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Volume 6, Number 2W

Computer Faire, 333 Swett Road, Woodside CA 94062

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50,000 Million Bytes On-Line

SSM Microcomputer Products has built a microprocessor interface to read-only video discs, based on the 6802. Called the UEI (Universal External Interface), it has been designed and developed by SSM, to be manufactured exclusively for DiscoVision Associates, Costa Mesa, CA. DiscoVision, a joint venture of IBM and MCA, markets laser-based video disc playback units.

The company will be demonstrating two video disc systems under control of Apple computers via RS-232 and IEEE 488 UEIs in booths 1319C, 1321, and 1323C, at the Computer Faire.

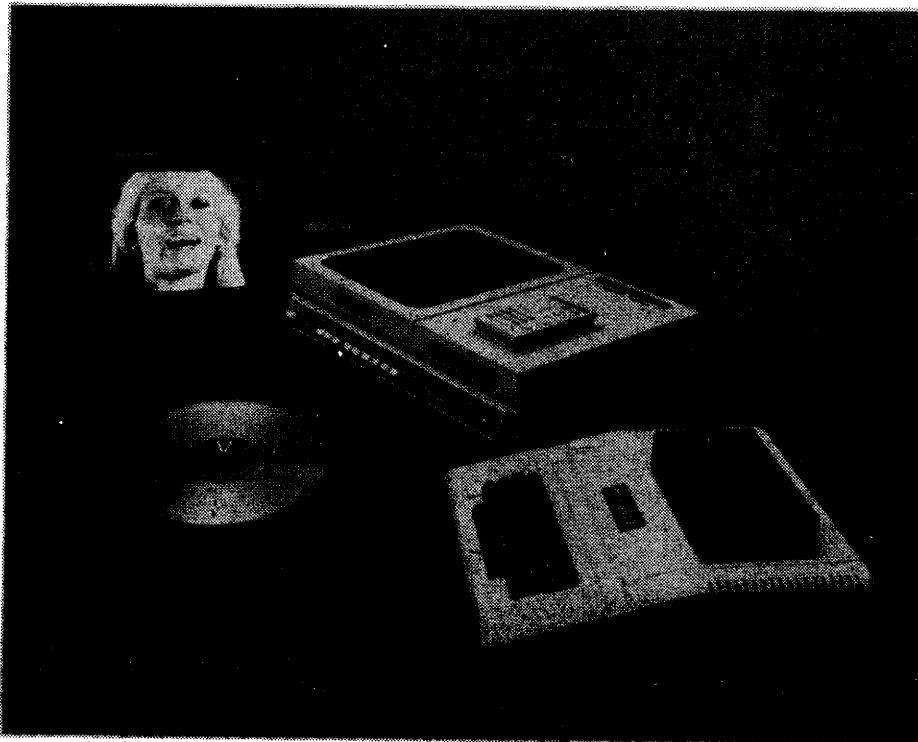
SSM is building UEI's for RS-232 use, and for IEEE 488 systems. A typical implementation would include the UEI, a microcomputer with keyboard and video terminal, the DiscoVision player, and a TV monitor. A video switching card, already under development, will eliminate any need for a separate computer video terminal. Through the computer's keyboard, the operator can interrogate, and access directly, any portion of the recorded information in a fully interactive manner; average access time is on the order of 1 second.

The DiscoVision player operates with two types of discs. The "constant angular velocity" disc has 54,000 tracks with one complete video frame (including sound) stored per track. To put the storage capacity into perspective, a single book-size page of printed text would occupy about a single frame. Thus, one recording surface of the disc (the discs are recordable on both sides) could hold the contents of roughly 180 books of 300 pages each.

The theoretical digital data storage capacity of DiscoVision's video disc is about 50,000 megabytes—per side! This figure is based upon a 4.8-MHz-bandwidth signal at a specific signal-to-noise ratio.

If video/data is mastered onto the disc by a second technique — "constant linear velocity" —, the capacity is roughly doubled.

Thus, the DiscoVision unit with SSM's interface offers the potential of an immense library of archival information, accessible within seconds via microcomputer control. For example, a physician could have immediately at hand



medical reference facilities equal to the finest professional library. An aircraft manufacturer could have available all the instructions, procedures, and drawings necessary for even the largest of jet airliners. The texts and reference works for eight years of undergraduate and graduate studies could be offered on a single disc.

The DiscoVision/UEI combination offers the ultimate system for computer-assisted instruction and reference, since sound and video can be mixed with digital digital data on a disc.

The video disc tied to a personal computer can be a third significant contender for inexpensive mass information distribution — joining broadcast and wired-network services.

SSM's UEI makes possible the first real test of the acceptability delivering information via video disc.

For more information on the UEI, write or call SSM Microcomputer Products, 2190 Paragon Dr., San Jose CA 95131; (408) 946-7400.

How Do You Like Them Apples?

A graphic utility that gives the user over 4 billion colors and patterns, fills irregular objects with any of these colors or patterns, allows the user to choose the size and shape of the 'paintbrush', or even make a pattern and 'stamp' it repeatedly on the screen, is discussed by program author Steve Dompier in his 6th Faire talk, "4 Billion Colors on the Apple??"

Conference Session

STARS Will Help Stage Critical Performance

A performing-arts organization can contain aspects of both a profit-making organization, and a non-profit organization.

Some examples of profit-minded management include: the costs and returns expected from an arts performance; effective pricing of theatre performances; marketing and attracting the arts-interested public through effective use of local media.

The principal needs of the non-profit sector include: effective fund-raising; providing of outside services to the community.

"Closer management of the performing arts sector is vitally needed," claims 6th Faire Speaker David Blow. In his talk "STARS (Subscriber Ticketing, Accounting, and Revenue System) An Automated Manager for Small Performing-Arts Theatres," he notes "it is very difficult to control the variable costs of a performing-arts presentation. By concentrating the

Premiering at the Faire

WOW!

All This for \$1795!

A very well-known leader in the microcomputer industry will unveil a unique computer system at the 6th West Coast Computer Faire. Packaged in a weather-proof suitcase that will fit under an airline seat and retail-priced at \$1795, it includes:

- A Z-80 CPU
- 64K of memory
- dual look minifloppies
- 52x24-line CRT
- full ASCII keyboard
- 10-key numeric pad
- full-blown CP/M
- CBASIC, MBASIC
- SUPERCALC and WordStar with MailMerge
- IEEE 488 and RS232 interfaces
- storage for 20 discs

Options include:

- double density, double sided floppies
- battery pack for 3-5 hours backup power
- modem electronics, acoustic coupler

Faire Registration Subsidies Available

Treasury Regulation 1-162-5 permits an income tax deduction for educational expenses (registration fees, and cost of travel, meals and lodging) undertaken to (1) maintain or improve skills required in one's employment or other trade or business; (2) meet express requirements of an employer or a law imposed as a condition to retention of employment, job status or rate of compensation. The IRS recommends you keep a daily log of expenses in accordance with this regulation.

data in one place, better decisions can be made as to the quality and production costs of a performance.

"On the non-profit side, many fund-granting organizations want to know in much greater detail the use of funds granted, and an assurance that all funds that have been granted can be accounted for.

"If there is government support of the arts, the reports on the use of these funds are subject to a specific set of audit standards.

"In addition, significant savings can be realized through centralization of the filing and typing of all the required information."

STARS, developed by David, is for small- to medium-size, performing-arts centers and theatres.

The STARS software was written with the advice of several people in the management of performing arts organizations. The accounting section of the module has been designed on the guidelines of the non-profit sections of the American Institute of Certified Public Accountants (AICPA).

6th WEST COAST COMPUTER FAIRE

the Conference & Exposition

on

Inexpensive Computing for Home, Business & Industry

San Francisco's Civic Auditorium & Brooks Hall

April 3 (Fri) 9 am - 6 pm

April 4 (Sat) 9 am - 6 pm

April 5 (Sun) noon - 5 pm

contact your local computer retailer for preregistration

Stockpak From Standard & Poor

Now available from Radio Shack for use on their TRS-80 microcomputer systems is Standard & Poor's Stockpak System, a complete stock analysis and portfolio management package.

Stockpak is said to combine the expertise of Standard & Poor's with the latest analytical methods of Wall Street to allow the personal computer owner to duplicate the professional investment strategies used in the financial community.

The system provides for evaluating and managing a stock portfolio of up to 100 securities with as many as 30 transactions on each issue. It also makes it possible to



analyze 900 New York and American exchange and over-the-counter common stocks, and generate reports to guide investment decisions.

In addition, the user is able to record buy and sell transactions, price and dividend information, and stock splits. This information may be retrieved instantly for record keeping and tax purposes.

According to Radio Shack, the user can also screen and select from among 900 companies meeting user-defined investment objectives, and compare and analyze companies by industry group. Yields, earnings, price ranges, capitalization and financial positions can be retrieved and ranked.

Another feature of Stockpak is said to be its ability to measure the actual performance of a portfolio and allow the user to create hypothetical situations prior to stock investment decisions.

PROGRAM DISKETTES

The Stockpak System is designed for use with Radio Shack's Model I or Model III TRS-80 32K business computer systems, including four program diskettes and a comprehensive user's manual.

The first program diskette is the Portfolio Management System which provides for the maintenance and control of a portfolio, or a simulation capability for any group of securities to be evaluated.

A second diskette contains the Screen and Select System which offers the capability to apply a variety of investment criteria to the 900 stock data base, identifying securities to meet such requirements as price/earnings ratios of less than 10, selling below a given price, and more. Stocks selected and criteria statements can be stored for instant recall.

Diskette three is a Report Writer System which creates customized reports of stocks meeting user-selected criteria, along with additional pertinent information from the data base.

The fourth diskette is a Demo Data Base which contains a 900 common stock data base of the most widely traded stocks with 30 financial items on each of the companies. Optional monthly updating is available from Standard & Poor's.

Standard & Poor's Stockpak System for the TRS-80 is available from participating Radio Shack stores, dealers and Computer Centers. Price is \$49.95.

An annual subscription to the monthly update service, available from Standard & Poor's is \$200.

For more information: Radio Shack, 1800 One Tandy Center, Forth Worth TX 76102; (817) 390-3272.

TI: May The Source Be With You

Texas Instruments Inc. recently entered into an agreement with Source Telecomputing Corp., McLean, Virginia, to develop and expand home information and communications service for users of the TI-99/4 home computer.

Designated Texnet, the new subscription service will be available over telephone lines coupled to the home computer via readily available TI-99/4 peripherals. It will offer all the services of The Source information utility plus new data bases that take advantage of the color, graphics, sound, music and speech capabilities of the TI-99/4 home computer. In addition, it will include a text-to-speech capability that allows users to hear any messages typed on the computer keyboard, or transmitted over the Texnet system.

In making the announcement, TI said Texnet is a major step toward the home electronics center that is envisioned as a common household element of the mid-1980's. This center will be a series of integrated systems for home education, family resource management, and home entertainment, with the home computer playing a pivotal role. Information networks like Texnet will bring the outside world into this home electronics center via the telephone to make electronic news services, library and encyclopedic services, consumer buying and travel services, plus home entertainment and education services available to all members of the family.

Texnet will be operated by Source Telecomputing Corp. as an extension of The Source, the first and largest computerized consumer information utility available in the U.S. Since introduced in 1979, The Source has grown to include approximately 7,000 subscribers that have access to some 2,000 subjects via the telephone. The list of subjects includes the services of the United Press International News-wire, world airline schedules and travel services, restaurant and wine guides, consumer buying services, the *New York Times* news and consumer data bases, foreign language drills, a unique electronic mail service, and many other local, regional and international information banks. Texnet will include all of these services plus new data bases that utilize TI graphics, sound and speech capabilities. Texnet service will be available in the first half of 1981.

"When The Source was introduced," said Marshall Graham, newly-elected president of Source Telecomputing Corp., "we perceived it as a new type of telephone system that would serve the information needs of all members of the family — the student with educationally-oriented services, the homemaker with such services as real estate, energy-saving tips, recipes and gourmet cooking, the head of the household with a full range of financial management services, and youngsters of all ages with a variety of services."

Graham went on to say, "We have taken a number of steps recently to expand and improve our information services. We find the application of TI technology most exciting and look forward to working with Texas Instruments to develop this service for TI-99/4 subscribers."

TI said it is actively seeking new software, new data bases, and new peripherals for the TI-99/4, and expects to develop a variety of new services for Texnet, from within the company and from third-party developers.

For more information: Texas Instruments Inc., Consumer Relations, Box 53, Lubbock TX 79408, (800) 858-4565.

Conference Session

Local Networking For Small Systems

Local networking technology has been developed over the past decade, and has gained great visibility within the past year or so. Xerox even features its Ethernet as an "Information Outlet" on TV commercials. New companies such as Ungermann-Bass have been formed with local networks as their only products, and other established companies such as Zilog are featuring local networking products (Z-Net).

"Local Networking for Small Systems," a 6th Faire talk, provides a very brief overview of the local networking field, and then, focusing on a specific local networking product (TNW's Piconet), shows the kinds of benefits that this technology can bring to users of personal/small business computer systems.

"Generally," says speaker Douglas Gage, "a computer network is a communications scheme that allows data processing entities (computers, terminals, and/or peripherals) to communicate with one another. A computer network is referred to as a 'local' network if it displays the following three properties (no, these are not hard-and-fast criteria, but they are accepted by more than one person:

"1. It is 'local' — that is, extending over a geographic distance of less than 10 kilometers or so.

"2. It provides a large aggregate communications bandwidth — in excess of, say, 100 kbps. (Most systems offer considerably more, occasionally in excess of 10 Mbps.)

"3. Control of the network is held by the using organization (i.e., you don't subscribe to a local network service, you purchase or lease a local network system."

Graphic Dictators Don't Fade, They Just Lose Their Resolution

A software program, called Micro-Painter, employing high-resolution graphics to "paint" pictures in 21 different colors on the Apple II, was recently released by Datasoft, Inc.

Designed for computer hobbyists and professional programmers, Micro-Painter includes a magnification feature for dot-by-dot coloring, and inverse coloring. Once painted, pictures can be saved or displayed in any combination of colors or in an unpainted state. Pictures can also be repainted at any time.

The program is available for \$34.95. For details: Datasoft, 16606 Schoenborn St., Sepulveda CA 91343.

Mita Offers Multiple Industry Benefits

MITA — The Microcomputer Industry Trade Association announces three cost savings benefits for members.

In conjunction with the Mid Peninsula Agencies Inc. and some of the leading insurance carriers in the country: the AETNA and Travelers being just two of the sponsoring companies, MITA has developed a specialized microcomputer industry insurance package which we believe to be one of the broadest and most comprehensive association packages available today.

Through the group purchasing power of our growing industry, you are now able to purchase at substantial savings comprehensive general liability; property, workers compensation; cargo and ocean marine cargo and products liability insurance.

Firms have been saving 25% and more off their current rates while often expanding their existing coverages.

A comprehensive program covering Group Hospitalization, Major Medical, Dental, Life, Disability, and Retirement plans are also available for firms of 2 employees or more, with customized plans for larger groups available to meet specific needs.

These programs are now being offered in all 50 states as well as overseas. We are continually evaluating the Association's coverages so as to offer you the most comprehensive and cost effective packages available today.

MITA invites you to compare and save.

Members can now receive a 20% discount from Vantage Research on *Office Computing Industry Report* and *Personal Computing Industry Report*.

These reports look at the fast growing markets resulting from the convergence of business, microcomputers and office machines in the office environment; and personal computers in business, professional, industrial, educational and consumer end markets.

The monthly reports cover products, technology, distribution, software, business strategy and industry forecasts written for manufacturers, dealers, ISO's, distributors, retailers and suppliers of services to the small computer and business equipment markets.

Both publications are edited and published by Robert F. Wickham, President of Vantage Research.

For more information about MITA contact Richard Linn, Executive Director, Microcomputer Industry Trade Association, 1143 Crane Street, Suite 208, Menlo Park CA 94025, (415) 326-8420.

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Designing User Interfaces for Users

Lecturer: Dr. Jack Grimes, Tektronix

Friday, April 3, 1981, 1pm-5pm
at the
6th West Coast Computer Faire

enrollment limited to 75

The Lecturer:
currently:

Manager, Advanced Development for Desktop Computers,
Tektronix
Adjunct Professor of Computer Science, Oregon State
University
Researcher in visual perception, Tektronix & University of
Oregon
internal consultant to management on technology issues,
Tektronix

recently:

Co-chair, 2-day "User Interface Design" Workshop, SIGGRAPH
'80
Distinguished Visitor, IEEE Computer Society lecturer program
Technical Editor, IEEE *Computer* magazine
Manager, 4051 Graphics Computer Systems Software Group,
Tektronix
International Tutorials Lecturer, e.g.
China Technology Exchange Program, 1979
Computer Architecture Workshop, Nexdorf, 1976
2nd USA-Japan Computer Conference, Tokyo, 1975
published over 20 papers on user interface design, computer
architecture, and silicon technology
frequent guest lecturer before professional and technical groups

Seminar registration is \$70 and includes:

- registration for the 6th West Coast Computer Faire
conference & exposition
- complete set of handouts, including lecture notes and article
reprints

Attendance is limited to the first 75 who enroll.

Please enroll me in the Professional Seminar, "Designing User Interface for Users", taught by Dr. Jack Grimes, to be held Friday, April 3, 1981, 1pm-5pm, at the West Coast Computer Faire in San Francisco's Civic Auditorium & Brooks Hall.

[] A check for the \$70 enrollment fee is enclosed (payable to "Computer Faire Seminar Program").

I understand that, if this application arrives after the seminar is filled to capacity, the check will not be deposited and will be promptly returned to me.

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mailing

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Send to: Computer Faire Seminar Program, 333 Swett Road, Woodside CA 94062.

The Seminar:

1. Introduction — brief!
2. Knowledge acquisition — *How do users acquire and utilize information in interactive systems?*
3. Time — *What makes a user interface interactive?*
4. Emotional — *Why do some systems make users nervous?*
5. Real systems — *What are the strengths and weaknesses of existant systems?*

videotapes and discussion of a number of
commercial and experimental systems

As the number of computer-naive people using computer-based systems grows, the design of the user interface increasingly effects the success of those systems.

This professional seminar will cover the user side of user interfaces to computer-based equipment. The seminar is aimed at systems designers and programmers who are interested in learning more about current issues and questions, for example:

- When are menus a good technique?
- What role does the CRT display play?
- What makes a system friendly?
- How do you measure interactivity?

The emphasis will be on pragmatics and applications; not theory.

The seminar presents the results of five years of research into the human factors as they apply to how users interact with computer systems.

User interfaces to several experimental and commercial systems will be presented and analyzed to illustrate key principals.

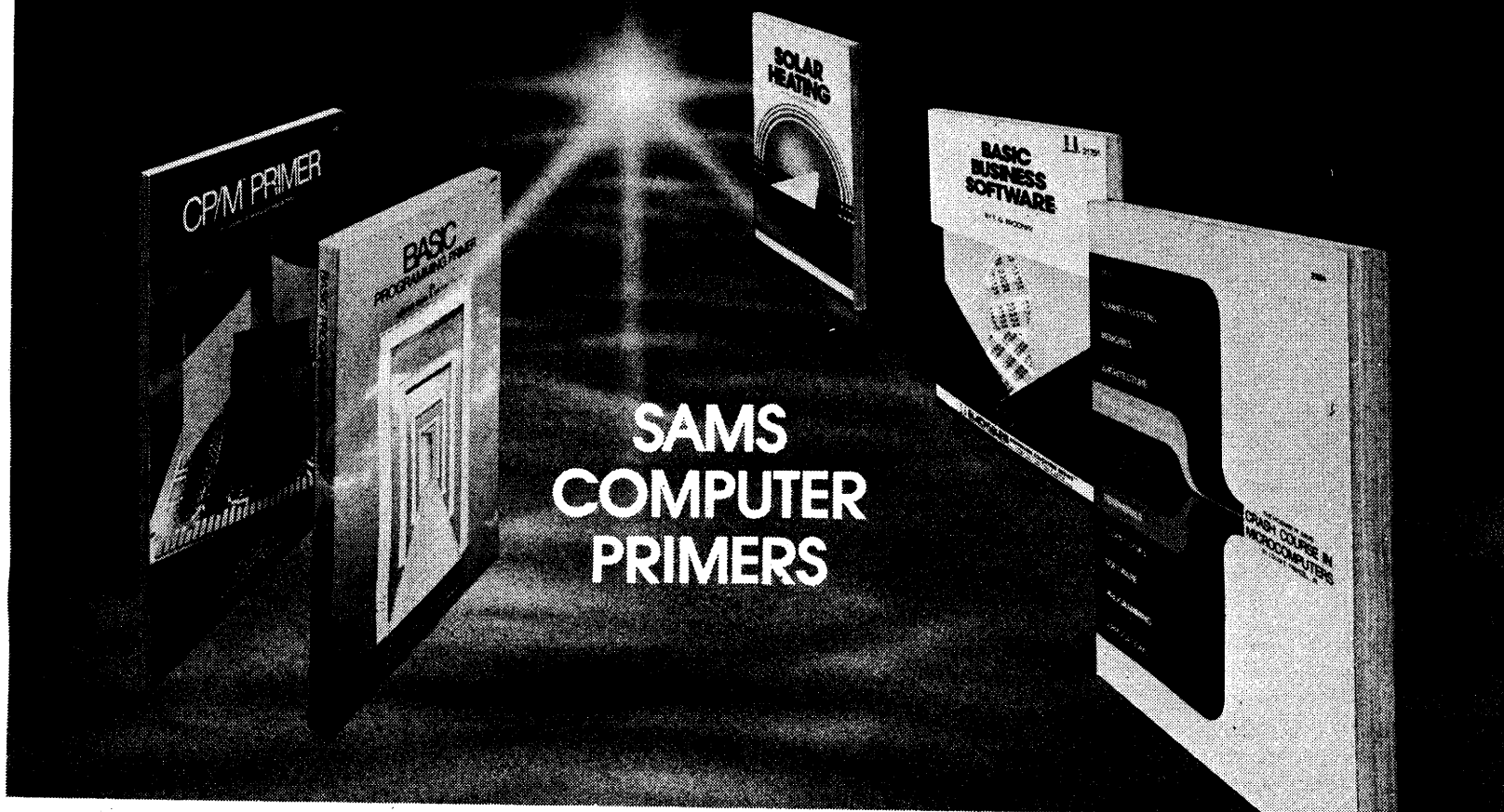
This seminar is a condensed, updated version of the 2-day "User Interface Design" program co-chaired by Dr. Grimes during the SIGGRAPH '80 Conference. This was the largest of six tutorials given during that Conference, attended by 275 systems designers and programmers. Evaluations of that program included such comments as:

- "Well surveyed and organized"
- "Liked Jack Grimes post-mortem of successful systems"
- "Both content and presentation excellent"
- "Good handouts"

The program was so well-received that it will again be offered at SIGGRAPH '81.

The seminar at the Computer Faire has been updated from the SIGGRAPH '80 program, based on extensive feedback and evaluations, including requests for case studies of actual systems (presented via videotape) for review and discussion.

SHORTEN THE JOURNEY TO KNOWLEDGE.



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A complete guide to the hottest new language in computers by Mitch Waite and David Fox. No. 21793. \$16.95.

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The End Game Can Finish You

The winner of the 1980 International Othello Tournament in London has attributed his chess success to practicing against a computer program.

Last June, in the First International Man-Machine Othello Tournament, Jonathan Cerf (son of the late author and publisher Bennett Cerf) lost to a computer program, called Reversal. (The Reversal program, which is published by Hayden Book Co., Inc., and runs on an Apple computer, came in first in the tournament's software division. It beat out five other computer programs, including one running on a giant IBM 370 computer.) Ironically, Jonathan had advised Reversal's designers on improvements just before losing to it.

Last summer, Jonathan retired to Martha's Vineyard with an Apple computer and a disk holding Hayden's Reversal program to get ready for the fall competition. "Reversal plays end games perfectly," he said. "This is one of my weaknesses. It looks ahead at literally every possible move to the end of the game and picks the best next move. This is something almost impossible for humans. I learned a lot by watching it."

Jonathan says he now knows the program well enough to beat it. "... Well, better than 50% of the time, anyway," he adds.

His world Othello championship was the first by an American. Previous contests have been won exclusively by the Japanese.

The COMANDER Reports for Work

A combined text and graphics color composition system called COMANDER I is the subject of Jim Blum's 6th Faire talk, "COMposition of Artwork aNd Document Editing and Report-Generation System." The system enables a user to compose and edit brochures, presentations, and documents which include all of the artwork (illustrations, graphs, figures, etc.), eliminating separately-generated artwork which must be cut and pasted onto the hardcopy. Complete page make-up with user-defined fonts and graphic aids, all in color, enable a complete novice to do both text processing and graphic design entirely on the system.

Tree-Structured File System For PDP-11s Under RT-11

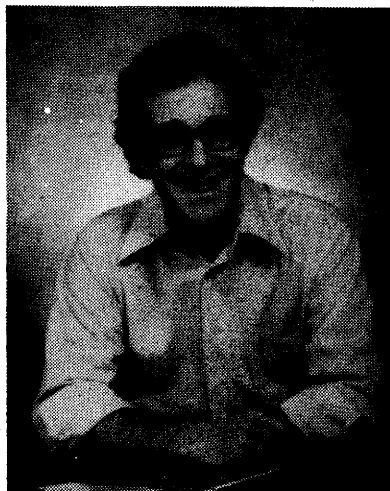
Multi-level directory and file allocation is now available for PDP-11 and LSI-11 users running RT-11 (Versions 3B and 4) or TSX-Plus (a multi-user extension to RT-11). This is similar to the sub-directory structures found on some large operating system. The Sub-Device System is an easily-installed software enhancement package. It helps users avoid file naming conflicts and directory overflows. It also relieves user confusion caused by large, single-level directories. Files can now be easily separated by project, user, program version or other convenient definition.

Sub-Devices are variable-sized, virtual devices, complete with volume labels, directories and files. Appearing to the user as physical devices, they are actually files which can be placed on any disc or other random-access directory-structured device. They can be some arbitrary size or, they can be the size of one of several standard RT-11 devices.

Sub-Device files can even be images of physical devices, such as floppy diskettes. Such images allow rapid access to the contents of the slower physical devices. Sub-Devices can be used by RT-11 and TSX-Plus programs and commands without any special coding.

Even for the novice user, everyday use of the Sub-Device system is quite simple, since Sub-Device files are commonly accessed by means of user-generated command files.

This file management aid is immediately available for \$200.00 license fee from Menlo Computer Associates, Inc., 801 E. Charleston Road, Suite F, Palo Alto, California 94303; (415) 494-3170.



David Ahl, Founder and Publisher of Creative Computing

You might think the term "creative computing" is a contradiction. How can something as precise and logical as electronic computing possibly be creative? We think it can be. Consider the way computers are being used to create special effects in movies—image generation, coloring and computer-driven cameras and props. Or an electronic "sketchpad" for your home computer that adds animation, coloring and shading at your direction. How about a computer simulation of an invasion of killer bees with you trying to find a way of keeping them under control?

Beyond Our Dreams

Computers are not creative per se. But the way in which they are used can be highly creative and imaginative. Five years ago when *Creative Computing* magazine first billed itself as "The number 1 magazine of computer applications and software," we had no idea how far that idea would take us. Today, these applications are becoming so broad, so all-encompassing that the computer field will soon include virtually everything!

In light of this generality, we take "application" to mean whatever can be done with computers, *ought* to be done with computers or *might* be done with computers. That is the meat of *Creative Computing*.

Alvin Toffler, author of *Future Shock* and *The Third Wave* says, "I read *Creative Computing* not only for information about how to make the most of my own equipment but to keep an eye on how the whole field is emerging.

Creative Computing, the company as well as the magazine, is uniquely light-hearted but also seriously interested in all aspects of computing. Ours is the magazine of software, graphics, games and simulations for beginners and relaxing professionals. We try to present the new and important ideas of the field in a way that a 14-year old or a Cobol programmer can under-

stand them. Things like text editing, social simulations, control of household devices, animation and graphics, and communications networks.

Understandable Yet Challenging

As the premier magazine for beginners, it is our solemn responsibility to make what we publish comprehensible to the newcomer. That does not mean easy; our readers like to be challenged. It means providing the reader who has no preparation with every possible means to seize the subject matter and make it his own.

However, we don't want the experts in our audience to be bored. So we try to publish articles of interest to beginners and experts at the same time. Ideally, we would like every piece to have instructional or informative content—and some depth—even when communicated humorously or playfully. Thus, our favorite kind of piece is accessible to the beginner, theoretically non-trivial, interesting on more than one level, and perhaps even humorous.

David Gerrold of *Star Trek* fame says, "*Creative Computing* with its unpretentious, down-to-earth lucidity encourages the computer user to have fun. *Creative Computing* makes it possible for me to learn basic programming skills and use the computer better than any other source.

Hard-hitting Evaluations

At *Creative Computing* we obtain new computer systems, peripherals, and software as soon as they are announced. We put them through their paces in our Software Development Center and also in the environment for which they are intended—home, business, laboratory, or school.

Our evaluations are unbiased and accurate. We compared word processing printers and found two losers among highly promoted makes. Conversely, we found one computer had far more than its advertised capability. Of 16 educational packages,

only seven offered solid learning value.

When we say unbiased reviews we mean it. More than once, our honesty has cost us an advertiser—temporarily. But we feel that our first obligation is to our readers and that editorial excellence and integrity are our highest goals.

Karl Zinn at the University of Michigan feels we are meeting these goals when he writes, "*Creative Computing* consistently provides value in articles, product reviews and systems comparisons... in a magazine that is fun to read."

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"The beat covered by *Creative Computing* is one of the most important, explosive and fast-changing."—Alvin Toffler

Don't Miss The
6th West Coast
Computer Faire
April 3-5, 1981
San Francisco
Civic Auditorium & Brooks Hall

Creative Computing Award To Be Given at 6th Faire

A special award for outstanding creativity in game programming for small computers will be awarded by *Creative Computing* at the 6th West Coast Computer Faire in San Francisco, April 3-5, 1981.

The award will recognize the programmer of a computer game selected for originality of approach, creativity, and "flow." Flow is the quality of some activities to absorb people completely, causing them to forget such activities as eating, sleeping, and the passage of time.

The editorial staff of *Creative Computing* has been seeking nominations from their regular review staff. Final selection of the winning game is the responsibility of a committee consisting of David Ahl, George Blank, and Betsy Staples.

David Ahl is the publisher of *Creative Computing* magazine, and the collector and editor of *Basic Computer Games* and *More Basic Computer Games*.

George Blank is the newly announced Editorial Director of *Creative Computing's* three magazines. George was formerly the Editor-in-Chief of *SoftSide Magazine*, *The Software Exchange*, and *Ramware*. He is also the author of many computer games, including Santa Paravia and Fiumaccio, a simulation of Macciavellian politics and court intrigue in medieval Italy.

Betsy Staples has recently become Editor of *Creative Computing* magazine.

Conference Session

Come Forth
And Be Anointed

Forth is a computer language developed a little over 10 years ago by Dr. Charles Moore, at the National Radio Astronomy Observatory, to allow him to build control programs for the radio telescopes quickly and accurately, and to give him interactive control of the resources of the computer in real time.

After leaving the NRAO, Dr. Moore founded Forth, Inc., to apply the techniques and insights gained in building and using Forth to the production of commercial software systems.

"What's it good for?" queries 6th Faire speaker Samuel Bassett in his talk, "Forth - The System Tool." "Anything. Forth is capable of doing anything that any other computer language, or combination of languages can. It is structured, modular, and has all of the best features of existing languages. Forth is best in any application which demands both speed and memory conservation - it is almost as fast as machine language, and usually requires about half the memory space that an equivalent machine code program would.

"Forth allows custom compilers, which will run on any computer, to be built cheaply. These custom compilers can accept source code for any version of any language, and turn out Forth code which will run on any machine. This raises the possibility of being able to move established, tested software from machine to machine, something which has not been possible before.

Dedicated Forth programmers tend to preach and evangelize about the virtues and glories of the language, prompting people to ask whether it's a programming language or a religion - the answer, of course, is 'yes!'

"We want to present Forth and the way it works clearly and accurately, so that as many people as possible can become "born-again programmers" and go out and do all of those wonderful things that we can see are possible."

Alpha Pascal
Talks Business

Alpha Micro recently announced the availability of AlphaPascal release 2.0, a programming language expressly developed for the Alpha Micro Business Computer.

AlphaPascal, fully integrated into the multi-user, multi-tasking, timesharing Alpha Micro Operating System (AMOS), supports both sequential and random data files. It is also compatible with Alpha Micro's AlphaBasic programming language. AlphaPascal has the ability to separately compile and link Pascal modules to form one program, easing the task of developing and maintaining programs.

In addition, other AlphaPascal features include the ability to add user-defined routines to an external library where other Pascal programmers can make use of them; the ability to call external assembly language subroutines; full 11-digit accuracy for Real variables; and labeling of Begin-End blocks.

Alpha Micro provides full software support for this new version of AlphaPascal. Programs written in standard Pascal will require very little modification before being operable under AlphaPascal. Alpha Micro also includes their new "AlphaPascal User's Manual" with the software.

For more information: Alpha Micro, 17881 Sky Park North, Irvine CA 92713, (714) 957-1404.

Landlord Software Manages Pet
Peeves As Well As Pet Deposits

MIN Microcomputer Software, Inc., recently announced The Landlord, an apartment-management, software package for Apple II computers. The system can be used for apartment properties of up to 400 units.

The Landlord provides property owners and managers with listings of apartments, residents, and past residents, as well as reports on vacancies, lease expirations, intents to vacate, and resident payments. Records of disbursements and other financial transactions are maintained by the system and a monthly property analysis statement is produced.

The Landlord allows entry of resident charges and payments using up to 26 different account codes. Security and pet deposits, returned checks, and overpayments are also handled by the system. An outstanding-balance report allows expedient follow-up of delinquent residents.

The package is designed to be used by managers who have no prior computer or data processing experience. The manual included with The Landlord as well as the instructions that appear on the Apple's screen are completely non-technical in nature.

For more information: MIN Microcomputer Software, Inc., 5835 A Peachtree Corners E., Norcross GA 30092, (404) 447-4322.

Holy Graphics!, Batman.

Due to a technological breakthrough, Atari is able to bring holography to the world of electronic games. After years of research and development, Atari recently introduced the Cosmos Programmable Game System featuring HoloOptics.

HoloOptics is Atari's exclusive, holographic technique for creating three-dimensional light images of detail and realism on a two-dimensional plane.

Until Cosmos, holograms had not been produced in large volume and were very expensive.

For more information: Atari Consumer Division, 1265 Borregas Avenue, P.O. Box 427, Sunnyvale CA 94086, (408) 745-2883.

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Conference Session

Go Forth and Multiply: High-Speed Digital Arithmetic

"Some problems which seem, right off, to be too big for even the latest microprocessor-based small computing systems aren't, really — if they're approached right, they can be cut down to size," says 6th Faire speaker Chuck Hastings in his talk, "Doing Your Own Thing in High-Speed Digital Arithmetic."

"The basic idea is to divide the problem up into a complex part which isn't executed at high speed, and a simple and repetitive part which is.

"Microprocessors are good at handling complexity. If the high-speed, repetitive tasks can be unloaded onto some more specialized logic under the control of the microprocessor, the combination may be

able to keep up with real-time jobs which would seem to call for a large minicomputer. In the particular case where the multiply and/or the divide instructions of the microprocessor are too slow to allow the job to be done in real time, or where it doesn't even have these instructions, this 'specialized logic' may sometimes consist of just one chip!

"My talk presents in detail two of the standard tricks-of-the-trade in high-speed arithmetic: carry prediction and bypassing, and Booth multiplication. I have tried to present these in such a way that you don't have to be a veteran logic designer to fully comprehend both the presentation, and the potential value of the techniques. The emphasis will be on gaining *understanding* of these techniques, but there will also be some information on actual products which incorporate them."

Conference Session

Applications Software Development

DataTool is a system which reduces the effort required to develop single and multi-terminal microcomputer applications software. It is aimed primarily at OEMs and systems houses developing commercial applications. It can run on any system supporting 64K bytes, and on hard or floppy disks.

"DataTool is an approach to building transaction-oriented applications which," says Dick Karpinski in his 6th Faire talk, "DataTool: The Application Development System for Microcomputers," "is based on a system of fully integrated database/screen/report facilities.

Laboratory Applications Take Microcomputer to (Multi)Task

Microcomputers used in distributed processing networks provide a powerful tool for gathering laboratory data and managing laboratory operation. In an application discussed at the 6th Faire by Jeffery Cawley, "Microcomputer Applications in Laboratory Data Acquisition and Management," one CPU is operating under the LABOL (Laboratory-Oriented Language), real-time data acquisition system and a second CPU in time sharing mode performs sample log-in, data file management, report generation, and laboratory quality control.

This discussion will focus on operational aspects of the LABOL real-time executive. Jeffery notes that "the generalized nature of the system gives the user tremendous versatility in data systems in both laboratory and process control applications.

"Networked microcomputers have demonstrated the capability of successfully handling the large volume of data generated by many modern laboratory facilities. Such systems are a less expensive and more easily maintained alternative to the larger computer that are frequently used.

"The microcomputer approach also creates a "friendlier" system than many larger machine options. For example, with a real system such as LABOL, the laboratory can often reconfigure their system without being forced to use the original vendor."

Conference Session

Smart Wheelchair Takes A Leading Roll

Since the "handicapped" are by-and-large an invisible slice of our society, their plight is not well known to the average citizen. However, there exists an urgent need for increased concern for there is a seventy percent probability of a "normal" person becoming "disabled" for a short period of time due to injury, age, or disease. "In fact," notes 6th Faire speaker David L. Jaffe, "considering the 100% certainty of short-term confinement to bed for the flu, for example, or the decreasing physical capability one experiences with advancing years, it might be more appropriate to relabel "normal" people as "temporarily able-bodied."

"One large subset of handicapped people are those who have lost the use of their legs. Their ability to get around is limited to places they can access with a wheelchair. If, in addition, hand and arm control is lost; the person is said to be a quadriplegic. This situation can occur as the aftermath of a traumatic accident that has severed the spinal cord, or as a result of diseases such as polio, cerebral palsy, multiple sclerosis, or a genetic birth defect. In these cases, the 'victim' is almost totally dependent on others for his care — for every minute of every day for the rest of his life. Daily activities such as shaving, bathing, getting dressed have to be controlled by others. For them, life is filtered by the will of others.

"To allow quadriplegics independent mobility, a 'smart' microprocessor-based, electric wheelchair has been developed by Stanford University and the Palo Alto Veterans Administration Medical Center. Ultrasound distance-ranging technology is employed to track the user's head in two-dimensional space to determine the chair's direction and speed. Obstacle detection, wall-following, and cruise-control modes are other implemented features."

In his talk, "Smart Wheelchair," David discusses the chair's technology.

In which we sell a 386 page, \$11.95 book for just 2¢.

Liquidation Giveaway

Byte magazine. You've seen it. It's the fat technical one.

Back when Byte was first publishing independently, *Creative Computing* and *Byte* cooperated in many areas. We ran joint promotions, directed articles to each other and the like.

In 1976, Creative published *The Best of Creative Computing, Volume 1*. I proposed to Virginia Londoner, publisher of *Byte*, that we also publish articles from *Byte* in book form. She agreed, and so we published *The Best of Byte, Volume 1*. It's a huge book of 386 pages with articles on hardware, software, technical tutorials, how-to materials and even some philosophy.

Although some of the technical material in *The Best of Byte* is out of date today, it nevertheless provides a good historical framework for the personal computing field. Not at all out of date are most of the software articles and tutorials. Similar books of other publishers are selling for \$20 and up, so at \$11.95, this one is quite a bargain.

Big Hearted

About the same time we were preparing *The Best of Byte* for publication, Nat Wadsworth of Scelbi approached *Byte* about doing a similar book. Virginia wanted to be nice to everyone, so she gave permission. Thus was born the *Scelbi-Byte Primer*.

Unfortunately, about half of the content of the two books was identical. Thus *Byte* was faced with a dilemma of which book to endorse and sell through their magazine. Inexplicably, they chose the Scelbi book. Thus we were left with twelve skids of *The Best of Byte*.

Hidden Away

In the next three years we sold a lot of these books. In fact, after we ran a special in 1979, we thought we had sold out.

However, we just moved to new quarters. In the move we found, lurking away in the back of our old garage, four skids of *The Best of Byte*. After some fitting words, the boss said "for 2¢, I'd give them away." So that's what we're doing.

Our Ridiculous Offer

The original price of *The Best of Byte* was \$11.95. If you order \$11.95 worth of any of our other books or records, we'll throw in *The Best of Byte* for 2¢.

Thus you could order *The Best of Creative Computing, Vol. 3* (\$8.95) and *Computer Coin Games* (\$3.95). The total price is \$12.90. For \$12.92 you also get *The Best of Byte*. Shipping and handling on all book orders is \$2.00.

Here are the books you can use to come up with an \$11.95 or greater total:

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Best of Creative Computing, Vol. 3	8.95
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Computer Coin Games	3.95
Be A Computer Literate	3.95
Computers in Mathematics	15.95
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Editorial

Typesetting Manufacturers —
The Chryslers of High Tech

—or—

Yet Another Invitation
to Japanese Manufacturers

by Jim Warren

In the race to see who has the most dinosaur-like attitudes, Chrysler has some strong rivals in the high (?) technology community, namely the makers of phototypesetting equipment.

You may remember Lee Iaccoca having the audacity to say something like, "The reason we don't build small, energy-efficient cars is because the profit margins are better on big cars" (each month when they sell one). At least he has some excuse for such a strong pro-oil (and pro-Japan) stance — his Board of Directors is indirectly interlocked with about ten major oil companies by approximately twenty of its members*.

The typesetting industry, however, has no such excuse for so carefully avoiding major markets for their products. The image comes to mind of the management of U.S. typesetting manufacturers arthritically hobbling along the narrow path of their traditional markets, using the Two-Monkey approach to reality: They hold large blinders to the sides of their eyes, carefully muffle their ears, and sleepily chant in a uniform monotone, "No! No! Please don't let us see the blatantly evident opportunity to expand sales of our products into a massive new market. Oh please; Oh please — don't let us hear of the multitude of computer users eager to consume phototypesetting equipment."

We are, of course, referring to the typesetting manufacturers' uniform refusal to offer the moderate-priced phototypesetting peripherals that they have readily available to the huge and totally untapped potential market for new sales, namely computer installations desiring the ability to produce publication-quality hard-copy.

THEY HAVE IT, BUT THEY WON'T SELL IT

The typesetter manufacturers have the products to market. They simply refuse to do so.

For example, AM Varityper (formerly Addressograph Multigraph) has a workhorse phototypesetting unit that they use in their Compset typesetting systems. They also cross-license it to the Composition Systems Division of Harris Corporation (Melbourne, FL). Harris list prices this unit at an overpriced but tolerable \$17,950. The unit has an ever-so-simple, well-documented 'Compublab' interface. Any Silicon Valley hardware jockey could trivially wire up the connection to it from a computer (e.g., using any S-100 computer and a 3P+S interface board, costing less than \$1,000, including the computer). Several companies market RS232-to-Compublab interfaces (one is priced at \$2,500, excluding the computer). Driving it directly by computer as a slave printing device is simple and completely documented — that is exactly what Harris does with the unit (they make expensive, computerized full-page make-up systems for large newspapers, using the AM unit as one of their typesetter options).

The configuration is economically and functionally ideal for the multitude of computer service bureaus and many inhouse computer operations, to say nothing of the mass of publish-or-perish academic institutions across the land — all of which have ample computing power (and the latter have an endless supply of grad student slaves who would like nothing better than to crank out arbitrarily exotic typesetting software).

Similarly, Itek makes a clunky little tabletop typesetter, sufficient for low-volume production use. They peddle a complete typesetting system, including display terminal and cassette-tape mass storage, for about \$11,000. For an extra \$2,500, you can even buy an almost-working, partially-documented RS232 computer interface from them.

Now, come the ringers:

YA GOTTA BUY THE CHROME AND FOX TAILS

Using the Iaccoca Approach, the typesetting manufacturers won't sell the phototypesetting units — they demand that customers also purchase a mound of front-end equipment. That gear may be appropriate for the traditional typesetting market; after all, that marketplace has never experienced good text editing and file systems. But, for the computer folk, that mandatory front-end gear — specialized display terminal, memory, wee mass storage units (insultingly priced about 3-5 times more than identical units in the computer market) — verge on being totally useless; computer installations already have terminals, memory and mass storage running out of their ears.

It's like trying to market a big, overpriced gas-guzzling Chrysler, complete with chrome sun visors and fox tails on twin radio antenna, to consumers who want a trim, economical, easy-to-handle vehicle. The only difference is that Chrysler management is several years closer to well-earned self-destruction than are the U.S. typesetting manufacturers.

YA CAN ONLY TURN LEFT

OK — let's say a computer group, desperate for publication-quality computer output, is willing to waste \$5,000-\$15,000 on useless front-end equipment, in order to get at the typesetting unit. There are several companies willing to offer the overpriced RS232 interface. That takes care of the hardware connection to a computer. The obvious thing, then, is to do most or all of the formatting in the big, powerful computer, and have it transmit a text stream to the phototypesetting unit to be typeset, letting each system do what each does best.

But, that's not the way the typesetting manufacturers have their computer interface software set up. They require that the text stream from the computer be downloaded to the creaky mass storage on the typesetting system (e.g., move the text from a big, solid, flakey, grossly overpriced disc on the typesetter), then fed from there to the typesetting unit via keyboard commands on the typesetting system.

Even Chrysler is more intelligent than that — they allow their autos to be driven in a straight line, and they don't require that the drivers change seats each time they wish to make a turn.

SHIFTING GEARS IS A SECRET

Let's take this ridiculous scenic one contorted step further: Computer folk are accustomed to doing their own programming to overcome the frailty and inadequacy of inept systems design. Many would even go so far as to pay the extra \$10,000 or so for useless front-end gear, and write their own typesetter software, replacing the intolerably bad system design available from the manufacturers. All they need is a copy of the same engineering documentation used by the manufacturers' programmers — a reference manual comparable to the Service Manuals readily available for automobiles (even Chryslers and Edsels).

Will the manufacturers provide that information? Of course not! That might allow their customers to actually use their systems efficiently.

E.g., the manufacturers use standard floppy disc drives, but they refuse to tell anyone what their recording protocols are. Thus, computer folk cannot record text on floppy discs for transfer to the typesetters . . . until they crack the recording codes (which an increasing number of people have done; it's amazing what computer people will tolerate and overcome in order to make a badly designed system useful). Of course, if manufacturers were to document their disc recording protocols, then computer installations could transfer text to those manufacturers' disc-equipped systems with only nominal contortions — thus making the systems more useful and selling more disc-based systems. That would obviously be counter to their de-facto policies of profit minimization, and making system utilization difficult for prospective customers.

E.g., Itek keeps its width tables secret (these specify the horizontal space taken up by each proportionally-spaced character — essential if one is to do automatic hyphenation and line breaks on the source computer; kept secret for no conceivable reason). This is certainly in keeping with the policy of bad customer support.

E.g., AM Varityper won't allow their customers to have hardware documentation on their systems interfaces. Curiously, apparently Harris will provide that documentation for the Compublab interface, even though AMV won't.

E.g., the Itek units use stock Pace microprocessors. The Itek software is of the usual design, with most facilities accessed by subroutine calls. Will Itek make a Pace assembler available on the system — even at additional cost? Will they tell their customers what the calling addresses are for the subroutines? Absolutely not! That might allow the customers to make the systems more useful. (In comparison, every computer manufacturer — even the most greedy of the bunch — provide assemblers for their computers, and offer documentation detailing access to system utility routines. I.e., they provide their customers with the information needed to make their products useful to those customers.)

IF YA CAN'T BUY A ROLLS,
YOU CAN'T HAVE A CAR

Lest the reader be misled into believing that typesetter makers totally refuse to market a highly desired facility to a major potential market, please understand: Typesetters are available that can be directly computer-driven . . . for those willing to pay \$30,000-\$100,000 or more. But, the economical, \$10,000-\$20,000 models — which are being manufactured and could be profitably sold in that price range — are not available for purchase from any major U.S. typesetter manufacturer.

COME ON IN, JAPAN —
THE MARKET'S WIDE OPEN

If the U.S. typesetter manufacturers insist on following their current, shortsighted policies, presumably driven by myopic greed, they are bound to follow the well-worn path already traveled by U.S. optics makers, camera manufacturers, and automobile makers. Customers

will gravitate to those companies that meet the customers' needs — that are innovative and cooperative, rather than recalcitrant and unresponsive.

It is infuriating to see the management of a major U.S. industry so arrogantly refuse to be of service to a major potential user community.

It is equally infuriating — and embarrassing — to see U.S. business leaders refuse to innovate, refuse to risk, and refuse to create.

If these policies of risk avoidance, and short-term profiteering with clear view of long-term disaster continue and spread within the U.S. business community, this "How To" country — built on willingness to take risks and a barn-raising spirit of cooperation and mutual assistance — will become another "has been" industrial country, laying beside those other past giants whose leadership was more concerned with security and tradition than with continued innovation and improvement.

(Delightfully, much of the computer industry — notably software producers and the microcomputer community — shows little sign of avoiding innovation or avoiding risk, and is continuing its considerable history of highly profitable sharing and cooperation.)

*Interlocking Directorates Among the Major U.S. Corporations, U.S. Senate Committee on Governmental Affairs Document 95-107, 997 pp., 78-Jun-15.

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Although the Computer Faire, itself, is not staffed to handle preregistrations directly, it has arranged for a number of cooperating stores to carry prereg packets. They are listed below.

The stores prefer that you drop by to pick up your prereg — they'd like to see you and have you see what they have to offer. ("Know your dealer.") However, should you be unable to do so, several of them are accepting mail orders . . . if you do the following:

1. Send your mail order *early*. (Remember, the U. S. Snail Service will be handling its delivery in both directions.)
2. Send full payment (phone the store for their reg fee; by FTC regulations, the Faire cannot tell them what to charge), and a stamped, self-addressed, legal-size envelope.

The stores accepting mail order preregistrations are marked in the following list with an asterisk.

Data Domain of Schaumburg* Plaza De Las Flores 1612 E. Algonquin Rd Schaumburg IL 60195 (312) 397-8700	MicroXchange* 123 W. Padre No. E Santa Barbara CA 93105 (805) 682-1507	Byte Shop 1415 W. El Camino Real Mountain View CA 94040 (415) 969-5464	PC Computers* 10166 San Pablo Av El Cerrito CA 94530 (415) 527-6657
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Computerland Hayward 22634 Foothill Blvd. Hayward CA 94541 (415) 538-8080	American Ink Products 527 Howard St San Francisco CA 94105 (415) 982-0161	Computerland 1537 Howe No. 106 Sacramento CA 95825 (916) 920-8981	

Conference Session

The Society For Computer Medicine

The primary purpose of the Society for Computer Medicine is to provide a neutral interdisciplinary forum dedicated to a better understanding of the health care system and to the application of computers and other automated devices to improve its functions. Toward this end, the Society has organized a yearly conference (this year at the 6th West Coast Computer Faire), and also provided a framework for discussion of the various subsystems of the health care system.

"The organizational approach of the Society is toward subject matter rather than specific academic discipline," says past Society president Neal Koss. "In this manner it hopes to nurture the best interdisciplinary communication and foster the application of joint efforts to the solution of health problems.

"We invite all who are interested to join us in this quest for improved systems of medical care."

Computer Summer Camp

This summer youngsters can again sign up for an overnight camp in Moodus, Connecticut, where the main activity will be computers. Directed by Dr. Michael Zabinski, Professor at Fairfield University, the computer summer overnight camp is the first offered in the USA, Dr. Zabinski states.

The camp is for kids of all levels of experience including no experience whatsoever. In addition to computers, the campers will enjoy the recreational facilities of the Grand View Lodge.

The 1981 National Computer Camp will feature two one-week sessions: July 19-24, and July 26-31. Campers, ages 10-17, will enjoy small group instruction and mini and microcomputers for ample "hands-on." Dr. Zabinski will be assisted by elementary and secondary school teachers.

For further information: Michael Zabinski, (203) 795-9069, or : Computer Camp, Grand View Lodge, Box 22, Moodus, CT 06469.

Conference Session

Train of Thought On Backplane Bus

The work of the IEEE Computer Society Microprocessor Standards Committee in developing draft standards for the S-100 and multibus bus structures led to the conclusion that new bus structures would be required to support the requirements of advanced microprocessors such as the monolithic 16-bit products now being offered. A committee was approved for a backplane bus working group by the IEEE Standards Board in September, 1979, as a high-performance, manufacturer and processor independent 32-bit backplane project. The work has gone on, with significant participation by European workers as well as representatives of the major microprocessor suppliers, and has resulted in adoption of fully-distributed control, and several features that facilitate true multiprocessor (as opposed to multi-master) operation. The I.E.C. standard format for modules and racks (Euro-card) has been adopted. "Our presentation," says Andrew Allison of his 6th Faire panel, "will review the origins of the committee and its work. I expect to be able to present something close to a final functional specification at the Faire."

Conference Session

Computer Literacy At Your Fingertips

New microcomputer owners are often perplexed by the terms and jargon used in connection with their equipment and programs.

June Moore's 6th Faire talk "How to Learn About Microcomputing or Computer Literacy at Your Fingertips," is an effort to show that neophytes can become educated in computing, as to both electronics and software, through the use of the available literature. It endeavors to point to those books, periodicals, and other literature which will enable users to educate themselves. June notes various books, periodicals, and other sources of information on microcomputing are categorized as to difficulty of understanding and by general subject matter.

Conference Session

Free Basic: Cheap at Any Price?

Free Basic is a program design technique, like flowcharting or the use of pseudocode. Basic instructions are intermixed with keywords that define control structures missing from Basic. Symbolic names for subroutines and constants are also provided. Indentation and a distinction between uppercase and lowercase characters are used to clarify the program listings. Comments are also allowed. The Free Basic is translated by hand into Basic.

In the 6th Faire talk, "Programming with Free Basic," speaker Richard Mateosian notes its three important advantages: "providing all of the control structures necessary for 'GOTO-less' programming, freeing the Basic programmer from the iron grip of Basic line numbers, and allowing the Basic programmer to prepare very readable programs."

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Conference Session

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Conference Session

Commitment To Quality

"During the 1960's, it was popular to regard those engaged in business or finance as empty-headed machines who could not understand service to others if it married their daughters. Business was widely considered a wasteland comparable to the bottom of an atom-bomb crater, to be avoided at all costs," says James Gagne in his 6th Faire talk, "Some Reflections on a Commitment to Quality."

"Business lost much of its boredom and fear for me when I realized that people demonstrate their appreciation for many things by paying for them. Therefore, for me to charge for something I do is simply a means of allowing people to show me they value what I have to offer, which is entirely consistent with my truly being valuable. I had not believed that making money could be that nice.

"Quality in and of itself is not sufficient to run a business; I could be excellent and valuable until I dropped, and nothing would happen unless I marketed properly whatever I was producing. People really want to know about things that may benefit them! It is extremely interesting that, at first, the value one perceives in something is almost solely an effect of how it is marketed. Later, however, as word gets around, marketing has less effect.

"Business has become for me a game of seeing how accurately I can judge people's wants and needs, how well I can satisfy them, and how effectively I can let them know that I am doing this. What fun!!"

Calculator Kits For Cars and Taxes

Two new calculators from Texas Instruments Incorporated, are designed for special uses — one for tracking automobile performance, and one for simplifying and speeding completion of tax forms.

The TI-1850 Visor Kit can be used to track automobile performance. The kit which includes a TI-1850 calculator, auto record pad, ball point pen and tire gauge comes on a vinyl organizer which can be clipped onto a sun visor. The user can record miles per gallon of gasoline, enter routine service information and keep track of periodic maintenance needs.

For use at tax time is the new 1040A TaxPak calculator package. The 1040 TaxPak provides: a Do-It-Yourself Tax Guide, Internal Revenue Service 1040A forms, and instructions and envelope for mailing the completed tax form.

The TI-1850 Visor Kit carries a suggested retail price of \$19.95. The TI-1040 TaxPak has a suggested retail price of \$16.95. For more information: Texas Instruments Incorporated, Box 53, Lubbock TX 79408; (214) 995-4028.

Conference Session

And So:
Forth

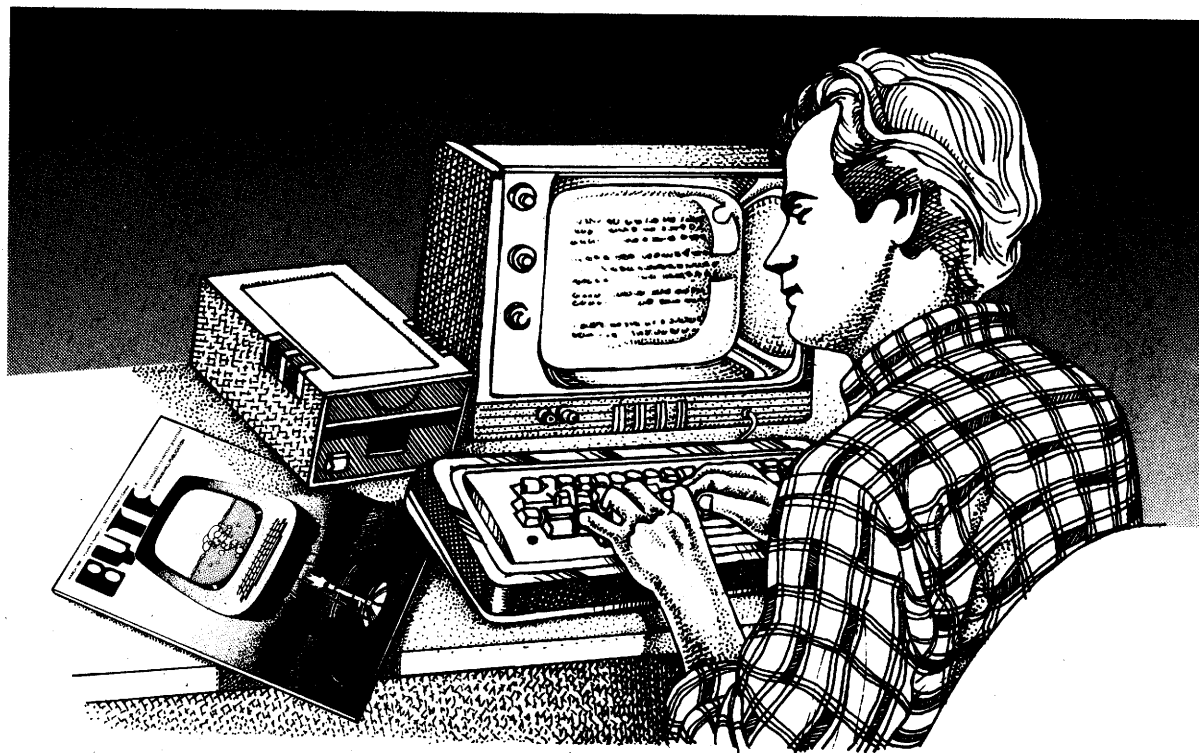
If you have ever complained about a compiler doing something you didn't want it to do, if you have ever sworn at an operating system, if you have ever wanted to do something in a programming language and were told you could not, then Forth may be just what you were dreaming about.

"Forth is basically a solution in search of a problem," says 6th Faire speaker Henry Laxen in his talk, "What is

Forth?"

"It was invented about 11 years ago by Charles Moore. His avowed goal in programming was to be able to write more than 10 programs in a lifetime. Unfortunately, with the language and tools then available, this seemed unlikely. Forth was Charles' answer to this problem. Forth is more than a programming language, it is a complete programming environment and a philosophy all wrapped up into one. Forth is a few basic, and seemingly self evident concepts packaged together into a union whose whole is truly greater than the sum of its parts."

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Conference Session

Local Networking
For Small Systems

Local networking technology has been developed over the past decade, and has gained great visibility within the past year or so. Xerox even features its Ethernet as an "Information Outlet" on TV commercials. New companies such as Ungermann-

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Bass have been formed with local networks as their only products, and other established companies such as Zilog are featuring local networking products (Z-Net).

"Local Networking for Small Systems," a 6th Faire talk, provides a very

brief overview of the local networking field, and then, focusing on a specific local networking product (TNW's Piconet), shows the kinds of benefits that this technology can bring to users of personal/small business computer systems.

"Generally," says speaker Douglas Gage, "a computer network is a communications scheme that allows data processing entities (computers, terminals, and/or peripherals) to communicate with

one another. A computer network is referred to as a 'local' network if it displays the following three properties (no, these are not hard-and-fast criteria, but they are accepted by more than one person:

"1. It is 'local' - that is, extending over a geographic distance of less than 10 kilometers or so.

"2. It provides a large aggregate communications bandwidth - in excess of, say, 100 kbps. (Most systems offer considerably more, occasionally in excess of 10 Mbps.)

"3. Control of the network is held by the using organization (i.e., you don't subscribe to a local network service, you purchase or lease a local network system."

Word Processing
Systems Rated

Based on Datapro's latest survey of word processing system users, 13 systems have been named to the 1980 Datapro Honor Roll. Two vendors - IBM and Lanier - each had two of their products honored. Selection of the Honor Roll systems was based on the results of a mail survey of 11,470 users that brought 2,164 responses.

First place in the Standalone Systems category went to the CPT 8000, with the Micom 2001 and the NBI 3000 taking second and third place, respectively. First place in the Multi-Terminal Systems category went to the A. B. Dick Magna SL, followed by the A. M. Jacquard J-100, and the DEC WS200.

To earn a place on the Honor Roll, a product had to be rated by at least 15 users, earn an Overall Satisfaction rating of at least 3.2 on a scale of 4, and not be rated lower than 2.7 in any other category. Where products were tied in the Overall Satisfaction category, they were ranked based on the lowest rating they received in any other category.

In addition to rating their system, each user was also asked to answer a series of questions on system configuration, financial acquisition method, primary word processing applications, and significant advantages and disadvantages of their system. The results of the annual survey, including detailed comparison columns by individual product as well as summary tables, have been published in a 30-page report, *Word Processing Systems User Ratings*. Full, individual profiles are provided of 49 standalone systems from 23 vendors and of 19 multi-terminal systems from 11 vendors.

In the summary section, the report notes that only 12% of users used a consultant in making a system purchase decision, and only 5% said that the chief data processing officer has any purchase decision responsibility for word processors.

According to the survey results, 51% of multi-terminal system users plan to purchase additional systems from the same vendor in 1981 and 51% plan to purchase additional workstations from their vendor.

1980 Datapro Honor Roll
of Word Processing Systems

Model	Number of User Ratings	Overall Satisfaction Rating*
Standalone Systems		
CPT 8000	115	3.6
Micom 2001	18	3.6
NBI 3000	58	3.6
IBM OS 6/450	87	3.4
Xerox 850	95	3.4
IBM OS 6/430	50	3.4
Lanier LTE-2	16	3.4
Wang WPS-5	40	3.4
Lanier LTE-3 No Problem	109	3.3
3M 4000	18	3.2
Multi-Terminal Systems		
A.B. Dick Magna SL	32	3.5
A.M. Jacquard J-100	20	3.4
DEC WS200	19	3.3

*Weighted average based on a scale of 4.0 for excellent. Where products received the same Overall Satisfaction rating, they are ranked based on the lowest rating they received in any of the other categories.

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Copies of *Word Processing Systems User Ratings* are available, at \$15 each, from Datapro Research Corporation, 1805 Underwood Blvd., Delran NJ 08075; (609) 764-0100.

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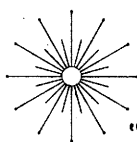
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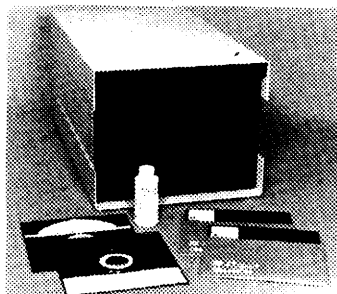
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I-47(1)	Same as above except with (1) "Intelligent" 8" drive, fully A&T, over 1 mbyte capacity (second drive can be added later.)	N/A	\$1695.

FOR MORE INFORMATION CONTACT: **DATA COMPASS**
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OEM/DEALER INQUIRIES WELCOME

Conference Session

Pascal USUS Invites Use

USUS stands for the UCSD (Pascal) System Users Society, and the name is pronounced "Use Us." The UCSD Pascal System is a machine independent system of software which was developed to provide an environment in which software portability is facilitated; the system initially used Pascal as its principal language, but other languages such as Fortran, Cobol, and Basic are either available or will be in the near future. USUS was created to promote and influence the development of, and education and information exchange about, the UCSD Pascal System. To do this, USUS periodically holds meetings around the United States to provide members with a forum for technical presentations and discussions, and news about the status of the UCSD Pascal System and its derivatives. USUS publishes a quarterly newsletter which contains USUS news, technical papers, and UCSD Pascal System news. USUS also supports a Software Exchange library from which USUS members can obtain software at a nominal reproduction charge. Special Interest Groups (SIGs) on topics including Applications, Word Processing, Real Time, Pascal Standardization, and CAI have been formed, and others will form as the interest develops. USUS is applying for non-profit status and is independent of all vendors.

At the 6th Computer Faire, the 4 subsections sponsored by USUS will focus on providing information. They will begin with a 1 hour tutorial on Pascal. The second hour of the morning session will concentrate on implementing the UCSD Pascal System. Details on II.0, III.0, and IV.0 implementations will be presented by experienced USUSers, and there will be ample time for discussion. The afternoon session will begin with presentations on the major activities of USUS, including the Software Exchange Library, the Newsletter, the SIGs, and the Advance Planning Committee. The last hour of the afternoon session will be devoted to UCSD Pascal applications. USUSers will present descriptions of their applications, and information on how Pascal or the UCSD Pascal System helped.

Printer Dots Its I's — And Its T's

The first 80-column, dot-matrix printer in the under \$1,000 category designed with rugged, high-quality printing ribbon and paper drive mechanisms was announced recently by Integral Data Systems, Inc.

The new Model 445 addition to the company's Paper Tiger printer family features a reliable seven-wire ballistic-type print head, long-lasting mobius-loop ribbon cartridge system, and heavy-duty print head and tractor feed motor drives.

The print head is driven under microprocessor control by a dedicated heavy-duty drive motor, allowing the Model 445 to achieve unidirectional print speeds up to 198 characters per second.

Advanced print control functions include enhanced "bold" text printing, as well as the ability to print 80 columns of text at 10 pitch and 132 columns at 16.7 pitch.

The Model 445 also offers IDS's unique DotPlot graphics capability that gives its users control over each individual dot printed, and enables printing the full range of graphics. The additional 2K-character buffer, included with the optional graphics package, holds the full contents of a standard 1,920-character CRT screen.

For more information: 14 Tech Circle, Natick MA 01760; (617) 237-7610.

Pascal On The Run

UCSD Pascal is now available for Cromemco, Dynabyte, Onyx and Vector Graphic systems. Professional Business Software, (PBS), has written the Bios for the Z-80 Adaptable System so the UCSD Pascal programs now run on these microcomputers. UCSD Pascal from PBS is complete with documentation and is certified by SofTech Microsystems. The UCSD System with Pascal compiler if \$450. A run-time-only system is available for \$350. For information regarding the availability on other systems: Professional Business Software, 119 Fremont Street, San Francisco CA 94105; (415) 546-1596.

Come join the fun at the 6th Computer Faire.

CP/M & Hard Discs for Zenith-Heath '89's

Magnolia Microsystems of Seattle offers CP/M for the Zenith-Heath '89. Magnolia also modifies the '89 to hold a full 64K of memory. For word processing, the '89 mates easily with Magic Wand software. Eight function keys give a typist one-key control over text, and freedom from endless 'menus.'

Magnolia also offers the Corvus 10 or 20 Mbyte hard disc drives — up to four of them — for the '89.

For further information, visit the Magnolia Microsystems exhibit at the 6th Computer Faire, or call or write them at 2812 Thorndyke Ave. West, Seattle WA 98199, (206) 285-7266.

Micro Architect Offers a Small Draft

Micro Yellow Pages (formerly known as TRS-80 Yellow Pages) is a 20-page catalog/newsletter publication describing all the software produced by Micro Architect Inc.

Micro Yellow Pages is one of the first publications for the TRS-80 computers with the first official issue dated September, 1978. Issue 3.1 describes business software packages for the Model-I, Model-II, and Model-III for the TRS-80, CP/M, and Heath HDOS. For a complimentary copy, please contact Micro Architect Inc., 96 Dothan St., Arlington MA 02174. For immediate response, please send a long, self-addressed, stamped (28¢) envelope to us.

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Office Consultant Directory

Datapro Research Corporation has recently revised its *Directory of Automated Office Consultants*. This 27-page directory contains profiles on 112 recognized automated office consulting firms in the U.S. and Canada. Details include a list of the firm's principals, addresses, phone numbers, number of consultants on staff, geographical area served, services offered and special areas of expertise.

The *Directory*, reprinted from *Datapro Automated Office Solutions*, is available for \$15 per copy from Datapro Research Corporation, 1805 Underwood Boulevard, Delran NJ 08075; (609) 764-0100.

Conference Session

Serious Speech Synthesis Talks With Tongue-in-Chip

Traditionally, synthesized speech has provided experimental stimuli for the investigation of human speech perception. Speech synthesizers were driven by large computers, and generation of speech was not in real time. Only recently, has it become technologically and economically feasible to build systems commercially that are light weight, low in power consumption, economical in memory requirements, and capable of real-time speech generation. Phoneme synthesizers have been reduced to single boards and even to a single Complementary Metal Oxide Semiconductor (CMOS) chip. This reduction in size and cost had made mass-produced talking machines with unlimited vocabulary feasible. There remains, however, a great deal of research to be done in order to determine the appropriate functions for speech, and to develop human factors design principles for its implementation in man-machine systems.

"My 6th Faire talk, 'Access to Speech Synthesis and its Applications,'" says Carol A. Simpson, "is a concentrated summary of technical and human factors aspects of the application of speech synthesis for voice displays.

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0 471 08333-X March 1981
approx. 320 pp. \$9.95 (tent.)

Look for these and other STGs at your favorite bookstore or computer shop. For more information, and a complete listing of current and forthcoming STGs, write to Pam Byers, Dept. 7497.

Memory Ready To Bubble Forth

The bubble memory market is finally ready to start to fulfill some of the expectations its enthusiasts have been predicting for a number of years. According to a recent report from Venture Development Corporation (VDC), shipments of bubble memory devices will grow from \$18.4 million in 1980 to \$226.0 million in 1985, an average annual growth rate of 68 percent. The consulting firm sees bubble applications expanding from uses which specially require the ruggedness and small size of the bubble to more general applications. Initial use will be mainly in the areas of machine and process control and portable terminals, but stationary computer and word processing applications will become increasingly important.

The scientist at Bell Laboratories who decided that areas of reverse magnetism in a magnetic film should be named "bubbles" proved that he was a publicist as well as an engineer. The magnetic bubble caught the fancy of the engineering community and resulted in expectations of early success which could not be fulfilled.

The relatively slow growth in the last three years resulted from the failure of prices to be reduced as industry leaders had predicted. Instead of dipping below RAM prices, bubble prices have stayed higher. VDC believes that bubble prices will decline over the next five years as bubble makers have now learned how to make their product in quantity.

The bubble chip requires a number of auxiliary circuit components in order to be useful. Intel has designed ancillary integrated circuits to accompany its megabit bubble memory device which will reduce the component count by a factor of ten. Although the system has been slow to get into production, VDC believes that this sort of circuit simplification is what users will require for the future.

Texas Instruments is the leading bubble memory producer at this time. Rockwell International and Intel are other leading independent producers, while

Files, fun, and fancy functions plus practical applications

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This exciting new interactive guide to programming in TRS-80 Level II BASIC teaches scores of practical applications—both recreational and educational. You'll get a clear demonstration of different methods to display graphics; files handling techniques applied to both cassette and disk files; plus animation, games, and fun.
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Get maximum power from your micro by using assembly language

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Judi Fernandez & Ruth Ashley
Use your microcomputer to write fast, sophisticated, complex programs with the help of this guide, the only self-instructional book of its kind. You'll learn what machine language is, how to perform routine operations, input/output, conditional commands, machine language logic, stack routines, and more. Sample programs illustrate every technique and concept.
0 471 08009-8 April 1981
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Wiley Self-Teaching Guides also teach BASIC, COBOL, FORTRAN, Job Control Language, Flowcharting, and other computer skills.

Conference Session

Psychology and Computers: Merging the Drives

Academia has made a slow start in the race to use the full instructional potential of the computer. A recent survey of several thousand college departments reported that the computer as a teaching aid is not widely used in higher education, and that a significant number of schools make no use of computing in undergraduate education. The survey also determined that three-fourths of the instructional computing that was taking place involved data analysis, programming and problem solving rather than computer assisted instruction.

With the support of two grants from the California Community College Fund for Instructional Improvement (AB1143), a project was undertaken to provide a computerized approach to instruction in the basic undergraduate course in Psychology as offered in nearly every college and university.

6th Faire speaker Philip Hartley discusses the project in his talk, "Microcomputer Assisted Instruction in Psychology," and concludes, "Providing institutional support for teaching faculty to increase their computer literacy is both an excellent educational investment and a way of insuring high quality educational software. Rather than replacing instructors, reducing instructional interaction, and dehumanizing education, this approach to computer assisted instruction frees the instructor to creatively take advantage of the computer-as-teaching tool to enhance the students' chances for success."

IBM and AT&T continue to perform research, with the latter producing units for their own systems. National Semiconductor and Motorola are newer market entrants; Fujitsu, Hitachi, Siemens, SAGEM, and NEC are foreign bubble producers expected to compete more actively in U.S. markets.

For further information: Venture Development Corporation, One Washington Street, Wellesley MA 02181, (617) 237-5080.

How to perform complex, sophisticated operations with your micro

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Alan R. Miller
Now advanced and intermediate programmers can get the most response their micro is capable of generating with the help of this complete guide to programming the 8080 and Z80 microprocessors. Learn assembly language swiftly and easily by developing a powerful system monitor in a step-by-step, top-down approach. Ten indispensable appendices contain all the necessary material to write 8080 or Z80 assembly language programs.
0 471 08124-8 Jan. 1981
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—Alan R. Miller, *New Mexico Tech & Software Editor, Interface Age*
0 471 08011-X 1980 243 pp. \$8.95



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Conference Session

Pascal-100: Taking the High Road On the S-100 Bus

Pascal-100 is a 16-bit plug-in CPU module for the IEEE-696 (S-100) bus. It consists of two S-100 cards mated by a cable. The two-board unit occupies adjacent slots in an S-100 mainframe.

Pascal-100 incorporates two microprocessors: the Western Digital Pascal Microengine, which directly executes version III.0 UCSD Pascal P-code, and a Zilog Z80A processor. Switching between processors is software controlled via a switch-selectable output port.

Pascal-100 runs version III of the UCSD Pascal system, including the screen-oriented editor, Pascal compiler, linker, filer and other utility programs. "A version of this system is available from Digicomp to run on Pascal-100 in any environment that supports CP/M and has at least 48K bytes of memory," says speaker Mark Bodenstein in his 6th Faire talk, "Digicomp Research Pascal-100: High Performance UCSD Pascal on the S-100 Bus."

"Pascal-100 also supports programs written for the Z80 or 8080 on the S-100 bus, including the CP/M operating system and all associated software."

Softdoc Update

The Society for Computer Medicine ("SCM") has given all but final approval to make Softdoc an affiliate and an official service for its members. SCM has said that it will contribute medical computing expertise to aid in getting Softdoc started. It is expected that SCM members will be of particular assistance in finding and correcting computer programs, and in assisting in publicizing the existence of this service.

"One year ago at the Fifth West Coast Computer Faire," says 6th Faire speaker James Gagne in his talk, "A Disk-Based Medical Computer Journal and Network," "I announced the formation of Softdoc, a disk-based computer journal for health professionals. During the process of gathering sufficient software to begin publishing the journal, it became evident that the task of finding material requires the establishment of a network of supporting individuals.

Conference Session

MICRO-REDY Project

The MICRO-REDY Project (Making Instructional Computers Realize Optimum Results for Educationally Disadvantaged Youth) is a project operating in the Sacramento City Unified School District using microcomputers in the 4th, 5th, and 6th grades.

The MICRO-REDY curriculum consists of three different types of instructional programs: Computer Managed Instruction, Computer-Assisted Instruction, and Computer Drill and Practice programs. Each fulfills a different need.

6th Faire speaker Barry Cole in his talk, "The MICRO-REDY Project," notes outcomes of the project so far, which should not be mistaken for formally validated results: "Most students in the class doubled their pretest scores, and many tripled their scores. Many students voluntarily stayed in at recesses and came after school to drill on basic facts in math and language.

"Results from the post-testing to be done in May, 1981, will be compared with tests already given to formally evaluate the project's effectiveness."

Hot Micro Product? Show it at the Faire

Do you have a dandy micro device, super software, beautiful book, or other exciting micro product? Why not sell 'em at the Computer Faire?

[Unlike the National Computer Conference and Wescon, the Faire *does* allow exhibitors to sell from their booths, as well as exhibit their products.]

The Faire has expanded its exhibit area to include more micro-booths (for low-budget computer craftspeople) and more regular booths. While they last, all exhibit space is available on a first-contracted, first-assigned basis.

For information on what's left and how to most quickly contract for it, call 'Git (Marguerite), or Sarah - the Faire Exhibitor Coordinators -- at (415) 851-7075.

Conference Session

Marketing Your Software

"If you have developed software or plan to develop software and hope to make money by marketing it," says 6th Faire speaker Victor M. Wyman, "my talk, 'Marketing Your Software,' is addressed to you.

"Software ranges from a few lines of source code to tens of thousands of lines. It may be a sub-routine for inclusion in another program; it may be an individual program; or it may be a complex system of programs. Software applications are extensive in number and type. Software packages are sold to businesses of all sizes, governments and to users of personal computers. Further, software is now sold in a wide variety of ways.

"I have chosen to discuss four specific topics of relevance to marketing:

"Packaging: What has to be done to prepare working software for commercial exploitation?

"Promotion: Communicating about your software to potential customers and some ways of generating sales.

"Protection: Ways of protecting your proprietary interest.

"Pricing: What price is to be put on the software.?"

From the Counter To The Bottom Line

The growth of personal computer technology has completely changed the computer market. No longer are computers the sole province of large companies. More and more they are becoming available to the small businessman. But how does the small businessman use the computer? *From the Counter to the Bottom Line* provides some of the answers.

Not only does the book cover the basic accounting systems: inventory and purchasing, billing, accounts receivable, accounts payable and general ledger, but it discusses the procedure for implementing these computerized systems in a business. The book explains the purpose, scope and applications of each procedure.

Written by the past editor-in-chief of *Interface Age Magazine*, Carl Warren, and the president of Matrix Publishers, Merl Miller, the book's intent is to aid readers in making up their minds whether they want and need a computer in their place of business.

The 289-page paperback sells for \$13.95 and is sold at Kroch's and Brentano's, B. Dalton's, computer stores, or can be obtained directly from dilithium Press: Box 606, Beaverton OR 97075; (503) 243-1160.

Time & Billing Seeks Counsel

Lifeboat Associates now distributes a time and billing system for the legal profession. It operates with most microcomputers under the CP/M operating system.

ESQ-1 is a completely-integrated, information system which was specifically written with the first-time, computer user in mind. It is functionally separated into several distinct modules for transaction entry (time incurred and disbursements), posting, file maintenance and inquiry, billing, receipts, reports, end of day backup, end of period updating, and client analysis.

ESQ-1 records billable and non-billable time, cash receipts and escrow receipts, and escrow transfers. Inquiries into all files can be made with numerous criteria such as by client/matter, responsible attorney, invoice number, etc. The system provides complete billing and payment ledgers and optionally allows the user to apply receipts to the oldest invoices first or to specific invoices.

ESQ-1 will print on continuous forms or single-sheet, letter-head paper. Some of the reports included are pre-billing worksheet, detailed aging of accounts receivable by client/matter or billing attorney, attorney productivity, mailing labels, etc.

For more information: Lifeboat Associates, 1651 Third Avenue, New York, NY 10028, (212) 860-0300.

Judge for Yourself: Software Legal Guides

Cross Communications Company now offers electronic legal services in cooperation with Irving Kerner, attorney at law.

Two of these new services are documents of concern to all software program developers. The first, *Software License Planning Guide*, is a publication containing information and forms designed to enhance the ability of the software owner to protect his proprietary interests when licensing use of his product.

The second document is a legal planning guide: *Criteria to Consider in Software Licensing, Distributing, Franchising, and Marketing*, that aids software owners in their efforts to market and promote software products. Each guide is available for \$15, or both may be purchased for \$25.

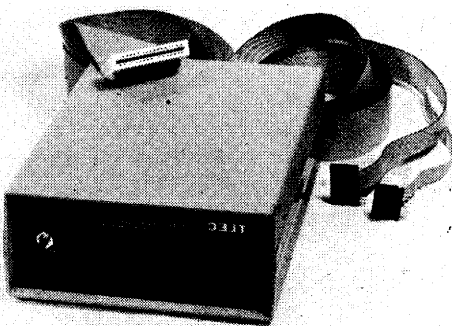
Cross Communications Company also has added a new legal counselling service called "ELLA" (ELectronic Legal Advice), meaning that the legal advice is available only through electronic terminals in the home or office. Cross Communications provides the electronic communications link between client and attorney.

Irving is lecturer in telecommunications law at the University of Colorado. Irving's practice is limited to problems in telecommunications, software matters, cable television, and other communications law issues.

Details are available from: Cross Communications Company, 934 Pearl, Suite B, Boulder CO 80303; (303) 499-8888.

Should the proposed new ZIP code be called a 'ZAP code,' based on effect on users?

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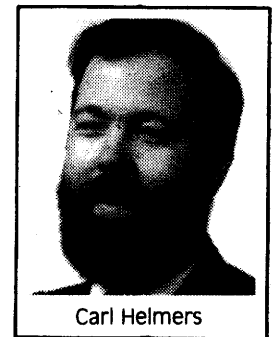
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6th West Coast Computer Fair

FRIDAY, 81 April 3

SATURDAY

9am				
10am		Details of Selected Hardware	Review of Japanese Microcomputers	
11am	Programming Systems	In Search of Better I/O (Part 1)	Computing in Medicine	Recruitment: Finding Computer Professionals
Noon		In Search of Better I/O (Part 2)		Low-Cost Computing with Plug Compatibles
1pm	Getting into Micros		The Ultimate Personal Computer: Aids for the Physically Impaired	
2pm		Homebrewing Hardware		Inexpensive Business Computing
3pm	CP/M and MP/M for Users		Talking Machines: How They Do It	LISP: Beginners' Tutorial
4pm				LISP Demonstrations
5pm	On the Design of Hardware & Software	Micros in Engineering Applications	More on Software	
6pm	Microcomputer Industry Trade Association Open Meeting			Panel Discussion on Using Consultants

ALL DAY:
Video Tape:
Personal Computing —
Help for the Handicapped
RTTY Demonstrations

9am			
10am		Electronic Music & Arts	Computer Busing and Drivers
11am	Computing in Education	FOR THE NOVICE: Introducing Computers	
Noon		TeleComputing for Everyone	The IEEE 696/S100 Standard
1pm	Applied Computer Graphics		
2pm		Exotic Computer Applications	Unusual Computer Aided Instruction Environments
3pm	Images of Computers: Great Graphics		
4pm		Micro-Based Data Bases	Low-Cost Computing in Education Systems (Part 1)
5pm	Video Graphics Extravaganza		Low-Cost Computing in Education Systems (Part 2)
6pm		Discussion Panel: Experiences with Computers in Education	

Conference-At-A-Glance

7, 81 April 4

SUNDAY, 81 April 5

1pm-3pm: Heath Users Group
 10am-5pm: North Star Users Group
 10am-6pm: RTTY Demonstration

noon-5pm: RTTY Demonstration

UCSD Pascal: Tutorials		
UCSD Pascal: Details	Association for Computing Machinery Special Interest Group on Personal Computing Open Meeting	LISP: Beginners' Tutorial
The Pascal Microengine		
UCSD Pascal: Users Society	LISP Demonstrations	LISP and More LISP: Follow-up Tutorial
UCSD Pascal: Applications and Support Systems		

10am					
11am	TRS-80 Users' Anarchistic* Gathering	Apple Users' Anarchistic* Gathering	Commodore Pet Users' Anarchistic* Gathering	Proteus Users Group Open Meeting [Processor Technology Sol users]	NorCal DG Users Group Open Meeting [Digital Group users]
	*No Chair, No Host, No Program Open Gathering to Share News & Views				
Noon	Computer Dealers & Retailers Open Meeting			Information Processing for Management Planning	San Francisco Menza Apple Users Group Open Meeting
1pm	FOR THE NOVICE: Computer Literacy - An Introduction to Computing	BASIC: How To	Legal Safeguards and Software		
2pm	Adam Osborne's White Elephant Award	BASIC: Why Not	Micros & Money	Computers in Medical Practice	
3pm					LISP Demonstrations
4pm	The Computer Business	Going FORTH	Macrocosmic Views of Microcomputing	Computing in the Physician's Office	
5pm					

6502 and 8080 Reference Cards

Micro Chart is a plastic, 3-color, instant microprocessor reference card for programmers, engineers, and students. Important information is extracted from the manuals and displayed in a concise and clear format. Its durable, credit-card-type plastic is 8½" by 11" in a one-sheet, two-sided format. It includes: instruction set, hex to instruction table, ASCII, hex to decimal, compare vs. jump table, interrupts, pinout, effect on flags, cycle times, and much more.

"6502 (65xx)" and also "8080A/8085A" are \$4.95 each plus \$1 P&H per order, from: Micro Logic Corp., Dept CEI, POB 174, Hackensack NJ 07602; (201) 342-6518.

Conference Session

Econometric Model Figured by Computer

Econometric models of the U.S. economy began to develop after World War II, with the introduction of digital computers. These models require a great deal of number crunching and, thus, were not expanded into their current form until some method of rapidly processing the data was available. One of the chief characteristics of econometric models is that they capture many of the interations in the U.S. economy. For instance, if interest rates increase it is likely to cause a decrease in investment activity. This will later dampen Gross National Product changes which, in turn, should moderate price increases. If inflation is expected to moderate, that is, prices not increasing as rapidly, this should moderate interest rates. Thus we have come full-circle back to interest rates now starting to affect investment all over again.

In a practical sense it is only with a computer-based model, which can account for these interactions, that we are able to solve these models efficiently and at low cost. Some of the large, commercial econometric models contain close to 1,000 equations of the U.S. economy. "However," says David Chereb in his 6th Faire talk, "A Microcomputer-Based Econometric Model of the U.S. Economy," "only a few of these, much less than 100, are really needed in order to solve for some of the most important economic variables, such as Gross National Product, inflation, interest rates and unemployment. The model of my talk contains about 30 equations, and this is adequate to solve for the variables of interest. An interesting statistical phenomenon is that the accuracy of these models for predicting Gross National Product is not directly related to the number of equations. Models with as few as five or six equations do fairly well at predicting Gross National Product, in fact, almost as well as models which contain 500 or 800 equations."

Conference Session

Software Protection: Legal Fact or Fable?

Noting widespread disappointment and frustration in the microcomputing community based on "a widely perceived unwillingness or inability of the legal system to provide worthwhile protection for software," 6th Faire speaker David Harrison surveys the scene in his talk, "Software Protection: Legal Fact or Fable?"

He discusses pertinent cases, and reviews the protection offered by copyrights, patents, and trade secrets.

A multitude of special-interest groups and user-organizations will be holding meetings at the West Coast Computer Faire. These include language groups, hardware groups, groups interested in special applications areas, minority groups, and industry groups.

LOVELY LISP LAYOUT

The 6th Faire program includes a major invasion of Lisp lovers. Not only are there a number of technical and philosophical Conference presentations about the joys of Lisp, but there are half-day demonstrations of micro-based Lisp systems and applications all three days of the Faire, as well as half-day beginning and intermediate tutorials for Lisp novices.

For those unfamiliar with Lisp, it is the dominant computer language used in artificial intelligence applications and research. Until relatively recently, it was available only to wealthy researchers on big machines. Now, it is available on a variety of inexpensive microcomputers.

Furthermore, its creator, John McCarthy, is home-based a half-hour south of San Francisco at Stanford University. Who knows, perhaps he may walk up the Bay and sprinkle holy parantheses on the faithful.

CP/M and MP/M USERS

Sol Libes, the founder of the Amateur Computer Group of New Jersey and current Editor of S-100 Microsystems, has organized a Conference session for users of CP/M and MP/M — the default-standard floppy-disc operating systems for microcomputers from Digital Research (Pacific Grove, California). Speakers will include Gary Kildall, chief guru and originator of CP/M, and Tony Gold, one of the major creators of CP/M-compatible systems software and CP/M modifications.

UCSD PASCAL USERS

There will be a full day of Conference sessions devoted to Softech Microsystem's UCSD Pascal systems. These will include tutorials, sessions on implementation details, UCSD Pascal applications, and special support systems for UCSD Pascal. Part of the program will include details of USUS — the UCSD Pascal users society. USUS will also be staffing a booth in the exhibition area, allowing more leisurely discussion of its activities.

FORTH PHREAQUES

There is a half-day Conference program devoted to the Forth computer language, its design, implementations and applications. FIG — the Forth Interest Group will also be available for gossip and information exchange in an exhibition area booth.

ACM SIG PC

Liza Loop will chair an open meeting of the Association for Computing Machinery's Special Interest Group on Personal Computing.

SOCIETY FOR COMPUTER MEDICINE SPEAKER

The Sunday Conference program includes a presentation about the Society for Computer Medicine.

NORTH STAR USERS

The North Star Users Group will hold an open meeting, all day Saturday. Additionally, they will be staffing a NSUG booth in the exhibition area.

Mass User Meetings at 6th Faire

PROTEUS — SOL USERS

Proteus, the organization of users of Processor Technology's Sol computer, will gather for a Sunday morning meeting, open to all Sol users. They also have a booth in the exhibition area.

TRS-80 USERS

Two groups — the TRS-80 Nybblers, and the Marin County TRS-80 Users Group — will be swapping information with attendees from their exhibit-area booths.

And, of course, Tandy is running a giant commercial exhibition.

APPLE USERS

The San Francisco Menza Apple Users Group will hold an open meeting for Apple afficianados, Sunday afternoon.

The San Francisco Apple Core will be discussing their Apple adventures in their exhibit booth.

TRS-80, APPLE, & PET

The Faire has allocated time and rooms for "no host" (no chair, no formal program) anarchistic gatherings of TRS-80 users, Apple users, and Commodore Pet users who may wish to find and commiserate with each other. These gatherings will each be all morning, Sunday morning.

Note: These meetings are without leadership as of the writing of this article. Past experience implies that — by Faire time — some fireball user group leaders will step forward at the last minute to request time and space for such gatherings, and pull together highly useful information exchanges for those meetings.

CSUC T-S USERS

The California State University Computers Time-Sharing Users Group will be exchanging problems and solutions in their booth in the exhibition area.

BLACK D-P PROS MEET

The Black Association of Data Processing Professionals will be discussing their activities, staffing one of the exhibit area booths.

JAPAN MICROCOMPUTER CLUB DEMOS ACTIVITIES

For the second time, the Japan Microcomputer Club has again chosen to send a group to the Computer Faire. They will be occupying an exhibit booth, showing examples of their homebrewed hardware and systems, brought all the way from Japan.

RTTY DEMO & DISCUSSION

Once again, the Amateur Communications Society will run three days of demonstrations and informal seminars at the Computer Faire. These activities will concern digital radio communications.

CONSULTANTS GATHER

PATCA — the Professional and Technical Consultants Association — will be staffing a booth in the exhibit area. Additionally, there will be a Friday Conference program addressing issues of interest to consultants (and consultants, consumers).

MITA MEETS

The Microcomputer Industry Trade Association will hold a major meeting, open to all interested members of the microcomputer industry. The meeting will begin immedi-

ately after the close of the exhibits, Friday evening at 6pm. MITA will also be available in an exhibit booth.

DEALERS MEET

Bob Moody, marketing honcho for Alpha Information (Palo Alto), will again chair a Sunday noontime meeting of computer dealers, retailers, and distributors.

Note: Exhibit space for all of these groups is being furnished, without cost to the groups, by the West Coast Computer Faire.

Conference Session

Voice Synthesizers Programmed to Speak Up

When speech synthesizers were first introduced as off-the-shelf, speech output devices, one would have expected everyone with a computer to give his or her favorite machine the gift of spoken word. It didn't happen. Price tags of \$3000 to \$7000 for Votrax "phoneme" synthesizers in the early seventies no doubt discouraged many would be "speech programmers." The Computalker parallel parameter synthesizer at \$300 to \$500 did a brisk business when it was announced. But the computer masses remained nonvocal.

"The greatest obstacle," notes Carol A. Simpson in her 6th Faire talk, "to widespread application of speech synthesis has been the lack of a suitable, properly human-factored, speech-editor. Part of the speech-editor problem is the lack of a standard, easily used symbology, at least for computer terminals, for phonetic programming. Another problem is confusion over the meaning of the word 'phoneme' and the conceptual difference between 'phonemic' and 'phonetic' transcription of speech. My talk introduces some basic concepts in phonetic transcription and describes the Modified International Phonetic Alphabet (MIPA) which I developed, and have successfully applied to the phonetic programming of several different speech synthesizers over the course of the last six years."

A Quick Peek At Slow Scan TV

Slow scan tv is a narrow-band tv system which uses slow frame rates to transmit pictures over voice-grade radio and telephone channels. Ken Rothmuller's 6th Faire talk, "The Design of a Slow Scan TV System," describes the hardware and software design considerations encountered during the development of a slow scan tv system. A popular personal computer was chosen as the system cornerstone and it was augmented by a special I/O board and application software to provide a complete, turnkey system.

SSTV specifications are reviewed, followed by potential applications of this new form of video communications. The system features and objectives are then outlined. Given these design requirements, the various hardware and software design tradeoffs are analyzed and the resulting system is presented. Special attention is given to gray scale simulation on a bilevel display and the software optimization strategy used.

Finally, the system is compared to available commercial products which have been implemented using more conventional "hardwired" logic.

Conference Session

Waxing Ecstatic Over
Computer Controlled Carving

"I have been interested in computer graphics for a long time," says 6th Faire speaker David Dameron in his talk, "A Three-Dimensional Computer Input-Output System," "and felt that I could finally purchase something with the advent of microcomputers. I had been doing limited plotter drawings as a graduate student on a batch system with an off-line Calcomp plotter. In 1977 I put together an S-100 Z-80 computer and in early 1978 added a Sylvan Hills plotter. Converting this plotter drive to stepping motors, acquainted me with the computer control and mechanics of this type of drive. Once this two-dimensional output device worked well and produced results, I decided that it was time to work on a three-dimensional output device as well as three-dimensional input to the computer.

"My talk describes a computer system for carving three-dimensional objects from two and three-dimensional input data. The input data can be generated from mathematical functions or digitized from contours, projections or fully in three dimensions. Once the data is in digital form, it can be transformed and combined with other data to produce the final three-dimensional object. The object can be previewed as a perspective drawing on an X-Y plotter and then be carved into wax by a computer-controlled sculpture machine."

Fast Program — Of A Sort

Ultrasort II give CP/M and CBasic2 users a fast 8080/Z80 machine-language program to sort, merge, or select records from data files, or to find the number of logical records in a file. It can be used as a stand-alone utility or as a fast sub-routine called from CBasic2.

Ultrasort II handles large data files rapidly and will sort records thousands of bytes long. It sorts on up to 5 keys, each independently ascending or descending. Fields may be variable or fixed length. Strings may optionally be floated as numeric fields; numeric fields are automatically floated.

The select capability permits either omitting or including records that are less than, equal to, or greater than up to four independent select keys. Ultrasort II also provides prompted disk changes for work and output files.

The machine-language program increases its speed by using the entire transient program area (TPA) memory as the sort buffer. It writes the entire TPA (including the calling program) to the disk, performs the sort, then reloads the TPA back into memory.

Ultrasort II is available from several software distributors and Computer Control Systems, Inc., 298-21st Terrace S.E., Largo FL 33541.

Computer Consciousness

Addison-Wesley recently announced the publication of *Computer Consciousness: Surviving the Automated 80's* by Dominic Covey and Neil McAlister. The book provides a description of hardware, software, and the total system in which the computer works, and additionally explains programming, operating systems, and computer languages in a logical progression from the smallest component up to the whole system.

For more information: Addison-Wesley, Higher Education Division, Reading, MA 01867; (617) 944-3700.

SoftCare Medical Billing System

A new medical billing system, SoftCare prepares patient bills and insurance claims for up to 30 doctors. Accounts receivable are maintained by patient and insurance company, and detail is retained to permit tracking of individual claims. The user-friendly design requires little or no operator training. The fill-in-the-blank screen formats are practically self-explanatory, and error checking takes place as information is entered. "Browsing" capability lets the user inquire and page through the files. No patient ID's are

Conference Session

An Electronic Bill of Rights

The U.S. Constitution — specifically the Bill of Rights — has operated largely within a non-electronic, paper environment. Rights of free speech, assembly, religion, etc. have been defined in terms of *how things have been done*, and not in terms of how they are *coming to be done* or may be done in the future. "What we need to do quickly," suggests Dean Gengle in his 6th Faire talk, "Toward an Electronic Bill of Rights," "is to make the Bill of Rights — human rights generally — *explicit* in the telecommunications processes at our disposal. This will avoid the high social costs of fighting some ancient social battles over again, on electronic terrain, i.e. battles over privacy, pornography, political Big Brotherism, and worse.

"A so-called 'Electronic Bill of Rights' would, among other things, assure that electronic mail preserved two important properties of paper mail: signatures of identity, and privacy. Such a Bill of Rights would also address issues of transnational data flow, the use of private and governmental data banks, freedom of information and privacy in matters other than mail *per se*, such as financial and/or political data, and unforseen clashes of 'right' with 'right' in the information environment. My talk is a set of working notes towards such a Bill of Rights, and a primer for community discussion of the issues involved."

required. Patient files are updated as transactions are entered so that bills and claims can be prepared upon demand. SoftCare is written in UCSD Pascal and runs on most Z-80, 6502, and LSI-11 based machine. A system configuration program permits the user to select the specifications for the terminal and printer, and the set-up program allows the doctor to tailor the package to his practice through a series of multiple-choice questions. For more information: Professional Business Software, 119 Fremont St., San Francisco CA 94105; (415) 546-1596.

The 6th Computer Faire has 160 speakers.

Computer Billing Improves
Medical Office Efficiency

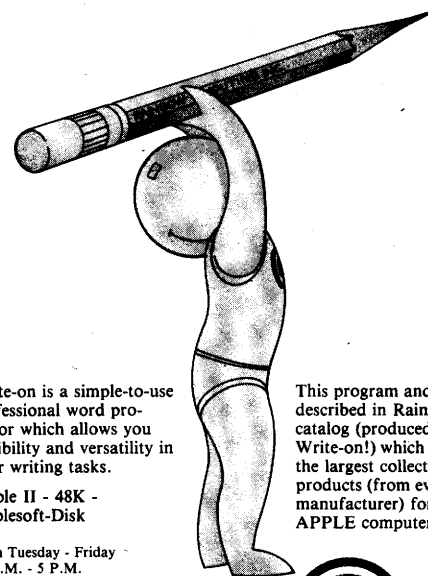
"Billing is the prime reason the doctor entertains the idea of purchasing a computer," says F. Berkenbile in her 6th Computer Faire Conference Session.

She discusses the ways in which a computer can increase cash flow while freeing the physician to concentrate on good patient care instead of tedious bookkeeping-related chores.

Berkenbile provides guidelines that can assist the physician in deciding whether to lease or purchase a computer or evaluate the cost-benefit factors associated with introducing a computer billing system.

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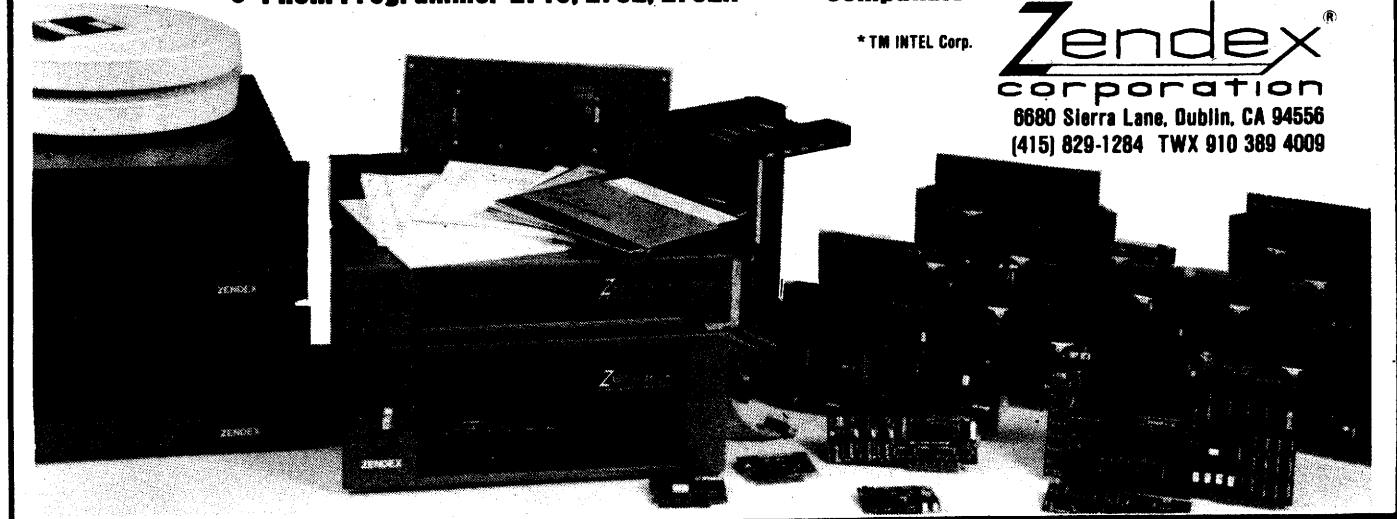
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Conference Session

**Lisp, Greek and Arete:
Musings on a Classical Education**

"Unlike Fortran and its pidgin bastard Basic, which hang on by virtue of their ubiquity, the amount invested in software, and the reluctance to retool," says 6th Faire speaker Lois Patricia Flynn in her talk "Lisp, Greek and Arete: Musings on a Classical Education." Lisp contrives to hold its place of preeminence in a demanding field because, in all its twenty-one years, those bright restless minds in Artificial Intelligence have not managed to come up with a replacement, despite their other considerable achievements. That is no small tribute considering that the half life of innovation in the computer field is five years. Certainly, replacements for the number crunchers like Fortran and Basic have long been with us, Pascal, C, PL1, APL, Forth, ADA. Moreover, Lisp has never been supported by a computer company, nor, for that matter, much promoted by its admirers, as have been many of the languages that currently dominate. Nor, was it put in power by government decree, as in the case of Cobol and, more recently, ADA. Lisp has stood the test of time on merit alone.

"I am not suggesting that somewhere down the track Lisp will not be displaced by something better. However, as Wegner urges, Education . . . should emphasize enduring fundamental principles rather than transient current technology. Enduring fundamental principles are the essence of Lisp."

Conference Session

**Electric System Management
Doesn't Have to be Re-volting**

The electric power system of the continental U.S. consists of local, area and regional utilities that generate and distribute electricity. These utilities, except for a very few, are interconnected by transmission lines to improve individual service reliability margins and economic operation. In an interconnected system all generators operate at the same average frequency. Transients caused by sudden loss of generation or load in any part of the system may be observed everywhere within the system. Power system frequency serves as an indicator of the balance between generation and load. Excess generation increases frequency, while a deficiency of generation results in lower frequency. The system is not self-regulating and must be governed by automatic controls.

Interconnected electric system frequency continually varies about the value of 60Hz in response to electric load changes and as generation is adjusted to match load. "The need for power system load management due to generation constraints has prompted us," say R. K. Adams, J. M. McIntyre, and R. W. Rochelle, "to make a detailed study of this system frequency."

Their 6th Faire talk, "Microcomputer Use for Studying Interconnected Electric System Frequency," is based on much earlier studies of system frequency stemming from their overall interest in precision measurement and control. The use of microcomputers allows a wider variety of measurements of power system frequency than was previously feasible. They have used microcomputers both to record the output of frequency measuring instruments and to directly measure system frequency. Although applied here to power system frequency, the techniques they have used are generally applicable to the accurate measurement and monitoring of a wide range of frequencies.

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Conference Session

**Computer Wave-Applications:
The Tide Is Coming In**

Recent progress in microcomputer techniques impacts signal processing, where small computers can be built in data acquisition and processing systems, resulting in on-line and real-time processing systems.

"In the Laboratory of Wave Information Processing," says Professor Yoshinao Aoki, in his 6th Faire talk, "Development of Microcomputer Systems and Their Applications at the Laboratory of Wave Information Processing of Hokkaido University," we have, using already-developed microcomputer systems, constructed systems for signal processing, and imaging systems of various kinds of waves such as microwave, sound- and ultrasonic wave.

"I introduce our microcomputer systems, and their applications to imaging systems, holography, computer tomography, and others."

Conference Session

**Doctor Your Records
With Medical Programs**

The availability of inexpensive desktop computers opens the door to many medical applications. Computers potentially can be used in the following areas of a medical practice: medical records (creation, access, storage); business management (billing, accounting, payroll, word processing, patient scheduling); diagnosis and care information (decision making); and education (both physician and patient).

In a paper at the 5th Faire (see Volume V of the *Proceedings*), Mark H. Spohr, M.D. discussed the above possibilities in some detail. At the 6th Faire, Mark will describe three specific applications programs that are now available: Drug Interactions, Medical History, and Medical Clinic Statistics. He will also give you a preview of other programs currently under development.

Conference Session

**Computer Puzzles Are Apt To
Generate Cross Words**

Modern crossword puzzles have fascinated millions of people since 1913 when the first modern crossword puzzle appeared in the December 21, 1913 Sunday supplement *Fun* in the *New York World* newspaper. The modern crossword puzzle was preceded by word squares that appeared in England during the 19th Century. The word square, a group of words arranged so the letters formed words when read vertically and horizontally, appeared in children's puzzle books and various periodicals.

With the advent of the computer, and in particular the microcomputer, the ease of generating all such puzzles is within the easy reach of any owner of a small or large computer. The rules are simple and easy to implement in both high-level languages and assembly language routines. The results produced using a 6809-based computer and an assembly language program are shared by Chuck Adams in his 6th Faire talk, "Computer-Generated Crossword Puzzles."

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Conference Session

**Go Forth
And Multiply**

"At the Second West Coast Computer Faire," says John James, "I was introduced to someone who said that a new language was going to revolutionize programming. This person had never written a program in any language. Instead of dismissing the preposterous affair I decided to play along as an exercise, to find out what would so appeal to a person who clearly was otherwise intelligent and informed. It took me a day of the exercise to recognize that here was something valuable.

"Since then I have talked to many people who dismissed Forth as I was about to. Not everyone has a day to play along. And it's hard to communicate about this system because many concepts from the mainstream of software development don't apply to it very well. For instance there is no clear agreement whether Forth should be called a compiler or interpreter, or even whether it should be called a language. Some hear about Forth and go away thinking there is nothing new here, while at the same time others fear they could never use it because it is so different from anything else."

John's 6th Faire talk, "Forth Conceptual Introduction," is an introductory overview, surveying the features, advantages, disadvantages and current status of an unusual software development tool.

Conference Session

UCSD Pascal Version IV

SofTech Microsystems has recently announced version IV.0 of UCSD Pascal (now known as the "UCSD p-System"). This new release is intended to supercede the existing versions II.0, II.1 (Apple Pascal) and III.0 (Western Digital Micro-engine).

Charles Chapin's 6th Faire talk, "UCSD Pascal, Version IV: A User's View," examines IV.0 from the following perspectives: new features, upward compatibility, problem areas, and overall utility (i.e. using the new features).

Conference Session

**From First to Last
And Back Again — Sorta**

The Last One was originally conceived as a way of generating programs to help a successful businessman run his business. The aim was to produce the programs in such a way that they could be modified easily as business requirements changed. As development progressed it became clear that here was the potential for an exciting software product which could mark the beginning of a new era in computing: an era in which the user can receive exactly the system he requires and which can change along with his changing needs. No more will he be held to ransom by a data processing industry largely indifferent to the need for systems to be easily changed, and intolerant of the slightest deviation by the user from original system specifications.

Back in 1974, David James bought a Wang 2200 to help run his "leisure bond" business. He bought the machine, a statistical package and then booked himself on a course to learn Basic programming. All went smoothly for a couple of months, then David realized that the package didn't quite do what he needed. He asked Wang to make the necessary modifications and was amazed when they quoted a hefty price for doing the work.

Not wishing to pay Wang for the work, David decided to do the job himself. Soon he began wondering whether he might not be able to program the computer to run his business, taking all the logical decisions for him. He decided to write what he called a "general-purpose, open-ended, problem-solving, learning program." In other words, what you or I might call an artificial intelligence system. He honestly believed that he was way behind everyone else in this and that it would take him about a year to finish the job. Fortunately, perhaps, he had no idea of the magnitude of the task nor where it was to lead him.

By late 1980, David had taken the project just about as far as he could without outside help. Accordingly, a number of computer professionals were approached and invited to see the system

The PCIF Productivity Package

Productivity in the factory has increased 84% in the last decade. In contrast, office productivity has increased only 3%. The Personal Computing Internal Fanout (PCIF) branch of Texas Instruments' Corporate Engineering Center is charged with developing a cost-effective software system to address the challenge of increasing office productivity.

The PCIF system increases productivity by bringing desk-top computing into the work place. This system has been designed to be used by people with little or no background in data processing. It brings computer power to clerks, secretaries, marketers, engineers, financial planners, designers, accountants, and managers in a form that is both powerful and inexpensive. It provides an integrated package of programs which address wide-ranging applications, as well as an extensive, easy-to-use software development system.

Robert Peterson will discuss the system in his talk, "The PCIF Productivity Package," at the 6th Faire.

and give their comments. Without exception these people were astounded at The Last One, especially since David had developed the system in almost complete isolation and without any previous computing experience.

Version nine — the current version at the time of writing — is well under way, incorporating most of the suggestions made by the various computer experts. It is now possible to incorporate previously written programs into a new program. Some fairly extensive, screen formatting facilities and a host of changes aimed at making the system user-friendly have also been added.

In the 6th Faire talk, "Development of The Last One," you will learn not only what The Last One is but, perhaps more importantly, how someone in complete isolation, with no previous computing experience, spent over seven years and a personal fortune developing such a system.

David Tebbutt will present the paper, and David James will answer your questions.

Conference Session

**Design Automation
For Microcomputers**

The purpose of design automation is to free the designer from the repetitive, menial, error-prone, and time-consuming aspects of system development, and let him concentrate his efforts on the design itself. Ideally, the system should have a human-oriented interface optimized for the efficient communication of logical designs and the production of documentation that is standardized and readily imparts the ideas *behind* the design. This is an important and often overlooked key to effective documentation. Most current small-systems documentation lack one or both of these criteria.

In his 6th Faire talk, "Design Automation for Microcomputers," speaker David W. Russell notes, "Small system hardware design has come of age with the advent of design automation systems for microcomputers. Automated logic drawings and computer-designed printed circuit boards will not only speed product development times for the professional but also place the hardware realization of design ideas back into the hands of computer and electronics hobbyists."

"The availability of full design automation systems capable of running on microcomputer-based systems, and producing automated logic drawings and routing printed circuit board artwork will have an enormous impact on the microcomputer industry in general. Once design files can be standardized, the limits of support granted by the computer are limited only by the designer's imagination. The speed increase, and decrease in errors and costs through these systems will enable professionals and hobbyists alike to produce and market hardware at a fraction of the current cost."

Conference Session

**Speech Concatenation:
A Sound Hook-Up**

The power of the Linear Predictive Coding (LPC) method of speech synthesis can be expanded by using stored phonetic speech sounds rather than words. Inexpensive, unlimited vocabulary, voice synthesis can be created in the Texas Instruments' Speak and Spell by using a software set of sounds rather than the supplied "canned" vocabulary. Analogous to this is the use of a custom character set in a standard video display. The display flexibility is enhanced with the use of the custom character set like, for instance, the APL character set.

"In the same way," says John P. Cater in his 6th Faire talk, 'Expanding the TI Speak and Spell's Vocabulary with Speech Sound Concatenation,' "the use of phonetic or speech sound concatenation allows the user to create new words and even foreign languages from the LPC synthesizer integrated-circuit within the Speak and Spell. An interesting but less useful outcome of this hardware and software merger is the capability of having 31 levels of pitch variation for the speech."

"The development of a low-cost, artificial voice for computers has proceeded rather slowly over this century. However, the development rate appears to be almost exponential. During the past 20 years almost every major development has occurred. The introduction of a \$60 child's learning aid provides a computer peripheral with tremendous potential. Using a simple interface and a phonetic, software driver, the Texas Instruments' Speak and Spell has a vocabulary limited only by the user!

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Conference Program

LISP, LOGO and SmallTalk to be Featured at the Faire

One of the featured events at the Sixth West Coast Computer Faire will be a series of demonstrations, tutorials and papers dealing with the so-called "Actor" languages. . . LISP, LOGO and SmallTalk. LOGO and SmallTalk are fascinating personal computer languages intended to make computing accessible to "children of all ages", while LISP is the premier language of Artificial Intelligence and the spiritual ancestor of both SmallTalk and LOGO. Now, these powerful languages are being made available for a variety of micro-computers.

For example, at the Faire, LISP enthusiasts will be demonstrating Cromemco LISP for Cromemco systems, (T. (L.C.)) LISP for Z80, S100 bus systems with CP/M, Owl LISP for the Apple and more. Systems for these demonstrations and for the tutorials are being provided by Cromemco Inc., members of the Apple Core User's Group and The LISP Company of Los Gatos. LOGO Computer Systems Inc. will be showing proto-type versions of LOGO for Apple and Texas Instrument machines. Versions for other systems are in the works. The LOGO group plans to take you on a LOGO-based tour through visions of what personal computing can be for future generations as described in Seymour Papert's fascinating book "Mindstorms: Computers, Children and Powerful Ideas". The SmallTalk project group from Xerox-Parc will also be conducting similar exciting, futuristic tours. If you think Pascal, BASIC and/or Fortran are what computing's about you are in for a shock once you encounter what LISP, LOGO and SmallTalk can do. Altogether, this makes for an exciting set of events. But, that's not all. . .

Bruce Roberts and Jim Schmolze of Bolt, Beranek and Newman will be showing video-tapes of their sophisticated STEAMER project. Written in LISP, this system includes a color graphics interface to a large mathematical model of a ship's steam plant. Plans are to develop STEAMER into an intelligent tutor in complex thermodynamic systems. Part of the project uses Cromemco systems, which goes to show that micro-computers with LISP can be applied in Artificial Intelligence work of some scope. Bil Lewis of SRI will deal with more LISP based work in the demanding area of natural language understanding. Symbolics Inc. have promised to provide video-tapes of a LISP program "solving" mind-bending Rubik's Cube puzzles, as featured in the March issue of Scientific American. Other applications too numerous to list are also part of this package, including commercial applications in large scale data base management. Demonstrations will be taking place the whole three days of the Faire, either in the LISP demonstration room, the LOGO booth, or, the Cromemco booth. And that's still not all. . .

John Allen of the LISP Company of Los Gatos, Michael Burke of San Jose State University, Lois Flynn of San Francisco State University, Bil Lewis of Stanford Research Institute and Jim Schmolze of BBN will all be presenting papers dealing with different aspects of LISP in various of the Conference Sessions. Finally, John Allen, Michael Burke, Ruth Davis, Tom Davis and Lois Flynn will be running half-day LISP tutorials for novices in the LISP tutorial room across all three days of the Faire. If you would like to get a little head-start, an introductory tutorial in LISP appears in this issue of Silicon Gulch Gazette.

Check the Faire Program, or, at the LOGO, or, Cromemco booths for a full listing of all events in this "LISP Three Ring Circus and Travelling Medicine Show". A team of student volunteers from San Francisco State University will be on hand to assist. Remember, if you attend a LISP tutorial, or, a demonstration you can participate in the free drawing for a \$150 value prize consisting of diskette and manual for (T.(L.C.)) LISP from The LISP Company of Los Gatos, California. . . a great way to get started. You can register for the free drawing in the LISP Tutorial Room 404, or, in the LISP Demonstration Room 402 during Faire hours April 3, 4, 5. Drawing will be held and winner announced late Sunday, April 5. Join the Circus. . . Learn LISP acrobatics!

Do Your Faire-Busing On Computer Plus' Bus

Computer Plus, a retail computer store in Sunnyvale, California, is again chartering buses to transport Faire-goers to and from San Francisco's Civic Center, site of the Sixth West Coast Computer Faire. The fee is \$8 for the door-to-door roundtrip. The buses will leave from Computer Plus, 1328 S. Mary Ave. (in the De Anza Square Shopping Center at Fremont & S. Mary).

The schedule follows:

Date	Leave Sunnyvale	Leave S.F.
April 3 (Friday)	9:00 a.m.	3:30 p.m.
April 4 (Saturday)	8:30 a.m.	3:30 p.m.

Computer Plus requests payment in advance. For further information about the buses, pre-registrations to the Faire, *Computer Faire Conference Proceedings*, and other materials for the complete computerist, please call Lucy at (408) 735-1199 between 11 a.m. and 7 p.m. on Tuesday through Friday, and between 11 a.m. and 6 p.m. on Saturday.

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Conference Session

Litigation, Tailormade & Gasless: Bringing Suit Without the Pants

The minicomputer has made it possible for small businesses engaged in civil litigation with large corporations to present the courts with a well-documented statement of their damage claims within a budget that is not prohibitive.

David Bradwell's 6th Faire talk, "Mini-Computer Applications in Antitrust Litigation," describes how a data base was created and utilized to estimate damages incurred by a number of independent newspaper distributors suing a publishing company under the Federal antitrust laws.

The causes of action supporting quantifiable damage claims included wholesale price discrimination, resale price fixing, territorial splits and loss of going concern value of terminated businesses.

Educators Schedule Micro Applications Conference

The first annual conference on Micro-computers in Education will be presented by Computer-Using Educators (CUE) on May 15-16, in Bloomington, California.

Featured in the conference will be talks on: getting started with microcomputers; grant money to buy computers for schools; hardware and software comparisons; evaluating microcomputer systems; computer assisted instruction at elementary and secondary levels; preparing kids for proficiency and competency tests; microcomputers in reading, math, science, and language; and free software exchanges.

Those wishing to speak, chair a session, or display equipment should contact: Craig Walker, Arrowview Jr. High, 2299 N. "G" St., San Bernardino CA 92405; (714) 886-9118.

Conference Session

Multi-User/Multi-Tasking Operating System Described

The Betasystem II computer, featuring the 3A release of its UCSD-compatible operating system is recently available. "A high level of system reliability, maintainability, expandability, and flexibility has been achieved through careful optimization and matching of the operating system to the system hardware," say speakers Alfred A. Pease and Robert G. Nelson in their 6th Faire talk, "The IBS Multi-User/Multi-Tasking Operating System." Alfred and Robert describe in detail the system, which has features allowing true concurrency for program segments residing in multiple memory banks.

To attend, contact: Forest Miller, Coordinator of Math & Science, San Bernardino CA 92415; (714) 383-1728.

Realism of Three-Mile-Island Software Might Blow You Away

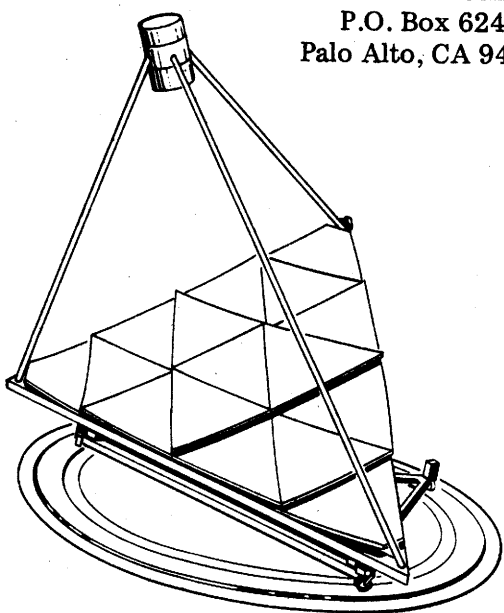
Muse has released two updated versions of its popular educational and recreational game software, Three Mile Island Special Edition and The Best of Muse. Both new issues run on any Apple II or II plus with disk drive.

Now any Apple owner can experience running the Three Mile Island nuclear power reactor by playing this realistic simulation. Three Mile Island has been entirely rewritten in quick-response, machine language. The Special Edition is available to run on any 48K Apple.

The Best of Muse presents five popular game programs including Escape and The Maze Game. This 'greatest hits album' is a must for the library of any game enthusiast. The Best of Muse runs on any Apple with at least 32K.

High Quality Technical Graphics

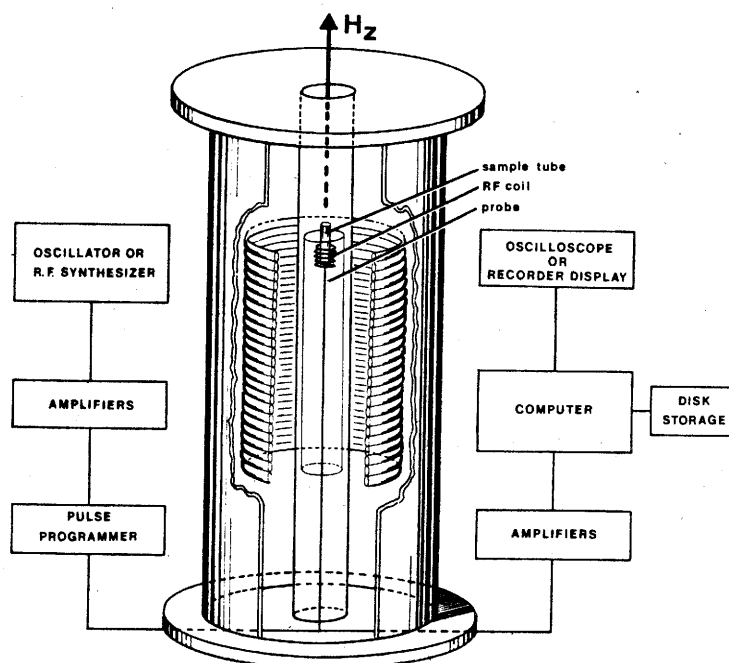
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P.O. Box 6246
Palo Alto, CA 94305



TRANSMITTER

MAGNET

RECEIVER



Conference Session

The "How To" Man Sez How Don Lancaster Speaks

"The only way to ever learn anything about computers is to jump in with both hands and feet and get on line and do some computing," says Don Lancaster in his 6th Faire talk, "Winning the Micro Game."

"Until you actually do and see what all of the micro world is about, you have accomplished absolutely nothing. You must do things yourself and on your own terms in front of a real micro.

"You become computer literate by using computers, not by having someone tell you about them or by reading of them."

Don adds, "There is no right or wrong direction in the micro world. 99.9% of this world remains totally unknown, unexplored, and uncharted. So if 'they' insist on something, most often 'they' don't know whereof they speak. If you are interested in a micro something and want to go in that direction, fine - do it!

"Satisfy your own needs and your own curiosity. Put as much psychic energy and personal value added as you can in the routes that you pick and you are certain to win the micro game.

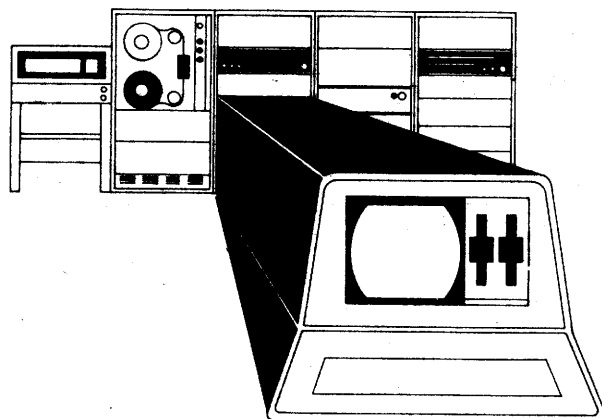
"You are, by definition, the center and the most important part of the micro universe. And don't ever forget it."

Conference Session

Introducing Microcomputers (And How to Use Them)

"Our talk," say Tony Bove and Cheryl Rhodes, "is about introducing people to microcomputers. At the 6th Faire we will introduce at least three microcomputers: a small personal computer, a medium-sized business system, and a larger development system. We will demonstrate some typical applications while delivering parts of our tutorial and answering questions. We think beginners can learn about software more easily by using it, not by writing it."

After providing specific information about personal computers, business systems, and development systems, Tony and Cheryl conclude: "Once you've learned how to use your microcomputer system, you can simply use it to profit from it; in fact, using the computer should always be cost-effective, and in time, the computer should pay for itself by being more efficient and more useful. Maybe then you'll be ready to take the plunge into programming."

**access/80****Information Management System****No Programming Experience Needed.**

In business, profitable decisions are made with knowledge. Knowledge is based on precise, substantive information. Such information is obtained by entering, storing, manipulating, displaying and statistically analyzing data. And that requires a powerful information management tool. ACCESS/80 is that tool; it lets you test your business hunches against actual statistical data taken from your past and current business records. Imagine being able to arrange your business accounting records into reports and statistical tables with ease, so that you can make an informed decision in a matter of minutes. ACCESS/80 will create data files, maintain them, and produce sophisticated reports and tables. It will also produce reports and tables from your existing files written in BASIC and any other format, provided you know the structure of those files. All you need is 54K+ memory and the CP/M* operating system.

*Registered trademark of Digital Research Inc.

Some of ACCESS/80's unique features are:

- Multi-Dimensional Cross-Tabulation Command for making statistical tables using frequency counts, percentages, accumulations, or computed variables.
- Multiple Reports On Single Pass Over Data File.
- Control Language Extension (including loops) to facilitate high-level programming for complicated tasks.

ACCESS/80 is the microcomputer version of a system developed in 1963 and is used on IBM mainframe computers across the United States. Take a closer look at ACCESS/80 at the 6th WEST COAST COMPUTER FAIRE Booth #1510. ACCESS/80 costs \$795.

IS friends software

P.O. Box 527
Berkeley, California 94701
(415) 540-7282

Conference Session

Don't Soft-Petal the Flowering Horticultural Computer Uses

Horticulture is the science of growing plants. It is a science which was born into an information crisis from which it has never fully recovered. There are an estimated half a million species of plants in the world. Each of these plants has its own characteristic genetic makeup, nutrient requirements, cultural requirements, growth pattern, leaf form, flower form, and potential uses which can all be expressed as variables of the half a million or so plant species. Add to this, a rapidly increasing number of artificially produced hybrids with their individual characteristics and you can get an idea of the amount of data that there is to deal with in the horticultural industry.

In his 6th Faire talk, "Computers and Horticulture," Frederic Davis says "today's powerful (yet affordable) small computers provide an excellent way for horticulturalists and others to gain access to large bodies of information about plants, information which has been vastly underutilized." An overview is given of six important applications for small computers in horticulture: 1. landscape and nursery industry; 2. plant breeding; 3. plant pathology; 4. plant taxonomy; 5. greenhouse automation; and 6. business applications for the retail florist.

"Small computers can provide the means to organize information about plants; this is of global importance," Frederic says, "since plants provide us with basic life necessities such as food, fuel and medicine."

FORTH Interest Groupies Exceed 2500 Members

The FORTH Interest Group now has over 2500 members, worldwide (all 50 states and 34 foreign countries). Fifteen chapters are meeting or in the process of forming. In keeping with the spirit of the FORTH language, several groups meet on the fourth Saturday of each month.

All members receive the bimonthly publication, *Forth Dimensions*. The list of publications from FIG (FORTH Interest Group) has expanded greatly over the past year. There are now seven different source listings for specific CPU's with several more being developed. A number of user's manuals can be obtained as well as FIG T-shirts and posters.

The popular micro computers can now be programmed in the FORTH language. Various FORTH programmers and vendors have implemented the language and applications on mini and mainframe computers.

1981 looks like the year of FORTH. A number of manuals and books are in the works. More and more vendors are selling FORTH implementations and programs. The utilization of FORTH is spreading from micros to robotics, business applications, product development and many control applications. *Forth Dimensions* will keep members abreast of these activities.

FIG will be in booth 1137C in the 6th Computer Faire.

Memberships are \$12.00 per year (\$24.00 Foreign) and include six issues of *Forth Dimensions*. FORTH Interest Group, PO Box 1105, San Carlos, CA 94070; (415) 962-8653.

Correction

In a recent ad from *Interface Age Magazine* the 2-year subscription price was shown as \$20. It should have been shown as \$30.

Would You Tell A Friend What You Would Teleprinter?

There is no hope that teleprinters will break the \$1,500 price barrier in 1981. Only 9% of all teleprinter models marketed today cost less than \$1,500, and there are no significant trends that indicate a breakthrough this year. This was revealed in the latest edition of the *GML Teleprinter Supplement*.

The *Supplement* shows that the majority of teleprinters, or 60%, are priced between \$1,500 and \$4,000. Most devices priced above \$6,000 are multiterminal cluster systems.

According to GML graphs and figures, teleprinter prices have dropped only a modest 20% since 1970 and have somehow managed a stability not indigenous to most computer product markets.

GML says that evidence is available to indicate that prices will continue to hold above the \$1,500 barrier. A major indication for the status quo being that prices have declined at a slower rate in recent years. Further support for this prediction is the lack of new technological innovations on the present horizon that could contribute to cost reductions.

The *GML Teleprinter Supplement* not only contains an overview of the entire teleprinter industry, complete with graphs and charts, but includes prices, specifications, features, software, and marketing data. More than 250 teleprinter models made by 61 companies are included in this 137-page, bound volume.

For more information on this publication, call or write GML Information Services, 594 Marrett Road, Lexington MA 02173; (617) 861-0515.

DISTRIBUTE FREE GAZETTES TO FRIENDS & ASSOCIATES

The Computer Faire would be pleased to ship you any reasonable quantity of *Gazettes* you wish to request, for distribution to your friends, professional associates, and fellow employees. These are available without cost; the Faire will pay all charges, including UPS shipping fees.

Just write or call and tell us (1) how many you wish to receive, and (2) where to ship 'em (it must be a street address: UPS is prohibited from delivering to a P.O. Box).

Typically, a *Gazette* will include a variety of information of general interest, as well as — of course — all the details of the forthcoming West Coast Computer Faire.

Keep Ahead of Microcomputer Developments With the Professional's Choice

Interface Age is the most up-to-date source of microcomputer hardware and software advances. Whether you need to be informed for future purchases or to make comparisons, Interface Age should be #1 on your list.

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for it), and (2.) the mailing label on this issue does not have the mailing date in square brackets, then send your request to:

Free SGG, Computer Faire
333 Swett Rd
Woodside CA 94062

Conference Session

A Report On USUS

USUS is the user group of the UCSD Pascal language system. "It was begun in June, 1980, and has rapidly evolved," says USUS Software Library Chairman James Gagne, "into a vigorous, vocal, and intensely independent voice of the users of the UCSD p-system, now three languages strong (Pascal, still by far the most popular, as well as Fortran-77 and a structured business Basic). In my talk 'The UCSD p-System Users' Society,' I discuss what's happening in USUS and let you know about the Software Library, one of the services available to USUS members."

On Resume Writing

by Stephanie Buchholz & Bill Baumann

It is important to put time and thought into the writing of your resume. Keep in mind that the purpose of the resume is to clearly define your skills and to generate an interview. We use the following format:

<i>Name</i>	
<i>Address</i>	<i>Salary</i>
<i>Phone Number</i>	
<i>Objective:</i>	Use the job title you have or are seeking.
<i>Summary:</i>	List your proven skills, abilities, expertise, number of years experience.
<i>Software:</i>	Languages, operating systems, applications.
<i>Hardware:</i>	Computers, peripherals.
<i>Education:</i>	If your degree is in a field that trained you for your job put education here; if not, put it after Experience.
<i>Experience:</i>	State the dates of employment, company, city, job title, description. For example:
7/78 - present	Omicron, Inc., Menlo Park CA Professional Recruiter
	Definition of your responsibilities.

6th COMPUTER FAIRE

Conference & Exposition On Intelligent Machines for Home, Business & Industry

SAN FRANCISCO CIVIC CENTER APRIL 3-5, 1981

REQUEST FOR HOTEL RESERVATIONS

(Rates subject to 8% Hotel Tax)

MAKE RESERVATIONS BY PHONE, OR COMPLETE FORM AND MAIL IT DIRECTLY TO THE HOTEL.

HOTEL	Single	Double Twins	Suites	Notes
HOLIDAY INN (Headquarters) CONVENTION CENTER 50 Eighth St. San Francisco, CA 94101 (415) 626-6103	\$51 \$59	\$63 \$71	N/A	Reservations held to 6pm, day of arrival, unless accompanied by deposit to cover first night's rental.
THE SAN FRANCISCAN 1231 Market St. San Francisco, CA 94103 (415) 626-8000	\$52 \$60 \$64	\$62 \$70 \$74	\$ 85 \$120 \$150	Reservation accepted if received by March 2, 1981 if accompanied by deposit to cover first night's rental.
JACK TAR HOTEL Van Ness & Geary San Francisco, CA 94101 (415) 776-8200	\$55 \$60 \$65	\$65 \$70 \$75	\$175 \$250 \$275 \$350	If requested rate is not available, next available rate will be assigned. Reservations accepted if received 30 days before arrival date, otherwise confirmation subject to availability. Rooms held to 6pm, day of arrival, unless accompanied by deposit to cover first night's rental.

Rooms will be occupied by (Please designate those who will share same rooms. List additional names on separate sheet. Be sure to show arrivals and departures.):

Name (Please Print)	City & State	Arrival (hour/date)	Departure (hour/date)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(Use additional pages for more names)

For Hotel Use Only	NAME _____ DATE _____
	TITLE _____
	COMPANY _____ PHONE (____) _____
	CITY _____ STATE _____ ZIP _____

If you have done unpaid related work, list it. It has occasionally been helpful for people with little work experience to attach excellent written references and a cover letter.

Resumes should be *brief and precise*. Use action verbs that have meaning. For example, "Responsible for the PDP 11/34 program" does not describe your duties. It should say, "Designed, coded, tested, implemented and maintained a (state the application), written in (language) on the (computer). List operating system. This information proves your summary.

Check your resume for correct spelling and grammar. Forget the gimmicks: pictures, fancy paper, spilled coffee, cat paw prints. Use white or buff paper and black ink. Leave off the personal information. Have you ever seen a resume that mentioned poor health? Listing publications is rarely useful, however patents can be denoted.

Don't Lie - misrepresentation can cost you the job even if you are performing well.

Be brief and concise, but write enough to communicate your experience. Try not to go over two pages remembering the second page is rarely read. The first half-page is what generates interest.

Keep your resume up-to-date so you never need to spend more than a few minutes preparing it for use.

In summary, remember the cardinal rules: Keep it brief, keep it accurate, keep it clear.

Bill Baumann and Stephanie Buchholz, are consultants with Omicron, a San Francisco peninsula professional recruiting firm which serves a broad spectrum of the computer industry ranging from hardware and software vendors to corporate data processing departments. Bill works with hardware people, and can be reached at Omicron, 710 Lakeway, Suite 280, Sunnyvale, CA 94086, (408) 245-7300. Steffi, who works with software people, can be reached at Omicron, 525 Middlefield Road, Suite 120, Menlo Park, CA 94025, (415) 328-6150.

FOR SALE. EDISON RADIO. Console model, ca. 1928-30. Turned legs, fancy speaker grille, dark wood cabinet. Lights up, but no reception. Mitch. 155 Yale Road, Menlo Park, CA 94025 (415)324-4574.

WANT ADS

The Silicon Gulch Gazette will accept want ads for publication in future issues. 50,000 distribution is guaranteed for each edition. 100,000 distribution is guaranteed for each issue.

SGG is published 4 times each year. The next issue will be published in two editions; on February 16 (Eastern edition) and March 16 (Western edition). Copy deadlines are February 11 and March 11, respectively.

Want ads must be paid for on the basis of number of words in the copy. A "word" is defined by SGG as a phone number or any alphanumeric group delineated by a non-alphanumeric character.

The classified ad rate for want ads is \$1.00 per word, with a \$25.00 minimum.

Payment must accompany the typewritten ad copy. Ads and payment must be sent to: Silicon Gulch Gazette, 333 Swett Road, Woodside CA 94062.

ARTIFICIAL INTELLIGENCE STUDY. Proceedings of 2nd Seminar of Scientific Go Theory now available. Send \$12.00 to Sabaki Go Company, Box 4195-G, Wilmington DE 19807.

WHOLESALE PRICES to Dealers & Computer Club Members! Eg. Epson MX80, reduced price, \$CALL. Anadex 9500/1, \$1265. Diablo 630, \$2055. Okidata 80, \$448. Televideo 950C, \$978. Corvus, \$CALL. Vector Graphic, \$CALL. Atari 400, \$395. Zenith-89 \$2071. (213) 762-0020. 11:30 to 4:45PM, PST. Patio Computer Sales.

NEW SOFTWARE TOOLS for Pascal Programmers: Screen Handler (\$75) compatible with many terminals. Facilitates CRT data input, performs extensive error checking. Output Formatter (\$37.50) facilitates design and programming of reports. Includes tabs, automatic page and line counter and top-of-form-routine. Forms Generator (\$49.50) includes Output Formatter and additional software which allows an end user to redesign format of reports without reprogramming. Source code for all 3 Pascal Software tools available on Apple or 8-inch diskette for UCSD Pascal or Pascal/M. Price includes shipping. Mastercard and Visa cards welcome. (California residents add 6% tax). HDP, Inc., 222 E. Anapamu St., Santa Barbara CA 93101; (805) 965-4477.

INFORMATION RETRIEVAL for CP/M. Information Master program, still only \$37.50. Over 300 now in use in universities, professional offices and homes. See it demonstrated at booth 33. Magazine article and software vendor data bases now available. Island Cybernetics, Box 208, Port Aransas TX 78373.

MID-EASTERN DANCER available to dance at your company banquet or your own celebration. Add some oriental grace to your gathering. Contact Johanna at 851-7610.

Network Analysis Takes a Critical Path

The "hard technology" of the space age has contributed to the development of "soft technology" that can serve as a format for program planning and development, through the techniques of network analysis known as PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method). These are complementary methods of planning and diagramming that show activities and their relationships in a sequential manner.

"My talk, 'PERT/CPM Network Planning,'" says 6th Faire speaker Dennis Starkovitch, "will discuss the concepts of program and management planning and the use of PERT/CPM to plan all types of projects, including business systems analysis and computer software programming."

OLD EDITORS NEVER DIE, THEY JUST WANDER AROUND

by Jim Warren

Well, Carl Helmers has finally left as editor of *Byte*, handing the reins over to Chris Morgan. With his departure, every significant micro periodical has now seen the departure of their founding editor. Carl was the first editor of a major commercial micro magazine; he was the last to leave. He has returned to being a computer professional; he's about to market a batch of business software he developed under UCSD Pascal.

John Craig was the first editor of what is now *Kilobaud Microcomputing*. But he moved on to edit *Creative Computing*, and has now left the editing business to be the publisher of *InfoWorld*. (Us ol' timers remember that *Kilobaud Microcomputing* was originally named *Kilobyte*, then renamed *Kilobaud* after *Byte* folks expressed something less than pleasure over the original name. Wanna bet that it eventually becomes simply, 'Microcomputing'?)

Sol Libes was the founder of the Amateur Computer Group of New Jersey — the second oldest computer club in the U.S. (second, by about a week, to the San Francisco Peninsula's Homebrew Computer Club) — and the editor of its ACGNJ Newsletter. (Sol sez that the ACGNJ is now the largest computer club in the U.S.) He has authored several books on electronics. However, what qualifies him for mention in this article is that he has now created a significant hobbyists' hardware magazine, *S-100 Microsystems*. He originated it... then found out that doing quality editorial work was a minor part of running a rag. The major effort concerns such uninteresting activities as pleading with printers, pacifying the post office, systemizing subscriptions, and — most importantly (if one wishes to pay one's publishing bills) — anointing advertisers... who furnish most of the loot that commercial periodicals receive. Relatively quickly, Sol decided he was an editor; not a publisher, and sold *S-100 Microsystems* to Dave Ahl, thereby letting Dave do the loot pursuit, while Sol did the exotic editing.

Art Childs was the first editor of *SCCS Interface* for the Southern California Computer Society. Art is long gone from the editing racket. And *SCCS* is equally long gone from the club racket... as *SCCS Interface* is long gone from the periodical game. It's follow-on, *Interface Age*, has seen several editors come and go, including Carl Warren (now with *EDN*), and Frank Vaughan (previously with *ComputerWorld*, and now covering the electronics beat for a Phoenix newspaper).

Dave Ahl originated *Creative Computing* and was its first editor, but has long since moved to the position of pure (?) publisher. *CC* had several other notable editors come and go, including Steve Gray (founder of the Amateur Computer Society, several decades ago), and John Craig.

Then there's People's Computer Company. It goes through editors like a hot knife through butter (though sometimes not as smoothly).

PCC began under the flamboyant and farsighted leadership of Bob Albrecht. PCC was first a 'walk-in & use-a-computer' center for kids of all ages, back in the hippie '60's.

Then Bob spun off from the center, created a newspaper called 'People's Computer Company' and thereafter created a nonprofit educational corporation of the same name (we wouldn't want to leave the public unconfused by naming it something different now, would we?). Bob, of course, was PCC's first editor. All that happened back in October, 1972... making PCC the oldest of the "personal computing" rags (much older than the phrase itself. "Personal computing," was first widely used by John Dilks when he created his first Personal Computing trade show in Atlantic City in August of '76).

Bob lasted a long time (for this industry) — he edited PCC until the summer of '76. (He later was the editorial power behind the scenes of the short-lived *Calculators/Computers*, a mag for educational computing.)

When Bob left PCC (the newspaper), Phyllis Cole took over as its editor, renaming it *People's Computers*. She left and is now a wheel in documentation for Apple.

Then Bob came back to edit the rag for a while — which, by then had changed from newspaper format to magazine format — and again renaming it, this time calling it *Recreational Computing*, orienting its content to computer games... an ongoing Albrecht fascination. Now, Bob has moved on to a project called 'Computertown USA' — the computerization of Menlo Park, California (good luck!). PCC=PC=RC has gone through several more editors, and is currently vascillating about the possibility of a new name, new editor, and new direction.

Back in the early days (daze?) of hobby computing, when Altair was the big name (you do remember the Altair, don't you?), Bob roped Dennis Allison into writing a series of software design articles for publication in PCC. The upshot of this was a deluge of letters from readers asking for more and consistent articles on microcomputer software design and implementation.

Meeting one afternoon in PCC's executive conference room (the local pizza pub), Bob and Dennis decided to create a brief newsletter addressing design of small versions of Basic for micros. They turned the copy over to their production artist, Eric Bakalinsky, telling him to dream up a title for it as he pasted it up. After some questioning regarding the topic (Eric knew nothing of computing), he named it *Dr. Dobb's Journal of Basic Calisthenics and Orthodontia* (Dobb for Dennis and Bob, calisthenics for computer exercises, and orthodontia reflecting avoidance of 'overbyte' — excessive memory consumption).

Bob allowed as how he wasn't going to edit such a 'heavy' technical rag — his bag was Basic and computers for kids. Dennis quickly refused to edit *DDJ*; he had his hands full being an Important Computer Consultant. So, they found a sucker from Stanford to edit it.

I had just been told by my Ph.D. thesis advisor that he was dropping my support (as he evacuated Stanford for a position with industry) because I "couldn't write well enough to produce a dissertation." I was, therefore, an obvious candidate to be *DDJ*'s first editor. Beginning in January, 1976, I quickly exercised the computer snob's sneering displeasure with Basic by renaming it to be *Dr. Dobb's Journal of Computer Calisthenics*. I remained its real editor for most of a year (and official editor for more like a year and a half), spinning off to create the Computer Faire (an idea that grew out of John Dilks' Atlantic City show in '76)... and the Faires' support publication, the *Silicon Gulch Gazette*. A couple years later, I created the micro industry's first fast-turnaround newspaper, the *Intelligent Machines Journal* (originally named the *Journal of Intelligent Machines*, but renamed after I — even I — couldn't tolerate the mnemonic for it).

Tom Williams had been *DDJ*'s editor, after me at PCC. And, since he had been there most of a year, it was certainly time to move on. So, he became my editor for *IMJ*.

Then I got tired of running *IMJ* (I was more interested in its editorial content than its financial content; hardly the way to continue publication), and sold it to Pat McGovern, the owner of *ComputerWorld*... and about 15 other computer publications, internationally (as well as a TV station and several radio stations). Pat renamed it 'InfoWorld', hired John Craig away from *Creative Computing* to become its publisher, and kept Tom as its editor... for a while. Now, however, Tom has moved on to be a west coast editor for *Electronic Design*, and *InfoWorld* has just installed its newest (third) editor, Maggi Canon.

All in all, it seems like the editorship of microcomputing periodicals closely parallels the volatile, highly mobile character of the technical community they serve. After all, if the microcomputer industry considers an employee who remains with the same company for two years an 'old timer', who can be suprised that microcomputer editors hike from rag to rag on a similar cycle?

It may be chaotic, but it sure is fun bein' a part of it.

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PROGRAMMING SYSTEMS

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Flexible Versus Rigid Software, *Thomas P. Bun*

SAL/80: A Structured Assembly Language for the 8080/8085/Z80, *R. Steve Newberry*

GETTING INTO MICROS

Winning the Micro Game, *Don Lancaster*

You Too Can Be A Microprocessor Programmer, *R. David Pogge*

CP/M & MP/M FOR USERS

New CP/M & MP/M Developments, *Dr. Gary Kildall*

CP/M Applications Software, *Tony Gold*

A User's Perspective of CP/M, *Bruce Kendall*

DESIGNING HARDWARE & SOFTWARE FOR MERE HUMANS

Designing Hardware and Software for Mere Humans, *Dr. Douglas H. Williams*

Toward Display Oriented Operating Systems, *Carl T. Helmers*

The Bridge to the Future, *Chris Langewis*

Linguistic Chauvinism, *Mark Cummings*

OPEN INDUSTRY MEETING:

Microcomputer Industry Trade Association, *Dennis Barnhart, Richard Linn*

DETAILS OF SELECTED HARDWARE

Heath Company's H8: The Computer Enthusiast's Choice, *Charles Floto*

Single-Chip Microcomputer Programs EPROMs, *Jerry Randal Bauer*

The Anatomy of a Single Chip Microcomputer, *Peter M. Redford*

IN SEARCH OF BETTER I/O (Part I)

A Simple Computer Eye, *Henry L. Pfister*

The Design of a Slow Scan TV System, *Ken Rothmuller*

IN SEARCH OF BETTER I/O (Part II)

The Tyranny of QWERTY, *David D. Thornburg*

Bar Code Technology: Past, Present, and Future, *Walter Banks, Carl T. Helmers Jr.*

HOMEBREWING HARDWARE

After Building a Computer, Try a Robot!, *Melvin L. Zeddies*

Design Considerations for a Computer-Controlled Home, *Mark M. Lambert*

Life on the Frontier: A Homebrew 16-Bit Computer, *Frederick A. Knox*

An 8035 Homemade Computer, *Darrell D. McKibbin*

Doing Your Own Thing in High-speed Digital Arithmetic, *Chuck Hastings*

MICROS IN ENGINEERING APPLICATIONS

Design Automation for Microcomputers, *David W. Russell*

Microcomputer Use for Studying Interconnected Electric System Frequency,

R.K. Adams, J.M. McIntyre, R.W. Rochelle

Development of Microcomputer Systems and their Applications at the Laboratory of Wave Information

Processing of Hokkaido University, *Yoshinao Aoki*

Pascal Programming for Engineers: General Least-Squares Curve Fitting, *Alan R. Miller*

COMPUTERS IN MEDICINE

Computers and Medical Diagnosis, *Michael L. Richardson, M.D.*

Computers In Medicine, *L. Berkenbile, M.D., F. Berkenbile, Ph.D.*

Microcomputer Applications in Laboratory Data Acquisition and Management,

J.L. Cawley, F. Barberis & L. Kary

THE ULTIMATE PERSONAL COMPUTER: AIDS FOR THE PHYSICALLY IMPAIRED

Smart Wheelchair, *David L. Jaffe*

Discussion Panel: The Johns Hopkins 1st National Search for Personal

Computing Applications to Aid the Handicapped, *Dan Van Horn, David L. Jaffe*

TALKING MACHINES: HOW THEY DO IT

Access to Speech Synthesis and its Applications, *Carol A. Simpson*

Expanding the TI Speak and Spell's Vocabulary With Speech Sound Concatenation, *John P. Cater*

Programming "Phoneme" Voice Synthesizers Phonetically, *Carol A. Simpson*

MORE ON SOFTWARE

Runic: A Homebrew Compiler Project, *Marty Franz*

Guidelines for Choosing an Object-Oriented Programming Style in LISP, *Jim Schmolze*

The LISP Steamroller, *Michael Burke*

Introduction to the ACCESS/80 Report Generation Language and System, *Fredric C. Gey*

RECRUITMENT: FINDING COMPUTER PROFESSIONALS

Finding & Keeping Computer Professionals During the Explosive 1980's, *Michael P. Harkins*

A Sign of the Times: Recruitment and Relocation Policy Update, *The Relocation Center*

PLUG COMPATIBLE PERIPHERALS

Low-Cost Computing with Plug Compatible Peripherals and Mainframes, *Joseph T. Simone*

INEXPENSIVE BUSINESS COMPUTING

Acquiring the Small Business Computer: Take the Backwards Approach, *Nicholas Rosa*

"It Loves Me, It Loves Me Not": Micros in the Small Business, *Jim Schreier*

The Angry Consumers Guide to Word Processors, *Martin L. Dean*

Some Reflections on a Commitment to Quality, *James I. Gagne, M.D.*

THE HOW, WHERE & WHEN OF USING CONSULTANTS

How to Use Hardware Consultants (or How to Keep Your Brownie Points), *William R. Maclay*

Marketing Your Software, *Victor M. Wyman*

Deciding on a Software Package or Custom Software, *Catherine M. Sinclair*

Panel: On Consultants & Consulting,

V. H. Finefrock, Victor M. Wyman, Catherine M. Sinclair, Leon A. Wortman,

Carl Ramesey, William Maclay, James R. Lavelle, III

RADIO TELETYPE (3-day ongoing demonstration)

Amateur Communications Society (RTTY) Open Seminar & Demonstration, *Stuart Neblett*

LISP TUTORIALS (half-day programs, all three days)

LISP: Beginning Tutorial, *Lois Patricia Flynne, Michael Burke, Tom Davis*

LISP and More LISP: Tutorial Continuation, *J. Allen*

VIDEOTAPE (all day, Friday)

Personal Computing, Help for the Handicapped (closed captioned), *David L. Jaffe*

COMPUTING IN EDUCATION

The Computer Goes to Nursery School, *Dr. Kathleen M. Swigger, Dr. James Cambell*

The Micro-Redy Project, *Barry Cole*

On Using the Tutorial Mode in CAI, *Edward A. Zeidman*

AIM: Remedial Math for Secondary Students, *Craig Walker, Jerri Jenkins*

Educational Software Formats, *Geoff Zawalkow*

APPLIED COMPUTER GRAPHICS

Microcomputer Production of Animated Maps, *John E. Westfall*

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Dedicated Document Production, *Sidney Levin, M.D.*

IMAGES OF COMPUTERS: GREAT GRAPHICS

Microprocessors in Image Processing, *Gregory A. Baxes*

4 Billion Colors on the Apple?!, *Ted Perry*

EXTRAVAGANZA: VIDEO GRAPHICS

Computing for the Right Brain, *Fred H. Lakin*

Computer Graphics and Computer Design, *Aaron Marcus, Christopher Keith & Michael Aren*

Creative Futuristics, *Howard Pearlmuter*

ELECTRONIC MUSIC & ARTS

FM Synthesis and the Casheab 32 Channel Sythesizer, *Ceaser Castro*

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A Three-dimensional Computer Input Output System, *David Dameron*

FOR THE NOVICE: INTRODUCING MICROCOMPUTERS

Introducing Microcomputers (and How To Use Them), *Tony Bove & Cheryl Rhodes*

TELECOMPUTING FOR EVERYONE

Vidiotex and Teletext: Computer Graphics Today, Tomorrow Television, *Jerry Borrell*

Local Networking For Small Systems, *Douglas W. Gage*

Telematique: The First Universal Communications Terminal, *Mark Cummings*

EXOTIC COMPUTER APPLICATIONS

Computers and Horticulture, *Frederic E. Davis*

Mini-Computer Applications in Antitrust Litigation, *David Bradwell*

Autospec and Autocast: Book and Booklet Design and Castoff By Computer, *Stanley Rice*

Computer-Generated Crossword Puzzles, *Chuck Adams*

MICRO-BASED DATA BASES

D B Master: A Sophisticated Data Base Management System for the Apple II, *Barney Stone*

Natural Language Access to Database Management Systems, *Bil Lewis*

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Experiences with Computers in Education, *Fred Waters*

COMPUTER BUSING & DRIVERS

Slave Processor for S-100, *Allen Heaberlin*

The PI Bus - A Processor Independent Bus Structure, *Anton Pietsch*

Discussion: Proposed Advanced Microcomputer Systems, Backplane Bus-P896, *Andrew Allison*

THE IEEE 696/S-100 STANDARD

Status of Standard Approval, *Howard Fullmer*

S-100 Standard DMA Protocol, *Kels Elmquist*

What Does IEEE-Compatible Really Mean?, *Mark Garetz*

UNUSUAL COMPUTER-AIDED INSTRUCTION ENVIORNS

Personal Computer-Assisted Instruction in Music, *Wolfgang Kuhn, Paul Lorton, Jr.*

Microcomputer-Assisted Instruction in Psychology, *Philip L. Hartley, Ph.D.*

A Comparison of Traditional and Computer-Based Methods of Teaching Students to Administer Individual Intelligence Tests, *Dee LaMont Johnson, Jerry Willis*

LOW-COST COMPUTING IN EDUCATION SYSTEMS (Part 1)

Personal Computers in Educational Administration, *Eugene J. Muscat, Paul Lorton, Jr.*

Competency Exams and Micro Computers, *Leonard T. Meuer*

Purchasing Microcomputer System Components From Two Vendors Considered Dangerous,

Ronald S. Lemos

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6th West Coast Computer Faire Conference Program (continued)

LOW-COST COMPUTING FOR EDUCATION SYSTEMS (Part 2)

The Microcomputer and Management of the Time-Bound Educational Program,

David K. Mosow, Frank Turner

Justifying the Cost of Microcomputers in the Classroom: A Problem in BASIC Math,

Madeline Fish, Brian Sakai

UCSD PASCAL: TUTORIALS

A Pascal Tutorial, *Neal Iscoe*

Tutorial: How to Implement UCSD Pascal on Your Computer, *John Tibbets*

UCSD PASCAL: DETAILS

UCSD Pascal, Version IV: A User's View, *Charles Chapin*

The IBS Multi-User/Multi-Tasking Operating System, *Alfred A. Pease, Robert G. Nelson*

Progressing from 1.0 to 1.1 A Review of the New Apple Pascal, *Carl Helmers*

Digicomp Research Pascal-100: High Performance UCSD Pascal on the S-100 Bus, *Mark Bodenstein*

How to Add I/O Device Drivers to UCSD Pascal, *Barry Demchek*

THE PASCAL MICROENGINE

A User Looks at the Pascal Microengine: One Year Later, *Tom Pittman*

UCSD PASCAL: USERS SOCIETY

USUS on Pascal; UCSD p-System Users' Society: A Service for Computer Users, *A. Winsor Brown*

A Report on USUS: The UCSD p-System Users' Society, *James L. Gagne, M.D.*

USUS Advanced Planning Committee, *Randy Bush*

UCSD PASCAL: APPLICATIONS & SUPPORT SYSTEMS

The PCIF Productivity Package A UCSD p-System Based Package for Productivity Improvement, *Robert W. Peterson*

DataTool The Application Development System for Microcomputers, *Dick Karpinski*

The SPI-2000: A Distributed Microcomputer System and It's UCSD-

Pascal-Based Application Software, *Peter Eichorst*

Screen Control and the User Interface: A CRT Screen/Form Code Generation System, *Neal Iscoe*

Milestone: A Project Management Program Written in Pascal for Use on UCSD-

and CP/M Computer Systems, *Dr. Michael R. Posehr*

OPEN MEETING: ACM SIG ON PERSONAL COMPUTING

Association for Computing Machinery Special Interest Group on PC, *Liza Loop*

MEETING: COMPUTER DEALERS & RETAILERS

Bob Moody

FOR THE NOVICE: COMPUTER LITERACY

How to Learn About Microcomputing or Computer Literacy at Your Fingertips, *June B. Moore, JD*

Dear Novices, I've Got Good News and Bad News for You!, *Tony Severa*

THE COMPUTER BUSINESS

Microcomputer Tunnel Vision - or - Why I Designed and Built a New Microcomputer, *Adam Osborne, President*

Write the Right User's Manual for your Business Applications Software, *Sharon Rosa*

Preparing Product Announcements for the Media, *Frank Vaughn*

Public Relations for High-Technology Entrepreneurs, *Dennis Lewis, William Schwartz*

Enterprising Craftsman Boosts Digital Flea Market

by *Johanna Immerman*

Imagine this. Instead of walking your fingers through the yellow pages, how would you like to send them for a stroll across a computer terminal keyboard, accessible in places like your own home — or the local bar?

This is the innovative idea of Dave Dement, the Emeryville, Ca., owner of an HP2000 Access (which he assembled from used parts) who wants to help humanize computers.

Dave's idea is to create a computerized version of the yellow pages — a Digital Flea Market — easily accessible to the public, very much like the ubiquitous pay telephone.

Dave's "Digital Flea Market" concept has been around for a number of years already, beginning with Lee Felsenstein's "Community Memory", which was based in Project Artaud in S.F. Possibly somewhat ahead of its time, "Community Memory" was economically not feasible at the time.

Since then, the idea has been applied to businesses, where it is being used for such limited and specialized information services as housing rental searches and real estate listings.

Dement's idea represents the first time a varied and inexpensive system has been devised to serve the diverse business and personal needs of a large geographical area — or even a nation.

Dave says people are looking for reasons to use it, since the idea is so new and full of possibilities. He compares it to the early ham radio days, when uses were being discovered while the technology was still being perfected.

For example, while it is still in its developmental stages, word of the system has already spread. The growing national bulletin board is being put to use by students from UCLA to MIT, employing Dave's 3 dial ups, with the user needing only a terminal and a modem.

But how can Dave propose a cost-effective system, that wouldn't cost the public much (about \$2/hr during off-business hours) when the few big, public use time-sharing companies charge from \$5-\$12/hr?

Dave believes his main advantage is the fact that he owns his own equipment outright. He did the research (and trial and error) to find out which equipment would serve his purposes best, bought the parts used piece by piece, and assembled them himself. In addition, he writes his own software, or contracts high-school level programmers, who — he's

found out — can produce brilliant and creative programs.

But Dave isn't limiting his idea to "humanize" computers to his Digital Flea Market, which he recognizes is still on the hobby level. After meeting a number of secretaries who felt they could earn a living as word processors, but couldn't afford or weren't willing to invest in a \$15,000+ system, he decided to offer the use of his Unix-type word processor editor at a nominal fee, to such free-lancing typists.

Dave is a strong believer in self-employment. He thinks the present system creates a basic estrangement between employees and their employers, and diminishes motivation and personal incentive. He is angry about the way the existing economic system provides obvious advantages to big business at the expense of the hired employees. He is convinced that modern technology can help correct this inequity by making it possible for more people to become self-employed and, as a result, self-directed.

He himself is working to achieve that end. When he is not on his regular job maintaining computer terminals for the Berkeley Unified School District, he operates a terminal repair service and installs computers.

THE BASIC HOW TO

Programming With Free Basic, *Richard Mateosian*

Programming Data Files in Basic, *LeRoy Finkel, Jerald R. Brown*

THE BASIC WHY NOT

The Bankruptcy of Basic, *John R. Allen*

GOING FORTH

FORTH: A Conceptual Introduction, *John S. James*

A Guided Tour Through the FIG-FORTH Model, *William F. Ragsdale*

What is FORTH?, *Henry Laxen*

FORTH: The System Tool, *Samuel B. Bassett*

Software Quality and FORTH Programs, *Kim R. Harris*

LEGAL SAFEGUARDS & SOFTWARE

Software Protection: Legal Fact or Fable?, *David B. Harrison*

Panel: Legal Safeguards for Software Developers and Users,

Susan Nycum, Mike Kane, Mark Spohr, M.D.

MONEY & MICROS

Standard & Poor's Stockpack System: Using a Stock Market Database and Portfolio Management System for Investment Purposes, *Harvey E. Pearlman*

A Microcomputer Based Econometric Model of the U.S. Economy, *Dr. David M. Chereb*

MACROCOSMIC VIEWS OF MICROCOMPUTING

Toward an Electronic Bill of Rights, *Dean Gengle*

LISP, GREEK and ARETE: Musings on a Classical Education for the Computer Age,

Lois Patricia Flynn, Ph.D.

Computerization, Communication and Organization Theory, *Paul M. Armetta, Ph.D.*

INFORMATION PROCESSING FOR MANAGEMENT PLANNING

PERT/CPM Network Analysis: Management Planning & Project Management, *Dennis Starkovich*

COMPUTERS IN MEDICAL PRACTICE

Evaluation and Design of Software for the Private Practice Physician, *Allan Lundell*

A Psychologist's Wish List for Small Computers in Health Care, *David E. Bresler, Ph.D.*

Computer Medicine and the Society for Computer Medicine, *Neal Koss, M.D.*

An Update on SOFTDOC: A Disk-Based Medical Computer Journal & Network,

James L. Gagne, M.D.

Micro COSTAR: An Outpatient Medical Record System, *Larry Stoneburner, M.D.*

COMPUTING IN THE PHYSICIAN'S OFFICE

Three Medical Applications Programs, *Mark H. Spohr, M.D.*

A Medical Billing System, *F. Berkenbile Ph.D., D. Tessman*

Selecting a Desktop Computer for Your Medical Office, *Mark Spohr*

OPEN USER MEETINGS:

Heath Users Group

North Star Users Group, *William F. Banaghan*

PROTEUS: The Processor Technology Sol Users Society, *Stan Sokolow*

San Francisco Menza Apple Users Group, *Rick Kershner*

NorCal Digital Group Users Group, *Jim Jacobsen*

Conference Session

Marketing Through Public Relations

Designers of microcomputers and other microelectronic products find themselves in the not always enviable position of having significant competition. For a young company with a new product this means an increased emphasis on sound marketing and marketing support. The first thought is often to use advertising, but many small firms don't have the budget for this type of campaign. How then are they to support the marketing of their products? One answer: through a public relations program.

"Public Relations for High-Technology Entrepreneurs," a 6th Faire talk by Dennis Lewis and William Schwartz, provides an overview of public relations tools and how they can be used by technology firms and entrepreneurs to enhance their marketing efforts. The budget-minded approach presented also details a hypothetical new product introduction and subsequent publicity techniques that can be used during the product life cycle.

*The Computer Faire
Includes Over 500 Exhibits*

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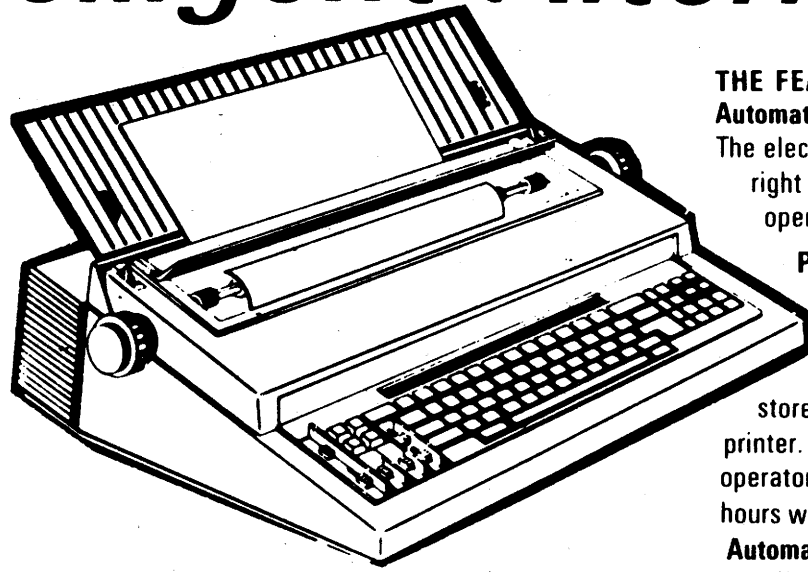
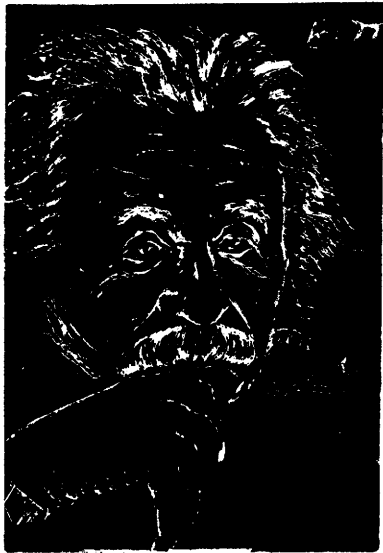
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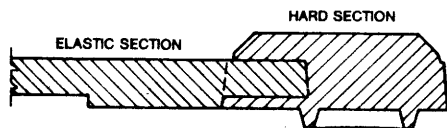
TYPRINTER 221

In the research you are doing before purchasing your computer printer, you are probably confused by the various claims, speeds, choices, shapes and prices. Well, we'd like to clear the air a bit and tell you about the most unusual computer-printer around — the TYPRINTER 221.

You see, it's unusual because it is **totally compatible** with **every** computer and word processing program . . . from the largest to the smallest. It's versatile to the point of incredibility . . . We'll discuss the broad advantages and explain the details.

THE DAISY WHEEL

The special daisy wheel supplied is of a unique design consisting of a 100 character carrying radii. Each radii is formed of two distinct types of plastic — an "elastic plastic" for the stalk of the radii, and a comparatively "hard plastic" used to form the character area. This, combined with a very narrow character profile and a special positioner on each of the 100 radii, guarantees a uniform character density. There is near perfect geometric positioning of the character with no character higher or lower than the others. And because of its unique dual material design, micro-vibrations have virtually been eliminated, leaving your final copy clean, clear and smudge free. The copy produced is comparable to that produced by metal daisy wheels and at a fraction of the cost.



THE KEYBOARD

The keyboard has been referred to as a triumph of human engineering - from the way the keys seem to have been custom designed to fit your fingers, to the way the special feature switches have been grouped. A flip of a switch (or under computer control of course) and the printer becomes a foreign language machine. Push a button, and like magic the printer automatically locates and lines up columns of figures, perfectly balanced between the margins. This incredibly fast, extraordinarily quiet electronic keyboard puts more programming power at your fingertips than printers costing five to ten times as much.

THE DISPLAY

The TYPRINTER 221 presents a new dimension in operator/machine communications. In the manual (typewriter) mode, the printer controls and verifies all entries before printing. The display exhibits the last 15 characters of the text, word-by-word, until the end of the line. The operator may control what will be printed before the actual printing takes place. This new found flexibility enables you to make modifications along the entire line and in both directions. This 20 character plasma display has the ability to scroll backwards as well as forwards; will give the operator a visual indication as to which print mode is currently being selected as well as the number of characters remaining before the right margin is reached. The display will also indicate to the operator:

The number of characters available in the memory	What characters will be inserted into an existing text.
When the printer is in an error condition	When the memory for the previous line has been selected.
When a pre programmed form layout has been selected	A warning message that the end of the page is being approached
When the printer is operating from the internal memory.	That a hyphenation decision must be made

PRINT MODE

The TYPRINTER 221 will allow you to automatically highlight individual characters, words or complete sentences. Whatever is entered from the keyboard or from the computer, even an existing text file, can be printed in one or more of the five different modes:

- traditional printing;
- underlined characters;
- true bold characters where the horizontal component of the character is increased without disturbing the vertical component;
- characters which are both bold and underlined, and;
- a feature unique among computer printers - printing in reverse — white on black, sort of reverse video on paper.

MULTILINGUAL CAPABILITY

A unique and useful feature of the TYPRINTER 221 is its capability of being able to print in several languages without changing the daisy wheel. In addition to English, every standard daisy wheel has the ability and the necessary characters to print in French, Spanish, Italian and German.

THE FEATURES

Automatic justification of the right margin

The electronics of the TYPRINTER 221 have made right hand justification a simple, automatic operation.

Phrase and format storage

Phrases, dates, addresses, data, etc. that may be stored in your computer's memory may be sent over to the printer and stored in one of the "memory bins" of the printer. This information may then be used by the operator in the manual mode. This can save you hours when trying to get a form "just right."

Automatic centering

The TYPRINTER 221 will not only center any title between the pre-set margins, but will also center over one or more columns, or over any specific point and will even align copy with the right margin independent of the left margin.

Automatic vertical lines

A command from the computer enables an automatic feature which prints vertical lines at any point on the paper.

Automatic tab sequence recall

With the TYPRINTER 221 you may store and recall the most frequently needed margin and tab sequences for applications such as daily correspondence, statistical reports, etc. This guarantees consistent high quality appearance of each document.

Paragraph indent

A computer command instantly sets a temporary margin in order to print one or more indented paragraphs with respect to the right margin.

Automatic decimal point location

No matter how many figures to either the left or right of the decimal point, the TYPRINTER 221 will automatically line up the figures with the decimal point in any position you choose. Statistical printing has never been easier.

Column layout

This feature allows you to obtain automatic and perfect distribution of spaces between columns in respect to the margins. A perfect page balance is assured without the need to carry out calculations or additional operations.

There is a wide variety of options that you can add to TYPRINTER 221.

By now you are probably convinced that we are sold on our machine, and we hope you can understand why. In fact, why don't you use these facts to measure against any and/or all the other computer printers on the market.

When you do, you will realize the TYPRINTER 221 is an intelligent electronic typewriter, a text formatter — and a brilliant computer printer — available at a suggested list price of only \$2850.

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