BYTELINES

NEWS AND SPECULATION ABOUT PERSONAL COMPUTING

Conducted by Sol Libes

Radio Shack's New Products: This fall, Radio Shack will offer a $399 terminal/modem combination called the Videotex. This product will be billed as "the world's first low-cost home/office two-way information-retrieval system," and will allow a user to access CompuServe's MicroNet information utility and similar services.

The Videotex will connect directly to a telephone line and to the antenna terminals of a standard television set (not supplied).

A $30 software package will be required for a TRS-80 Model I to use the MicroNet system. In a radical departure from its past marketing policy, Radio Shack will also sell versions of the access software for non-TRS-80 computer systems such as the Apple II computer.

The MicroNet service will be accessible from 235 sites in the United States, providing news, syndicated columns, and sports, as well as access to credit-card verification and limited banking services.

Observers of the microcomputer industry have been expecting an announcement of three new Radio Shack computer products at any time now. A replacement for the TRS-80 Model I is due, and anticipation of more advanced systems is mounting.

Sharp To Introduce Under-$125 Computer: Sharp Corporation, of Japan, plans to introduce in 1981 an under-$125 hand-held computer, which is programmable in BASIC. It will store up to 400 program steps and have twenty-six memory locations for data storage. It will have an alphanumeric keyboard and a one-line LCD (liquid-crystal display). Optional printer and cassette interfaces will also be offered. Sharp is presently marketing a similar, but more powerful, machine in Japan, for $175.

Japanese Show Personal Computers in US: Several Japanese companies showed personal-computer systems at the recent National Computer Conference (NCC) in Anaheim, California. Nippon Electric Company (NEC) displayed a Z80-based system that currently sells for $730 in Japan. It includes a 12-inch color monitor, up to 64 K bytes of programmable and read-only memory and uses Microsoft BASIC.

Casio presented a system with 4½-inch video display and 4 K bytes of main memory, expandable to 32 K. SDC International Corporation said it is preparing to market an S-100-based system.

68000, Where Art Thou? Two computer-system manufacturers have reported to me that they are in a "holding" position on 68000-based 16-bit microcomputer-system development. They claim that Motorola has still not clearly defined some of the operation codes and will not commit to delivery on anything other than sample quantities. These manufacturers contend that similar problems occurred with the 6809 microprocessor. At this point, it does not appear likely that any 68000 products will become available this year.

Wanted: One And A Half Million Programmers: "There could be a demand for over one million computer programmers by 1990," said Andrew S Grove, Intel's president, in a recent interview. *Datamation* magazine has gone even further. In a recent article it reported that new software breakthroughs will cause the number of software programmers to increase 10% per year from 563,000 in 1980 to 1.5 million in 1990.

Japanese Memories Superior? According to a report made by Richard W Anderson, manager of Hewlett-Packard's Data Systems Division, Japanese 16 K memory devices are superior to US-made devices. According to Anderson, Japanese 16 K components showed a zero failure rate on incoming inspection compared to a 0.11 to 0.19% rate on US-made devices (ie: 100 failures out of 50,000). Further, field failures for 1000 hours of operation were 0.010 to 0.019% for Japanese parts versus 0.059 to 0.267% for US-made parts.

World Computer Chess Championship: The third world computer chess championship is scheduled to take place this month in Linz, Austria, from September 25 thru 29.

The former world champion program, Kaissa (from the Moscow Institute of System Studies), will provide strong competition for the best programs from the West. The current World and North American champion, Chess 4.9 (written by David Slate and Larry Atkin) will defend its title alongside other entries from the United States such as Belle, Chaos, and Duchess. The current European champion, the program Master, is also expected to compete.

As in previous tournaments, David Levy will be the Tournament Director. Mr Levy is an International Master of chess and has been noted for his own play versus computer programs.

Where Can I Store Ten Gigabits? Optical disks are expected to be the next major advance in high-density mass storage. Capacities of 10,000,000,000 bits (10 gigabits) are expected by 1982, 10^{12} bits (1 terabit) by 1985, and 10^{14} (100 terabits) by 1989. Video-disk technology is also advancing rapidly, but one shortcoming is that video disks are not erasable, limiting them to archival storage. Some systems now being designed are said to offer 10 billion bytes of storage on a 12-inch disk with 250 ms access time.

Bubble Memory Update: The first bubble-memory components were introduced in 1977 by Texas Instruments and Rockwell International. The number of bubble-memory suppliers has now increased substantially and includes Intel, Fujitsu, National Semiconductor, and Hitachi. Furthermore, Motorola and Siemens are second-sourcing the Rockwell device. It is likely that several other semiconductor makers will also enter the market.

Intel was the first to introduce a 1-megabit bubble-memory device, last year. Texas Instruments followed a few months later with its 1-megabit unit, and Rockwell is expected to announce its unit shortly.

Further, several manufacturers are also supplying support integrated circuits for simpler construction of the bubble-memory controller.

At this time, the major problem to acceptance of these devices is the lack of standardization. The available devices and support circuits from different manufacturers are not compatible. A Joint Electron Device Engineering Council (JEDEC) committee is currently holding discussions toward establishing standards on device design, reliability, testing, interfacing, and terminology. There still is no agreement as to whether the standard should apply to the device or to the controller level. Hence, it seems that a bubble-memory standard is still some time off, and we are unlikely to see bubble memory in wide use for some time to come.

Kentucky Farmers Get Viewdata: One hundred Kentucky farmers are trying out a Viewdata-type service to get information on markets, local crop conditions, and weather. The service is called the "Green Thumb Agricultural Weather Marketing Project." Using a box attached to a television set and phone line, a farmer can request information from the State's HP-3000 time-sharing computer, by means of a menu-oriented prompting system augmented by local county Z80-based computer systems. Up to eight items may be requested per telephone call. Currently one hundred farmers are testing the units made by Motorola in cooperation with Radio Shack.

Xerox, DEC, And Intel Join Forces For Office Network: Xerox, Digital Equipment Corporation, and Intel have joined forces in an effort to create a new internal data-communications network for business offices. Called Ethernet, it is intended for large or complex business offices. It will link together different types and makes of automated office machines (eg: terminals, intelligent copiers, word processors, etc) into a single system. Xerox holds the basic patents and will license others to manufacture compatible Ethernet products. A prototype system with several hundred machines is reported to have been operating for five years.

Large-Size Flat Display Technique Announced: RCA Laboratories, one of the leaders in display technology, has disclosed a new technical concept for building a wall-mounted 50-inch (diagonal-measure), color, flat-panel television display. A paper presented at the recent annual Society of Information Display conference estimated that the display could be in production by 1990. The display would consist of forty 1-inch-wide by 30-inch-high modules fastened together, side by side, to form a display 40 inches wide by 30 inches high. Each module would contain an electron gun and beam-guide system.

Othello Tournament Results: The best human player of the game Othello can still beat the best Othello-playing computer programs. This we conclude from the results of the First International Man-Machine Othello Tournament, held on June 19, 1980, on the campus of Northwestern University in Evanston, Illinois. Six of the best computer programs and the top two human players participated in a seven-round round-robin tournament. Mr Hiroshi Inoue, the current world champion from Tokyo, Japan, defeated five of the programs and the other human entry, Mr Jonathan Cerf of New York, New York, to win the tournament. Mr Cerf is the United States' Othello champion and is considered to be second-best in the world, although he placed third in this tournament.

The second-place finish was obtained by the computer program written by Dan and Kathe Spracklen of San Diego, California, who are well known for their chess-playing program, Sargon. The Spracklens' program defeated Cerf in the fourth round of the tournament; this defeat was somewhat ironic because Mr Cerf had given the Spracklens help in refining their game-playing algorithms.

Mr Inoue was narrowly defeated by only one opponent, a program called "The Moor" written by David Levy, Michael Stean, and Michael Reeve, all of London, England. This defeat, like the defeat of Cerf by the Spracklens' program, took place in the fourth round. Since the fourth round took place immediately after lunch, many observers have speculated that digestive factors may have impaired the performance of the human players. Oddly enough, The Moor was soundly beaten by programs which were themselves soundly beaten by Mr Inoue.

Fourth place in the final standings went to the program Odin, written by Peter Frey of Northwestern University. Fifth place was occupied by the program Iago, written by Paul Rosenbloom of Carnegie-Mellon University, followed by The Moor in sixth place. Peter Nachtwey, a US naval officer stationed in Newfoundland, Canada, entered his program Reversi Master which ended up in seventh place. Last place was occupied by a program written by Tom Truscott and Dennis Rockwell of Duke University.

Look for a full report on this tournament in a future issue of BYTE. (The name Othello is a trademark of Gabriel Industries, a subsidiary of CBS, Inc.)

AMSAT-OSCAR Phase III Satellite Crashes: When the first stage of the French Arriane rocket exploded during launch on Friday, May 23, 1980, the OSCAR Phase III satellite was lost. The spacecraft had an equivalent value of $250,000 and had required thirty man-years of effort for design and construction. The launch was not insured, so the Radio Amateur Satellite Corporation (AMSAT) has had to absorb a major loss.

The Phase III spacecraft appeared on the cover of the November 1978 BYTE and was discussed in Joe Kasser's article "The Sky's the Limit: Use Ham Radio Bands for Intercomputer Communication" (November 1978 BYTE, page 48). Part of the planned use of the satellite was to have been relaying of computer data by amateur radio operators in personal computer networks.

AMSAT is determined to build a second spacecraft (Phase III-B) to replace the lost unit, but the new satellite may take two years to complete. Fortunately, some material was left over from the original construction and may be used now.

AMSAT is continuing to develop software to be used by ground stations in the satellite networks and is seeking support from personal computer users in this software-development effort and in other areas of the rebuilding program. Information on AMSAT and its programs may be found in *Orbit*, which is published every two months and received by all members of the AMSAT group. A year's membership may be obtained for $10 from AMSAT, POB 27, Washington DC 20044.

The AMSAT space program is not a complete loss, however. The Phase II OSCAR-8 satellite continues in orbit, and a group of radio amateurs from the University of Surrey in England will launch the scientific-research satellite UOSAT in late 1981. Carrying a coherent high-frequency beacon, a magnetometer, and a slow-scan television camera, the "bird" will provide opportunity for ham radio and personal-computer users to gain experience in tracking satellites and monitoring telemetry.

Random Bits: It is interesting to note that IBM, via its Science Research Associates subsidiary, is marketing the Atari personal computer to educational users. In fact, IBM is offering a special sale. If you buy one Atari Model 800 system, they will give you an Atari Model 400 system free....Avalon-Hill, well known in the war gaming field for its historical simulation board games, has introduced a line of microcomputer-assisted games for the TRS-80, Apple II, and Commodore PET....The sales of the Texas Instruments (TI) Model 99/4 personal computer have been so disappointing that in the Los Angeles area TI has started offering $100 worth of free software plus a $100 cash rebate....Apple Computer Company has shifted its

Apple II production from Silicon Valley to Carrolton, Texas, a mere 30 miles away from the new 100,000-square-foot plant Tandy has built to make TRS-80s....A record 82,000 people attended the National Computer Conference (NCC), in Anaheim, California, this past May. The NCC is the largest computer show in the world. When it was held in Anaheim two years ago, 55,000 attended, which set the record just smashed....Data General has begun selling its business-oriented microcomputer systems through independent computer stores nationwide....Fujitsu America Inc, Lake Bluff, Illinois, has announced a plug-in "Bubble Memory Cassette." It provides a portable, detachable, read/write block of 64 K bits. Fujitsu has also introduced a new fully-formed-character printer with speeds up to 80 cps (characters per second), nearly twice the speed of conventional daisy-wheel machines. The printer is currently offered as a $4500 option to a word-processor system....Texas Instruments is now making the voice-synthesizer components used in the Speak & Spell and talking Language Translator available separately at $13 in OEM (original equipment manufacturer) quantity....Shugart Technology, BASF, Control Data, and Erwin International, Ann Arbor, Michigan, are all expected to have 5-inch Winchester hard-disk drives available by the year's end....Commodore will be the first US manufacturer to use the new low-cost Shugart/Matsushita 5-inch floppy-disk drive....Zilog and Mostek have both announced that 6 MHz versions of the Z80 microprocessor will be available in production quantities next year.

Random Rumors: It is rumored that Commodore

will soon introduce two low-end personal-computer systems. One will be a black-and-white unit for under $500 and the other a color unit for under $800....Apple may be working on a low-end consumer computer that will compete with Mattel's Intellivision....Personal Software, Sunnyvale, California, the folks who brought out Microchess and VisiCalc (probably the two largest-selling personal-computer software packages to date) are rumored about to release VisiText, a superpowerful text editor with features never before seen....NEC (Nippon Electric Corporation) is rumored to be investigating selling its Model PC-8000 microcomputer here in the US, after selling it in Japan for some time.

IBM Demonstrates Continuous Voice Recognition: IBM research scientists, at the Thomas J Watson Research Center in Yorktown Heights, New York, have demonstrated that continuous speech can be recognized by a computer with an accuracy of 91%. In continuous speech there are no pauses between words. In the IBM experiment, the computer transcribed normal-speed speech into printed form. The program took 100 minutes to display or type a transcript of a 30-second sentence. In other words, it has a 200:1 response-time ratio. The experiment proves that continuous speech recognition by computers is possible.

UCSD Pascal Controversy Continues: Several former University of California, San Diego (UCSD) Pascal licensees are threatening to file suit against UCSD and its new exclusive licensee, SofTech Microsystems. The licensees charge that UCSD violated the "fair use doctrine" in arbitrarily cancelling their licenses

only a short time before the software would have entered the public domain.

About thirty organizations, mostly computer hobbyist clubs, paid $200 to $300 for a UCSD Pascal license that permitted distribution of the software to their members and, after two years, would have placed no restrictions on copying the software.

These licensees are also upset over what they charge to be software developed with public funds now being sold by a private organization. SofTech counters this charge by asserting that it is merely an agent of the university and that it intends to spend as much money on developing UCSD Pascal as did the university.

One UCSD Pascal purchaser had an uncancellable license: Apple Computer Company. Its license, however, is restricted exclusively to use of the software on Apple Computer systems.

Terminal Gets Voice Input: Heuristics Inc of Sunnyvale, California, has introduced a speech-recognition system which works with a Lear Seigler ADM-3A video terminal. The unit, called VOCON 5000, recognizes 64 words or phrases that can control a program being run on the computer. A 99% recognition rate is claimed for the unit, which sells for $2000.

MAIL: I receive a large number of letters each month as a result of this column. If you wish a response, please include a stamped, self-addressed envelope.

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