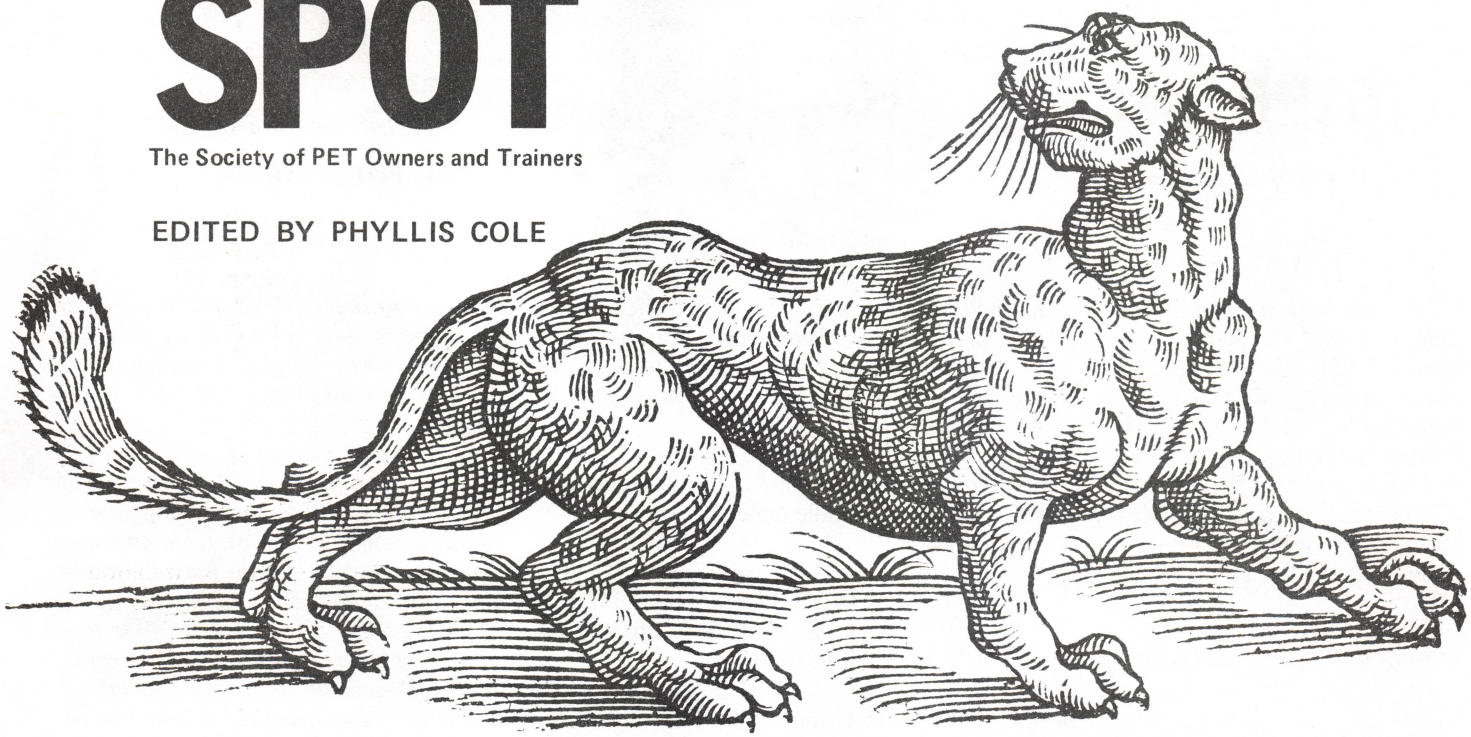
# SPOT

The Society of PET Owners and Trainers

EDITED BY PHYLLIS COLE



*Since I received my $795 PET home computer last October, I've been regularly reporting on it in the pages of* People's Computers. *As more and more PETs enter the world, more and more readers submit programs, articles, and interesting information to share: please join the effort. Last issue we published names of some purveyors of PET software and newsletters as well as a number of graphics programs; this issue is quite different. Next issue we'll publish an article by Mark Zimmerman which includes tables of* decimal *op codes and mnemonics.*

—Phyllis Cole

# ODD SPOTS

### COMMODORE CORNER

Alas, Commodore has announced that its printer ($595, prints PET graphics, even lets you design one character yourself!) won't be available until *October*. And we'll have to wait until *November* for Commodore's floppy disk. OK entrepreneurs—start interfacing stuff to PETs and see if you can get a head start on Commodore—there are lots of us waiting for peripherals.

### FREE PET SERVICES

Two free PET Computer services are available through the Microcomputer Resource Center.

1) The PET Cassette Exchange. Expand your program library easily. Exhange programs for the PET computer on cassette for free, no service charge. Simply send a tape of your programs and receive a tape with twice as many different programs on it. Please include enough stamps to have it returned to you via FIRST CLASS mail.

2) The Ultimate PET, a resource Handbook. A continually updated listing of all hardware and software sources for the PET. Send a self-addressed stamped envelope for your free copy.

Our Center has a PET and a MITE printer. We would be grateful for help in connecting the two. We then hope to offer a FREE service of printing out program listings: you would send us the cassette tape, we would list it and return it and the tape, free, no service charge. Also, we are hoping to get a modem and connect it to the PET. We are working on animated programs now. They will be available to anyone interested. Thanks.

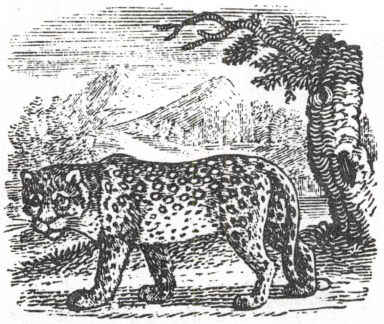
Mail your inquiries to Len Lindsay, Director, Microcomputer Resource Center, Inc, 1929 Northport Dr #6, Madison, WI 53704.

### WRITE-PROTECTING TAPES

Cassette tapes may be protected from being accidentally erased. Locate the two small plastic fillers (or two thin plastic tabs) opposite the tape side of the cassette housing. Then, use a straightened-out paper clip to pry out these fillers; or use a ballpoint pen to bend the plastic tabs inward. Now your tape is 'write protected:' the RECORD button cannot be depressed when the cassette is in the recorder. To un-write-protect your tape, put a small piece of tape over the hole that's at the left-rear corner when the tape is in the recorder. After recording, you can remove the tape if you wish to write protect the new recording.

# TAPE TALK

BY PHYLLIS COLE



In the last few months I've had many chances to talk to people about the problems of buying/exchanging PET programs, especially since I've been helping Peninsula School distribute PET software. Almost all PET owners seem to have experienced some difficulty LOADing a PET program. A small percentage of tapes may be defective, but in general, the problem is in the PET that is trying to LOAD.

If you are unable to LOAD even programs SAVEd on your own PET, your record/playback head probably needs cleaning and demagnetizing. See Commodore's instruction booklet.

Sometimes a program loads without a ?LOAD ERROR message but gets a ?SYNTAX ERROR message when it is RUN. This sometimes occurs when a single line of the program has been incorrectly LOADed. This situation can be corrected if you have a listing of the program you're trying to LOAD: compare the erroneous line with the listing, correct it, and SAVE the corrected version on another tape.

If you are able to LOAD programs that were SAVEd on some PETs but not programs that were SAVEd on other PETs, then the record/playback head on your PET is probably aligned differently from those on the other PETs. This situation is frustrating because it is hard to tell whether the fault is in your own machine or in the other one. If you send your PET back to the factory, you may be without it for several weeks, and after the alignment is changed, you may have difficulty LOADing programs you previously had SAVEd.

Aligning heads is difficult, and Commodore has not yet perfected their production techniques in this area. Very early PETs are especially likely to have misaligned heads. Commodore is quite aware of the problem because they are attempting to duplicate and sell software themselves.

If your PET cannot LOAD a program at all, some possible remedies are:

(1) Clean and demagnetize your heads, and try LOADing several times. WHEN YOU SUCCEED, SAVE THE PROGRAM ON ANOTHER TAPE.

(2) Find a friend with a PET and try to LOAD the program on that machine. When you succeed, SAVE on another tape and try to LOAD that tape on your machine. This works surprisingly often.

(3) Type the program in from a listing. Some people find that they learn a lot about BASIC from this exercise; other find the chore tedious.

(4) Have your playback head aligned.

In addition, those who have purchased software can

(5) Ask the manufacturer/supplier if you can get a tape recorded by a different method. Enclose a note explaining what problems were encountered with what programs, and the serial number of your PET and any other PETs you tried.

(6) Request a refund. Enclose a note detailing the problems and the serial number of you PET. The tape and documentation can be sent at 'Printed Matter' rates through the U.S. Postal Service.

Even if you are among those who have had no trouble LOADing PET tapes, we encourage you to support the efforts of everyone involved with PETs to make program interchange reliable.

# PLOT

BY PHILIP GASH

*Philip Gash has contributed a program which plots any single-valued function y(x) on a 50 by 80 grid. The user inserts the function into lines 510-550 of the program.*

*PLOT is great fun for graphing all sorts of functions from those studied in first year algebra on up. As you can see from the photos, the quarter-size rectangles are used to plot points. It's pretty easy to get weird results by choosing functions whose domain (i.e., x values) or range (y values) go beyond the graphic capabilities of the PET. But it's also easy and rewarding to get the types of results illustrated here.*

*The photos were taken using Polaroid film type 107c in a camera with a special hood which positions the camera the proper distance from the screen and keeps glare and reflections out of the picture.*

*To use the program, first type the desired single-valued function into lines 510-550 of PLOT, then RUN it. You will be asked for the maximum and minimum values of x and y (see lines 600-625 of the program); then your function's graph will be displayed.*

*I've modified the two lines of the program submitted by Philip so that 'READY.' would not appear on the graph. Instead, line 160 GETs a character ZZ$ from the keyboard. If nothing is typed (i.e., ZZ$=""), then the program stays on the same line. This has the effect of simply causing the program to wait until some character is typed. When something is typed, the program goes on to line 165 which causes those lines containing the user function to be LISTed so that you can easily see what function you've been working with—and modify it, if you desire. —Phyllis Cole*

PLOT

```
  1  REM* PROGRAM PLOTS Y(X) WHICH IS *
  2  REM* TO BE INSERTED BY THE USER  *
  3  REM* IN LINES 510-550. PROGRAM   *
  4  REM* WRITTEN BY PHILIP GASH,     *
  5  REM* REDDING, CALIF. PROGRAM FOR *
  6  REM* INDIVIDUAL USE AND NOT FOR  *
  7  REM* SALE.                       *
  8  REM* PRINT "[CLR]"               *
  9  GOSUB 600
 10  FOR T=0 TO 7:READ CC(T):NEXT T
 12  DATA 98,127,226,255,123,126,108,124
 20  FOR P=0 TO 79 STEP 2
 25  X=P:GOSUB 490:Y1=Y:X1=X
 30  X=P+1:GOSUB 490:Y2=Y:X2=X
 35  M1=33728+INT(X1/2)-40*INT(Y1/2)
 40  M2=33728+INT(X2/2)-40*INT(Y2/2)
 45  P1=INT(Y1)-2*INT(Y1/2)
 50  P2=INT(Y2)-2*INT(Y2/2)
 55  IF M1<>M2 THEN 85
 60  IF M1<32768 OR M1>33767 GOTO 150
 65  PT=P1+P2
 70  IF P1=0 AND P2=1 THEN PT=3
 75  IF P1=1 AND P2=0 THEN PT=1
 80  POKE M1,CC(PT)
 82  GOTO 150
 85  IF M1<32768 OR M1>33767 GOTO 100
 90  PT=4
 92  IF P1=1 THEN PT=5
 95  POKE M1,CC(PT)
100  IF M2<32768 OR M2>33767 GOTO 150
105  PT=6
110  IF P2=1 THEN PT=7
120  POKE M2,CC(PT)
150  NEXT P
160  GET ZZ$:IF ZZ$="" GOTO 160
165  LIST 500-550
490  D=X:F=(X4-X3)*D/80+X3
495  X=F
500  REM* USER INSERTS Y=Y(X) ON *
505  REM* LINES 510-550          *
555  Y=(Y-Y3)*50/(Y4-Y3)
560  Y=D
570  RETURN
600  INPUT "MAX VALUE OF X";X4
610  INPUT "MIN VALUE OF X";X3
620  INPUT "MAX VALUE OF Y(X)";44
625  INPUT "MIN VALUE OF Y(X)";Y3
630  PRINT "[CLR]"
640  RETURN
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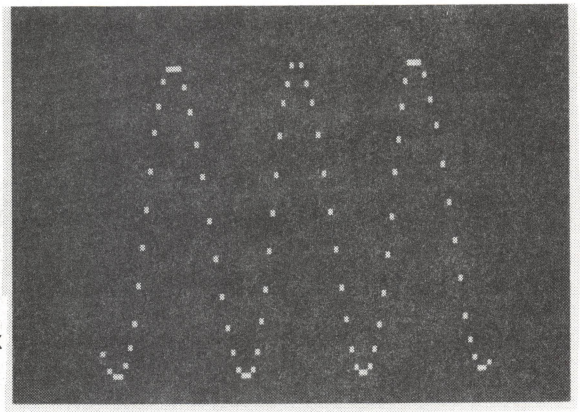
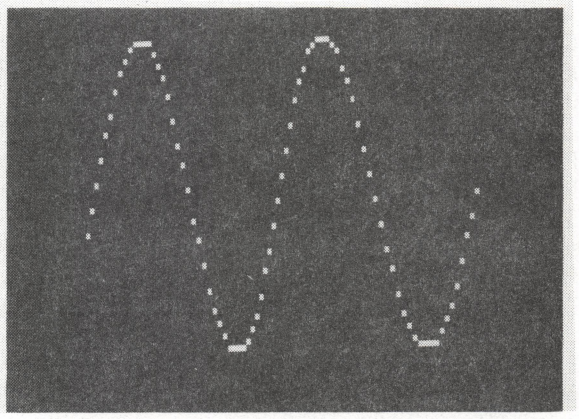


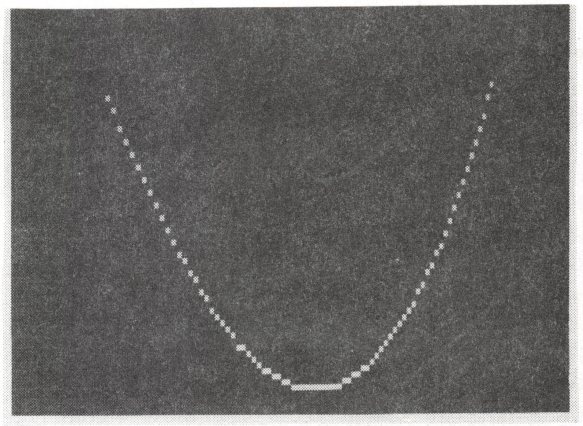
Y = COS(X)

| | MIN | MAX |
|---|---|---|
| X | −10 | 10 |
| Y | −1 | 1 |



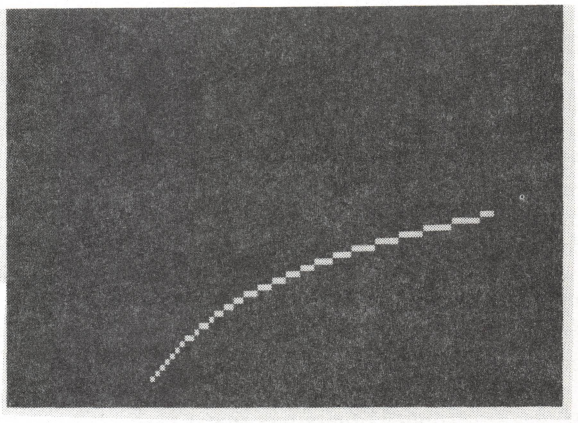
Y = SIN(X)

| | MIN | MAX |
|---|---|---|
| X | 0 | 13 |
| Y | −1 | 1 |



Y = X ↑ 2 − 4 * X + 4

| | MIN | MAX |
|---|---|---|
| X | 0 | 4 |
| Y | 0 | 4 |



Y = LOG(X)

| | MIN | MAX |
|---|---|---|
| X | .01 | 10 |
| Y | .004 | 4.34 |

# VIDEO MIXER

BY RANDALL JULIN

Although I have made design modifications to the PET Video Mixer circuit on the opposite page, I must give major credit where credit is due: the original circuit design was the work of Marc Hertzberg, Engineering Technician, and Ludwig Braun, Professor of Engineering, both of SUNY, Stony Brook, New York. Professor Braun is the Assistant Director for Educational Technology at SUNY, Stony Brook and is the author of 'Microcomputers and Video Disc Systems: Magic Lamps for Educators?', which has been printed in recent issues of computer journals, such as *Calculators/Computers* and *People's Computers*.

I have earned a Master's degree in Educational Technology at San Francisco State University, and I am now Manager of a computer-timesharing lab for the Information Science Program here on campus. For the last four or five years my interests have covered the spectrum of educational technology, and within the last two years or so I have become especially interested in the applications of computers in the classroom and in the educational curriculum. Because I see the potential of the *interactive* computer as a tool for learning in the classroom, I decided to buy a PET micro from Commodore last Christmas. Since then I have been trying to sharpen my PET BASIC programming skills; I have been learning a lot by attending the PET User Group meetings in Mountain View and by Exchanging PET programs on cassettes with other PET owners. I also have been able to pick up some very useful PET info and programs by subscribing to the *PET Paper* and the *PET User's Group Newsletter*, or by buying pertinent issues of the top popular computing magazines.

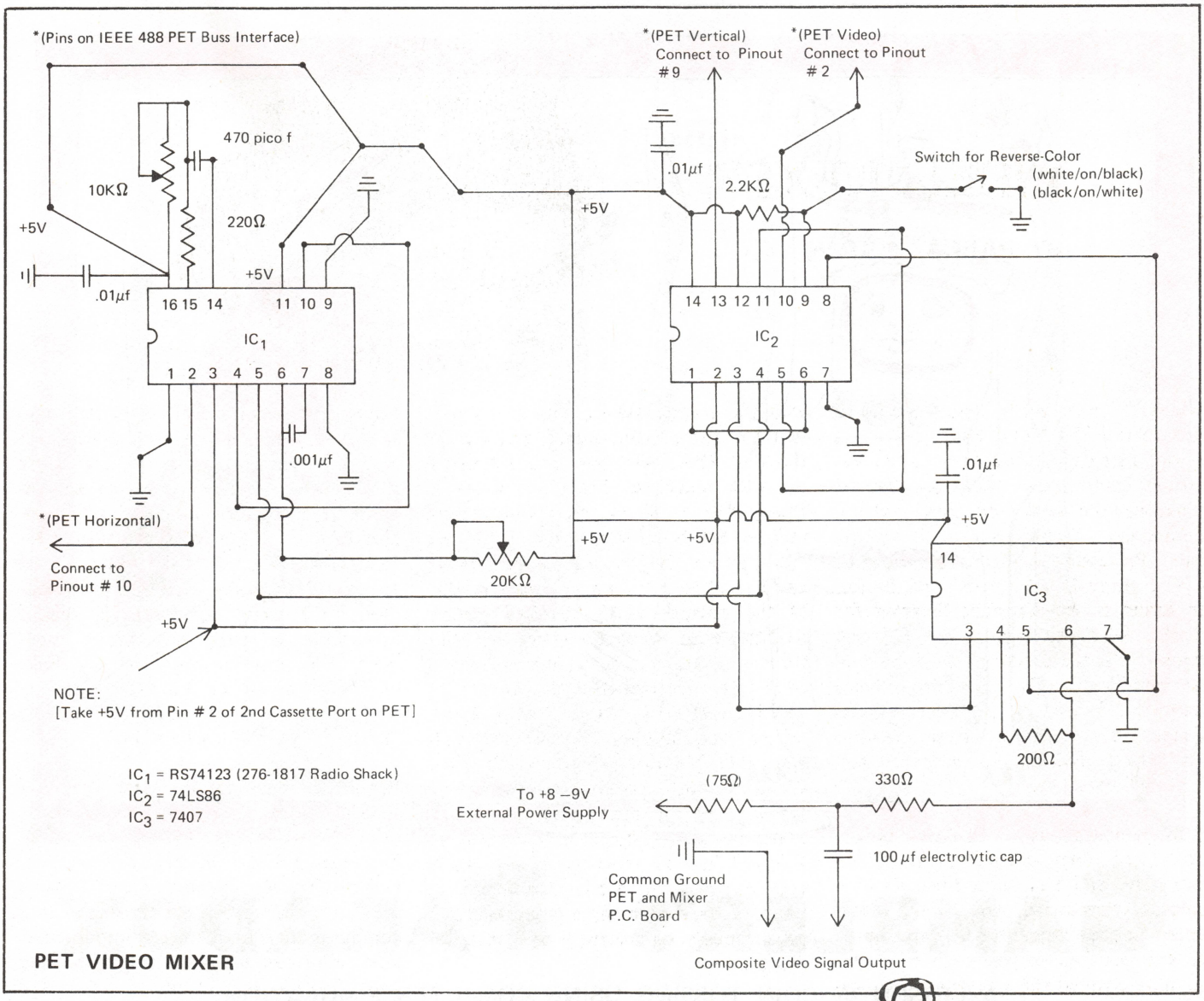
It was in *People's Computers* that I first read a letter from Professor Braun, in which he mentioned a circuit that would mix the three video signals put out by the PET IEEE 488-bus. This interested me very much, so I wrote a letter to Braun at Stony Brook, asking him to send me the details on such a circuit. Soon I had a circuit diagram for the PET Mixer and I went to work wiring up my version of the circuit, which required certain modifications. With the advice of Mike Butler, an engineering technician here at SFSU, I modified the circuit for an RS74123 IC chip (from Radio Shack, rather than another IC chip originally specified). The original circuit also called for a 12 volt positive supply voltage across a 100 microfarad electro-cap to boost the composite video signal output. I found that 12 volts was unnecessarily high to drive the video monitor I was using. I used a makeshift unregulated power supply of around 8 or 9 volts for this purpose.

I mounted the ICs on mounting plugs rather than hard-wiring them to the PC board. The components are mounted and wired in close to the ICs. It is a good idea to plan ahead in order to effectively use common ground lines and a common bus for the +5 volts. The PC board should be wired to interface with the PET's IEEE 488-bus, so the horizontal (pin 10), the vertical (pin 9) and the video signals (pin 2) can be inter-connected to the board easily. The +5 volts can be tapped off of pin 2 of the PET's second cassette port. There are two pots in this circuit which are to be used for adjusting the horizontal centering on the monitor screen. (I used a Panasonic CCTV video monitor with a 21 inch screen.) You might have to experiment with different output supply voltages, depending on what kind of monitor you are using.

The circuit for the PET mixer works beautifully (after I had taken care of a few cold solder joints and shorts). On several occasions I have used the mixer with a large screen monitor to demonstrate PET graphics programs and Peninsula School's 'LEMON' simulation to Information Science Lab visitors and groups of educators interested in the potential for using computers in school classrooms. A really neat feature, especially with graphics programs, is the ability to switch from black-on-white to white-on-black on the large monitor with the aid of the PET Video Mixer.

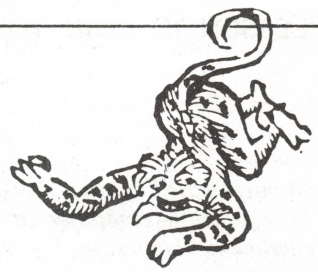
My thanks again to Professor Braun of SUNY, Stony Brook, and expertise of Marc Hertzberg (at SUNY) and Mike Butler (at SFSU). The potential for creative fun and learning with the PET micro used in a classroom environment or in a computer lab is limitless. Commodore has done educators a great service by putting its PET computer out on the market at a price which the average family can afford. It may take some time before many computers can be used in the classrooms as an integral part of the curriculum on any widespread basis, but in the meantime people are beginning to really appreciate the potential of the PET in their own homes. Applications of educational technology, and especially micros like the PET computer, might just be signalling the beginning of a true educational revolution.

Finally, I would like to applaud journals like *People's Computers*, and the maybe less-known, *MICRO: the 6502 Journal*, for providing forums for information regarding personal computers from the common people. Editors like Robert Tripp and Phyllis Cole should really be thanked for their help in letting us print what we have to say about personal computing in education today.




**PET VIDEO MIXER**

# PETting A DIABLO



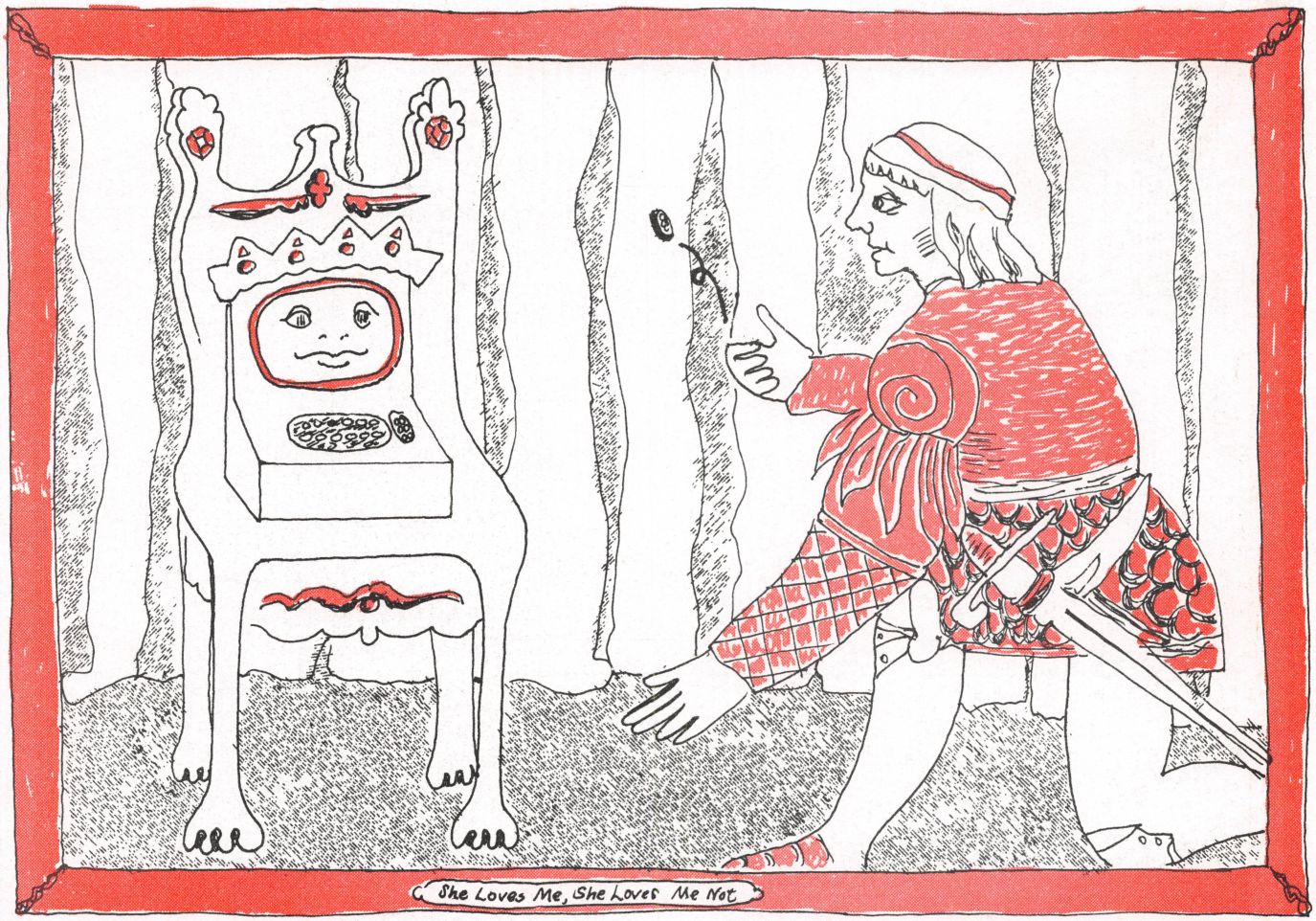
**BUECK/JENKINS**
2716 Stewart Lane
Rocky Mount, NC 27801

We have finally made our PET speak (in print) using a Diablo daisy wheel printer interfaced with Dick Rosner's PET ADA from Connecticut Micro Computer, 150 Pocono Road, Brookfield, Connecticut 06804.

The device converts IEEE 488 output to RS232 and works very well. Our initial start up didn't work because two pins on the Diablo (6 & 4) must be jumped. We also had trouble with tabbing, line feed, form feeds, etc. Diablo uses ESC and a character to perform these functions. To accomplish tabbing, use Print #5, CHR$(27); CHR$(09); CHR$(B) where B is the variable position on the page and CHR$(27) is ESC in decimal form and CHR$(09) is HT on horizontal tab. This sequence causes an absolute tab to the horizontal position on the line. By using both absolute vertical and horizontal tabbing, the print position can be quickly located anywhere on the page. The key to the typewriter control is to use CHR$ and decimal equivalent of the keytop sequence. Similar statements cause the Diablo to print in Red, Black, Sound Bell, Carriage Return, etc. We scratched our heads 'til a call to CMC put us on track.

Although the PET ADA may be a bit expensive @ $169 for a complete unit including case and power supply, the stripped for $98; it is our first usable short cut to print on a quality printer.

We hope Commodore will get moving on their own peripherals, but in the meantime, try the PET ADA. □




# GAMBLER'S PARADOX

## A LESSON IN COIN TOSSING USING COMPUTER SIMULATION

BY BOB KAHN

*This article is actually a computer-based tutorial that I wrote awhile back to illustrate how a simple computer simulation game may be used as an experimental laboratory for exploring some elementary statistical concepts – in a gambling context. The text that follows is meant to be used in conjunction with a computer terminal (or a microcomputer) on which the two programs, FLIPME and GESTRA are available. For the purposes of this article, sample program runs have been inserted in the two places where one would normally go on-line.*

*Program listings are included at the end of the article. The FLIPME program may seem a little lengthy for a coin-tossing simulator; it is designed to stand alone as a game (independent of this tutorial) and contains a relatively elaborate set of messages which flip-flop from trial to trial depending on the outcomes. GESTRA is a simple simulation comparing four possible strategies that a human player might use in playing FLIPME.*

This unit is designed as a set of experiments and computer programs dealing with the age old game of 'coin flipping' as a way to introduce you to some elementary concepts of statistics. We will use the computer as a handy coin simulator, calculating tool and record keeper to save a lot of time and also have some fun.

Let's try a very simple experiment – we have written a program that will enable the computer to play an exciting old game called FLIPME. The computer will simulate the flip of a *fair* coin and you will predict the results – H for Heads or T for Tails; each time you guess right, you will be given one morp (a morp is like a silver dollar in computer money). But alas, each time you are wrong, you lose a morp. You will start out a pauper with nothing to your name and will be given sixteen flips to improve your holdings. If you should end up in the hole (with a negative number of morps) you owe the computer . . . and it has a very good memory for such things!

O.K. Let's do it – load and run program FLIPME: