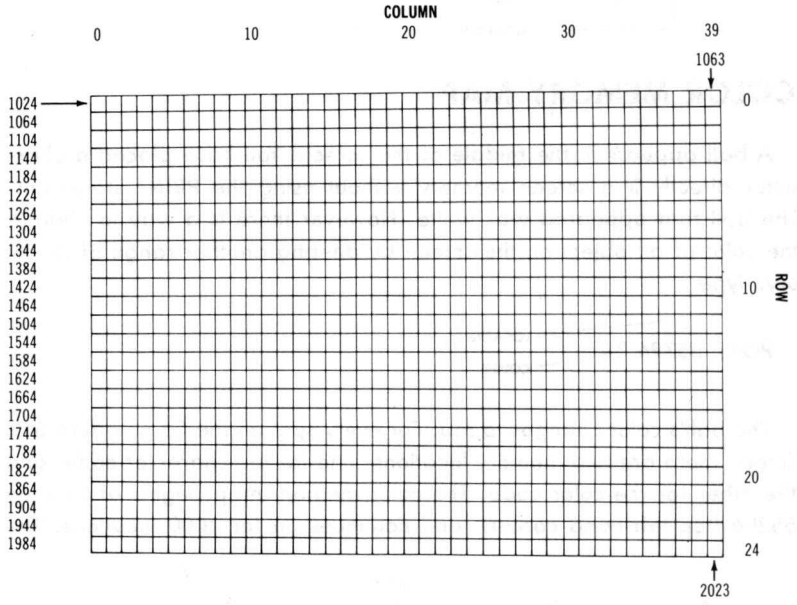
priate screen memory location, that character will be displayed in the proper position.



Screen memory in the Commodore 64 normally begins at memory location 1024, and ends at location 2023. Location 1024 is the upper left corner of the screen. Location 1025 is the position of the next character to the right of that, and so on down the row. Location 1063 is the right-most position of the first row. The next location following the last character on a row is the first character on the next row down.

Now, let's say that you're controlling a ball bouncing on the screen. The ball is in the middle of the screen, column 20, row 12. The formula for calculation of the memory location on the screen is:

```
POINT = 1Ø24 + X + 4Ø*Y
                  COLUMN
                  ROW
```

where X is the column and Y is the row.

Therefore, the memory location of the ball is:

```
1Ø24 + 2Ø + 48Ø or 1524
                COLUMN
                ROW (40* 12)
```

Clear the screen with SHIFT and CLR/HOME and type:

```
POKE 1524,81
POKE 55796,1
```

COLOR

LOCATION

COLOR MEMORY MAP

A ball appears in the middle of the screen! You have placed a character directly into screen memory without using the PRINT statement. The ball that appeared was white. However there is a way to change the color of an object on the screen by altering another range of memory. Type:

```
POKE 55796,2
```

LOCATION

COLOR

The ball's color changes to red. For every spot on the Commodore 64's screen there are two memory locations, one for the character code, and the other for the color code. The color memory map begins at location 55296 (top left-hand corner), and continues on for 1000 locations. The