MACHINE LANGUAGE PROGRAMMING A further step along the way was taken by Glenn Pogue, who modified the "game over" routine of p. 25, making it print the word ARCADIAN in 2x normal letter size. I have not been able to totally duplicate this feat, I think it lies in the small differences in ROM locations that have previously been noted. The total program is:

```
  9 CLEAR
 10 A=20180;B=A;C=120              .ref p.34"LINE INPUT BUFFER from 20180..."
 20 X=-43;GOSUB C                  .lines 20 to 60 call subroutine 52 and
 30 X=53;GOSUB C                    define the required parameters for the
 40 X=27672;GOSUB C                 70 to 100 part to work, and get back to
 50 X=20190;GOSUB C                 the BASIC
 60 X=-13871;GOSUB C
 70 X=21057; GOSUB C               .lines 70 thru 100 insert the letters per
 80 X=16707; GOSUB C                the scheme shown below
 90 X=18756; GOSUB C
100 X=20033; GOSUB C
110 CALL (B); STOP                 .Displays the contents of memory slots A
120 %(A)=X; A=A+2; RETURN          .POKEs the values of X into memory slots A
```

From page 49-This program can be 'clarified' by replacing line 105 with the statement X=∅; GOSUB C . The zero will stop the machine's printing after it finishes the AN of ARCADIAN. What is happening is - the machine has been set into a printing mode and it keeps on going until it hits an internal halt. The X=∅ sets such a halt thru the POKE function, where you want it.

To convert the word ARCADIAN into machine language, each character is converted into its hexadecimal equivalent (use chart on p.16.) They are then paired off, each pair is swapped,and the new pair converted into decimal, as follows:

Desired characters	A	R	C	A	D	I	A	N
Hexadecimal conversion	41	52	43	41	44	49	41	4E
Pair off	4152		4341		4449		414E	
Swap within pair	5241		4143		4944		4E41	
Convert to decimal(use routine on page 36)	21057		16707		18756		20033	

And these are the values of X in lines 70 to 100.
My operation did not give a clear display. There was more material on the screen, some of it seemed to be overprinting. I inserted line 105, X=12336; GOSUB C, to add some known characters (00), and I could then see the first part of line 20 → 20 X = -43 in giant letters.
The program is presented for the experimenters in the audience who would like to have something more unusual. The program has more potential because the root subroutine, 52, has many capabilities.