

Breaking 'bytes' and 'bits' together

By SHARON NOGUCHI

Every other Wednesday evening, about 300 people gather in the Stanford Linear Accelerator Center auditorium in Menlo Park to "share a byte with a friend."

The fare consists of bits, circuits, memory boards, paper tapes, hexadecimal loaders and other computer components. It is a meeting of the Homebrew Computer Club, a collection of computer hobbyists gathered to exchange information on the machines they invent, assemble, modify, program, run and play with at home.

A byte is a unit of memory capacity having eight data bits.

Homebrew, begun in March last year, may be the oldest computer club in the U.S., its founders said. Its members range from high school students to accountants to physicians to physicists.

Richard Delp of Sunnyvale, a computer engineer, is assembling an IMSAI 8080 microcomputer to experiment with algorithms.

Gary Fariss, also of Sunnyvale, has a true "homebrew" model he put together from scratch. Fariss, a system programmer for Control Data Corp., is also an amateur radio buff and has programmed the computer to decode Morse code.

Homebrew meetings begin with a "mapping period" where people advertise problems or advice. Announcements sound like, "Has anybody put together a Penny-whistle 103?" Or, "I don't have any

Editor's Note

The electronics revolution is taking the computer out of the business office and into the consumer marketplace. Before long there may be a computer in every car, every home and most coat pockets.

Times reporter Sharon Noguchi reports in today's Business Focus on clubs and shops that have arisen to serve the Midpeninsula computer hobbyist.

hardware but I would like to cooperate with someone and write some software (programs)."

"I have three extra Star Trek tapes that will produce a galactic map," is a typical offer.

Then, during the "random access" period those calling for help try to match up with those with more expertise. Spare tapes, manuals and program listings are placed on a table at the front of the room for those needing them.

"It's great," Robert Baer of Palo Alto said. "There are a lot of guys from computer companies. They'll spend hours and help you with your problems."

"Since this is a technical hobby, all people can't be programmer and technician for themselves," according to Gordon French, Homebrew librarian, in whose Menlo Park garage the club began.

At the first meeting 22 people showed up; by the second meeting

people were out in the driveway and members began searching for a larger meeting hall.

Such cooperation is viewed dimly by part of the computer industry. Herb Grosch of Computerworld magazine said in a recent editorial, "What disturbs me most is (this) counterculture attitude: private property is an obsolete idea."

Is that the idea behind Homebrew?

In the "great software debate," hobbyists are sometimes accused of stealing programs.

Software refers to programmed instructions that allow the computer to run. It includes paper tapes, pin-out charts (a map of the computer's contents), computer languages and compilers. Hardware refers to the computer parts themselves.

Many hobbyists think computer manufacturers should provide software at reproduction cost, according to Robert Reiling, editor of Homebrew's newsletter. Several companies do. Other companies charge from \$75 to \$500 for it.

"You've got to realize the investment of the average hobbyist is going to run from \$1,000 to \$1,500. It's absolutely absurd to ask \$500 for a manual and programs to operate the computer. It's like selling a stereo system and then asking \$500 apiece for records," said French.

William Gates, a software writer, said in an open letter to hobbyists, "Is this fair? . . . No one besides us has invested a lot of money in hobby software."

Yet French stressed the U.S. copyright laws allow people to copy materials for their own use. Homebrew members may check out materials from the club library to duplicate. The club itself does not duplicate materials.

Homebrew publishes a monthly newsletter of new developments, library listings, reports on mail-order and other companies and other clubs.

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(Times photo by Gene Tupper)

Mathematics made fun

Pam Joy, Nathaniel Truher and Jason Lloyd, all third graders from John Muir School in Cupertino, play a number guessing game on PDP-11 computer terminal, while supervised by Joanne Verplank, director of the Community Computer Center.

It's a make-believe world with problems

It's pretty hard to beat the tax man, as kids have learned by visiting the Community Computer Center (CCC) in Menlo Park.

Taxman is one of almost 50 mathematical games the PDP-11 computer at the center is programmed to play.

CCC, a non-profit computer workshop, develops and teaches recreational uses of computers. It is one of a half-dozen or so such centers in the nation. It's PDP-11 computer and 6 terminals are open for public use at a \$1.50 per hour charge.

The center, at 1919 Menalto Ave., offers field trips for schools, games, programming classes and tournaments. Children can even plan a birthday party at CCC.

The games range from simple number guessing games to complex economic simulation problems. In "Hamurabi," players try to "govern the ancient kingdom of Sumeria." They are given land, seed grain, productivity and market prices and must plan the economy to feed a given population.

Based on mental calculations players allocate land and grain for 10 "years." The computer calculates the results of their decisions. It's not easy, and the computer will not tolerate reckless rulers.

One miscalculation may result in a message like, "You starved 73 people in 1 year. Due to this extreme mismanagement you have not only been impeached and thrown out of office, but you have also been declared National Fink!"

Roles are reversed in other games, such as "Animal," in which the player thinks of an animal

while the computer guesses what it is.

CCC opened three years ago as part of People's Computer Company, to "demystify computers for children," according to Joanne Verplank, CCC director. It operates on a yearly budget of about \$20,000, all raised from user fees, plus volunteer time from computer engineers and high school students.

People's Computer Center (PCC), now at 1010 Doyle St. in Menlo Park, publishes books on computers for children and adults. Robert Albrecht, one of PCC's founders, acquired the center's first computer in exchange for writing a computer documentation book. A more powerful computer and more terminals were received in exchange for more books.

While some teachers and parents may fear children using computers and calculators will never learn basic arithmetic, Albrecht said computers will actually improve mathematical skills.

"The constructive use of calculators will let kids solve real life problems. Instead of focusing on the tedium of calculating, they can concentrate on problem solving methods," he said. He added that some games require mental calculations.

Albrecht sees computers as a tool for students. "It's just like when you're pounding a nail into a board, a hammer is better than a rock, and much better than your fist," he said.

PCC publishes a monthly newsletter for computer hobbyists, some of whom are as young as 12 years old, Albrecht said.

Hobbyists spur boom

By Christmas, department stores will feature home computers as the latest component in home entertainment, Paul Terrell, co-owner of the Bay Area's first computer store, predicted.

The Byte Shop, at 1063 West El Camino Real in Mountain View, sells computer kits and parts, programs, books and magazines geared for the home computer enthusiast.

The micro computers can be programmed in high-level language, like BASIC and FORTRAN, rather than machine language that is time-consuming to program. Home operators also need a teletype and a television screen for input and output and memory to hold program instructions and data. Or, the computers can be tied into a home television set or tape recorder.

The entire packet may be purchased for about \$1,000.

About 70% of the Byte Shop's customers are hobbyists, Terrell said. The mini computers can be programmed to produce digital music on a stereo system, draw geometric designs on a television screen, operate home appliances or play games.

He said the home computer market is rapidly expanding, though hobbyists usually have some computer background. "It's just like the development of hi fi (radio). When it first came out, there were the little guys out there building sets. Later, when the market was proven, the big guys (companies) came out. But initially there were some 100,000 people with screwdrivers and soldering irons figuring out how to make the things work," he said.

Terrell and his partner, Boyd Wilson, opened the Byte Shop December 7. Previously, they were northern California sales representatives for MITS, a computer firm. They found most of their customers wanted computers for personal use, rather than work.

In an experiment to test the hobbyist market, Terrell and Wilson quickly sold 10 computer kits they had bought from MITS. "We decided if we could do this well on the side, we'd do great if we had a store people knew about," Terrell said.

So far, his prediction seems to be coming true.

Sales in December were \$7,000, and Terrell estimated last month they reached \$40,000.

Terrell and Wilson early ran into difficulties supplying their shop. Computer companies were used to selling only in large quantities, or in small quantities through the mail.

In January they decided quantity buying would improve profit margins, and they decided to franchise.

Byte Shop No. 2 opened March 2 at 3400 El Camino Real in Santa Clara, and Byte Shop No. 3 is scheduled to open May 1 at 2559 S. Bascom Avenue in Campbell.