David H. Ahl

INTERNATIONAL WINTER CONSUMER ELECTRONICS SHOW

January 8-11, 1981

Las Vegas Convention Center
Hilton Hotel/Jockey Club

FOR THE TRADE ONLY

NO ADMISSION CHARGE

MINORS UNDER 18 YEARS OF AGE
WILL NOT BE ADMITTED

The semi-annual gathering of the manufacturers and retailers, writers and ad reps, innovators and imitators in the consumer electronics industry: it's a fabulous show, lasting four days in Las Vegas every January. This year, over 55,000 people in the consumer electronics industry gathered to find out about the newest, latest, the most creative, the best and indeed, the worst in the consumer electronics industry. CES is a trade-show. Most of the products shown there are not immediately available. In fact, many manufacturers, particularly those from Hong Kong, Japan and Korea are sending up trial balloons—they show products hoping to take home enough orders to justify manufacturing them. In many cases just a prototype has been built and in some cases the prototype isn't even a working model.

The big U.S. manufacturers in the hi-fi, television, car radio and related fields spend big at the Consumer Electronics Show. At a typical computer show the average booth size is 200 or 300 square feet; at the Consumer Electronics Show typical booth sizes run 1000-1500 and even 2000 square feet. Some of the manufacturers actually erect two story booths on the show floor. The second story is a maze of rooms where buyer and seller sit together hammering out terms and delivery agreements on products for the coming year.

The entertainment and displays at the Consumer Electronics Show are lavish. At the Sanyo hospitality suite over 20 huge bowls of shrimp were brought out in less than one hour. This is not unusual. Texas Instruments introduced Bill Cosby as their new advertising spokesman and had him give a private show to TI's distributors and employees. Even smaller manufacturers hold lavish cocktail parties with hot hors d'oeurves in the hotel suites.
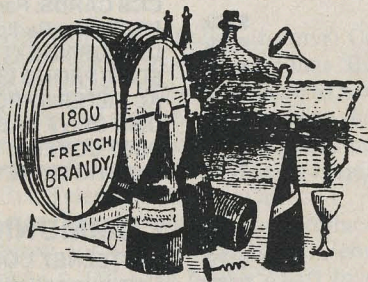
This was the year of the video disk. The video disk, introduced some five years ago by Phillips/MCA, has now assumed the position of the most important growth product of the consumer electronic industry. Over eight manufacturers were showing new versions of video disk systems. Initially we had hoped that there would only be one design of the video disk so it would not lead to the same situation that now exists in the video tape field with two competing formats. We had hoped that with Phillips behind it the rest of the consumer electronics field would adopt their design much as they had with the Phillips compact cassette design introduced many years ago and now the industry standard. But, alas, it was not to be. There are now three major competing designs of video disks in the field (as discussed in *Creative Computing*, January 1981).

One other reason that we were hoping for the adaptation of the Phillips video disk is that it lends itself to interfacing with a computer. A small company, **Blue Lakes Sales**, headed by Jim Armstrong has just introduced a product called "OmniScan Laser Disk Controller." It interfaces a laser scan video disk (the Phillips/MCA type) with an Apple computer. But not just any laser scan video disk; it requires one with frame search capability. The MCA, Maganavox, Phillips, and Sony all use laser scan technology, but at this point only the US Pioneer unit has the frame search capabilty necessary for "intelligent" interfacing with a computer. Price of the Apple/Video disk interface is $250. For more information write Blue Lakes Sales, 3240 University Ave., Madison, WI 53705; telephone (608) 233-6502.

Computers

The computer field may be starting to shake out a bit. Very few truly new computers were introduced at CES. The expected introduction by Sharp of its computer that they have been selling in England, did not materialize.

Casio

One surprise introduction came from Casio with their FX-9000P computer. The unit looks very much like the HP 85 and 83 machines. It has a relatively small (5 inch) CRT, full keyboard and numeric keypad, and plug-in memory modules built into the main unit. The major innovation is that the "slot-in" memory packages have an on-board battery power system so that you can turn off the computer and remove the memory cartridges and they will not forget what you have programmed into them. The screen has a high resolution 256 x 128 pixel graphic display; together with its graphic command software, graphs, diagrams and charts can be displayed. At the show they had a cute display of a time clock with a little man walking continuously across the screen.

The Casio FX-9000P has removable memory units with on-board battery power.

The FX-9000P has a powerful set of graphic commands built-in to its basic language. These commands allow points, straight lines, curves and rectangles to be drawn relative to the X and Y axis. For example, a circle could be drawn with the following very simple one statement program, "DRAW (COS(A),SIN(A))."

October availability is promised for this system. Price for a 12K system with 4K Basic is projected at $1000.

APF

APF introduced the Imagination Machine II. Several versions of this system exist, however the System III was the one being most highly touted at CES. It features an 11K RAM, a powerful Basic in a 14K ROM, complete 53-key


The APF Imagination Machine II is self-contained and priced from $399.

keyboard and a 32 character by 16 line screen format. It also features alphanumerics in up to eight colors, built-in sound synthesizer and built-in dual track cassette tape.

The expansion box that plugs into the back of the Imagination Machine can't help but remind one of a hobbyist's bread board kludge into which plug 8-track-size boxes containing memory and various interfaces.

The System III has an optional a mini-floppy disk which stores 72K bytes per single side diskette. Two floppy disks can be handled with the mini-floppy disk interface.

In the System III, the game playing machine is no longer a separate component to be set in the top of the keyboard unit. Rather it is a self-contained unit of CPU, keyboard and cassette with place for the video monitor to sit on top of them. The System III is priced at $1195. The computer alone sells for $395; this is a $200 reduction from last year's price. According to Sy Lipper, it is APF's intention to compete and beat Radio Shack despite the built-in advantage of Radio Shack's 6,000+ stores. With this new configuration of the Imagination Machine, APF just may have a chance to do it.
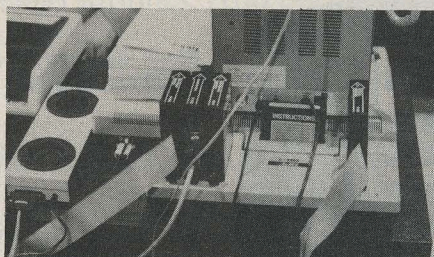
Back side of an APF imagination machine showing interface unit and four I/O modules.

Astrovision promises a keyboard and Zgrass graphics system for the Bally Arcade later this year.

Bally/Astrovision

Another former video game manufacturer has taken the next step into a computer system. Although Bally announced a keyboard unit for their video game system a few years ago, it was never put into production. Now Astrovision has shown and promised us a computer keyboard, "The Z-Grass-32," to go along with the Bally Arcade. The Arcade plugs into the keyboard unit and gives the user an additional 32K of memory and 24K of ROM. The additional 24K of ROM contains system software that "makes this the easiest computer to use."

Astrovision has elected not to go along with the industry-wide movement to Basic only. The Z-Grass system has several powerful capabilities for creating graphs, visual displays, interactive teaching systems, advanced video games, electronic music and video animation.

Z-Grass itself is a programming language. The software includes a full-screen text editor, point, line, box, and circle commands; 160 x 100 pixel resolution in four colors; and string manipulation including match, concatenation and replacement. It also includes multi-dimensional arrays and string arrays and advanced user extensiblity at several levels.

In addition, with the basic Arcade video game unit, Astrovision has elected to include the audio cassette interface and the Basic programming cartridge. Although the keyboard with the basic Arcade unit is not a full-stroke keyboard it is possible to write programs in Basic and save them on cassette tape. Consequently this is now one of the lowest cost basic programming units ($299.95) and one of the most powerful, extensible units with the Z-Grass keyboard. Delivery is promised in August 1981. Price of the keyboard unit is $599.

Astrovision also introduced five new game cartridges for the Arcade: Galactic Invasion, Music Maker I, Space Fortress, Grand Prix Demolition Derby, and Biorythms. This brings the total number of game cartridges up to 24. Most cartridges are priced at $29.95. For information, write Astrovision, 6460 Busch Blvd, Suite 215, Columbus, OH 43229. Telephone (614) 885-0130.

Atari

Another company that started primarily in the video game field, Atari today has one of the most comprehensive consumer computer systems available. On the hardware/pricing side of things, Atari has cut the price of the 400 System with 8K of memory to $499.95 (down from $630) and has lowered the price of the 16K system to $630.
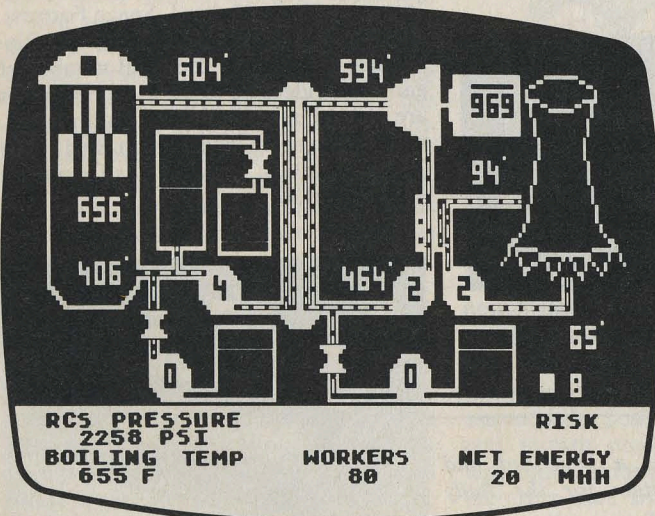
More exciting is the tremendous array of software available from both Atari and third party vendors for the system. In the recreational area, Atari introduced three programs: SCRAM, an educational simulation of a nuclear power plant; Missile Command and Asteroids, both of which are personal computer versions of the popular Atari arcade games.

SCRAM requires the player to produce as much energy as possible before either shutting down a nuclear reactor or experiencing a melt-down. The program uses a graphic display of an entire nuclear plant showing pumps, generators, cooling systems and the reactor. As "Plant Manager" the player must find and fix problems as they develop. As skill at the simulation rises, the "risk" factor can be increased by locating the reactor in an earthquake-prone area or skimping on maintenance.

Asteroids and Missile Command both have been incredibly successful Atari arcade games. In converting the games to the personal computer, the programs have been enhanced by the use of color graphics, sound effects and the, now-expected, multiple game variations.

Two educational programs were introduced: Conversational Spanish, and PILOT. Conversational Spanish consists of five cassette tapes and a manual. It was produced by Thorn/EMI in England and is one of the most outstanding language teaching packages we've seen. Words and phrases are carefully pronounced and spelled out on the screen. Graphics, audio and practice sessions help the user grasp the material.

PILOT is an easy-to-learn programming language for novice computer users, children or adults. Its widest use to date has been in the classroom setting where teachers produce lessons and tutorial material to be later used by students. The powerful part of the Atari implementation of PILOT is that it allows the use of joysticks, paddle controllers and the light pen in addition to the normal keyboard. (We will have a review of PILOT on these pages in the September issue).

In the business area Atari introduced an accounting package consisting of a general accounting system, accounts receivable, and inventory control system. by Arthur Young & Co., a well-known independent accounting firm. The system is backed up by a comprehensive operations manual and Atari has installed a "user hot-line" to provide immediate response to questions about the operation of the sytem.

A word processor has been released for the production of text reports and letters. One innovative feature of the Atari word processor is that it is the only small system which allows the user to preview page and paragraph layout graphically on the screen before it is printed in finished form.

Commodore

At CES Commodore announced the much heralded and previously leaked VIC 20. The VIC (video interface computer) connects to any television set or
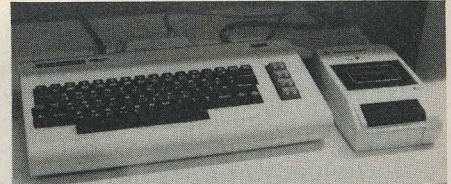
The Commodore VIC20 has 5K of memory, color graphics and is priced at $299.

monitor and provides an impressive array of features for its low price. They include color, sound, programmable function keys, full keyboard, external expansion ports, high resolution graphics with a graphics character set, joysticks, paddles, light pen, external plug-in memory and program cartridges. The basic unit comes with 5K of memory but is expandable to 32K.
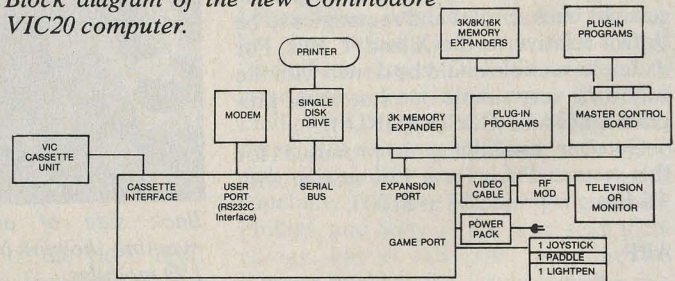
The color graphics features include 8 character colors, 8 border colors and 16 screen colors. Resolution of the display is 176 x 176 pixels or 22 characters by 23 lines. The VIC has four internal amplifiers including three music generators and a sound effects generator. Each amplifier has a range of three octaves. The sound uses the television speaker.

The keyboard is a full stroke unit and has screen editing keys and PET keystroke graphics. As might be expected, the language used is PET Basic.

Commodore is emphasizing the "user friendly" aspect of the VIC. Along this line they are encouraging outside software vendors to write and produce software for the VIC to be sold either independently or through Commodore. In addition they have commissioned several books and manuals to go along with the VIC which are written on a much lower level than most other computer manuals.

Price of the VIC is $299.95. Availability is April 1981. For more information write Commodore Business Machines Inc., 950 Rittenhouse Rd., Norristown, PA 19403. Telephone (215) 666-7950.

Atari's SCRAM is a comprehensive simulation of a nuclear reactor written by the talented Chris Crawford.

Block diagram of the new Commodore VIC20 computer.

CES, continued...

Texas Instruments

TI, like Atari, concentrated mainly on software at the winter CES. Indeed, one of the major press releases put out by TI emphasized third party software development. It described an assembly level graphics programming language (GPL) developed by TI to provide a combination of machine-code, compaction, execution speed and ease of programming development for the TI-99/4 home computer. It "offers the programmer more capability and flexibility for color, music, sound effects, high resolution graphics and synthetic speech than does TI Basic."

In addition, third-party software authors have the option of using UCSD Pascal on a new low cost TI development system. This new system has several features including: a Pascal compiler to compile programs in "p-code," a low-level code that is interpreted into machine language for the TI-99/4. Another feature is an assembler and linker which allows programming in assembly language, an editor to develop full screen editing capabilities and a filer which will help manage disk files.

For more information on third-party software development programs write Texas Instruments, Consumer Relations, P.O. Box 53, Lubbock, TX 79408. Telephone (800) 858-4565. (In Texas call (800) 692-4279.)

TI has entered into an agreement with Source Telecomputing in McLean, Virginia to develop and expand a home information and communications service for users of the TI-99/4. This service is designated TEXNET and will be available over telephone lines. It will offer all the services of The Source Information Utility plus new databases that take advantage of the unique color graphics, sound, music, and speech capabilities of the TI-99/4. Major subjects available to Source subscribers include the services of the United Press International Newswire, world airline schedules and travel services, restaurants and wine guides, consumer buying services, the New York Times news, an electronic mail service, and several other local information banks.

In another, not-very-surprising move, TI lowered the price of the TI-99/4 computer to $649.95. All other prices remain the same, however, this could well be the catalyst that causes a wider cross section of retailers to take on the TI home computer line. Then again, it may not because, as one person remarked to us at our booth, "it's too little and too late."

Sinclair

As expected Sinclair announced the 16K memory module at CES. It has received FCS0certification and should become widely available in the first quarter of 1981. Retail price is $99.95. Housed in a small plastic box the size of two cassette tapes the module plugs into the existing ZX80 and increases its storage capacity by 16 times (one must remember that the ZX80 comes with only 1K of memory).
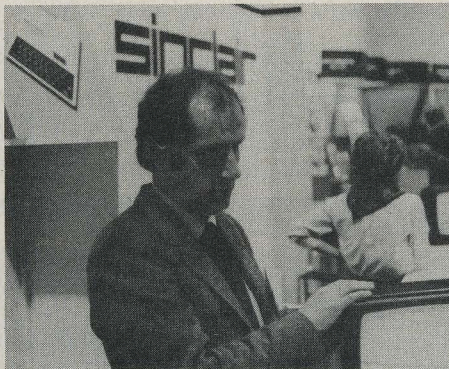
Nigel Searle of Sinclair discusses a finer point of the ZX80 with a visitor.

At $199.95, the ZX80 is the lowest priced personal computer on the market today. Second source software vendors jumped into the ZX80 market both in the U.K. and the U.S. broadening its applications and appeal substantially. For more information write Sinclair Research Ltd., 56 Staniford St., Boston, MA 02114. Telephone (617) 742-4826.

Mattel Electronics

For the fourth CES in a row Mattel Electronics "introduced" Intellivision and the corresponding keyboard component. The master component, actually a game playing unit, was finally put on the market in mid-1980. We are told that the keyboard unit will be available in April 1981, however, it has been slipped 4 times already and the press releases cautiously state only that the keyboard component "will be introduced in 1981."

The graphics of the master component are very impressive as are the games. At CES, seven new games were added to the library including: Sea Battle, Auto

Yet another prototype of the Mattel Intellivision keyboard unit. Big question: when on the market?

Racing, Tennis, Skiing, Word Fun, Golf, and Horse Racing. Twelve games are currently available and five others are scheduled for release in 1981.

Software promised to be released in conjunction with the keyboard component includes: a Stock Analysis program, Conversational French, a physical conditioning program, and of course the Basic computer language.

We've been impressed each time we have seen the prototype keyboard and master component units at previous CES shows. The keyboard component has 16K of 10-bit memory with expansion to a whopping 8 megabytes. The built-in tape cassette drive records and plays two digital and two audio tracks in one direction opening up a tremendous number of possibilities not available on other computers. The graphics resolution is 160 x 192 pixels and it displays 24 lines of 40 characters in alpha-numeric mode.

The master component has 16 colors, a built-in sound generator capable of producing three parts, and two of the nicest hand controllers that we have seen. They have a 12-button numeric keypad, plus four action keys and a sensitive disk which permits 16-direction object movement.

The big question with Mattel is not capability or design, but delivery. For more information write Mattel Electronics, 5150 Rosecrans Avenue, Hawthorne, CA 90250. Telephone (213) 978-5150.
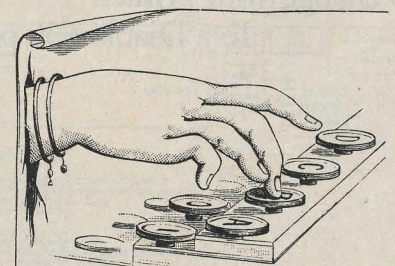
NEC

Although shown at NCC last June, the NEC PC-8001A was not offered for sale in the U.S. until now. One of the best selling personal computers in Japan, the PC-8001A reminds one of the Sorcerer in physical appearance. It has an 82-key keyboard which includes a numeric/function keypad. The character set includes upper- and lower-case Roman, Japanese Katakana and a comprehensive set of graphics characters. Medium-resolution graphics (160 x 100 pixels) and characters can be displayed simultaneously on the screen in eight colors in several formats. Characters alone are displayed in 25 lines of 80 characters per line.

The processor is a Z80A running at 4 MHz. Cassette interface is the Kansas City format at 600 bps (bits per second). Yes, it's slowish but highly reliable. An RS232C interface is built-in while an expansion interface handles up to four disk drives, one parallel and two serial ports and the IEEE-488 bus.

The NEC 12" color monitor is one of the finest we've seen and NEC, understandably is planning to market it separately. It uses a dot screen face (rather than the vertical rectangles on standard TV sets) and drives this with a non-interlaced scan circuit.

The 24K NEC Basic was produced by Microsoft but has several extensions of standard M-Basic. Called N-Basic, it has

The NEC PC-8001A has impressive high-resolution color graphics.

nine commands for controlling the color graphics as well as five other extensions not found in M-Basic. For example, the command MOTOR toggles the motor relay.

All told, a remarkable system. Ultimate success, of course, will depend upon price (not fixed yet) and distribution. For more information, write NEC Consumer Products, 130 Martin Lane, Elk Grove Village, IL 60007. (312) 640-3750.

Computerized Medicine

Have you ever been sick in a strange town and wondered what you would do if you got sicker? Would you subject yourself to the indignities of a hospital emergency room? Try to find someone to recommend a local physician? Fly home? Hope for a swift and painless death?

Well, your editor faced exactly this situation and collection of possible solutions at the Consumer Electronics Show in Las Vegas. After three days of aches, fever and sore throat with no improvement in sight, I sought the advice of the desk clerk at our hotel. He was apparently blessed with perfect health and disavowed any knowledge of medical services in the city, but suggested I try the computerized information console in the lobby.

I pressed "27" for "medical services" and was heartened to see a promise of "24-hour medical assistance." I called the number indicated and was told to call back Monday as the doctor was not in on Saturday. I protested, saying that Monday I would be either dead or on a plane to New Jersey, so the answering service gave me the number of General Practice Associates.

Upon my arrival at GPA, I was asked to fill out a form which requested personal information and superficial medical history. While I was still writing, a young attendant was looking over my shoulder and keying the information into a computer terminal.

A moment later a nearby printer spewed forth a four-part form with my name, birthdate and newly-assigned patient number printed neatly at the top, and a myriad of possible tests, diagnoses and cures listed below. An hour later I was ushered to a scale by one young attendant and had my temperature taken with an electronic thermometer by another. Finally, a doctor appeared, checked me over amid the mandatory "umhumms" and "ahaahs," prescribed a shot of penicillin, made a few marks on the four-part form and left. A few minutes later an LPN arrived to administer the shot.

At the checkout counter I was presented with a bill, which I paid—how else—with MasterCharge!

—*Betsy Staples*

OKI

OKI introduced a very impressive system, the IF800 models 10 and 20. The higher end model 20 has built-in full stroke keyboard, numeric keypad, printer, ROM cartridge, color graphics display, and dual floppy disk. The processor is built around a Z80A MPU. It contains 64K of memory, RS232 port, audio cassette interface, built-in real-time clock, IEEE-488 interface, A/D and D/A converters.

The built-in printer is a dot-matrix. Printing at 80 characters per second and 80 characters per line, it has a powerful graphics mode and uses either sprocket or roll feed paper.

OKI introduced the IF800 Model 20 with every feature a small computer user could desire.

The high resolution video display has a 640 x 200 pixel resolution. With text it displays 80 characters per line by 25 lines and can use up to eight colors. It reminded us very much of the Compu-Color monitor. On the monitor unit itself are ten programmable "super function keys." The dual 5" floppy stores 280K per disk on the dual sided, double density disks.

Projected availability and prices for the OKI IF800 computers were not available. OKI is represented in the United States by BMC International Inc., Union Bank Building, Suite 600, 11222 La Cienga Blvd., Englewood, CA 90304. Telephone (213) 641-4588.

Hewlett-Packard

HP introduced a new computer, the HP-83, at a base price of $2250. Coming from HP obviously it is designed for business and technical professionals. The HP-83 is identical to the HP-85 introduced a year ago, except that the HP-83 does not come with an integrated tape cartridge drive and thermal printer. Although the

*Hewlett-Packard's HP-83 computer features powerful graphics capability and a base price of $2250.*

HP-83 is priced $1,000 lower than the 85 it seems aimed at a higher end market since it is designed to couple to a floppy disk and/or large printer.

The HP-83 and -85 have full keyboards with numeric keypads. They both run a very powerful superset of ANSI Basic with more than 150 commands and statements. Memory includes a 32K ROM operating system and 16K of RAM. Memory is expandable to 112K.

Hewlett Packard also introduced a double-sided, double density disk memory unit. Each 5" disk drive is capable of storing 270K bytes. An 8" disk drive was also introduced with a capacity of 1180K bytes. These are impressive numbers and the prices are reasonable also. A single 5" disk drive costs $1500, while an 8" disk drive costs $4750 for the first drive and $3750 for each additional drive.

Hewlett Packard is well known for its software and that introduced with the 83 is no exception. Most impressive is VisiCalc Plus, an enhanced version of the VisiCalc program available for Apple, Atari and other computers. The enhancements include the ability to analyze rows, columns, and groups of figures against many statistical measures, curve fitting and the ability to produce four-color charts and graphs from the VisiCalc tables.

Another piece of software, the "Information Management Pac," is a database management tool for accessing, modifying, searching and sorting data. Database totaling and statistics are included,
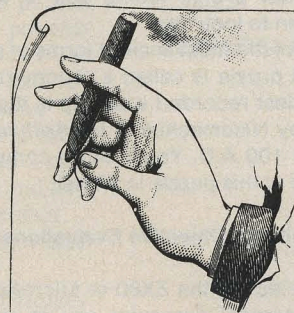
as are report and graphics generation. This pac should be useful for creating, updating and printing customer lists, inventory records, catalogues and other data bases.

A "Graphics Presentation Pac" is a versatile set of programs that lets the user make four color overhead projection transparencies or report copies of text, bar charts, pie charts and line charts.

A new graphics tablet, the HP9111A, was also introduced. This tablet lets the user trace existing documents, design pictures, add text, and plot either built-in or user-defined shapes. The price of the graphics tablet is $1950.

A parallel printer interface was also introduced which allows connection of the HP-83 and -85 to printers such as the Epson, IDS, and Centronics.

For more information write Inquiries Manager, Hewlett Packard Co., 1507 Page Mill Rd., Palo Alto, CA 94304.

Image Computer Products

Image introduced several new software packages for the Atari, TRS-80, Apple and TI computer systems. These include Dungeon Campaign, and Typing Tutor for the Atari system; three strategy packs, most consisting of three programs, and an action pack of four programs for the TRS-80; and three utility programs including a disk fixer, time manager, and monitor extender for the Apple.

The quality of the software and the full color packaging of the Image line is very impressive. We'll be reviewing many of these programs in *Creative Computing* in up-coming months. If you can't wait for the review, write for more information to Image Computer Products, 615 Academy Dr., Northbrook IL 60062. Telephone (312) 564-5060.


At CES, anything goes to get the attention of the show goers.

Automated Simulations

Several new games were introduced by Automated Simulations at CES. An interesting three-pack from EPYX includes The Datestones of Ryn, Morloc's Tower and Rescue at Rigel. In the Datestones of Ryn the player has twenty minutes to find the datestones of the Ducal calendar stolen by Rex Reaver and his band of robbers. The adventure takes place in a labyrinth of caves and tunnels. Throughout the adventure the player can choose from 14 command options, while excellent graphics display a map of the dungeon. Versions of this three-pack are available on disk for the PET, TRS-80 and Apple for $49.95.
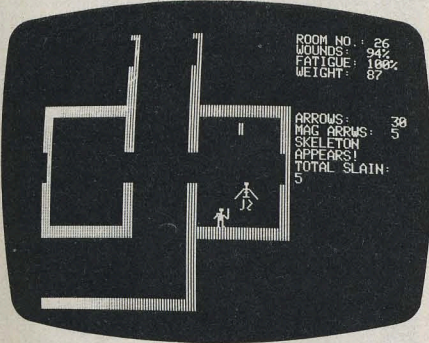
In Morloc's Tower, from Automated Simulations, the player must hunt through a maze for the elusive Morloc.

EPYX by Automated Simulations also introduced an outer space game, Star Warrior. In this game the player must take on an entire planetary force of storm troopers and nine types of military vehicles—alone. A variety of commands allow the player to walk, jump or even fly over swamps, forests and mountains.

Overview of the hi-fi and auto sound portion of the winter Consumer Electronics Show in Las Vegas.

EPYX also introduced Hellfire Warrior, a sequel to the Temple of Apshai game. This is a fantasy role-playing adventure game, but with more magic, more detail and more command options than previous games. Hellfire Warrior lets the player take on the role of his favorite hero. The game has more than 200 rooms riddled with trap doors, bottomless pits and filled with monsters and treasures. The player must kill the great bat-winged demon, cross bridges of flames, face death itself and live before the adventure is complete.

These games will all be reviewed in upcoming issues of *Creative Computing*. For more information write Automated Simulations, P.O. Box 4247, Mountainview CA 94040. Telephone (415) 964-8021.
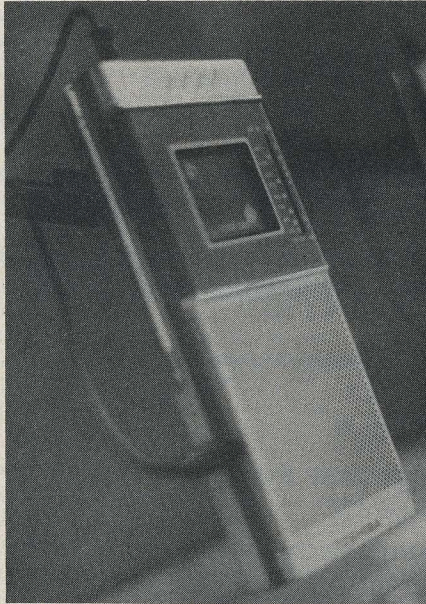
Toshiba showed a phototype 2" LCD flat screen TV set.

Video Game/ Computer Systems

Mego Corporation

A surprise introduction from Mego was its Video Voice System. Each of the two controllers on this system has 15 keys and when they are put back-to-back in the unit, they form a 30-key keyboard. Each controller also has a joystick control.

At $219, Mego's Video Voice System is an intriguing cross between a video game unit and personal computer.

The computer system itself has an interface to an external cassette recorder which allows the reading and saving of programs. It also is expandable to 16K, a feature not normally found in game units.

It's called the Video Voice System because it has a built-in voice synthesis chip which allows speech to be easily put into programs and games.

Unfortunately the details about the Mego System were somewhat sketchy. However, we hope to have a complete review of it in an upcoming issue of *Creative Computing*. Projected price for the Video Voice System is $219.95. For more information write Mego Corporation, 41 Madison Avenue, New York, NY 10010. Telephone (212) 532-6333.

Atari

Atari, the acknowledged leader in video games, unveiled a remote controlled video system. Functionally the same as the existing video system, the new unit has sleek futuristic styling. Most important the two controllers can be used at distances of 20-30 feet away from the unit itself.

The controllers are an advance over the existing controllers in that they combine both a paddle and joystick in one unit. The firing buttons are heat sensitive, finger-tip touch controls, which should allow faster action than the existing switched unit.

We recently burned out a chip in our video computer system with a zap of static electricity, a common problem in northern homes in the dry winter months. With the new remote control system we probably would still be playing games today.
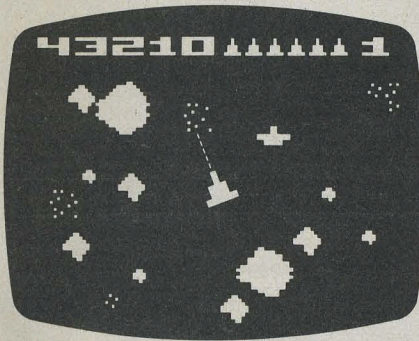
Asteroids from Atari for their video computer system provides color and variations not found on the coin-op machine.

Atari also introduced four new game cartridges, bringing the total line-up to 42. The new ones include Asteroids, the home video version of the popular arcade game. All of the action of the arcade game is captured in the home game and in addition the home game has many game variations and includes colored asteroids and ships.

Warlords is a game of defense and capture with a medieval theme. A king hides behind castle walls in each corner of the TV screen. The Warlord's role is to protect his king, defend his castle and destroy the opposing castle. Essentially, Warlords is a four cornered breakout/pong type of game with the added dimension of being able to both attack and defend at the same time.

Each of Atari's 42 game cartridges had a seperate video computer system and TV set at their booth.

Video Pinball is an extended version of the dedicated Atari video pinball game marketed several years ago. It has all the equipment you would hope for—bumpers, spinners, dropped targets, roll-overs, and bonus multipliers. The fourth game introduced was Othello. Reviews of all of these and previous unreviewed Atari video computer games will appear in the June issue of *Creative Computing*. For more information write Atari Consumer Division, 1265 Borregas Ave., Sunnyvale CA 94086.

Activision

At CES, Activision showed four new cartridges for the Atari video computer system. "Laser Blast" puts the player in command of a fleet of space craft under attack by forces on a hostile planet. To survive, the player must blast away attackers with his ship's laser while dodging radar directed laser fire from below. Laser Blast is one of the best space action games we have seen for the Atari. However a full evaluation will have to wait until the June issue of *Creative*.

"Tennis" is a very nifty game, differing considerably from the popular pong-type tennis games. In the game the player is on the near-side of a tennis court and uses a realistic-looking player who can serve, hit from the baseline, rush the net and hit anything from drop shots to cross-court passing shots. The graphics provide a unique perspective on the court, and the movement of play is so realistic that the ball even has a shadow following it.

Laser Blast from Activision for the Atari video computer system has fast action and dynamite sound effects.

Skiing features a wide-variety of slalom and down-hill ski runs at varying skill levels. The player controls a skier using the joystick controller and can race against the clock or glide easily down hill dodging trees and jumping moguls along the way.

For the bridge player, "Bridge" plays almost exactly like real bridge. The player controls the strength of hands to be dealt and the play of the game. Millions of hands can be dealt at random by the program. The computer bids as a partner and plays as opponents once a contract is established.

For more information, write Activision, 759 East Evelyn Ave., Sunnyvale, CA 94086. Telephone (408) 245-5421.

Chess Systems

This apparently was the year to bring over chess-playing computer systems from Europe as no less than three of the new introductions at the winter CES were successful European contenders.

Novag

Since 1978 the Novag chess computers have been among the most successful ones in Europe. There are four computers in the current line introduced in the United States and they are very impressive. The two top-of-the-line systems use the very powerful MYCHESS program written by Dave Kittenger. In this 24K program, the computer looks up to nine moves ahead and solves mate-in-7 problems. Moves are executed on an LCD chess board by simply touching the piece symbol with your finger-tip then the square that you want to move it to. As soon as your move is completed the computer responds automatically. The Savant system also allows you to trace backwards, take back a move, and to trace forward through a game. The Savant can be hooked to a printer which can print a graphical representation of the game at any point, a history of the game using standard chess notation, or a beginner's notation with graphical piece symbols. A portion of this printout is reproduced above.

The same MYCHESS program is also used in the Novag Robot Adversary system. This top-of-the-line computer has a robot arm which comes out and picks up pieces to make the move. For your side you simply move the piece to the next position. After all of the pieces have been cleared from the board, the robot has the ability to place them back on the board and start another game. Both the Savant and Robot Adversary have many famous games stored in their memory which you

The Novag Robot Adversary is a tough contender with David Kittinger's MYCHESS program.
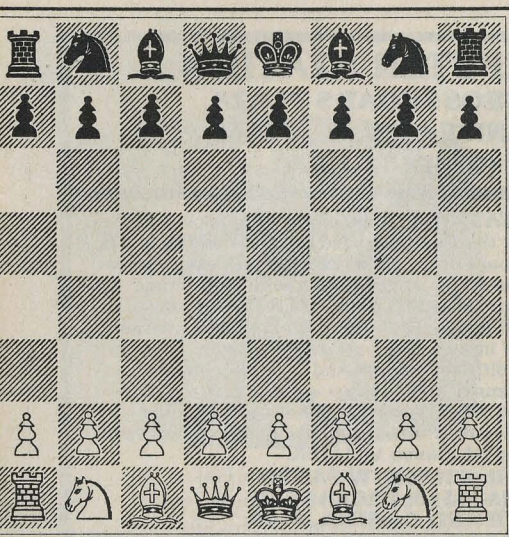
can have the computer review in their entirety or halt at any point from which you take over one or the other players. An optional chess clock may be plugged into either unit to keep track of time as in a standard tournament. The chess clock can also be used as a tournament clock.

Novag Super Sensor IV uses an 8K program also written by David Kittenger. It has a wide variety of openings. Moves are indicated by LED lamps positioned vertically and horizontally along the chess board. The unit can solve chess and mate problems as well as play the game.

Novag Microchess measures only 4 1/2" x 6" x 1 1/2" and features sensor technology. It has a 4K program which plays on 8 different skill levels. Aimed at the novice, the Microchess unit can suggest moves or allow you to renege on your last move.

For more information on Novag write the American distributor, California Intermarket Center Ltd., 11444 Washington Blvd., Suite B, Los Angeles, CA 90066. Telephone (213) 821-1007.

SCISYS

Another line of chess machines from Europe was introduced by Scisys. There are five units in the line, two of which incorporate a very easy-to-read LCD chessboard. One of these, Executive Chess, allows the player to move the pieces with a small cursor that moves around the LCD board. Not quite as easy to use as the sensory units from Novag, nevertheless, Executive Chess was very easy to use. With a memory capacity of 32K, this unit has 8 levels of play and includes now-expected features of automatic castling en passant moves and pawn promotions. It also solves mate-in-two problems and allows you to set up special opening positions.

The larger Chess Partner 2000 has similar features but is played with actual chess pieces on a sensory board attached to the computer.

The compact Chess Traveler system has eight skill levels. It can play against itself, solves mate-in-two problems, and plays either white or black. Moves are displayed on the more traditional LED display. For more information on these systems write SCISYS, 1 World Trade Center, Suite 7967, New York, NY 10048. Telephone (212) 432-8529.
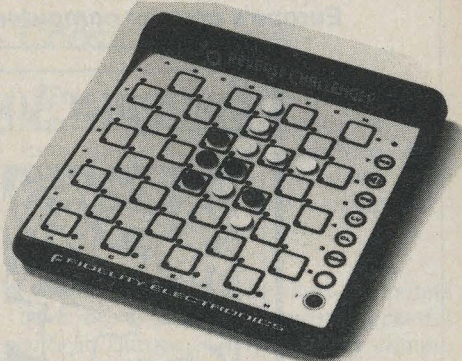
Fidelity Electronics

The reigning champion of the microcomputer chess world, Fidelity Electronics, introduced three new chess systems and three other game systems at the winter CES.

Champion Sensory Chess Challenger uses an even better program than the one that won the first microcomputer chess tournament in London last September and the North American Microcomputer Chess Tournament in San Jose. This unit thinks on its opponent's time to give it an overall faster response, has time controls which are user settable for both time and number of moves. It has the ability to back one or two moves if you decide to change the direction of your game and has an improved chess clock.

Decorator Challenger combines "old world craftsmanship and space age technology." The full size chess board is made of hardwood and is complete with hand-carved playing pieces. It has 10 levels of playing difficulty, plays 40 book opening variations with approximately 1200 book opening moves. As a teacher the unit will suggest your best move, teach end game situations and allows use of a problem mode to set up specific piece positions and problems. Like its cousin, Voice Chess Challenger, Decorator Challenger has a voice feature to tell you all the computer moves and repeat your moves in any one of four languages (English, German, French, or Spanish).

Mini-Sensory Chess Challenger is battery operated and uses the more traditional LED and beep-tone to indicate moves. However, instead of keying in moves, you simply press down on the piece you are moving and LEDs light up to show your "from" location. You then press the piece down on your "to" location and the computer knows which piece was moved and where it was moved to. This unit has three levels of play and includes mate-in-two problems. Like the larger units it is able to play either white or black, allows you to set up positions to work out problems, and allows you to change the level while playing a game.

The three other products from Fidelity include: Reversi Challenger; Card Challenger, which plays Gin Rummy or several other games available on plug-in cartridges; and Dame Challenger, a popular intercontinental version of checkers.

Fidelity introduced Reversi (Othello) Challenger with sensory playing surface and nine skill levels.

For more information write Fidelity Electronics Ltd., 8800 N.W. 36th St., Miami FL 33178. Telephone (305) 888-1000.

Applied Concepts

New from Applied Concepts is the Great Game Machine. This is a multi-game machine which can play Chess, Checkers, Reversi, Kriegspiel and Blackjack simply by plugging in a different cartridge. Applied Concepts also has a line of individual machines which play each game on a dedicated basis. The top-of-the-line HANDroid has a robot hand which comes out and lifts the pieces on the computer side of the board. For more information write Applied Concepts Inc., 207 N. Kirby, Garland TX 75042.

Mattel Electronics

Joining the dedicated computer chess marketing race is Mattel with a beautiful little unit; it has an LCD screen with cursor movement controls. The unit has four levels of play, allows a player to go back 1, 2, or 3 moves and gives hints on what move would be best in a particular situation.

A "save game" feature permits opponents to return to a match in progress up to several days later. Problems may be set up and the computer will exchange places with the player at any point in the game or even play itself.
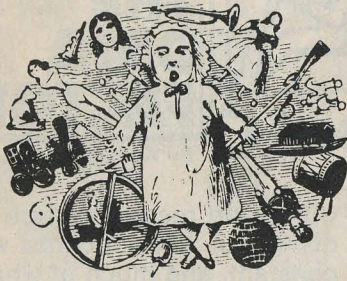
Mattel also introduced a portable computer backgammon system with an LCD screen.

Mattel Electronics introduced a handheld computer backgammon with LED display.

Electronic Toys

The main show for introducing the years new toys is the Toy Fair held in New York every February. We will be reporting on this in a later issue of *Creative Computing* and will include the details of the toys introduced at the Consumer Electronics Show with that roundup. However, it is probably worth mentioning some of the new developments in electronic toys that appeared at CES.

Vodex, a Votrax company, introduced a speech synthesizer chip which produces 64 phonemes; it can be used in a wide variety of toys and games. With the great popularity of the Texas Instruments line of the Speak and Spell family of games, other manufacutures are trying to get on the speech bandwagon.

Tiger Electronics is the first one to use the Vodex chip in their games. A talking, learning computer the "K-2-8" offers a 1500 word vocabulary and 15 modes of operation in mathematics, spelling, reading reddiness and science activities. The hardware includes a 2" speaker, 56-key membrane letter/number board and a vacuum fluorescent light display. Software is promised in a wide variety of modules for grades K-8.


Tiger's "K-2-8" talking learning computer talks to its user with a 1500-word vocabulary.

Tiger also introduced a "Talking Picture Book" geared for 2-6 year olds. The 25 story pages in the unit offer children fingertip access to some 200 objects and corresponding words to teach word/picture relationships, reinforce correct answers and encourage early learning.

Tiger also introduced a "Talking Chalk Board" and several other electronic games including a "5-in-1 Sports Stadium" with football, baseball, hockey and soccer in one unit.

A new company, **NPI Corporation** has been recently formed and has brought to the market a line of table-top electronic games. These games have 5" screens and represent a nice cross between the smaller hand-held games and a full video game. Initial introductions include Space Invaders/Galaxia, Maze (an electronic simulation of a labyrinth game), Slap Shot Air Hockey, and Triangular Skittle Ball (for 1, 2 or 3 players).
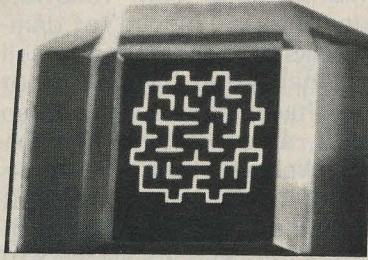
"Maze," from NPI gives the player 25 seconds to get through an electronic labyrinth.

Labyrinth games seem to be the rage this year and **Mattel Electronics** has introduced Dungeons and Dragons along this line. They term it a "Computer Labyrinth Fantasy Game." The computer generates the labyrinths players must solve to discover the location of the treasure and of the dragon lurking around the prize. The game is complete with sound effects: as you near the treasure you will hear the dragon awakening and flying over maze walls to defend the treasure and perhaps chomp you, in which case there is a death knell sound effect. If you successfully remove the treasure you get a victory salute.

Mattel also introduced two other hand-held games: Ticker Tape Fever, a computer stock market game and Invisible Alien Neutralizer, which "allows earthlings to seek out and destroy unseen invaders from outer space." Three other more traditional games include World Championship Football and World Championship Baseball, and for the younger set, a "Look Alive!" line of games including football, baseball and basketball. These games are designed to test a child's skill from the "eye view" of the ball carrier or batter. A "tilt" action bowling game is also new.

Coleco augmented their popular Head-to-Head line of electronic games with two new units, baseball and soccer. Baseball is a very comprehensive game which has batters with actual batting averages, stealing, bunting, tagging up, hit and run, double plays, curve balls, power hits and even the song "Take Me Out To The Ballgame" that begins every contest. Electronic soccer features five offensive players that may pass the ball from one to another setting up a shot while the defensive player attempts to block. On the defensive side the game has a five-position movable goalie who can guard the goal with pass, block, shoot, and rebound features.

Mattel Electronics showed "Dungeons & Dragons," a labyrinth fantasy adventure game.

Coleco's Head-to-Head Baseball game has programmed batting averages and many other features that go beyond the current crop of baseball games.

Coleco also introduced an electronic learning machine which has over 250 learning activities of the multiple choice and true-false variety. Continuing their

support of the Quiz Wiz line, Coleco introduced six additional cartridge quiz books for this popular question and answer game unit.

Copying Coleco's Head-to-Head format, **US Games Corp.** has introduced three 2-player electronic games: baseball, football and air disc. The football game is quite comprehensive with two teams which can select one of two formations and control subsequent play action using running, passing, kicking, field goals and safetys.

Video Technology Ltd., also introduced four 2-player games including two versions of basketball, hockey and soccer. Video Technology also introduced an electronic mini-game machine which plays four games: Grand Prix, Blackjack, Code Hunter (a version of Bagels) and Sub Hunt. It is a clever unit reminiscent of APF's Mathemagician but not quite as comprehensive. Another item from Video Technology is a Memory Van, a radio controlled car with a hand-held controller which stores directional instructions. The unit is very similar to Brain Buggy and Big Trak except that it is radio controlled. The "computer memory" can store 24 instructions for over 15 minutes of totally automatic driving. In addition, Memory Van can be operated as a standard radio control car. These units, all from Hong Kong, are distributed by The House of Games in the United States.

Speaking of programmable cars, **Vanity Fair** has introduced the "programmable Think Tank." Like Big Trak and Brain Buggy, the programmable unit is built into the tank itself and stores up to 48 moves. In addition it has five different programs which are in memory and can be called up automatically. Vanity Fair also introduced a Computer Matician which presents over 6500 preprogrammed math questions in addition, subtraction, multiplication, and division. It has several skill levels which allow the child to progress along with the machine.

"Think Tank" from Vanity Fair is a keyboard programmed unit with 48 steps (right, left, straight, stop, etc.).
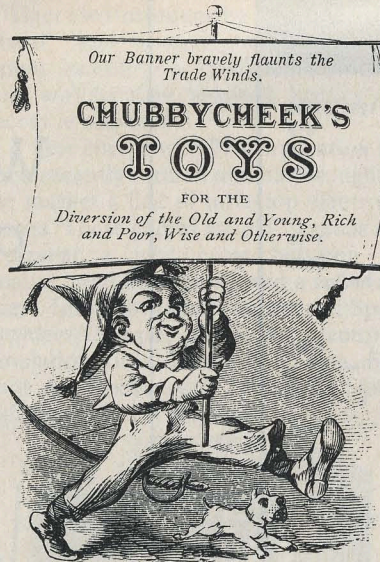
One of our favorite electronic toys from last season, Electron Blaster from Vanity Fair has now been augmented by electronic, full court, 2-player basketball and a Starburst Electronic Pinball Machine.

Atari's "Cosmos" is a table top electronic game with a 3-D holographic image. Plug in cartridges cost only $9.95.

Perhaps the most innovative electronic table top game is Cosmos from **Atari**. It is a revolutionary new game system that combines 3-dimensional holoptic images along with standard LEDs and sound effects to provide amazingly challenging games. The system is "programmable" and initially eight game cartridges will be available including: Asteroids, Superman, Football, Roadrunner, Sea Battle, Space Invaders and Outlaw. Because one of the two microprocessors in the unit is dedicated entirely to sound, Cosmos has some of the most innovative and realistic sound effects available in any electronic game. Each game can be played by one player against the computer or by two players pitted against each other. There

are two different skill levels for each player and each game and two separate holographic images on each game cartridge.

Entex also introduced an innovative line of seven new electronic games including Galaxian II, Escape 1000 Mazes, 3-D Grand Prix, and four other games.

Taking the award for the least innovative electronic game introduced, **Imaginamics** of Don Mills, Ontario introduced "Electronic Bingo" and a line of Exec-U-Play "toys for the big boys" such as roulette, dice and one finger bandit. These toys feature absolutely nothing except a random number generator in a shiny chrome package. We were not impressed.

New Disk Drive and Software for Zenith Z89

A recent announcement from Zenith Data Systems provides details of that company's "multi-million dollar commitment which has paved the way for extending the versatility of the ZDS Z89 microcomputer."

The Z89 is a desktop, stand-alone system consisting of a Z80 microprocessor-controlled computer, built-in 5 1/4" floppy disk drive, keyboard numeric pad and "smart" video terminal in a single unit. It has a memory capacity of up to 64K bytes of RAM which can be addressed by the operator. The video display can show up to 2000 characters at one time, and 33 special graphics for business presentations are available.

A new 8" dual-sided, dual-density floppy disk system, the Z47, can provide up to 2 1/2 million bytes of data and program storage when used with the built-in 5 1/4" drive. Data may be transferred between the 8" and 5 1/4" disks at any time.

The Z47 attaches to the Z89 (FA) with a special interface board and 40-conductor flat cable. Earlier Z89 systems can use the new drive when retrofitted with the Z89-6 and Z89-7 upgrade kits. The suggested retail price of the Z47 is $3695.

New Software

Six system and language software packages offered for the Z89 are designed for use with either the 8" or the 5 1/4" disk drive. They include, CP/M 2.2, HDOS and UCSD Pascal and Basic, Fortran and Cobol.