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OPERATED  
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for your cassette tape recorder

What to look for in  
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- ★ Videogames ★ Hobby Corner
- ★ Computer Corner ★ Drawing Board
- ★ State-Of-Solid-State ★ Equipment Reports



# Radio-Electronics

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THE MAGAZINE FOR NEW IDEAS IN ELECTRONICS

NOVEMBER 1983 Vol. 54 No. 11

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When you think about the products in the various different categories of electronic products—be they video, audio, broadcast, or what have you—there are always some that shine above the rest. The reason why they are thought of as superior may be due to a sophisticated design, the use of state-of-the-art technology, better reliability or accuracy, or any one of a number of similar reasons. The same holds true, of course, for test instruments. This month we bring you a special look at the ultimate in sophisticated or unusual test instruments. The story begins on page 59.



FEW PEOPLE REALIZE that the quality of your TV sound is limited only by the quality of your TV's audio section. Unfortunately, the quality of the audio in an average set is just not very good. But there is something you can do about it—build the TV sound converter and get audio quality you never thought possible from your TV. The story starts on page 45.

## COMING NEXT MONTH

### On Sale November 17

- **Video Color Processor.** An accessory you can build for your home-video system.
- **Digital TV.** A look at this fascinating new technology.
- **Designing Analog Circuits.** Another installment in our back-to-school series.
- **And lots more!**

Radio-Electronics, (ISSN 0033-7862) Published monthly by Gernsback Publications, Inc., 200 Park Avenue South, New York, NY 10003. Second-Class Postage Paid at New York, N.Y. and additional mailing offices. One-year subscription rate: U.S.A. and U.S. possessions, \$14.97, Canada, \$17.97. Other countries, \$22.47 (cash orders only, payable in U.S.A. currency). Single copies \$1.50. © 1983 by Gernsback Publications, Inc. All rights reserved. Printed in U.S.A.

**Subscription Service:** Mail all subscription orders, changes, correspondence and Postmaster Notices of undelivered copies (Form 3579) to Radio-Electronics Subscription Service, Box 2520, Boulder, CO 80322.

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# VIDEOGAMES

## Staying power

DANNY GOODMAN

AS WE WERE THUMBING THROUGH OUR archive files on videogame software, we came upon a series of videogame-cartridge bestseller lists. For the most part those lists are based on telephone polls to dealers and distributors around the country to see each month which cartridges are doing best. Examining the results published in the first six months of 1983, it was interesting to see which games had the staying power to survive the whims of the cartridge-buying public.

The most noticeable fact is that it is the same cartridge producers who show up on the list month after month; Activision, Atari, Coleco, and Parker Brothers made the top ten every month. Next come those publishers who appear frequently—Imagic and Mattel. Beyond that, only CBS Games ever broke into the elite club for two months, each time with a different cartridge.

For that six-month period, Coleco was the winner with the highest number of mentions in the top ten: 17, including both *Colecovision* and 2600 titles. Activision and Atari were tied for second place with 14 each. The rest straggled in: Parker

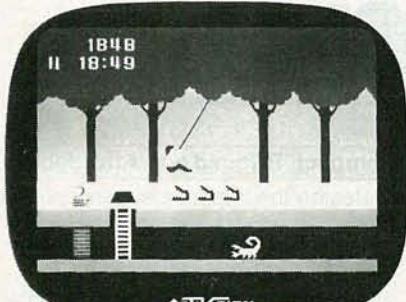


FIG. 1

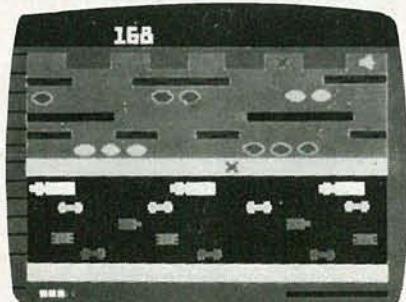


FIG. 2

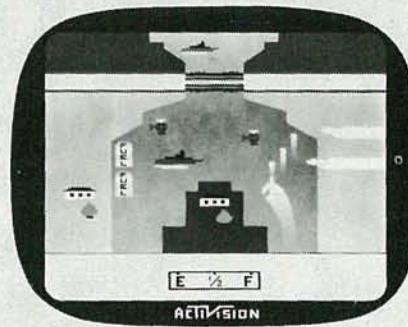


FIG. 3

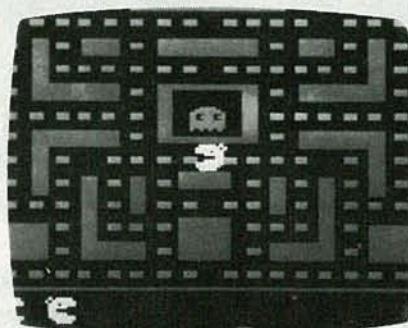


FIG. 4

Brothers with 6, Imagic with 4, Mattel with 3, and CBS with 2.

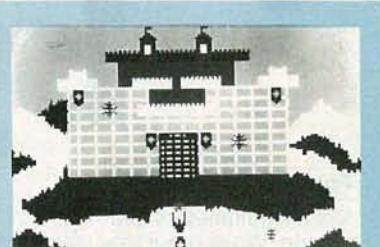
What is probably much more important, however, is that of the sixty possible top-ten slots over the period, very few titles managed to carry over for more than two months at a time. In fact, only five titles—*Pitfall*, *Frogger*, *River Raid*, *Ms. Pac-Man* (see Figs. 1-4), and *Donkey Kong* (for the 2600)—made the list for four or more months. It seems then, that cartridges with staying power are extremely rare, especially when you consider the hundreds of cartridges available today.

Much more typically, a good title will gather all kinds of support for a month or two after its introduction, and then disappear into the background. For example, the celebrated *E.T.* cartridge surfaced in the January list in 7th place. The following month it inched up to 6th. But by March it was gone. *Mouse Trap* for *Colecovision* zoomed instantly to 3rd place in February, only to never be seen on the list again. Even the Activision name doesn't guarantee a long-term winner. *Sea Quest* hit the charts in April in 8th place, but that was about it.

The strongest influence on whether a cartridge becomes a long-time hit or just a shot in the dark, we believe, is word of mouth. Few home videogame players are isolated from other players of the same console—in fact most games are bought because the buyer has played someone else's initially. That informal but powerful grapevine carries over to the purchase of cartridges later on. When a new cartridge hits the stores, a good number of "pioneers" venture out and buy it if the wording on the box looks intriguing. Thereafter, a good game's reputation will spread like wildfire. An outstanding game will keep that fire burning for many months as more and more players decide that they must have it.

Undeniably, those top-selling games are good-playing games. There is no secret formula. Interesting graphics, innovative sound, and novel and ever-challenging game play—those are the basics of cartridge staying power.

### Imagic's *Ice Trek* for Intellivision



CIRCLE 101 ON FREE INFORMATION CARD

Imagic	Ice Trek
GRAPHICS	Red
SOUND	Red
EASE OF LEARNING	Red
CHALLENGE	Red
VALUE	Red
	1 2 3 4 5 6 7 8 9 10
	Poor Fair Good Excellent

There aren't many videogame cartridges that take on the guise of a Norse saga. One exception to that is *Ice Trek* continued on page 14

# VIDEOGAMES

continued from page 12

from Imagic (981 University Avenue, Los Gatos, CA 95030), a modestly challenging and fun cartridge.

*Ice Trek* is a three-fold adventure of a character called "Vali" as he wends his way to the Ice Palace of Kalktron the Terrible. The first scene has Vali skiing across the tundra while dodging trees and stampeding caribou. If one of the antlers grabs Vali, he is dragged back to the edge of the screen and loses one life. If worse comes to worst, Vali has an axe with which he can slay one of the caribou, but doing so invokes the ire of the Wildlife Goddess, who shoots an arrow at him.

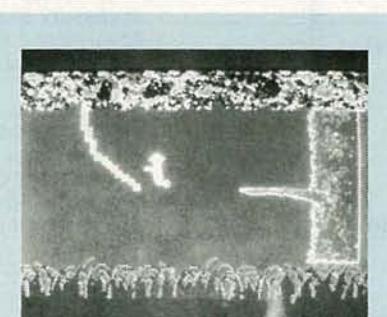
If he gets by the tundra, Vali winds up at the bank of a river loaded with floating icebergs. Using the controller buttons and aiming with the direction disk, you control Vali's hook as he tries to snare pieces of ice to build a bridge to the other side. Unfortunately, if an iceberg rams the existing bridge, Vali loses that part of the bridge, and probably ends up in the water, losing one life. To defend against that Vali has a torch with which he can melt oncoming icebergs. That game segment will be the most challenging for the beginner.

Finally, once Vali crosses the bridge, he is outside the Ice Palace. From below the palace, he must hurl torches up to several ice blocks and villains at the top, while they toss ice crystals down at Vali. If Vali is successful, the Ice Palace melts as a Wagner tune is played.

Perhaps we've been spoiled by Mattel's grandiose signalling an achievement such as that, complete with long musical renditions and sometimes special graphic displays. We were a bit disappointed, therefore, by the short and lifeless musical tribute to Vali's efforts the first time he melted the Ice Palace. Even in the rest of the game, the sound effects are not impressive; thundering caribou hooves and a flowing river signal the first two adventures. I do, however, like the sound and visual effects when an iceberg starts shaking the bridge before it breaks a piece of it off.

## Atari's Jungle Hunt for Atari 2600

With the astounding success of Activision's *Pitfall*, it was only a matter of time before someone else devised a jungle



CIRCLE 102 ON FREE INFORMATION CARD

Atari	Jungle Hunt
GRAPHICS	7
SOUND	7
EASE OF LEARNING	6
CHALLENGE	7
VALUE	6

Poor   Fair   Good   Excellent

based adventure with a similar feel. And so we have *Jungle Hunt* from Atari (1265 Borregas Ave., Sunnyvale, CA 94086), a multiple-scene, horizontally scrolling game putting the human player in charge of an on-screen alter ego. Instead of guiding Pitfall Harry through an endless jungle of treasures, we guide Sir Dudley Dashly on his quest to rescue Lady Penelope from the jungle savages. Therein lies the main difference in how to approach the game, as we'll see.

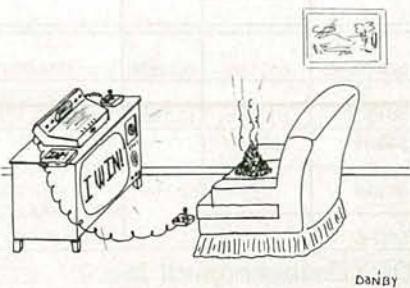
*Jungle Hunt* is chock full of different screen action, which helps to break up the monotony of a typical session. In the first part, Dudley must successfully swing along 11 erratically moving vines. Next he must swim through a river full of crocodiles (bonus points are available for knocking out as many crocodiles as possible, as long as his air supply holds out). Then comes a boulder field in which big and small boulders roll and bounce across the screen; Dudley must either duck or jump to avoid being hit by one. Finally, Dudley must jump over two spear-carrying guards. If he is successful, Dudley goes into the center of the village where he rescues Lady Penelope.

It's wonderful to see so many different scenes on a 2600 cartridge. Some clever designing went into coloring various background elements to make them appear to be completely different in succeeding scenes. However, it is a shame that most of the scenes appear flat, especially in comparison with David Crane's *Pitfall* from Activision.

In *Jungle Hunt* you are racing against a timer of sorts that counts down possible bonus points from the start of the round. What takes some of the excitement out of the game for us is that the adventure is finite—that is, it reaches a conclusion when you save Lady Penelope. With plenty of time left, you just restart the adventure. That doesn't seem logical to us. And once you've arrived at the scene to save Lady Penelope once, if you are like most players you lose a great deal of incentive to come back to the game again and try for a higher score.

The difference between *Pitfall* and *Jungle Hunt*, I suppose, is that in *Pitfall*, the score is the thing. You are in a constant race against the clock to try different routes to pick up more and more treasures along the way. But in *Jungle Hunt*, your attention is divided between saving Lady Penelope and the score. In your early attempts, the only thing you are going to care about is reaching Lady Penelope. Once you've done it, you've forgotten that there is even a score adding up to the top of the screen.

When you have gotten the feel of a game one way, it's awfully hard to shift gears and think about it in a new light, with new goals. If your cartridge budget limits you to one jungle-adventure game, then *Pitfall* may be a better choice. Just as in the movies, the remakes of classics are rarely as good as the originals. R-E

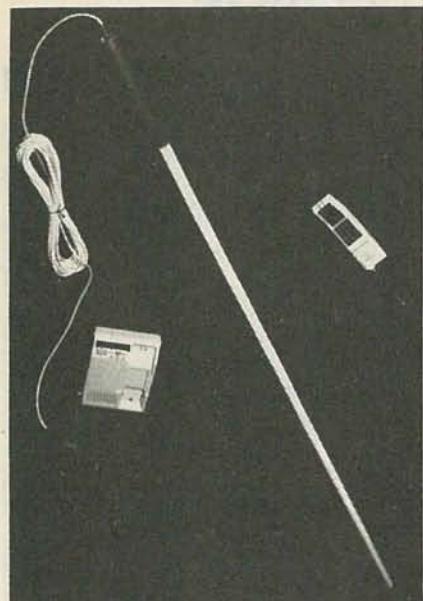


DANBY

## NEW PRODUCTS

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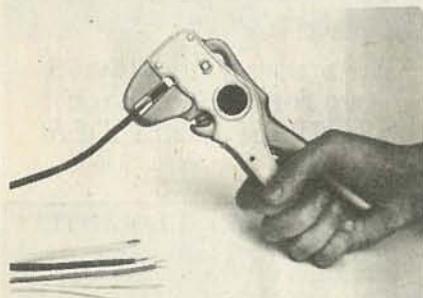
double-back tape (not supplied). It has been designed to meet the CPSC (Consumer Product Safety Commission) shock-hazard



CIRCLE 114 ON FREE INFORMATION CARD

standards to 14,500 volts. It is priced at \$59.95. — Shakespeare Company, RFD #3, PO Box 733, Newberry, SC 29108.

**STRIPPING TOOL**, model PTS-3, is a lightweight, multi-purpose hand tool that will strip wires of sizes between 10 AWG and 26 AWG and, in the case of multi-core cables, those with diameters up to 0.350 inch.



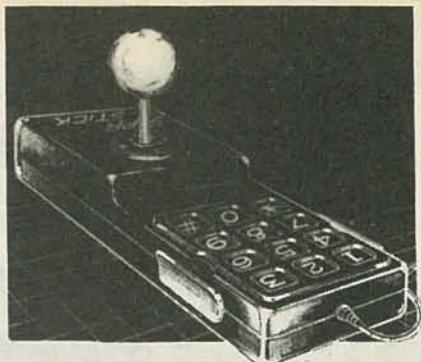
CIRCLE 115 ON FREE INFORMATION CARD

With a single squeeze of the handles, the insulation on the wire is severed and the slug automatically removed. The blades are self-adjusting and a tension-setting device is incorporated in the tool for extremely critical applications.

A wire cutter, for cutting wires to length, is incorporated in the tool, and all cutting and stripping blades are easily replaced. The tool is 7 1/4 ounces, and measures 6 3/4 x 3 inches; it is manufactured from a combination of hardened steel and polypropylene plastic.

The model PTS-3 is priced at \$44.00. — The Eraser Company, Inc., PO Box 4961/ Oliva Drive, Syracuse, NY 13221.

**JOYSTICKS**, Supr-Stick DeLux, Supr-Stick CC (shown), and Supr-Stik Xtra Lite, all have



CIRCLE 116 ON FREE INFORMATION CARD

arcade components and microswitches. All components are replaceable, and the action button on each is located centrally to accommodate both left-handed and right-handed players.

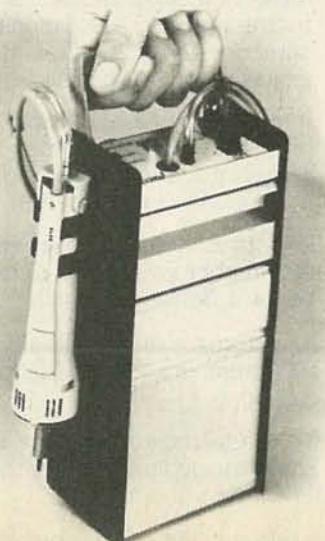
Supr-Stick DeLux includes suction feet and an automatic fire control; it is compatible with all Atari-type games and computers, and is priced at \$39.95.

Supr-Stick CC (Colecovision Controller) has the same quality full microswitch and features a full keypad with slot for overlays, and two oversize action buttons; it is priced at \$34.50.

Supr-Stick Xtra Lite uses smaller components and a smaller base; it does not include suction feet or auto-fire control, but as with the other two models, there is a one-year warranty. It is priced at \$19.95. — D-Zyne Video Products, Inc. 64 Dayton Road, Waterford, CT 06385.

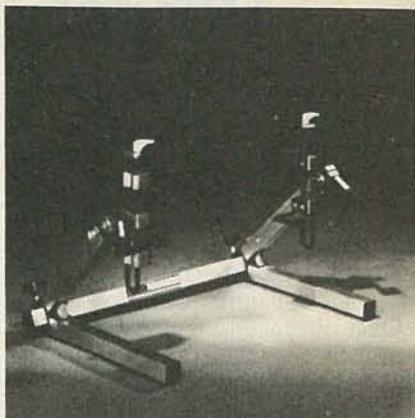
**SOLDERING/DESOLDERING SYSTEM**, model MP-1, is self-contained and so portable that it can be used anywhere that electronics equipment needs to be repaired — in depot, in mobile vans, in remote field-service centers, or on-site. It operates from AC and 12-volt DC sources.

The model MP-1 warms up in one minute. Desoldering and soldering are accomplished with a single handpiece with a finger-activated vacuum. The model MP-1 provides spike-free MOS safe operation and precise tip temperature control for high reliability repair. It is priced at \$395.00. — Pace, Inc., 9893 Brewers Court, Laurel, MD 20707.



CIRCLE 117 ON FREE INFORMATION CARD

**CHASSIS MOUNT**, model 601 and model 602 (shown) offers a load capacity of a full 100 pounds and a width capacity of up to 18 inches. The upright arms, legs, and crossbars are made of 1/8-inch and 1 1/4-inch square tubing and provide a pivot-center height of 9 inches from work surface. For



CIRCLE 118 ON FREE INFORMATION CARD

safety, a positive lock detent is visible while rotating the chassis, and a visual indicator shows when the safety latch is engaged or disengaged. An all-metal friction brake allows for either left or right hand operation, and is located at a natural angle for a seated operator.

The model 601 has scissors clamp; the model 602 has self-centering heads; both are priced at \$199.95. — PanaVise, 14024 Sylvan St., Van Nuys, CA 91401. R-E

## COMMUNICATIONS CORNER

continued from page 114

instance 2:1—a STOP command is issued by internal logic circuits and the motor-drive circuit is turned off. At that point the operator can manually tweak the controls if an even lower SWR is desired (assuming the SWR can be further reduced).

If the transmitter frequency is changed, causing the SWR to rise, the motor drive circuits will be reactivated when the SWR exceeds the TUNE SWR reference value.

Note that while there is no microprocessor of any kind, the tuner is truly computerized—it makes a decision based on the transmission-line variables (the input from the directional coupler) and the limiting variable (minimum acceptable SWR) specified by the user.

If you were to ask why the same idea or techniques could not be applied to tuning of the transmitter's final RF amplifier, the answer is, of course, that it is entirely possible. There is not much difference in sensing the slope of a DC voltage that represents SWR or the slope that represents input current to the final amplifier. Doing it for SWR is a little easier and a good starting point. With some refinement of the technique and a reduction in the cost of the components, automatic tuning will probably make its appearance in ham gear very soon.