KAYPRO KORNER

HOW KAYPRO STARTED
Part I (1953 - 1983)

By Erroll Foldes

Kaypro Corporation was a major force in the microcomputer industry of the early 1980's, and was to the world of CP/M what IBM was to DOS. This series is presented as a tribute to this independent, innovative manufacturer: producer of high quality electronics, computers and peripherals from 1953 through 1992.

Non-Linear Systems, Inc. (NLS in this document), was signed into existence on January 29, 1953 by 34 year old Andrew F. Kay, along with his wife, Mary Marble Kay, and Jonathan Edwards, directors. The articles of incorporation were filed with the California Secretary of State on February 17, 1953, establishing the firm to "engage in the business of research and development engineering of non-linear electronic and mechanical systems." At the time, the Kay's were residing in Del Mar, California. Kay was actually a shortened form of Kopischianski, which was his father, Frank's name. Kay grew up in Clifton, New Jersey, and received a B.S. degree in General Sciences from the Massachusetts Institute of Technology. He started out by working as an engineer for a few electronics companies and then started his own small but profitable electronic test and measuring device manufacturing firm. He relocated his business to southern California in 1947. In 1952, he invented the digital voltmeter, and this accomplishment earned him the honor of being called the father of the digital age. Kay founded NLS in order to market the device to the aerospace industry.

These days, the now 75 year old inventor and entrepreneur has been described as a wise old father type. Other sources indicate that while brilliant and full of ideas, Kay was overly optimistic, ruthless and somewhat eccentric in business matters. Some of these qualities may become apparent in future installments of this history series.

For the next 30 years, the firm was involved primarily in the design, manufacture and marketing of electronic measurement and test instruments for aerospace, defense and industrial applications. Their headquarters consisted of a 40,000 square foot plant on 8.16 acres of land in Solana Beach, California (a small suburb of San Diego), as well as a 3.4 acre plot of undeveloped land adjacent to the plant (planned for a never-to-be office building). Their product offerings included (1) a portable battery powered test instrument line, consisting of miniature digital multimeters, miniature digital oscilloscopes (the world's smallest) and (2) a digital panel meter product line, consisting of voltmeters, frequency meters and digital counters.

Kay chose an office location just a mile from the ocean because he felt that this would provide employees with a healthy work environment. In fact, NLS provided a free health bar, where fresh vegetables and fruit juices were available. Proximity to the ocean also offered the firm's surfing-conscious employees opportunity to perfect their craft, and it has been said that many a "business meeting" was held sitting on surf boards while waiting for the next wave!

When the microcomputer market opened up in the late 1970's, Kay took a deep interest, and in 1981, NLS began development of a low priced portable microcomputer system to compete directly with the Osborne 1 (the very first successful portable micro) which had been introduced in April of that year. Dubbed the Kaycomp II, it was announced to the press in April 1982. With a proposed price tag of $1,795, the prototype configuration (appearing at computer fairs and photographed for magazines new product reviews) had a Z-80A cpu, 64K RAM, two single sided, single density
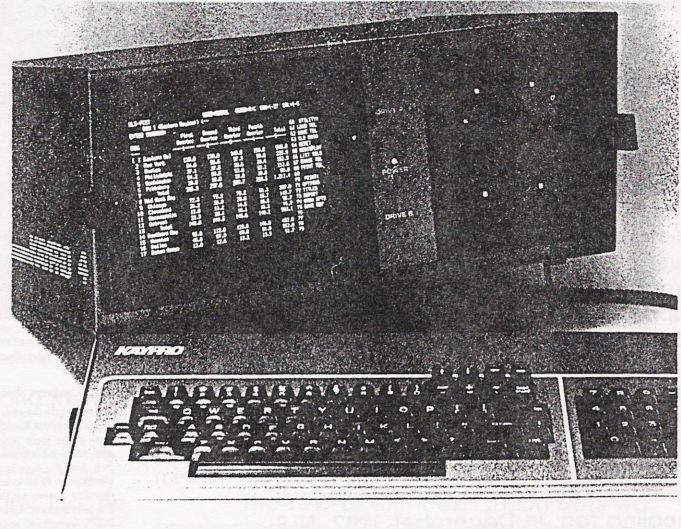
The Kaypro 4

floppy drives vertically on both sides of a center mounted 9" green monitor, and a cooling fan enclosed in a sturdy metal case with a high quality metal encased keyboard that clipped over the computer's face. This formed a portable 29lb suitcase. It came with CP/M 2.2 and a business software package.

When shipment of the Kaycomp II began in June 1982, its general layout was a bit different; the monitor appeared on the left with the two vertically mounted drives side by side on the right. The processor was the slower (2.5 Mhz) Z-80 and there was no cooling fan.

The terms of the manufacturing process note that NLS only manufactured the motherboards and metal cases "in house": monitors, floppy drives, power supplies, etc., were all purchased from third party vendors. For software, NLS maintained a fourteen person (1983 count) software department to enhance and review vendor supplied software as well as to develop proprietary software for NLS.

In October 1982, NLS announced a pair of new machines to replace the Kaycomp II; one, the Kaypro 5, would have been the industries first hard disk equipped portable. It was to have a 51/4",5.5 mb Winchester hard drive in addition to a single 51/4" double sided, double density (390K) floppy unit, and was to retail for $4,500, but the computer was never produced. The other machine was the Kaypro II, a revamp of the Kaycomp II, but priced the same ($1,795). Changes included the addition of double density to the floppy drives increasing total capacity of the two drives from 200K to 400K, and on later machines, reorientation of the drives to a horizontal format. Note that at this time NLS was calling their computer division "Kay computers". One review of the machine stated that there were plans to change the Kaypro II's case to plastic to save weight, but obviously this never transpired. There was still no fan, but apparently heat was not a problem due to efficient layout of the hardware components in the cabinet (the efficiency of this design was a testament to the enterprise NLS had developed in manufacturing durable and heat efficient test equipment). Even so, later Kaypro II's did include a cooling fan. In December 1982, NLS improved the line-up of bundled

software available with the Kaypro II with the addition of the Perfect Software group which included Perfect Writer, Perfect Speller, Perfect Calc and Perfect Filer. The price remained unchanged at $1,795.

Aesthetically, the Kaypro II received a mixed reception from reviewers (one called it high-tech while another said that its nuts and bolts look would be more appropriate for the back of a pickup truck than for an office!), but one thing everyone did agree on was its sturdiness and low price. The machine's unique look reflected the innovative and creative atmosphere nurtured at NLS although the relaxed, unorthodox management style would later cause problems for the firm.

The Kaypro II was clearly a bigger hit than the Osborne (with its larger screen, better quality keyboard and superior software bundle) even though both manufacturers offered tremendous value. NLS not only offered voluminous software, but beat out Osborne through formidable price cutting (cutting the Kaypro II's price by $200 in May 1983 causing Osborne to follow suit). Sales of the machine were so great that NLS decided to corporate under the banner of Kaypro (keeping NLS as a subsidiary) for the purpose of raising capital to increase production. A preliminary prospectus was issued on July 1, 1983 and Kaypro Corporation went public to a warm reception on August 25th. The issue was underwritten by Prudential Bache Securities.

In July 1983, NLS released two new machines on the heels of the Kaypro II. One, the Kaypro 4, was

essentially the same as the Kaypro II, but in addition had double sided, double density drives that provided 390K of storage each and came in a gunmetal grey cabinet in contrast to the Kaypro II's bright blue and silver color scheme. The big news though, was the implementation of the integral hard disk concept that was scheduled nine months earlier with the stillborn Kaypro 5. Dubbed the Kaypro 10, this machine sported a shock-mounted 51/4" 10 megabyte hard drive, a single 390K floppy drive, the faster Z-80A (4 Mhz) cpu and a vast array of bundled software including two word processors, two spelling checkers, two spreadsheets, two communications programs and three versions of BASIC! The 9" screens resolution was improved over the Kaypro II and 4 allowing for good quality character graphics. Priced at $2,795, it was a steal and had the honor of being the first hard drive equipped portable computer. (Delays in hard drive shipments caused substantial delays in deliveries of Kaypro 10's and these problems continued until November 1983 after which deliveries proceeded on schedule.)

During this time the Kaypro II remained Kaypro's biggest seller. From the commencement of Kaypro II shipments in June 1982 to the time they went public, they had already sold 47,500 units! Osborne would soon succumb to the Kaypro II's onslaught by filing for bankruptcy protection in September 1983. *HB*
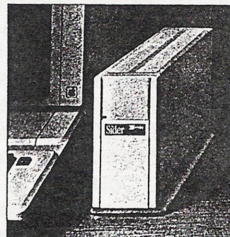
Look for Erroll's Part II covering 1983 - 1992 in the next issue. HB will avoid splitting stories in the future (when we get bigger!). -DG

KAYPRO KORNER

THE KAYPRO'S BIG YEAR OF EXPANSION
Part II of "How Kaypro Started" (1983)

By Erroll Foldes

The company's net earnings for the fiscal year ended 1983 was almost $13 million, or 188 times what it was in 1981: Obviously, microcomputers was the business to be in! The firm, at this time employed over 600 people (at their height the figure would climb to 750), continued the manufacture of electronic products by the NLS division, although by fiscal year end 1983, sales by this division amounted to only 2.3% of total sales (compared to 100% in 1981 and 61.8% in 1982).

Organizationally, Kaypro Corp. was literally a "mom and pop" outfit, and in fact even more familial in that the original board included Andrew F. Kay (CFO and chairman), his wife Mary M. (secretary and director), and sons Allan M. and David A., Vice Presidents and Directors. Allan owned his own advertising agency, A & D Advertising , with which he helped in the promotions area. Elder son David, who was VP of Marketing and Product Planning, was responsible for the Kaypro name itself. To add further to this familial situation, the company's facilities were built by Charette Construction, owned by Michael Batter and Janice Kay Batter, daughter of Andrew and Mary Kay. Finally, Andrew's brother Stephen ran the firm's print shop.

> A once small electronic measurement and test instrument manufacturer, Kaypro had quickly risen to the top of the "portable" microcomputer market.

Kaypro engaged in some very aggressive marketing strategies, and by fiscal year end 1983 they had spent nearly $2 million in advertising (not to mention almost $1 million in microcomputer r&d), and were shipping computers to 1000 independent retailers (they avoided the chain stores) and 250 systems houses (these were outfits that would add their own software to a Kaypro computer and market the bundled package). They established district sales offices in 13 major cities across the country and began to set up a direct dealer network in Europe with their software and promotional materials translated into French, German, and Spanish (this would be supplemented by Italian, English, Finnish, Swedish, Dutch, Norwegian and Danish by the following year!)

It is interesting to note that, in 1983 Kaypro had the foresight to acquire a license for MS-DOS from Microsoft, Inc., as a step toward completing the development of a 16-bit, IBM-XT compatible computer. Thus, even as they enjoyed huge success with their flagship, the CP/M-based Kaypro II, (and at a time when CP/M was still the industry standard operating system) Kaypro realized that compatibility with IBM would be an important factor in remaining competitive. How effectively they acted on this foresight was yet another story. More in the next installment!

NOTE: The author invites readers to submit contributions that highlight omissions, errors, or enhancements they feel are relevant to the Kaypro story. Completeness and accuracy are the primary objectives of the series. Also, I do not want to maintain exclusive contributorship to this column. Any Kaypro related articles of historical, technical or any other nature, are invited. Make this YOUR Kapro Korner!

Also, special thanks to Doug Margolis, president of the Creative Computing Club of New York (formerly New York Kaypro Users Group), who was my first guiding light in the world of CP/M Kaypros, and to Mike Arman, of Arman Publishing in Florida, whose technical assistance was indispensable, especially in my Kaypro II restoration project last year. HB
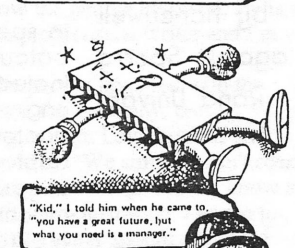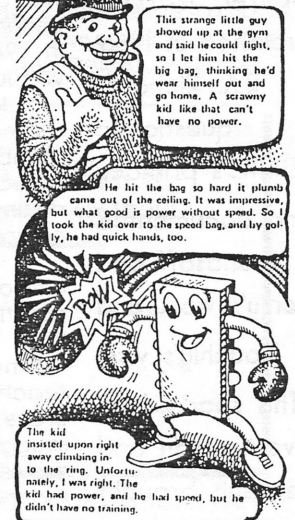
An early Microsoft ad

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KAYPRO KORNER

THE CONTINUED UPS AND DOWNS OF KAYPRO'S GROWTH
An examination of early computer marketing.

By Erroll Foldes

Can a family owned computer corporation handle the big time? "The relaxed and entrepreneurial family-business style of running the company just did not work in what was becoming an extremely cut-throat market where only those who could anticipate and respond to rapid changes would survive."

In 1984, Kaypro had the best sales year in their history, but it also marked the beginning of the end for Kaypro Corporation. The inertia caused by the expansion of the prior year led Andrew Kay to over-invest in inventory; the parts he bought were fast becoming obsolete due to the industry-wide race for IBM-compatibility and 16-bit technology. Son, David Kay, marketing manager, after unsuccessfully arguing with his father over these unwise business decisions, finally moved his office to the loading dock so he could head off the shipments before delivery. Parts inventory became so huge that the Kays set up huge white circus tents to serve as a makeshift warehouse for over $50 million in surplus components. These were ultimately robbed, causing millions of dollars in losses. Family feuding and lack of concentration on managing the company's phenomenal growth, complicated business operations contributing to the firm's ignorance of market changes. Kaypro was also developing a reputation for bookkeeping carelessness and errors.

Perhaps their greatest mistake was continuing the manufacture of CP/M-based computers for so long as was reflected in their 1984 product line. The flagship Kaypro 2 was still there, upgraded with the Z80-A chip which boosted speed from 2.5 to 4 Mhz. The machine, still sporting the diminutive 191K drives, listed for $1295. A variant of the Kaypro 2, called the 2X, was available for $1595 and contained double-sided, double density drives. To differentiate it from the 2X, the Kaypro 4 got an internal 300 baud modem as standard equipment, and listed for $1995. The Kaypro 10 remained unchanged in form and price. To round out the CP/M line, a lower priced variant of the Kaypro 2 was offered, it was called the "New Kaypro 2". It had only a single DS/DD floppy drive and cost $995. It was at about this time that Kaypro developed their "universal motherboard" concept, whereby any of the above computers could be configured based on differing chips installed in a main board common to all of them. Until that time, each model had a unique main board, which was costly. A marketing strategy was to offer "Business Packs", which consisted of a computer and a daisywheel printer: The Junior Business Pack included a New Kaypro 2, the Business Pack included a Kaypro 4, and the Senior Business Pack came with a Kaypro 10. On the software front, MicroPro's Wordstar was added to the offerings starting in April, 1984.

A new addition to the product line, called the Robie, would have been a knockout had it not "flopped". Sharing the familiar 64K RAM and Z80-A CPU, the Robie also had, shockingly, two high-density floppy drives with a whopping capacity of 2.6 megabytes each! The machine retailed for $2295. Technical problems in production of the high-density drives delayed shipments. Another drawback was that the user had to format the special high density disks prior to use, rather than the disks being pre-formatted. To make matters worse, several recalls occurred due to faulty EPROMs, and Kaypro finally began offering Kaypro 10s in trade for ailing Robies. In short, Robies were either traded in or trashed, so if you own a survivor, hire an armed guard to watch it!

Finally, very late in the year, Kaypro introduced their first IBM-compatible computer, dubbed the Kaypro 16. First shipped in November 1984, the "16" was a 16-bit, 8088, 4.77Mhz IBM-XT compatible unit, running MSDOS. It had 256K of RAM, an available 10 meg hard drive, and one DS/DD (384K) floppy drive (standard configuration was with 2 DS/DD floppies). It shared the same portable, metal-box layout as its CP/M brethren, built-in green monitor and a connector for optional external color video. It's price tag was $3295 with the hard-drive configuration, $2295 with dual floppies. Although priced very reasonably, the 16 received poor reviews due to awful documentation, limited expandability, and poor graphics. Having jumped on the compatibility bandwagon this late in the game, and with growing internal problems, such a poor reception towards their first effort of IBM compatibility was needed like a hole in the head.

No fewer than 7 lawsuits were filed against the company during 1984, mostly for breach of contract and misrepresentations or omissions in the company's registration statement. Despite a flying start that year, Kaypro Corporation realized a net loss of $267,683 for 1984, compared to 1983 net earnings of almost $13 million. This loss was
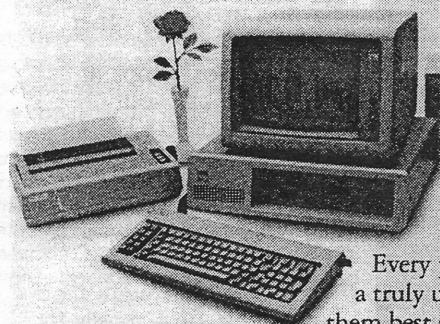
mainly due to steady sales offset by the doubled cost of sales because of the tremendous inventory losses described earlier. The number of district sales offices dropped from 13 to 9, and employment dropped to 558 (Oct. 15) from an all-time high of 750 earlier in the year. Kaypro had continued a very aggressive marketing campaign in 1984, spending over $10 million on advertising and promotions, including $5 million on television ads. By 1985, employment dropped again, to 444 (Oct. 15).

1985 found Kaypro scrambling like mad to catch up with the competition. The former hot-selling Kaypro 2 was dropped altogether, but the hard-headed manufacturer still offered 3 computers that used the aging Digital Research operating system: A new one, the Kaypro 1, was the same as the prior year's 2X, but priced at $995. The 2X and the 10 were still being offered, but now both came with a built-in modem and sold for $1295 and $2295, respectively. The XT-compatible Kaypro 16 was still available (both dual floppy ($1995) and hard-drive ($2695) versions), but added to the lineup were no fewer than 3 new DOS machines. The Kaypro PC, a direct IBM desktop PC clone with 256K and dual floppies, sold for $1595, and included goodies like switchable CPU speed, Hercules emulation and a tremendous software package. The Kaypro PC claimed top honors in a November 1986 *BYTE* review/comparison of 3 8088 PC clones, winning over Epson and Multitech in terms of price, features, expandability and software bundling. Another was the 286i (February), which had the honor of being the industry's very first AT clone, and which originally came with dual high-density floppies for $2995 and later with a hard disk for an amazing $4550. At 20% below IBM's price, the 286i was yet another example of the tremendous value for the dollar that had become Kaypro's hallmark. Then finally, there was the blockbuster, the K-2000. This machine showed that Kaypro was still an innovator- it was one of the industry's first laptops; weighing in at 11 pounds, it was battery powered, had a detachable keyboard, 9" LCD 80 X 25 screen, a single 720K 3.5" floppy, 256K RAM expandable to 640K, real-time clock/calender, and a 16-bit, 80C88 that made it completely compatible with the IBM PC. Co-developed with Mitsui and Co., the unit retailed for

$1995, 30% less than similar units on the market. An optional 300/1200 baud internal modem was available for an additional $295.

It would seem that with all of this quality production going on, Kaypro could quickly regain its prior stature as a leader in the PC arena. However, internal problems continued: In September 1985, Andrew Kay gave up the presidential title to son David, who in turn named John Hentrich executive vice president. David and his father continued to bicker over business matters, as the stubborn and headstrong Andrew still remained very much the one in charge, even with the loss of title. Continued communication problems led to expensive mistakes in sales and marketing strategies. The relaxed and entrepreneurial family-business style of running the company just did not work in what was becoming an extremely cut-throat market where only those who could anticipate and respond to rapid changes would survive. At the end of 1985, sales fell to $75 million from $119 million the previous year, and the firm again suffered a net loss, this time over $15 million. This huge loss is mainly attributed to a $14 million inventory write-off because of the obsolescence of 8-bit computers. 1986 saw the number of regional sales office drop to 6, and the dealer total drop to 900. For 1986, the product line was streamlined by the removal of the Kaypro 1 and 10 models, leaving just one CP/M computer offering, the Kaypro 2X ($1295). Added was a new machine called the Expansion Unit Plus, a 16-bit, 8088-based desktop expandable to 768K by adding chips, and a 12" monitor for $1195. In May, Kaypro introduced a special board that allowed their 8088-based clone to operate like an AT. It cost $1065, or $799 with an 8088 Kaypro board trade-in. On the internal front, legal problems continued and the firm settled a 1984 shareholder suit for $9.3 million in November. Kaypro actually made money in 1986, but it was a measly $39,000! Not too good compared to the $120 million peak of just two years earlier.

Next issue, 1987-1992: Decline, Bankruptcy and Liquidation. Plus, an analysis of the Kaypro rocket-ride and subsequent crash, and the factors that caused it, including commentary from the Kays themselves.