

Drew

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Computer Literacy

The Terminal Prognosis

By Carolyn C. Bentzinger

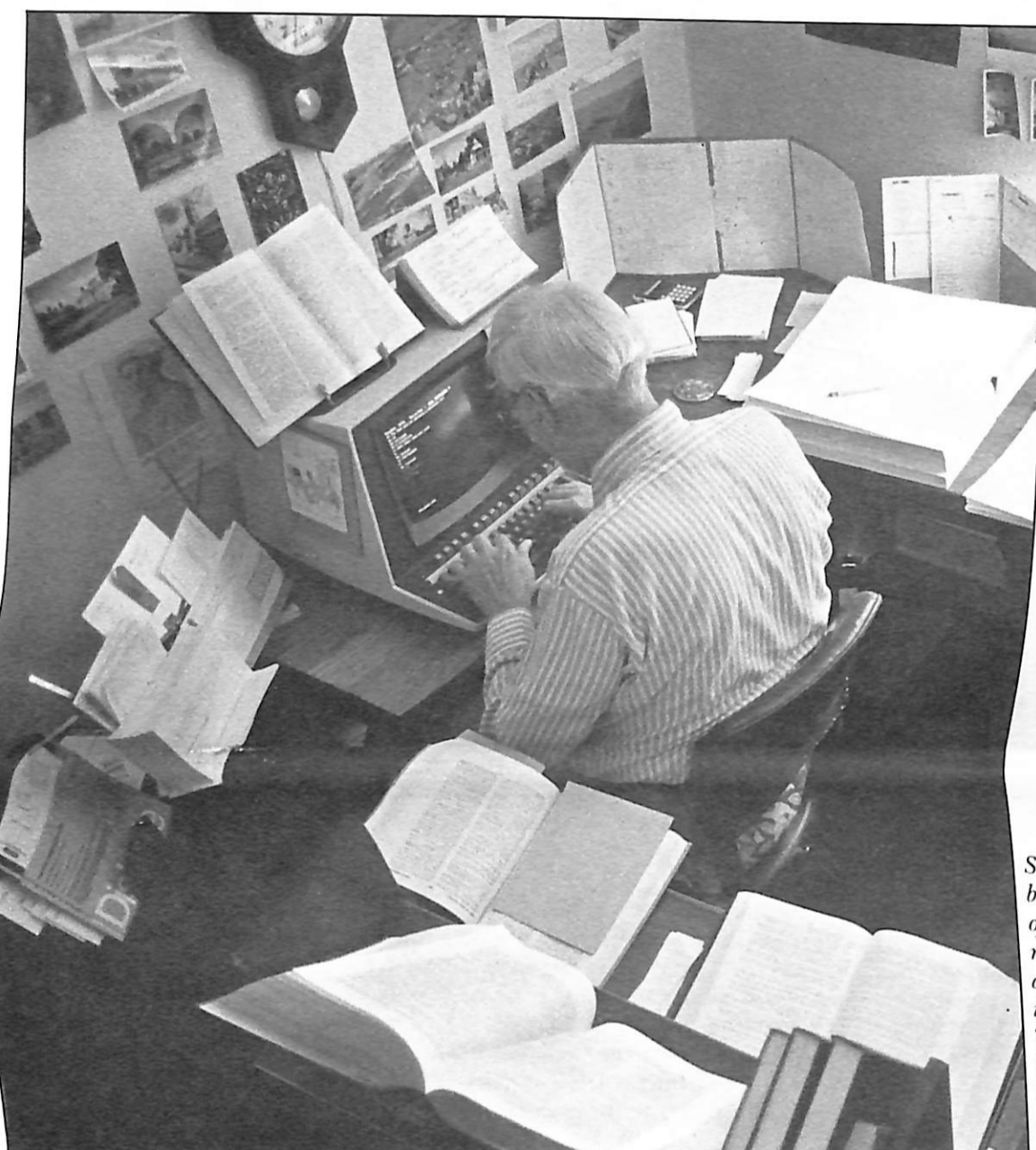
Meet Eliza. She's a psychiatrist, but she's mindless. She probes into patients' problems with pointed questions, but she only pretends to understand English. Small and round, she screens herself from curious eyes. She's unreal — a product of human ingenuity.

She's a floppy disc on which man-made instructions reside. When inserted in a computer, she tells the machine what to do.

Eliza's psychiatric practice belongs to a genre of non-scientific computer programs shattering the myth that high technology serves only the needs of mathematicians and statisticians. Exemplifying the computer's range of applications, the non-statistical, non-scientific Eliza program implies the need for computer literates — those who understand how a computer works, can do basic programming and know how to solve problems using a computer — in all fields. High technology has infiltrated virtually every profession. And people with very little technical training now use computers for word processing, storing data or statistical wizardry. Novices lacking technological training have discovered that they can speak the computer's language, as symbols give way to abbreviated English.

"I don't really care about understanding the inner-workings of a computer," says Executive Vice President W. Scott McDonald Jr., whose office terminal allows him to converse with computers across the country on financial planning. "All I want to do is turn on the terminal, type in the telephone number of the computer I wish to talk to and get the information I need. You don't have to be a computer jock to use a computer."

McDonald typifies the computer-literate attitude, an attitude which over the past five years has enveloped dramatically increasing numbers of campus community non-jocks. Depending on whether their task is instruction- or application-oriented, people have two resources on campus into which they funnel their computer zeal. The administrative computer,



Judi Benvenuti

Surrounded by notecards, books and papers, Professor of English Robert Chapman enters information compiled from the sources into the computer terminal. The computer organizes the information and stores it all in a fraction of the space necessary to house the background papers.

the PRIME, generally fulfills the technical needs of staff and administrators, while the academic computer, the HP 3000, serves as a hands-on instructional tool.

"Use of the administrative computer is application oriented, which means that a lot of what it does is aimed toward accomplishing a particular task, such as generating mailing labels for the development office or providing the registrar's office with a print-out of admitted students who have paid their tuition," says McDonald. "Since the people who run the administrative computer need programs which help them perform those tasks, they will either write the programs themselves or contract with an outside source to provide software for them."

Alternately, the HP 3000 presents the campus community with a teaching tool on which users learn to write their own programs and test them first hand. Used primarily by students who teach themselves or learn through courses how to instruct the computer to perform tasks, the HP 3000 has enjoyed increasing popularity since its campus debut in 1977.

And the university expects its educational role to escalate as campus interest continues to parallel that of the nation in embracing the computer age.

The need to prepare graduates for a technologically oriented world prompted the College of Liberal Arts to add computer science to its list of majors beginning this fall and subsequently, to rename the math department the Department of Mathematics and Computer Science. Computer science courses — which have been offered in the past under the math department's auspices — have attracted students from all disciplines, including the humanities. In addition, students enrolled in certain math, political science, psychology, economics, chemistry, sociology and zoology courses routinely use the computer, usually for statistical analyses. The number of courses incorporating HP 3000 use increased from two during 1979 to 14 in 1981, and students enrolled in these courses jumped from 134 in 1979 to 638 in 1981.

The academic computer also accommodates what the center calls "research accounts," people who use the

machine on their own outside the confines of classroom requirements.

"Most research accounts use the computer for word processing," says Director of the Academic Computing Center Barry Burd. "Generally, the trend is that the closer you are to the humanities and the farther you are from the sciences, the less you use the computer for statistical work and the more you use it for either records or word processing."

Research accounts usually glean the instructions necessary to operate the system from Academic Computing Center staff or colleagues. In most cases, users can find an empty terminal in the computing center, which houses about half of the 32 terminals on campus. Others are located in the math and science departments, psychology department, the library and the archaeological museum. Should an application prove too complicated for the HP 3000, users may tap the pool of information available through the Educational Computer Network, a consortium of New Jersey colleges and universities whose combined computer applications form a reference

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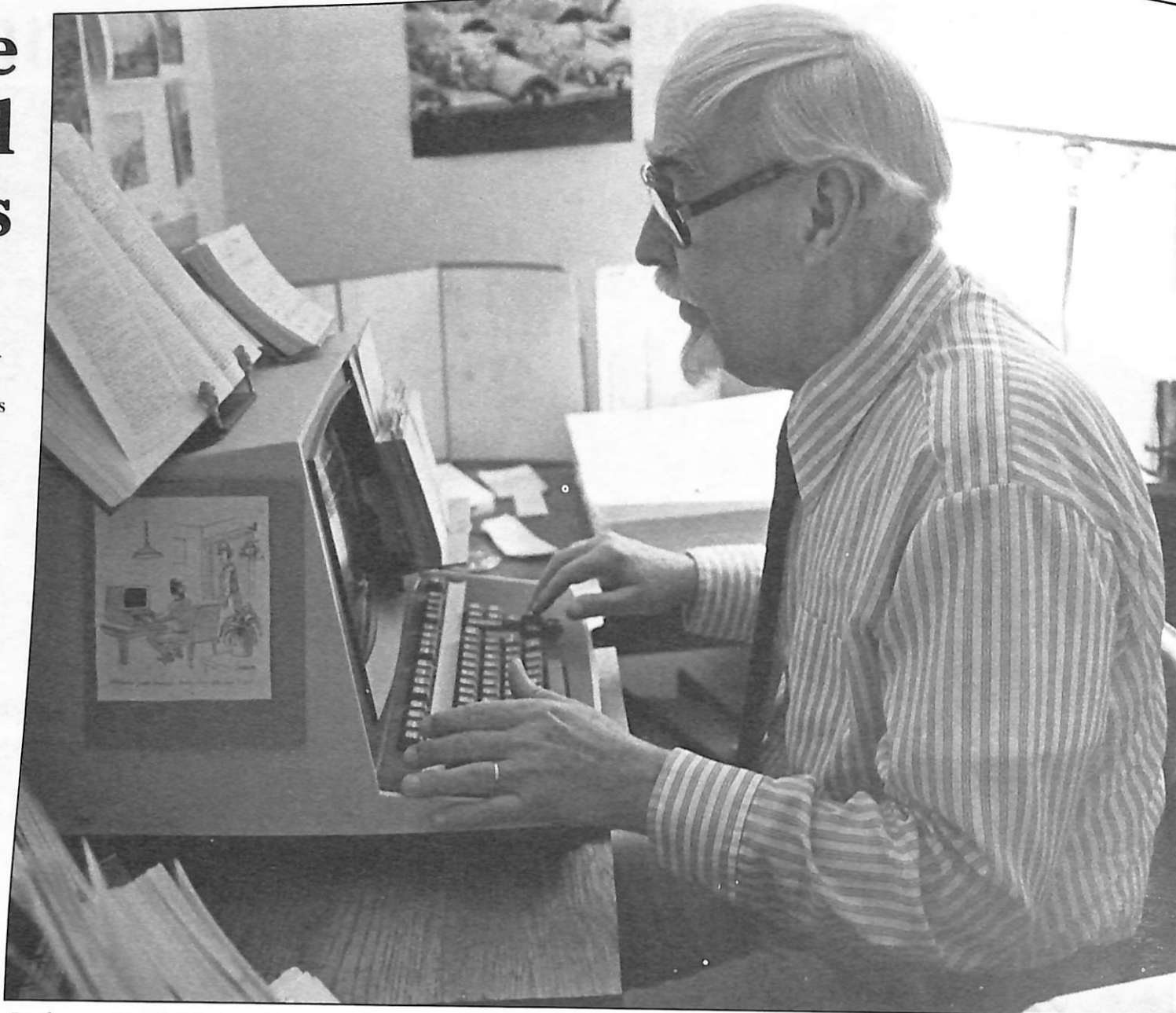
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base for members.

"The bulk of word processing applications comes from graduate students," Burd says. "Graduate students don't seem to use typewriters anymore. Some of them are fanatical about word processing."

While most research accounts are students, faculty members fall into this category as well. Professor of English Robert Chapman is one faculty member who uses the academic computer for a project — the prodigious task of compiling "The New American Dictionary of Slang." Guessing that the academic computer could be invaluable in organizing literally thousands of slang terms (which on notecards occupy between 50 and 100 storage boxes), Chapman implored the Academic Computing Center to write a program which would answer his needs. A student was able to cut the mustard with a slang program, and Chapman's been in seventh heaven ever since.

While other faculty also use the academic computer, they may represent a minority of users. John Strange, founding dean of the College of Public and Community Services at the University of Massachusetts in Boston and president of the consulting firm Arcadia Enterprises, recently told participants in the American Association of Higher Education's annual convention which McDonald attended, that much more resistance to the new technology exists at the college level than at the elementary or secondary levels. He drew his conclusion from conversations with people nationwide in both elementary and secondary fields. He predicts that by 1985, 80 percent of all secondary and post-secondary students will own computers. As for faculty, he forecasts that by 1985, 20 percent of



Professor of English Robert Chapman at his computer terminal

post-secondary faculty, 25 percent of secondary faculty and 30 percent of elementary faculty will own computers.

Some colleges and universities offer incentives to encourage their faculty to become computer literate. "Vassar, for example, has issued a few small grants to humanities faculty for purchasing personal computers," McDonald says. "The Osborne Computer Corporation has offered Oberlin College a price break for buying computers in bulk."

The Alfred P. Sloan Foundation recently initiated a program titled "The New Liberal Arts" to assist liberal arts educators in alleviating what they see as a serious deficiency in quantitative reasoning in undergrad-

uate curricula. The foundation awarded 30 liberal-arts institutions \$10,000 in planning grants to prepare proposals for programs which would encourage technological education.

Those who submitted the 10 best proposals received \$250,000 grants, and the others were granted \$25,000. At the center of all the programs stands the computer as the essential tool for the proposals' success.

Drew's approach to selling its faculty on the computer's benefits will most likely be to "generate a critical mass of interest," says McDonald, who adds that computers will affect education but will not become a surrogate for it. A five-year plan launched this year will gradually expand the academic computer. As part of the plan, 16 microcomputers will arrive on campus this summer, in time to be used by participants in the Summer Computer Camp (see box).

"Microcomputers are very small units which can run independently of the main computer," Burd explains. "They are sometimes called stand-alone units. The microcomputer programs will reside on little plates called floppy discs which people will be able to carry around campus, stick in their microcomputer and thus, have information available."

Beginning this fall and continuing through the next four years, the academic computer system will be expediently enhanced through the purchase of more microcomputers, more terminals or both.

Student exposure to the computer — whether it be through the classroom or their own devices — may affect their career paths. A recent article in "The New York Times" said that "Five years ago, people with liberal arts and business backgrounds began discovering that they were welcome in the fast-developing computer industry . . . provided they had some knowledge of computers."

While the article concedes that breaking into the computer field with a non-technical background is becoming increasingly difficult, it quotes Joseph Blumberg, vice president of administration for Comshare, a computer services company in Ann Arbor, Mich., as saying, "More than half our marketing department is made up of people with degrees in the social sciences, mathematics and business. If they have what we consider to be the prerequisites for the job — namely good human-relations skills and analytical abilities — we can teach them the technical information they need to sell effectively software systems."

Connie Winkler, author of "The Computer Careers Handbook," is quoted as saying, "Liberal arts graduates who majored in music and psychology are particularly well suited to pick up programming skills quickly, and those with English and communications backgrounds are adept at documentation," or "explaining in writing what they have done in a programming language."

Yet, even as he touts the academic computer and its future proliferation, Burd draws a parameter for the tasks the machine performs. "There are some things you don't want to do with a computer," he says. "For instance, if I wanted to average two numbers, I could do that faster on paper than on a computer."

"I don't want to imply that the computer is a big, dumb machine which only does large tasks. For me and the math department, it's a fine-tuned instrument of great theoretical interest. Deciding what kinds of calculations it can do and do well is a vast problem of theoretical interest. For instance, artificial intelligence is the field of trying to program a computer to do things that make it seem human. Like the psychiatrist program. That field is in its infancy."

Computer Camp Logs On

Wiz kids and novices alike are invited to campus this summer, where the North Jersey Computer Academy in conjunction with the university will hold a computer day camp for youngsters ages 10 to 17.

Starting June 27, four one-week camp sessions will introduce newcomers to the nature and language of today's computers and also fine tune experts on their mastery of the system. The camp will be weekdays from 9 a.m. to 3 p.m. Lunch and recreational activities, including swimming, will be available. Students also will have free time on the computers.

According to Alan Candiotti, associate professor of mathematics and computer science camp co-director, participants will receive four hours of computer instruction daily. Programs will be tailored to each child's knowledge and ability.

"We can handle anyone from the most elementary to the most advanced. At this camp, kids can move at

their own pace. It will be learning without pressure," Candiotti says.

Candiotti has served on the mathematics faculty of the Drew-Dodge Program for the Gifted, which provides select, academically talented junior-high students with intensive, college-level instruction at Drew.

In addition, Candiotti has taught at several New Jersey gifted schools and has been a consultant for Project ROGATE, the state office for gifted children's education. A published author, Candiotti received his A.B. degree from Columbia University (1967) and the A.M. and Ph.D. degrees from Harvard University (1968 and 1973, respectively).

Co-directing the camp with Candiotti is Joseph Weisberg, a professor at Jersey City State College and a consultant with the U.S. Office of Education. Weisberg also frequently advises on science and computer curricula. He is the author of 17 books and numerous articles.