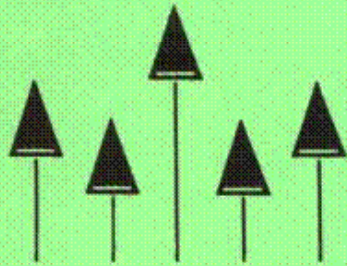




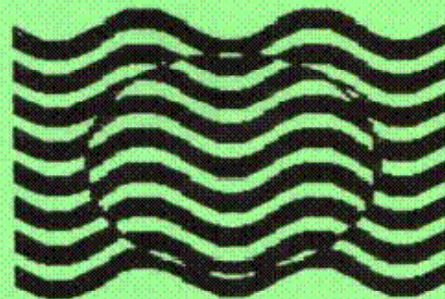
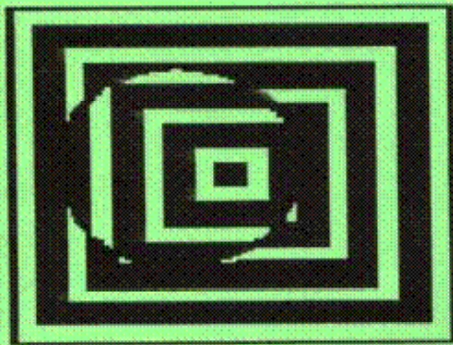
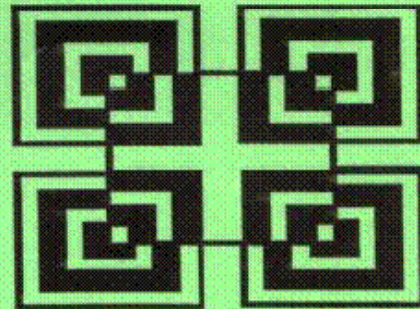
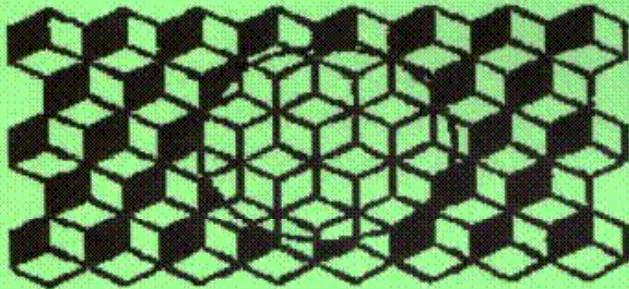
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LOGO EXCHANGE

February 1991

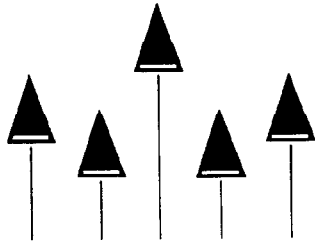
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Date, Time, Palette, and Diskspace:

Four New Primitives for LogoWriter on the IBM/PC

by Charles E. Crume

LogoWriter was designed to work in a similar manner on several brands of microcomputers. Primitives that are easy to implement on one machine are sometimes omitted on other machines because of hardware differences. This article presents four useful procedures that enhance the IBM/PC version of *LogoWriter*. The four procedures are: (a) DATE, (b) TIME, (c) PALETTE, and (d) DISKSPACE. These procedures report the current date, report the current time, change the color palette on a Color Graphics Adaptor (CGA), and report the number of free bytes on a disk. They make use of the primitives .DEPOSIT, .EXAMINE, .INTERRUPT, and .REGS, and call the operating system interrupts 33 (21h) and 16 (10h) of MS-DOS, therefore, they will only work on the IBM/PC version of *LogoWriter*.

The first procedure reports the date currently in the computer's memory (the date is normally set during the process of turning on the computer). This procedure, given below, can be used by children to include the date in their program output.

```
TO DATE
.DEPOSIT .REGS 10752
.INTERRUPT 33
OUTPUT (SENTENCE ITEM INT (.EXAMINE
(.REGS + 6)) / 256 [January Febru-
ary March April May June July
August September October November
December.] WORD REMAINDER (.EXAMINE
(.REGS + 6)) 256 ", .EXAMINE .REGS
+ 4)
END
```

To print the current date, use the command shown below:

```
PRINT DATE
```

the output would be a date such as:

```
August 27, 1989
```

the command:

```
(PRINT [TODAY'S DATE IS:] DATE)
```

would print:

```
TODAY'S DATE IS: August 27, 1989
```

To include the date onto a graphics screen, position the turtle to the desired location, then use the command:

```
LABEL DATE
```

The second procedure, called TIME, reports the time currently in the computer's memory (the time is normally set during the process of turning on the computer). TIME calls the procedure .TIME which does the majority of the processing.

```
TO TIME
.DEPOSIT .REGS 11264
.INTERRUPT 33
OUTPUT .TIME .EXAMINE .REGS + 4
.EXAMINE .REGS + 4 .EXAMINE .REGS
+ 6
END
```

```
TO .TIME :HOURS :MINUTES :SECONDS
MAKE "HOURS INT :HOURS / 256
IF :HOURS < 10 [MAKE "HOURS WORD "0
:HOURS]
IFELSE :HOURS < 12 [MAKE "HOURS WORD
:HOURS "am] [MAKE "HOURS WORD
:HOURS "pm]
MAKE "MINUTES REMAINDER :MINUTES 256
IF :MINUTES < 10 [MAKE "MINUTES WORD
"0 :MINUTES]
MAKE "SECONDS INT :SECONDS / 256
IF :SECONDS < 10 [MAKE "SECONDS WORD
"0 :SECONDS]
OUTPUT (WORD BUTLAST BUTLAST :HOURS
": :MINUTES ": :SECONDS LAST
BUTLAST :HOURS LAST :HOURS)
END
```

To print the current time, use the command shown below:

```
PRINT TIME
```

the output would be the time, such as:

```
12:51:33am
```

the command:

```
(PRINT [THE CURRENT TIME IS:] TIME)
```



would print:

```
THE CURRENT TIME IS: 12:51:33am
```

The third procedure changes the color palette on an IBM CGA. The CGA has limited color capability (three foreground plus background) in its 320x200 pixel mode (whereas the EGA has 15 colors plus background, and the VGA even more). When LogoWriter on a CGA starts, it defaults to the color palette of white, magenta, and cyan. There is another palette comprised of the colors orange (sometimes yellow or brown depending on the equipment), red, and green. Unfortunately, LogoWriter does not provide a primitive to switch between the two palettes. To switch between the two palettes the following procedure, called PALETTE, can be used. The procedure requires a single input - the number of the color palette to be used. The value zero is for white/magenta/cyan and the value one is for the orange/red/green palette. The procedure is error trapped to ensure a valid number is supplied.

```
TO PALETTE :X
IF NOT OR :X = 0 :X = 1 [(TYPE [PAL-
ETTE DOES NOT LIKE] :X [AS INPUT]
CHAR 13) STOPALL]
.DEPOSIT .REGS 2816
.DEPOSIT .REGS + 2 256 + :X
.INTERRUPT 16
END
```

The final procedure, DISKSPACE, reports the number of free bytes on the specified disk. The procedure requires a single input - the letter of the disk drive to be reported. The procedure is error trapped to ensure a letter between "A" and "Z" has been supplied (upper or lower case is OK). The procedure also error traps non-existent drives and drives that are not ready (door open, no disk inserted, etc.).

```
TO DISKSPACE :DRIVE
IF AND (ASCII :DRIVE) > 96 (ASCII
:DRIVE) < 123 [MAKE "DRIVE CHAR
(ASCII :DRIVE) - 32]
IF NOT AND (ASCII :DRIVE) > 64 (ASCII
:DRIVE) < 90 [(TYPE [DISKSPACE
DOES NOT LIKE] :DRIVE [AS INPUT]
CHAR 13) STOPALL]
.DEPOSIT .REGS 13824
.DEPOSIT .REGS + 6 (ASCII :DRIVE) -
64
.INTERRUPT 33
```

```
IF (.EXAMINE .REGS) = 65535 [(TYPE
[DRIVE] :DRIVE [IS INVALID OR NOT
READY IN DISKSPACE]) STOPALL]
OUTPUT (.EXAMINE .REGS + 2) * (.EXAM-
INE .REGS) * (.EXAMINE .REGS + 4)
END
```

To determine how many bytes are available on the A disk drive, use the command:

```
PRINT DISKSPACE "A
```

the result will be a decimal number such as:

```
131072
```

The DISKSPACE procedure is more appropriately used in a conditional statement to determine whether enough space is available for disk operations such as saving text files. An example would be:

```
IFELSE (DISKSPACE "A) > 10000
[SAVETEXT "MYTEXT] [PRINT [THERE
IS NOT ENOUGH ROOM ON THE DISK]]
```

If there were more than 10,000 bytes of space available, the above statement would save the contents of the text screen in the file MYTEXT. If there were not 10,000 bytes of disk space, a message indicating such would be displayed.

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