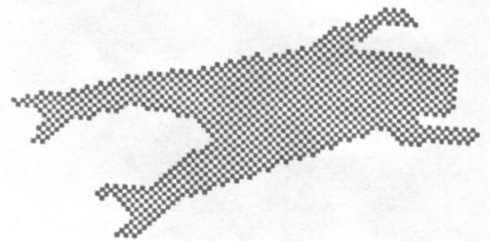
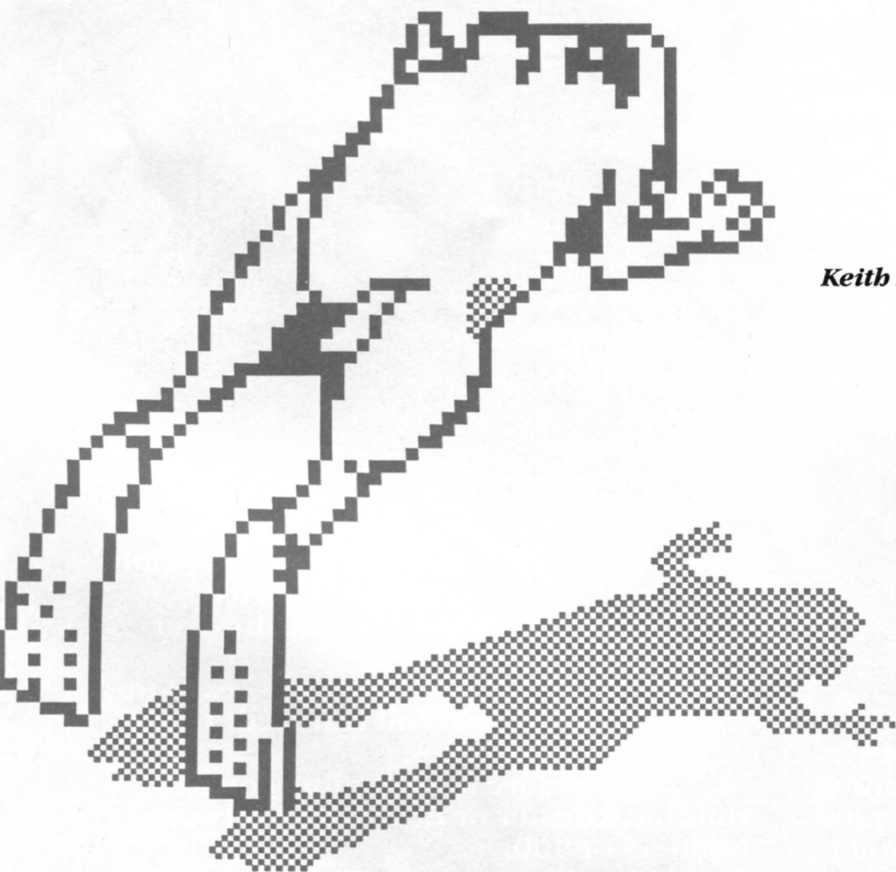


A Moving Pixel Show



Keith McCandless

In 1928 a now-familiar animated mouse made his film debut in Walt Disney's "Steamboat Willie." The year 1985 marks another milestone in animation history: the advent of VideoWorks, a program that lets you create your own animated "movies" on the Macintosh screen. "Steamboat Willie," created by Disney and an unsung artist named Ub Iwerks, was the first animated cartoon with synchronized sound. VideoWorks, created by a small company called MacroMind (see "The Software Rock 'n' Roll Band" in this issue) and published by Hayden Software, also features synchronized sound, as well as an animation studio stocked with everything from a cutting room to a cast of characters.





A sample VideoWorks animation is based on Eadweard Muybridge's time-lapse still photos of figures in motion taken in the 1880s. To start the gymnast's action, hold the magazine open with your right hand midway down the edge of the pages and let the 19 pages fan out rapidly from under your right thumb.



VideoWorks is animation fun with serious potential. Imagine the possibilities: educational animations showing the movements of the planets or the workings of an internal combustion engine, business flowcharts that flow and bar charts that grow, animated storyboards to sketch scenes for films or commercials, and of course, plain old entertainment. But before you're ready to amuse your friends with original cartoons or create animated presentation graphics at work, you'll have to sit down and spend some time—and experience some frustration—learning to use the program. This frustration is common to all challenging software: you grasp the potential before you have the credentials. With *VideoWorks* you soon learn that your wildest dreams require hundreds of frames, numerous special effects, and a considerable investment of time. Despite the program's quick cutting and pasting, many steps are required to produce only a few seconds of even halfway elaborate animation. But it's worth the effort.

The Disks

The *VideoWorks* package includes three disks: Movies, a disk containing 18 sample animations; an Art disk with *MacPaint* images to paste as is into animations or to modify for your creations; and the System disk, which you use to create animations. The System disk also contains three tutorials, which, in conjunction with *VideoWorks*' excellent documentation, guide you through the intricacies of the program.

The manual directs you first to the Movies disk for a sight-and-sound demonstration of skillfully rendered animations to whet your appetite. King Kong clutches a damsel and swats at buzzing biplanes from atop the Empire State Building. A group of scuba divers swims by, accompanied by authentic-sounding bubbles. A couple dances as a band called the Wetlegs plays in the background. The Movies disk also provides three animated charts that show various statistics relating to the cheese industry. Certainly *VideoWorks* has the potential to spice up business presentations, but for the most part the sample movies play up the irresistibly frivolous aspects of Macintosh animation.

Before you move on to the System disk, you may also want to take a look at the drawings on the Art disk, which are reproduced in the manual. You'll find backgrounds, a chart kit, and a cast of characters ranging from a falling cowboy to a jumping mushroom (see Figure 1).

Manual Labor

After you've seen *VideoWorks* do its stuff, you'll want to get started on your own animations. While the program may at first seem intimidating, with its seven windows and ten menus, the documentation walks you step by step through simple animation sequences, introducing *VideoWorks* terminology and animation techniques. Once you've completed the elementary exercises, you'll be ready to go on to the more sophisticated animation examples in the tutorials. When you've mastered the tutorials, you'll have enough animation experience under your belt to produce professional-looking animations on your own.

The Greatest of Easels

One of *VideoWorks*' windows will seem familiar to Macintosh users. CheapPaint is the program's scaled-down version of *MacPaint* (see Figure 2). The CheapPaint window offers a pencil, a paintbrush, an eraser, several shape- and line-drawing tools, and more. Like *MacPaint*, CheapPaint offers a text-entry mode with a selection of fonts, including Apple's pictorial Cairo font. With the tools, you create images in an easel that you can expand or shrink as necessary. A selection rectangle allows you to move images within the easel, and FatBits lets you close in on every pixel.

Frame-by-frame animation is more complicated and more time-consuming, but it gives you a greater degree of control over the movement of your castmembers. To create the illusion of movement frame by frame, you string several castmembers together to make an animated object known as a *sprite*. For example, the hopping frog in the program's first tutorial, "Pharaoh's Plague," is a sprite made up of five separate frog castmembers, each in a different phase of a leap. Each sprite—whether a leading actor or simply a piece of scenery—occupies one of 24 channels, which means you can put as many as 24 sprites into an animation. In the Pharaoh's Plague sequence, the hopping frog is repeated in several channels, creating an army of frogs.

To add a frame to an animation, you press **⌘-A**. If you wish, you can control movement with pixel-by-pixel precision by using the program's Tweak window. The window allows you to indicate the direction and number of pixels a castmember will move from one frame to the next.

Knowing the Score

As soon as you drag a castmember from the Cast window onto the stage, it is assigned a channel in the Score window (see Figure 4). The 24 channels are labeled A through X down the left side of the Score window, while frame numbers are displayed across the top. A small symbol in each frame indicates the movement—up, down, left, right, diagonal, or static—of the castmember that occupies that frame.

The 24 channels are arranged to reflect foreground priority. The first sprite entered occupies channel A. When a second sprite is placed in channel B, it

passes in front of the sprite in channel A when you play back the animation. Although *VideoWorks* allows you to cut and paste sections of the score to edit animations, your job is simpler if you plan a movie in advance and draw background sprites first.

Sound Effects

The topmost channel in the Score window sports a loudspeaker icon. In this channel you place the sound track of a movie, selecting from among over 80 sounds in the Sfx (sound effects) menu. Once you select a sound, you add it to the animation by dragging the pointer across the appropriate frames in the Score window's sound channel. The sounds include instruments, snatches of tunes, and an array of thuds, beeps, laser blasts, explosions, and other noises that are guaranteed to add life to animations. You can also construct tunes by pasting individual notes into the sound channel, but this method is fairly tedious. When you add sound to your animations, keep in mind that the sound effects vary in length. An explosion, for example, requires more frames to play in its entirety than does a thud. Many of the sound effects are less than convincing—the bird songs and the helicopter, for example. I found the space sounds the best of the lot.

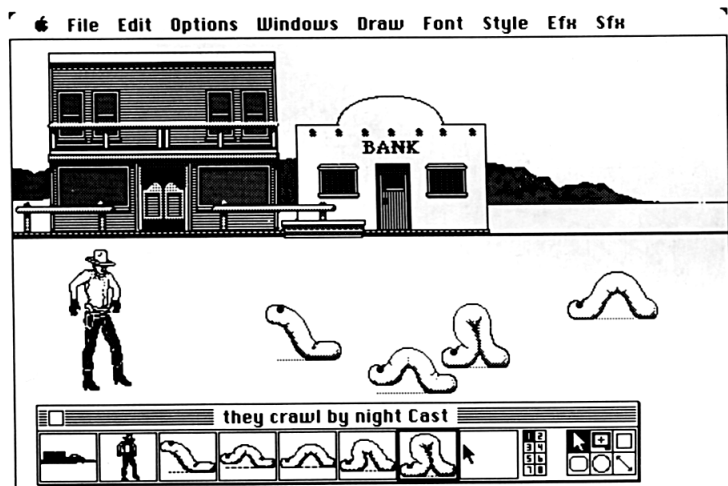


Figure 3

The Cast window holds rows of castmembers that can be dragged onto the stage and arranged into an animated sequence. The shapes on the right side of the window are QuickDraw primitives, which you can use to place shapes directly onto the stage.

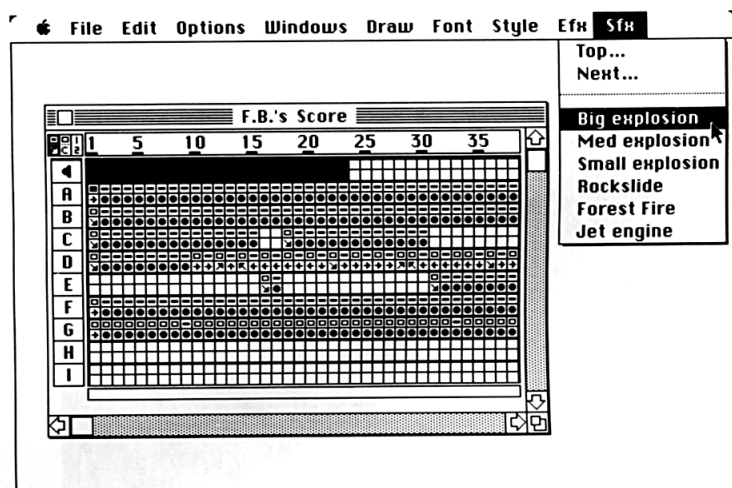


Figure 4

The Score window reflects in its 24 channels the movement of castmembers. You use the Score to edit movies, selecting groups of frames to cut, copy, paste, or clear. You add sound effects in the topmost channel of the window.



The CheapPaint window, unlike the *MacPaint* window, can be scrolled and resized. With a little experience, you'll discover that many familiar *MacPaint* shortcuts, such as double-clicking on the pencil to enter FatBits, are faithfully employed by CheapPaint, which is really not so cheap after all.

Creating a Cast

The images you draw in CheapPaint are called castmembers. Much like an elementary school play, every object in an animation sequence is a castmember, even if it's a bush or the moon. In fact, by its own terminology, *VideoWorks* animation takes place on a stage, which consists of the entire Mac screen. In addition to drawing castmembers with CheapPaint, you can paste in *MacPaint* images, including pictures provided on the Art disk, artwork from commercial clip-art disks, digitized images, or your own *MacPaint* drawings. *VideoWorks* includes a desk accessory called Art Grabber, which lets you view *MacPaint* documents, select portions of them, and transfer selected images to the Clipboard to paste into an application, all without opening *MacPaint*. Pasting images into *VideoWorks* via Art Grabber can save you a tremen-

dous amount of time. Because you can use Art Grabber with programs other than *VideoWorks*, Hayden also sells the desk accessory separately.

When you draw a castmember in CheapPaint or transfer one from a *MacPaint* document, the castmember automatically appears in the Cast window (see Figure 3). You can have up to 64 castmembers on a 128K Mac and an amazing 256 castmembers on a 512K machine. You use the mouse to select a castmember and drag it onto the stage. Once a castmember is on the stage, it is surrounded by a dotted square. You can drag the corners of the square to stretch or shrink the castmember.

Assembling a cast can be a labor-intensive task, but you can enlist the aid of *MacPaint* features such as shrinking, stretching, rotating, or flipping an object. T/Maker's ClickArt Effects, a *MacPaint* desk accessory that lets you slant, distort, or rotate drawings by degrees, can also come in handy.

Animation Techniques

VideoWorks offers two methods of animation: real time and frame by frame. Real-time animation is simple: you place the pointer on a castmember, hold down the mouse button, and move the castmember around the stage. When you release the mouse button, *VideoWorks* plays back the movement you recorded. This is the quickest and easiest kind of animation.

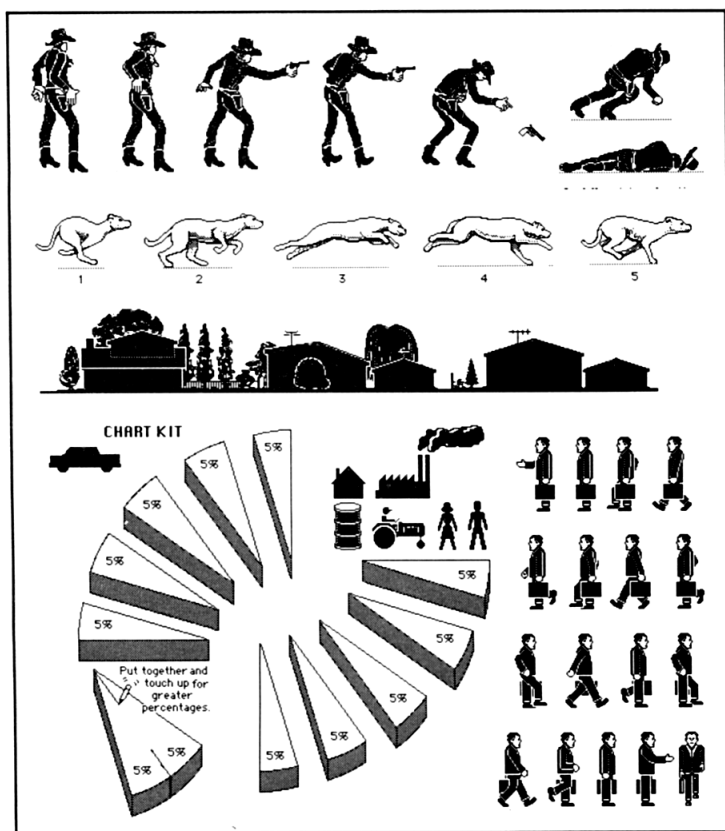


Figure 1

The Art disk includes hundreds of drawings: backgrounds, body parts, sequences of people and animals in motion, and a kit to help you produce animated charts. You can modify the images in *MacPaint* and paste them into your own animations.

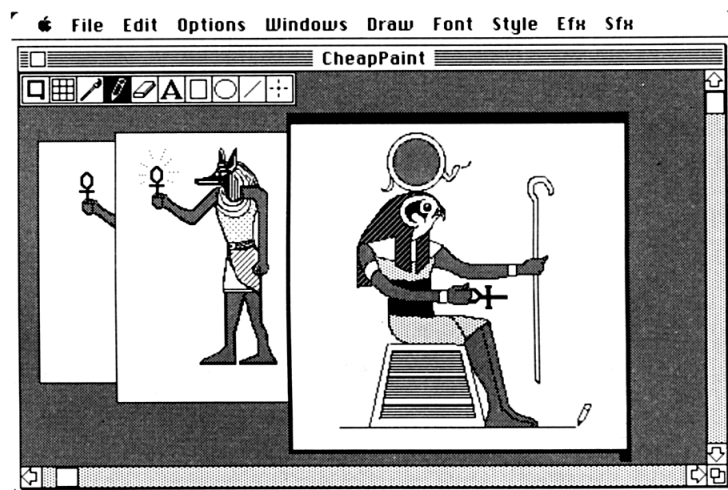


Figure 2

CheapPaint provides a stack of easels on which to draw the cartoon cast. CheapPaint offers many of *MacPaint*'s tools, including FatBits, a selection rectangle, and paintbrushes of different shapes and sizes.

