late to change. Next year will be the tenth anniversary of SCAN-TECH -- hopefully, that milestone will spark some better ideas.

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#### A cryptic sign of the times....

...was reflected in the brief, unannounced note sent out recently by Symbol Technologies to its suppliers. It reads as follows:

"To: Accounts Receivable Manager  
Because of the potential changes to the financial markets, STI has decided to position itself for the future by revising its payment terms. Effective April 30, 1990, our payment terms will now be...net 50 days."

The extension of suppliers' terms has always been one of the easiest, cheapest and most effective ways to borrow money -- without even having to take your banker to lunch. And the company is not forced to provide any explanation to its suppliers as to why, for example, they must bear the cost and responsibility for "potential changes to the financial markets" or "position itself for the future" -- or even what those terms mean.

If we get into a real recession, we can probably expect to see more of this type of letter.

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