Bally Arcade Game / Computer

Video-Test number 36

WE HAVEN'T figured out exactly what Bally calls this product—some of the literature calls it the "Professional Arcade"; the rest refers to it as the "Bally Computer System." (Our box said "Professional Arcade.") That double name is a sign of its dual personality: the Bally is a video game you can turn into a full-fledged computer—or a half-fledged one, if that's your pleasure.

The Bally won't be the last such split-personality product, either. Its basic format—a video game console to which an upgraded unit with a typewriter keyboard can be fitted—will be seen soon in products from Mattel and others. And all programmable video games have microprocessors* built into them.

Bally's keyboard add-on isn't available yet, though. But it's just the third level of a three-level system. Level I is the video console shown here, a programmable video game with a built-in calculator keypad plus two hand controls and provision for two more. All by itself, it gives you three games to play plus its calculator function, and there are 28 more games and 6 educational programs now available on sixteen Videocade ™ ROM cartridges.

Level II, which we also tested, consists of a similar ROM cartridge holding Bally's BASIC language interpreter, that lets you write your own computer programs, and an optional audiocassette interface that lets you save those programs on your tape recorder.

Level III turns the system into as fully fledged a computer as you'll find anywhere. Besides the typewriter keyboard, it has more programs in ROM memory, more RAM (Random-Access Memory), plus inputs and outputs for a printer, floppy discs for program and data storage, modems for computer-to-computer phone communications, and more.

At $300, the basic video console unit costs noticeably more than most programmable video games; but add the $50 BASIC cartridge and the $50 audiocassette interface, and you have a $400 computer that can do many things most home computers can't do—though the others can perform some tasks more easily than the Bally can.

Level I: The Video Console: At $299.95, with two hand controls ($329.95 with four), the Bally is well in the upper reaches of the video game price range. Much of that is doubtless due to its versatility—after all, not all games can expand into true computers. It's reasonably compact, about the size of a portable typewriter with the keyboard cut off, and it has a built-in storage compartment with slots for ROM program cartridges or tape cassettes holding BASIC programs. The compartment has a smoked-plastic dust cover—a good thing, since the slots hold only uncased cassettes.

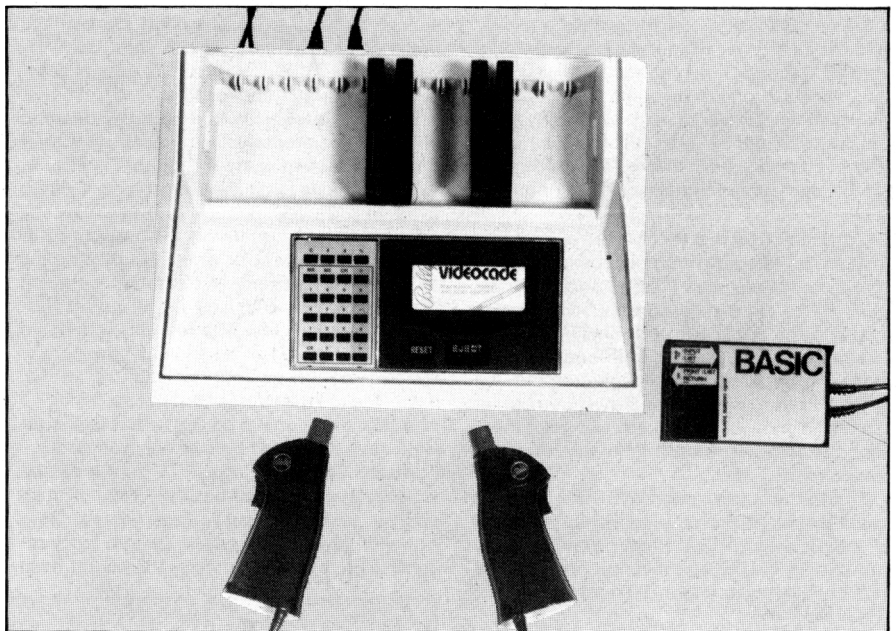*For definitions of computer terms used in this review, see page 47.*

Following Bally's very clear instructions, set-up took less than three minutes. The pictorial diagram covered all the questions that arose, and all connections were firm-fitting plug-ins except for the flat wire leads to the TV set's 300-ohm antenna terminals, which took a screwdriver. (Installing the tape interface for the computer was easy, too, though we had to break out one protective tab that covered the cassette interface jack. All connections are made inconspicuously on the rear panel.

The on/off and channel 3/4 switches were also on the rear; we'd have liked to see the on/off switch more accessible. Once the power is on, all game selection and set-up may be handled from the calculator keypad or the #1 hand control. That makes the Professional Arcade "the only programmable video game with remote game selection," according to Bally:

from your chair you can start and initiate games, select how many times or how long the game will be played, and tell the Arcade how many people will be playing.

Using the keypad, you can do all of the above (sometimes a bit faster), and you can also pause in the middle of the game by pressing the "C" key. Pressing "C" again will resume the game from where you left off. The keypad is also used with the calculator program (one of the four built into the machine) as a very useful calculator indeed. It has ten separately addressable memory registers and holds 92 lines of calculation in memory that can be scrolled up and down on the screen like a printing calculator's paper tape.

A TV-tube protector circuit automatically shuts off the Arcade and blanks the TV screen if it's left unattended for about four minutes. Pressing any key on the keypad will resume operation.

The keypad requires almost as much effort as manual typewriter keys, which can be a trifle

annoying during long calculations, but this helps prevent accidental miskeying. The smooth-operating pistol-grip hand controls were comfortable for both right- and left-handers. Each contained a trigger switch, an eight-direction joystick, and a continuously variable analog control (the knob in the top of the joystick).

The hand-control functions varied from game to game. In Scribing (one of the four built-in programs), for example, the joystick moves the cursor (lighted spot) in any of the eight directions, the knob changes cursor size and color, and the trigger governs whether it will leave a trace as it moves on the screen.

(In this particular game, the keypad has several functions, too: its top row changes the background color, the second row reverses color changes, the third and fourth rows increase and decrease color intensities, and the sixth row's first key clears the screen. An overlay snaps over the keypad to show you which keys do what.)

Getting accustomed to all the joystick actions was easy, but co-ordinating them all took practice. But then, the whole point of the games is to test or compare the players' coordination.

On the other hand, Bally gave us plenty of instructions to work with. Those that came with the video console (and with Bally BASIC and its audiocassette interface) were detailed and very clear. Those with the game cartridges were a bit less detailed, but most of the games had enough clear "prompt messages" built in to guide you as you went along. (Football was the main exception.)

And the games were fun.

Picture and Sound Quality: Much of our enjoyment of the games came from the Professional Arcade's full rich color, detailed graphics, and appropriate, high-quality

sounds. Graphically, it offers 256 different shades of color, with fairly fine resolution (87 lines of 159 picture elements each). You can't control the colors of most of the Bally games except for Scribing and the games you write yourself in Bally BASIC.

Audio quality is equally impressive. The tonal range covers three octaves, complete with sharps and flats, with complex tones available for the game-program sound effects (though only musical notes seemed to be accessible to BASIC programs).

Both audio and video were used imaginatively in the Bally games. In Baseball, for example, each game began with a playing of the National Anthem. During play, moving fielders didn't just slide their images around—it made their legs move, too (since the entire outfield moves together, they look a bit like the Rockettes). Similarly, in Gunfight there were sounds of shots and the funeral march when either cowboy bit the dust, plus sufficient figure detail so that you could see which way each gun was aiming. (The games themselves are reviewed in "Arcade Alley"; see page 32.) Overall, both the audio and video are as good as we've seen on any video game, and better than those on many home computers—a fair comparison since the Bally is both.

There isn't space here to list all the games available (they're $20 or $25 each), but they divide into several basic categories; games of strategy (Checkers, Backgammon, Poker, Black Jack. . .); games of action and skill (Red Baron, Dodgem, Space Race. . .); sports (Baseball, Tennis, Hockey, Handball, Football, Grand Prix. . .); educational "games" (for math, music, spelling, and the like); and, of course, Bally BASIC.

Level II: Instant Computer: Turning the Bally Professional Arcade into the Bally Home Computer is as simple as plugging in the BASIC ROM cartridge and pressing the Reset. To be even more reassuring, turning yourself into a computer programmer, though a lengthier task, isn't much more complicated. Bally BASIC won't make you ready for one of the "high-paying jobs in the computer industry" that the computer-school commercials talk about, but it won't take long—an evening or two—before you're writing programs that do simple things, but *do* them.

BASIC is a well-nigh universal computer language. But there are probably more dialects of BASIC than there are computer models; few computers speak the same dialect, and some speak more than one.

Bally's BASIC has some commands you won't find in other BASICs: graphics commands (*Line* and *Box*), color commands (*FC* for foreground color, *BC* for background color), musical notes and note times. It also uses unusual input devices: the keypad and the hand controls (a typewriter keyboard add-on will be available sometime this year). On the other hand, it lacks features found in some more advanced BASIC dialects, such as the ability to correct errors in a program line without having to rewrite that program line from scratch.

To those familiar with the BASIC language, Bally BASIC will be about the equal of most "Tiny BASICs" (it's a version of Palo Alto Tiny BASIC, running on a Z80 microprocessor), with additional capability for electronic music, graphic games, graphs and bar-charts, and

other video and audio diversions. You won't be able to write programs quite as fancy as the game programs made for the Arcade, though: they're written in machine language, which is harder to write but runs faster and allows more versatile programming. (In its present form, the Bally unit doesn't let you write machine-language programs, but the Level III version—which will also have a special graphics language available—probably will.)

The keypad has both advantages and disadvantages in comparison to the standard keyboard on most other computers. Place an overlay (supplied with the BASIC cartridge) over the keypad and each key is labelled with four new functions in addition to its original calculator function. The "5" key, for example, can be used to input the letters "P," "Q," and "R" and the word "RETURN" as well as the number "5." Four keys on the bottom row control which function the key will perform at any time.

With just one BASIC command per key, the number of commands is limited—but it's limited in any Tiny BASIC. But being able to input a command with just one or two keystrokes does prevent most errors. On our own computer, we've had many programs stumble over typos like "NXT" for "NEXT" and "LIAR" for "LIST" (that one happens when your left hand is one key too far to the left), which the dumb computer cannot figure out. With the Bally system, you may hit the wrong command but you can't mistype the right one. Again, the high key pressure demanded helps you catch errors before they're entered, and there's an Erase key to correct whatever typos do sneak into the line you're working on. Non-typists will find the keypad input far easier to use than a typewriter keyboard; typists, though, will find it takes them about as long to learn the system as non-typists take.

If you make a programming error, the computer will tell you so—though less specifically than bigger BASICs, which tell you more or less precisely just which error you've made. If you give it a command it can't recognize, it responds "WHAT?" If it recognizes the command but can't perform it (as when you tell it to "GO TO" a line that doesn't exist), it answers "HOW?" When it runs out of memory (it has 1800 bytes' worth), it should say "SORRY!" (we didn't write any programs long enough to encounter that problem, though). And the instruction book at 36 pages is just long enough to be instructive but not long enough to drive

you bats. It gives you a very good idea of what results to expect, both when you do the right thing and when you don't.

Once you have a program running properly, it pays to save it on tape, so you can load it again quickly the next time you want to use it. Bally's $50 audiocassette interface lets you do that with just about any tape recorder you own; we got perfect results with an ordinary cassette portable that we bought for about $50 five years back. The penalty of being foolproof, though, is that the interface is a bit slow—though only by comparison.

Level III: The Brain Gets Brainier: We didn't test the Level III system, as it is not available at this writing. When available, it will consist of a box with a typewriter keyboard and a space on which the Professional Arcade sits. But it will add more than a keyboard.

The keyboard itself will allow the use of both upper-case (capital) and lower-case (small) letters, plus some other characters not on the upper-case-only Level II. Level III will also have 20 kilobytes of RAM (Random-Access Memory), a substantial, if not huge, amount. It will increase the graphics resolution to 102 lines by 160 characters, allow the use of video monitors (with higher resolution) instead of standard TV receivers, and will allow connection to a floppy disk (a very fast, high-capacity program-storage device, and a considerable improvement over audiocassette), a modem (for telephone communications with other computers and remote terminals), and a printer.

There will be more and better software (programs) for Level III, too. Most interesting of the promised additions will be GRAFIX, a cross between Bally BASIC and GRASS, the graphics language used in some of *Star Wars's* special effects. GRAFIX will instruct you as you go along (just type "HELP"), will allow you to write new commands to add to the language, and will let you run one program while writing another.

Conclusion: If this review seems extra-long, it's because we're actually reviewing two machines in one: The Level I Professional Arcade was itself so much fun that we found it hard to stop playing its games and get down to the serious business of writing the report. But drop in the Bally BASIC cartridge and Level I slips into a phone booth to emerge as supergame—or junior computer. We look forward to getting our hands on a Level III—both for its own sake and as an excuse to try more Level I games. □

Akai Portable VCR System

Video-Test number 37

THE AKAI VT-350 system consists of the VT-350 portable VCR, a VC-300 portable video camera, and a VA-300 AC adaptor; but strangely enough the camera comes without lenses and without viewfinders—they are considered accessories. Among the accessories is the VT-300, a sharp little 3-inch monitor that docks into the left side of the recorder.

The Akai is neither a VHS nor a Beta; it uses its own unique incompatible cassette format. However, since it has some interesting features (like very slow motion), it has a dedicated following and shouldn't be dismissed only because it isn't standard. For example, if you want to analyze your golf swing, there is nothing that will do the job better.

We received the recorder, camera, zoom lens, electronic viewfinder, and monitor for testing. The camera, viewfinder, and zoom lens are carbon copies of the ones reviewed as the VC-8300 in the Winter 1979 VIDEO (VideoTest #17); Akai simply used a copy of those very