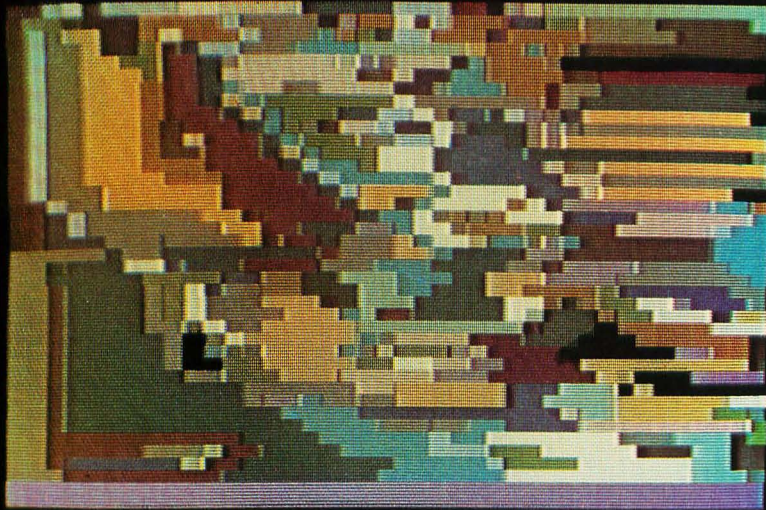


A Nybble on the Apple



COLOREATER DEMO

Notes by Carl Helmers

Next month, we'll have an article by Steve Wozniak, designer of the Apple-II computer, describing this beautiful new conception of the small computer. As a taste of the Apple-II, here is one frame of the "Color Eater," an interesting program which illustrates the facilities of the Apple-II.

The Apple-II, which is to be introduced in April at the first West Coast Computer Faire in San Francisco, may be the first product to fully qualify as the "appliance computer." An "appliance computer" is by definition a completed system which is purchased off the retail shelf, taken home, plugged in and used. I first saw the Apple-II on November 20 1976 when Stephen Wozniak and Stephen Jobs stopped by a motel room in Palo Alto where I was staying at the time. They brought along the prototype Apple-II to give a demonstration.

To serve as an interesting challenge to its

capabilities, I suggested that we sit down and implement a "Color Eater" algorithm with Apple-II's integer BASIC interpreter with color graphics extensions. I had first seen the Color Eater program demonstrated in an advanced graphics research laboratory late in 1975 (the idea of the program is not original with me, and I will provide the source upon request). The Color Eater always lives in the matrix in the color TV display at some point.

The Color Eater is a very simple animal. It looks at its nearest neighbors in the color matrix, searching in a clockwise direction for its current "digestible" color. If it finds this color, it moves its location to the matrix position of that color, digests it into a new color, and reiterates its search. Occasionally, the Color Eater becomes a very frustrated little animal. It eats itself into a corner and no longer is able to find any digestible colors. When this catastrophe happens, it throws a fit and turns itself into another variety of Color Eater which can eat itself out of the frustration point. The result is a constantly changing random color pattern on the screen, illustrated in one state in this photo made with the Apple-II computer's output to a standard color television.

That evening last November, Steve Jobs, Steve Wozniak and I sat down and proceeded to use the Apple-II BASIC (which is a 5 K interpreter with 16 bit integer arithmetic) to program the Color Eater game. After perhaps 30 to 45 minutes, we had a working BASIC language version which used the Apple-II's graphics facilities. Since it was done interpretively, the program ran a bit slow in this version, but it certainly illustrated the concept. Later, Steve Wozniak recoded the program using the 6502 processor's assembly language facility as implemented in the Apple-II, and reports that the Color Eater now runs like lightning, which is its normal mode of operation these days as a demonstration program for the Apple-II.

If you attend the first West Coast Computer Faire, stop by the Apple Computer booth and take a look at this interesting processor; if you don't see it in person, then you'll have to wait until next month's BYTE for a more complete description of the design concepts of the machine as explained by Steve Wozniak. ■