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## A Report On the All Purpose Relatively Intelligent Learner Computer

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*Author's Note:* This editorial was first published in the April 1988 issue of *The Computing Teacher*. This was my first attempt to write an April Fool's editorial. Several people read only part of it, and then quoted it in assignments that they turned in to me. They completely missed the point that it was a joke, and so quoted it as representing what exists right now. A number of other people noted that the ideas in the article were really not very far into the future. My conclusion was that I should probably give up on writing April Fool's editorials.

It is well known that the major computer hardware systems we can purchase commercially are about five years behind the state-of-the-art of products currently functioning in the research labs of companies such as International Business Machines or Nippon Telegraph and Telephone. What is less well known is that the top secret military research labs in the United States are about five years ahead of the company research labs.

A short while ago I was given a tour of one of these top secret labs. (That is one of the privileges of being Editor-in-Chief of an outstanding computer in education periodical.) Of course, they didn't show me any of the really "top"

secret stuff. And I had to sign a form promising that I would not reveal the location of this research lab. But I did receive permission to write about educational implications of what I saw.

I received a personal tour with a general as a guide. What I saw really blew my mind. The computer system that most impressed me was the size of a tape cassette player and weighed about two pounds including its batteries. At first I thought it was a small CD-ROM player, and indeed that is one of its functions. The CD-ROMs it uses are about 3 CM (a little over an inch) in diameter and store one billion bytes of information on each side of the disk. The computer has two of these laser disc drives. One can only read laser discs while the other is a WORM (write once read many) drive. I think the idea is that they want to create a permanent record of every use of the computer. The computer has a small pocket on the side of its carrying case. It looked to me like it will hold several dozen CD-ROM discs.

I asked about the speed of this computer and its memory size. The general told me that it uses fiber optics, an optical central processing unit, and makes use of super conductivity. While the general didn't give me precise details (perhaps due to a lack of knowing specific details), my guess is that the machine is at least a thousand times as fast as a Macintosh II, or several times as fast as the largest Cray computer currently available. The general was unable to give me detailed information about the primary memory, but suggested it is in excess of 32 megabytes.

I couldn't see a display screen on the computer, and the whole outside case was so small that it couldn't hold a keyboard. I asked where the keyboard and the display unit plugged in.

The general laughed and handed me a bullet proof helmet with a strange looking pair of goggles. It reminded me of a World War II tank movie I had seen on television a few days earlier. The general indicated that the helmet and goggles connected to the computer via narrow band radio, with a highly secure encrypting and decrypting system used to ensure security. The same system, operating on a different channel, allows voice and/or computer contact with other people having similar communication systems. The setup includes audio output through speakers built into the sides of the helmet and voice input through a microphone built into the chin strap.

The general explained that the computer system uses voice input and voice

output. But, I said, what if one needs to look at a table of data or view a map stored in the computer? And what role do the goggles play?

Again the general laughed and then helped me to put on the helmet and goggles. Surprise! The goggles are a heads-up computer display. That is, I could see through the goggles and have a clear view of the room around me. But when the computer was switched on, I could also see a full screen display right before my eyes!

By that time I think the general was having fun at how overwhelmed I appeared. The general showed me how to call up a map of a military training post. The heads-up display showed me a photograph that looked like it was taken from several miles up. Using spoken commands such as Lower, Higher Left, Right, Up, and Down I was able to focus in on any part of the base. One of the buildings I looked at seemed to be designed to store high explosives and there were four guards standing at the only door. The general suggested I say the word Location. When I did so, the coordinates and elevation of the building appeared on the display. I made a guess and said the word Contents. As an inventory of the building contents appeared on the display the general ripped the goggles off my face. My guess is that it was not appropriate for me to see that the building contained more than a dozen twenty-megaton nuclear weapons!

Needless to say, that ended the hands-on part of my tour. Near the end of the tour I asked if I could talk to one of the programmers or some other technical person. Fortunately for me, just at that time we encountered a relatively young person in civilian clothes who proved to be a technical expert.

First I asked about what it might cost to mass produce this computer system. I was told that the military expects to produce about three million of these computer systems, with mass production scheduled to begin in 1998. In mass production, the ruggedized military version of this computer system will cost about \$1,500 apiece. My guess is that a civilian version, suitable for use in schools, will cost under \$400.

Next I asked about some of the technical specifications of the hardware and I asked what programming language was being used to develop the software. I guess that the general standing there rather intimidated the technical person, as the response was quite guarded. But I was told that the hardware

is called the All Purpose Relatively Intelligent Learner (APRIL) computer since it makes extensive use of recent advances in artificial intelligence. The language used to write the software is called the First Operational Optical Language (FOOL).

### **Retrospective Comments, April 2002**

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In recently reading this editorial, I found that the "predictions" were rather interesting. The APRIL computer system represented my thoughts of what Information and Communications technology might look like ten years into the future (in 1998). I was a little too optimistic in terms of optical computers. But, all in all, I am impressed by how well I did!

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