

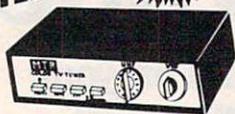
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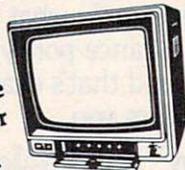


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because other Holds will be more likely to form alliances with you.

A Turn (Pern year) takes two to seven minutes, depending on which of three speed settings is chosen, and you can choose to play games from 1 to 99 Turns long. Following each Turn, a victory status screen awards two points for each Hold and one for each Craft Hall you've allied with. You need 20 points to win.

Hi-Res Panorama

The Thread-fighting sequence is played on a colorful, hi-res panorama of Pern's countryside that's complete with a castle. As wisps of Thread drift slowly toward the surface, you maneuver a flying dragon that burns them up with its fiery breath while avoiding their deadly touch. It's vital to do well in this phase, in order to convince the Holds of your capability to defend them.

In flight, the dragon wraps around to the other side of the screen. Sprites are employed for a 3-D effect—you can point the dragon at the horizon and hit the stick to watch him shrink in size as he flies into the distance and vaporizes Thread that's falling further away. Before starting, you can set the level (0-3) at which Thread falls, and this sense of depth adds an effective new dimension to action games.

The screen flashes red when your dragon dies, and it's replaced by another until your supply of dragons is depleted. After all players have completed this phase, a results screen shows how many dragons were killed and which Holds are Thread-infested. At this point, you can save the game in progress to disk or continue with the next Turn of 240 days. One positive feature of the program is that it is entirely RAM-resident, so you never have to wait for it to access the disk for more data the way most adventures do.

The Agreeable Pern

Pern is unusual in its gameplay and structure, and even more so in its victory requirements—winning depends on getting characters to agree with you, not on the number killed by you. And if too many Holds get infested, no one wins. Much of the fun emerges from recognizing the traits of various characters, predicting and exploiting how they react to certain actions and persuasions, and ultimately being drawn into the day-to-day life and culture of Pern. If you're tired of shooting up the same retreaded space ships, weary of typing "look under rock," this one-of-a-kind game may offer the offbeat kind of entertainment you're seeking. *Dragonriders of Pern* is also an intriguing forerunner of the next generation of computer games, more than a few of which will also be based on established novels.

Dragonriders of Pern
Epyx
1043 Kiel Court
Sunnyvale, CA 94086
\$39.95
Disk: C-64, Atari
Cassette: C-64

Magic Voice Speech For The 64

Charles Brannon, Program Editor

Computers have been talking for a long time. When you dial a wrong number, you probably have heard AT&T's computer reciting the incorrect number. However, speech synthesis for microcomputers has only recently become affordable as a consumer item.

You can buy a disk drive to quickly load and save programs and files. A modem opens up

the world of on-line data bases and services. Add a printer to your system and you can process words, list programs, and print computer graphics. You can pick from a bevy of light pens, joysticks, graphics tablets, and other low-cost peripherals. But few peripherals have as dramatic an effect as giving your computer the power of speech.

A Natural Voice

Some synthesizers build words out of phonemes, the basic sounds that are inherent to speech, such as consonants and vowels. Since all the components of speech are available to phoneme-based synthesizers, they can speak any word, but they do sound metallic, inhuman, somewhat robotic. No one would mistake it for a natural voice.

Commodore uses a different technique. A limited vocabulary is spoken by a person and recorded on a mainframe computer. The digitized speech is then analyzed, compacted, and reconstructed. Because of the compacting, a minimum amount of memory is used. This enables Commodore to pack a lot of words into a small amount of memory.

Installation

The *Magic Voice* cartridge plugs into the Commodore 64 cartridge port. If you are using a TV, the *Magic Voice* module also has a plug that goes into the audio/video socket on your computer. The SID chip mixes its own sound with the voice, then drives it through the TV speaker. If you use a monitor or stereo for sound, you plug the audio out from the audio/video socket into the *Magic Voice* module. An output from the module is then attached to your monitor or stereo. In theory, this should work fine. But these two wires are usually molded together so it's difficult to plug the audio jack into *Magic Voice*

and the video into your monitor. It's impossible if you use the rear connections on a Commodore monitor. The cable isn't long enough. Fortunately, you can buy an RCA phono extension cord to get the extra length.

Magic Voice knows 235 words. The vocabulary covers a wide variety of common words and a list of computer-specific terms such as *cursor* and *disk*. The cartridge automatically adds commands to BASIC without using any of the BASIC memory space. Machine language programmers, however, will have to live without the memory at \$C000-\$C3FF, which is used by *Magic Voice*.

To program speech, you use the command SAY. SAY "HI" will do just that. The female voice is remarkably pure and natural. In fact, you can actually mistake the voice for that of a real person. You can also use variables, such as SPEAK A\$. One limitation of SAY is that you must use a separate statement for each word. You cannot SAY "YOU ARE CORRECT", but must SAY "YOU":SAY "ARE":SAY "CORRECT".

When a voice is playing, the 64 does not wait for it to finish. This lets your program run quickly, since the speech doesn't slow it down. The computer will wait for the word to be finished if you send another word while it is speaking. A system variable called RDY is added to BASIC to let you detect when the box is through talking.

No Chipmunks

You can speed up or slow down the rate of speech, but not dramatically. The RATE command accepts a number from one to ten. Rate #4 is the normal, default setting. Rate #1 speaks 0.65 times slower than normal, and rate #10 is 1.4 times faster. Changing the rate doesn't change the pitch. You won't get a chipmunk sound. The remain-

ing command, VOC, is only used when you've loaded additional words into memory (more on that later).

These new BASIC commands make programming speech easy. You can also refer to words by their number in the dictionary. For example, SAY 157 will utter "YES." This is the most memory-efficient technique, but it makes your program hard to read.

The biggest problem is trying to find the words you need to communicate. Since there are only 235 words, you cannot say everything that comes to mind. The manual includes two vocabulary listings, one of them in alphabetical order to help you quickly find the available words. There are no basic phonemes, so there is no way to construct words not in the vocabulary.

This problem can't be alleviated by adding additional speech cartridges that expand the vocabulary. Commodore has promised variations on the voice such as male and child voices. There are also two Commodore games that can use *Magic Voice*—*Gorf* and *Wizard of Wor*. When your ship is destroyed, *Gorf* laughs, "HA-HA-HA SPACE CADET." Psychological warfare, with the computer challenging and taunting you, adds an extra dimension to game play. Curiously, this voice is computery and hard to understand, following the example set by the arcade versions of the games.

The manual gives an adequate explanation on how to use the module, and has many example BASIC programs that use speech, such as a program that can say any number up to 999,999,999 by stringing together words like "two - million - one - hundred - thousand - four - hundred - thirty-two." There is also good documentation for using *Magic Voice* Kernal routines in machine language programs. There is no documen-

tation on how you can digitize and create new words. That would require expensive equipment in any case.

Applications

What can you do with *Magic Voice*? Games that speak set up a better computer-human rapport. Talking prompts and instructions allow youngsters who cannot yet read to more easily interact with the computer. This is ideal for educational applications. Word processing programs can use spoken messages

when a displayed prompt might be overlooked. And for the handicapped, the *Magic Voice* can read for the blind and talk for the speech-impaired. As you type, each letter can be pronounced, which can also help teach touch typing. Also, Commodore has announced plans to support *Magic Voice* in future software offerings.

Commodore Business Machines, Inc.
1200 Wilson Drive
West Chester, PA 19380
Price not yet announced.
Expected to be around \$50. ©

velop basic skills and don't need anything extra to confuse them.

Generally, two solutions have been invented: light pens and touch tablets (also called graphics tablets). Examined objectively, they are technically similar—both translate the position of a stylus into coordinates which the computer understands as a point on the screen. Therefore, both devices bypass a major step in programming.

But in other, more subjective ways, light pens and touch tablets are quite different. Each device has its own "feel," and the ultimate choice must depend on your own preferences. It's analogous to the differences between drawing in chalk or in pen-and-ink. When choosing between a light pen and a touch tablet, your best bet is to try your hand at both before deciding. However, there are a few objective differences which might sway your decision one way or the other. Fortunately, two recent products from Atari, Inc., give Atari users a wider choice between these two types of drawing tools.

Compatible With Almost Any System

The Atari Light Pen package includes a stylus with a touch-sensitive tip that plugs into a joystick port with a 46-inch cord; *AtariGraphics* software on a snap-in ROM cartridge; and a 20-page manual. The package works on any Atari computer, but at least 48K RAM is recommended (and required to save screen images on disk). To save screens on tape, at least 16K RAM is required.

The Atari Touch Tablet package includes a graphics tablet with two fire buttons that plugs into a joystick port with a 48-inch cord; a plastic stylus with a tiny fire button that plugs into the tablet via a 27-inch cord; *AtariArtist* software on a ROM cartridge; a DOS 3.0 diskette; and a 21-page manual.

Atari Touch Tablet And Light Pen

Tom R. Halfhill, Staff Editor

One of the most marvelous things about home computers—particularly Atari computers—is their full-color graphics. And one of the most frustrating things about home computers can be the complexity of programming those graphics.

Nearly everybody has been impressed by the dazzling graphics demos on the computer screens at the local computer shop or department store. But when you first bring the computer home, unwrap it, set it up, and plug it in, the screen is forbiddingly blank—all it says is READY.

The computer may be ready, but you aren't. Where do you start? How can you learn to create those wonderful graphics which helped sell you on the computer in the first place?

If you're ambitious, you might start tackling the BASIC programming manual, plus other books and magazines. But it could require hours of study before your first crude graphics even begin to appear on the screen. And by then you'll be yearning for a better way.

There are better ways, of

course. For instant results, there's nothing like plugging in some sort of input device which lets you draw and paint using skills you've been developing since your first scribbles in kindergarten. Ideally, this input device should feel to your fingers like a traditional pencil, crayon, or paintbrush; its effect on the screen should resemble the effect of these conventional tools on paper; and it should insulate you from the extensive programming.

Some graphics-drawing programs use joysticks or paddle controllers as input devices. These are not traditional drawing implements, but they aren't hard to master—particularly if you've played videogames. Still, it would be nice if the years you spent learning how to manipulate pencils, pens, and paintbrushes could be wedded directly to an input device which *acts* like a pencil, pen, or paintbrush, and which also eliminates the need to program the computer on its own level. Such a device would also make the computer much more accessible to youngsters. They're still struggling to de-