

The Complete Atari Magazine

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Issue 16

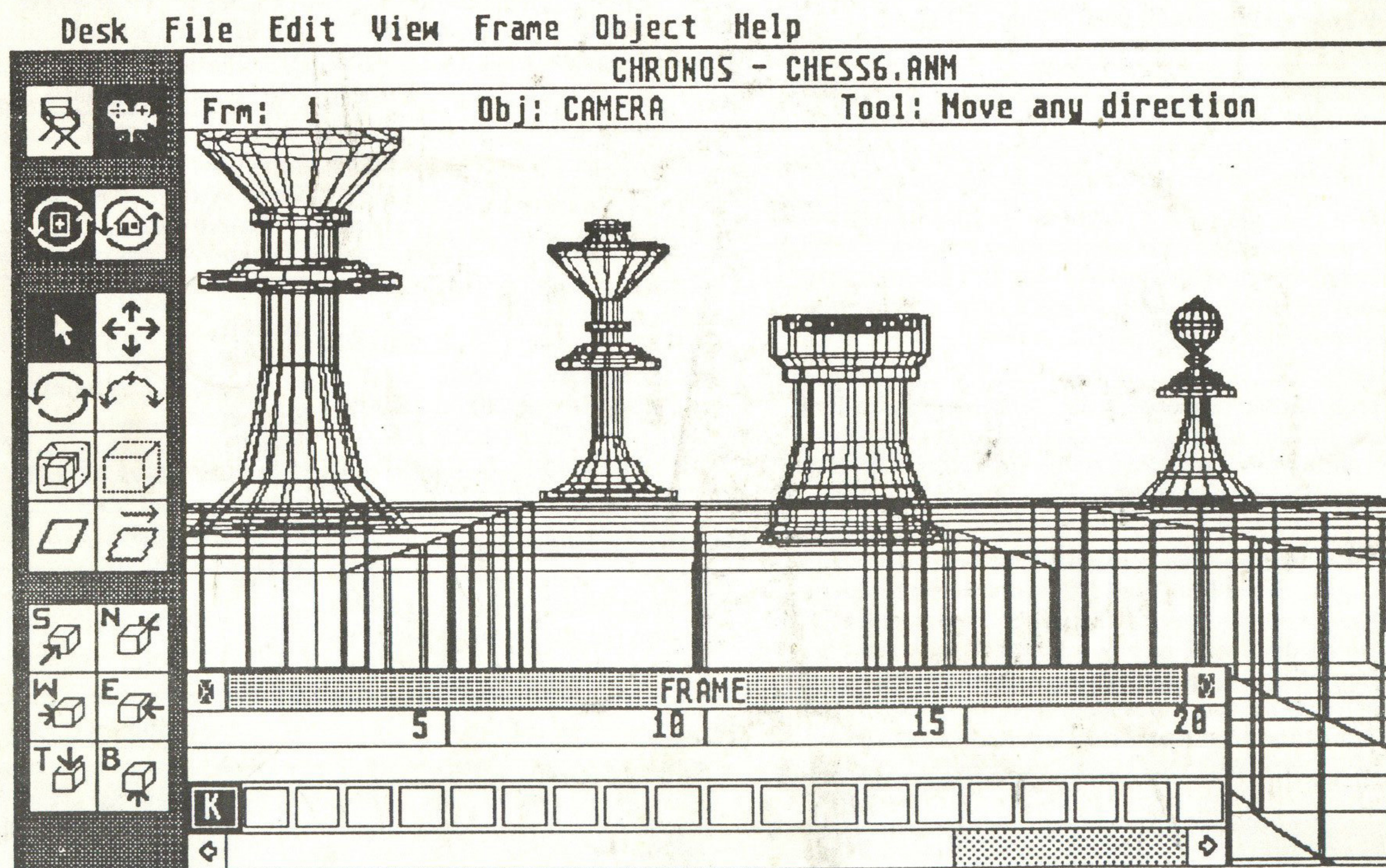
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Free Product Guide Available

These prices are valid from 1st November, 1992 and supersede all previously published prices. Prices may be changed without notice.

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Please send ST to Paul and all the rest to me (Colin).

We are currently looking for an 8-bit Editor. If you are interested please write, including some background information. You don't have to have had any experience as an editor, but you will need lots of commitment.

8:16 is produced by the 8:16 SIG within the BaPAUG for the enjoyment of everyone who loves their Atari computer.

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This issue of 8:16 was produced using an Atari 130XE, 1050 disk drive, 520STFM (fitted with 2MB Xtra-RAM), Mega 4, SM124 monitor, Cumana 1M external drive, Reference 100 harddisk, Apple Macintosh SE, Deskjet 500 and Laserwriter Plus printers. The software used was AtariWriter Plus on the 8 bit. 1st Word Plus, Gem Kermit, Timeworks Desktop Publisher, Pagestream V2.1 and Xformer II on the ST. Microsoft Word, MacDraw, Mac Kermit and Aldus Pagemaker Version 4 on the Macintosh.

Files are transferred from the 8bit to the ST by directly reading the 8bit disks using a 1050 disk drive connected to the ST printerport and saving the files on a ST disk, with help from the Xformer II software. Standard old Kermit is used to transfer these files to the Mac (where needed).

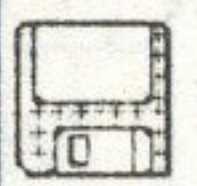


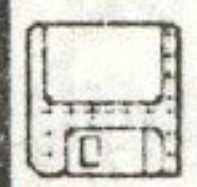
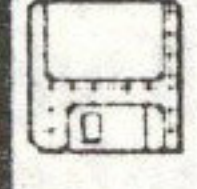
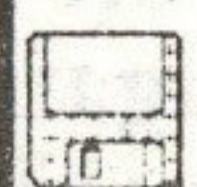
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is 28th October, 1992.
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 8 Bit Articles

ST Articles



**The Bournemouth and Poole Atari User Group is a member of
The Association of Atari User Groups.**

The DeskJet Column

Paul Brookes reflects on the last 18 months using a DeskJet 500.

Back in issue 12 you may recall my review of the DeskJet 500. This was based on a few months use of the printer. Some of you then wrote to me to say that you'd taken the plunge and bought one too. Well 18 months later 4 more BaPAUG members now have DeskJets (where's my commission HP?) and several of my PC friends also have the 500. One chap even has the colour version which is great for Windows on the PC but it is only recently that ST users have had drivers available for the 500C.

Paper

I still haven't beaten my original choice of Elan Executive Copier Paper [80gsm] for print quality, although one or two papers came close. A thicker paper would be nice for those dense black regions of ink that make this copier paper wrinkle. Has anyone else found really good paper or card?

HP Ink

Waterproof ink. Ha! I think I've said this before. I don't know what type of water HP used to wet their ink with but it certainly wasn't UK tap water!

Re-Inking

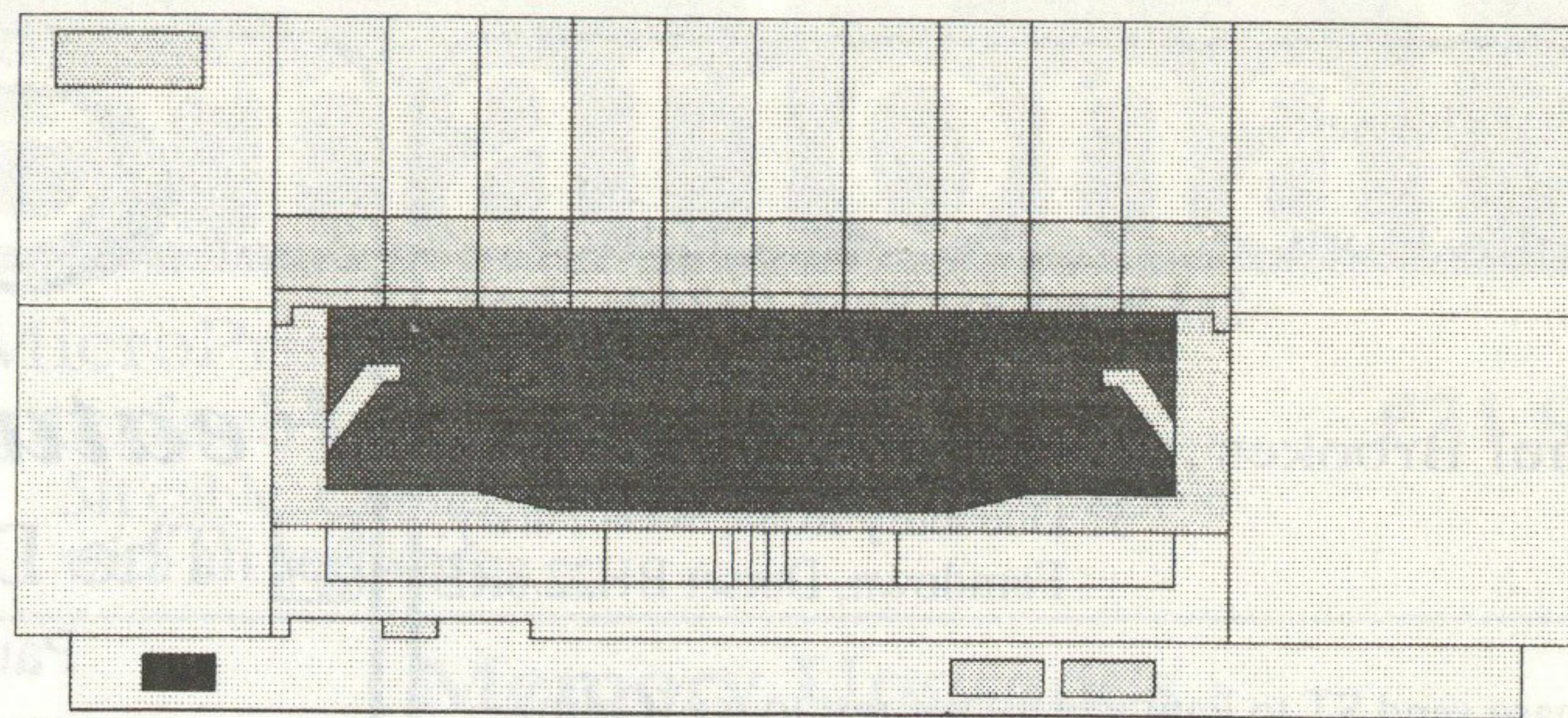
Be Green or Magenta or Cyan or Yellow.... Get yourself a cartridge refill and save the earth and some money. Be warned... Re-inking can seriously damage your worktop, bathroom sink etc. It also makes a mess of your hands, clothes and anything else that gets within one square mile of the re-inking zone.

Seriously, before you can refill a cartridge you have to get rid of any remaining ink that is still contained in your old one. Incidentally, you obviously don't need to fully clean a cartridge that you are going to refill black, although it is strongly recommended that you use some cleaning fluid in a cartridge which has been empty for a few days or more as many people have found that re-inked black cartridges just won't print if they haven't been cleaned first.

Look for the blow-hole

Ontop of a DeskJet printhead (cartridge) is a green arrow with a small hole in the middle of it. This is where you either force air, cleaning fluid or replacement ink. Most kits you can buy supply some sort of bellows device that allows you to force air into the ink cartridge. STOP! Make sure that you are well away from anything that isn't black or valuable, because when you start forcing air through the ink chamber any remaining ink is suddenly decorating your wallpaper. To be fair, this isn't always the case, but what often happens is that bubbles of air/ink form on the nozzle and then pop, or rather **splat**.

I suggest that the first time you re-ink, you do it outside or in your garage.



After half an hour of pumping air through this annoying little hole you will probably be able to start injecting the cleaning fluid. Even more black mess drips out of the nozzle: just when you thought you'd nearly done it. It may take some time to thoroughly clean a cartridge. It is vital that the sponge which holds the ink internally in the cartridge is absolutely clean when you are filling with light colours. My first attempt at a yellow cartridge produced a really weak greenish colour!

After all this messing about to obtain a clean cartridge, filling it with ink isn't too bad. The precise method varies from kit to kit. Most use a brass tube pressed firmly into a compressable ink-pot. With this method it is easy to pierce the foam rubber sponge which may force all of the ink you are injecting back up the blow-hole! Now you know why I call it a blow-hole. If this happens ink will spill over the top of the cartridge. Don't just wipe it away with a cloth, you can actually suck it back into the ink-pot with a little care.

If you overfill a cartridge, ink will either drip out of the nozzels or seap out over a period of 10-20 minutes, so place it head (nozzels) down on something that won't mind a bit of ink on it and leave it until it stops leaking. Don't put a leaky head into the DeskJet because it makes a real mess, especially if you try to print with it.

If all this sounds like too much hassle, you can always buy re-inked cartridges, but don't forget to send your old cartridges off to be recycled. Some retailers will give you a discount against a new or re-inked cartridge if you send them your old one.

Results

The type of ink used to refill the cartridge coupled with the paper, decides the absolute quality you can expect to achieve. If you experience streaking check that you haven't damaged the electrical contacts on the printhead. Try the prime button a few times. If the situation doesn't improve you can try pumping some air through the blow hole to clear any blockages. Remember that ink will drip out so take care when and where you try this.

If you experience blotting, then either you have over-filled the ink cartridge, or your new ink doesn't like your old paper!

Colours

If you are a patient person then with a little bit of skill you can produce results which rival and even better the 500C for print quality. Spot colouring where only single colours exist in any given region on the printed page gives excellent results. Mixing colours on the same area really tests your paper and the registration of the DeskJet. I just use Spot colouring as this lets me print attractive note paper, colour pie charts etc with the minimum of fuss and truly first class results. Try HPCHROME if you haven't got the software to do separations. Incidentally, *some* of the ink supplied with the refill kits is more water resistant than the original HP ink, and less sensitive to the paper type used.

DIY

Mike Hosking the BaPAUG secretary, re-fills his print heads with Sheaffer Skrip Ink. In our local shops this costs £3.25 for 60ml, enough to fill 4 cartridges! He uses a hypodermic syringe to inject 12ml of the new ink (into the cartridge!).

Don't Give Me Your Problems

One day, my DeskJet decided to drop its paper support guides half way through printing a page and worse still, start to raise them again thus trapping the paper causing a sort of paper jam and a distorted printout. This happened after I had filled the paper tray, so I pulled the tray out and put it back in again and everything was fine. Three months later, half way through a 30 page Pagestream 2 document the same thing happened. This time I swore a lot because Pagestream takes hours to print long documents and uses a fair amount of precious ink. Maybe I had just filled the paper tray again - I can't remember, but the remedy was the same as before. It hasn't happened since thank goodness, but if this page comes out distorted then you know it just happened again!

TurboJet

In issue 12 I mentioned that TurboJet requires WordUp V3 to decrypt the master disk and since I didn't have WordUp V3 I was going to try to get it replaced. Well I didn't bother and I haven't found anyone with Wordup V3 so I haven't decrypted my TurboJet disk. Fortunately I don't use GDOS so if anyone wants TurboJet and does have WordUp V3 then I'll gladly get rid of it.

DeskJet PD Update

Many useful programs have been written for the DeskJet over the last two years. I have recently updated the BaPAUG's DeskJet PD disk. This disk now contains the following files:

ADDRESS2 HP DeskJet Envelope Addresser

BOOKER This program produces A5 booklets from text files presented to it. It prints 2 pages side by side in landscape mode, on both sides of the paper (you must turn it over of course!)

COMPACT This is a quick way to get a nice compact printout of your hard drive or floppy drive's contents. It uses the smallest printing mode of the HP DeskJet.

DJBOOT Automatically sets draft mode on the DeskJet when the program is run from the AUTO folder. (Not required on the DJ 500).

DJBOTH16 DJ BothSides version 1.6 is a utility for the Hewlett-Packard DeskJet 500 printer which prints text files on both sides of A4 paper in one or two columns or in booklet (folded A5) format.

DJPICPRO This small program converts DEGAS monochrome files into a file which can be printed by 'Protex'™ on the HP DeskJet Plus printer.

DJ+DUMP Our local South West Software Library's own Martyn Dryden a.k.a RUFUS Developments wrote this program that prints out hi-res DEGAS pics (.PI3 files) on the Hewlett-Packard DeskJet Plus printer. It probably also works on the standard DeskJet, DeskJet 500 and the LaserJet (and compatibles).

DJ_RESET A useful utility in .ACC and .PRG form, for DeskJet owners who find that they have to turn on their printer before their ST if they are to avoid locking the printer port up. This utility resets the ST's printer port if it locked up when powering on the DeskJet after the ST. Saves having to re-boot the ST. Written by the ST Ed.(Me)

EPSJET Tries hard to make the DeskJet emulate an Epson MX. Great if you like Epson quality output! Works with GDOS too.

FPRINT Speeds up ST printer port output.

HPCHROME v1 (Unregistered SHAREWARE Version) HPChrome works on any Atari ST, with a HP DeskJet 500C colour printer, or with a standard DeskJet, DeskJet Plus or DeskJet 500 fitted with a Colour Kit. HPChrome prints 16-colour picture files in DEGAS (normal or compressed) and NEO formats.

HPDESK2E This program allows you to change the options of your DeskJet 500 printer. You can choose bold, underline, horizontal or vertical printing, the font and character set you want to use, lines per inch, the height of the character set and the margins. You are able to print ASCII text files and graphics images with this program. Unregistered SHAREWARE version.

JETSET Allows some font and page selection commands to be sent from the ST via an accessory.

P_OR SAV Despite its name, it is a great utility for DeskJet owners. Try it! It produces amazing screen dumps in two sizes and in draft or NLQ.

PR300DPI 300dpi hi-res screen dumper. HP LaserJet II compatible (DeskJet Series) screen dumper. Prints at 2:1 to avoid dumps the size of a postage stamp.

FPRINT

Putting this program in my auto folder is the best thing I've done recently. The difference it makes to print times with Pagestream 2 is very welcome indeed. It doesn't make Pagestream 2 draw the page any faster, but it speeds up output via the parallel port. I assume it works with all printers that can print faster than the ST's printer port can transfer data.

New Printer Drivers For Pagestream

Pagestream 2.2 has arrived and now comes with an updated DeskJet/+500 driver and a new DeskJet 500C driver.

Ghostscript

This Shareware Postscript™ interpreter supports the DeskJet and produces some interesting results. To test out Ghostscript, I printed this page using Pagestream 2 then printed it to disk as a Postscript file. Then I ran it through Ghostscript. Some 25 minutes (I thought Pagestream was slow) later, out came the page. The fonts were thinner than the non Postscript version, slightly preferable in my opinion. There are some interesting example programs supplied with Ghostscript. Try it if you like messing about with DTP.

You can get the DeskJet Disk from the usual club address for £2.

TAIPEI and a Mouse

Improve Playability by Converting from Joystick to Mouse Input.

TAIPEI, one of the low-price, disk-based games recently imported from Germany (and available from Gralin International), is an absorbing solitaire game played with the set of Mah Jong tiles. The 144 tiles are presented in a randomly-ordered pile and you have the objective of removing them all, in matching pairs, and according to some simple rules.

Tiles you wish to remove are selected by moving a screen cursor over them. However, since the game is written for the Atari XL/XE, it uses joystick input to move the cursor, and the resultant fixed rate of cursor movement can get a bit tedious - especially shifting from one edge of the screen to the other.

Investigation of the program's internal workings showed that conversion to mouse input was fairly straightforward for the ST type of mouse (although I confess I actually use an Amiga one since it has a better feel). The improvement in ease of play is remarkable - and is definitely worth the effort.

Converting the Program

The first step is to carefully type in the BASIC program 'TPEICONV'. This contains several machine-code routines in the form of DATA statements. Each DATA statement holds 16 values plus a checksum which is verified once the program is run. This and the basic error trapping built into TPEICONV should help locate any typing mistakes. Once you have typed in the program SAVE it to disk before proceeding - and certainly before attempting to RUN it.

Next make a copy of the TAIPEI game disk. The game comes on a single-sided, enhanced (1050) density disk without any copy protection so that you can simply use the Atari DOS 2.5 'J' option (Duplicate Disk) or any suitable sector copier.

Finally, RUN the TPEICONV program and follow the prompts.

After initialising three strings to contain the machine-code routines, TPEICONV will prompt you to insert the copy of TAIPEI in Drive 1 and will then write the necessary modifications to the disk. All you need to

do once this is complete is to plug your mouse into Port 1, reboot the machine from the modified TAIPEI disk, and enjoy the game.

How It All Works

When you switch on your computer with the original TAIPEI disk in Drive 1 the boot code held in disk sectors \$01 and \$02 is loaded to memory address \$1C00. This code is itself a loader and, as soon as control is passed to it by the boot process, it loads in a title screen and an initialisation program. The latter sets up various facilities needed by the game proper then waits for any key (including Option, Select, Start, Help, or the joystick Fire button) to be pressed, or the joystick to be moved. The initialisation program then copies yet another loader routine from disk sector \$03 to memory address \$1F00, jumps there, and allows the routine to load the actual game.

Note that if you switch on with OPTION held down, as stated in the English instructions supplied with TAIPEI, the second load will proceed immediately and you will miss seeing the title screen.

Once TAIPEI is running, a Vertical Blank Interrupt (VBI) routine is used to read the state of Port 1 fifty times a second and thus detect any joystick movement or a press of the fire button. Any deflection of the joystick results in update of the horizontal and vertical coordinates of the cursor, held in memory locations \$1FFA and \$1FFB, respectively. To change to mouse operation it is only necessary to insert a jump from the joystick-reading part of the VBI routine to a similar mouse-handling routine which places the appropriate values in locations \$1FFA and \$1FFB. We can then jump back to the TAIPEI VBI routine and let it continue with the rest of its housekeeping operations, including a check on the fire button - which is now the left mouse button.

However, things are never quite as simple as that and, apart from getting everything installed in the right place in memory in the first place, there are a few other little fixes which need to be made to

get TAIPEI running smoothly with the mouse. The best way to explain these details is to look at the listings of each of the three assembler routines required, MOUSHAND, TPLOADER, and TPDPATCH. There is no need to type these routines in - they are presented solely for your information.

The Mouse Handler

Whenever a mouse moves it generates a series of pulses into the port to which it is connected. Mouse movement is measured by counting these pulses, and the state of the port has to be checked sufficiently often to catch every pulse. The required check rate is about 1000 times a second if we are to get smooth cursor movement, rather than the 50 times a second afforded by a VBI and which is good enough for a joystick.

The method adopted in MOUSHAND is to set up a POKEY hardware timer to generate interrupts at 1 msec intervals. Each time these occur the interrupt routine ACCMOV (line 0870) is executed. This examines Port 1 to see if the mouse has moved, by comparing the state now with the state saved during the previous interrupt. The routine figures out the direction of any move and then increments or decrements two counters, memory locations XCOUNT and YCOUNT, for right or left, down or up movement, respectively.

At each VBI the routine CHKMOV (line 1340) is called and checks for mouse movement by looking for non-zero values in XCOUNT and YCOUNT. The routine then mimics a couple of actions found in the original TAIPEI joystick routine which involve two TAIPEI program locations labelled here TPLOC1 and TPLOC2. Depending on what it finds in them the CHKMOV routine either proceeds to update the cursor coordinates (at UPDCCO, line 1550) or it doesn't - I have not tried to find out exactly why, but the program works fine!

The cursor coordinates at \$1FFA and \$1FFB are updated in the UPDCCO routine by adding the contents of XCOUNT and YCOUNT to them. Both counters are then cleared and a jump is made back to the remainder of the TAIPEI VBI routine (line 1670).

The two remaining sections of MOUSHAND are only executed once in

CAUTION: Do NOT attempt the conversion operation on your original TAIPEI game disk - make a copy (or several copies) and experiment using this until you are sure that the TPEICONV program works properly.
YOU HAVE BEEN WARNED!!

By Terry Chamberlain

```

1000 REM *****
1001 REM *           TPEICONV           *
1002 REM *           *
1003 REM * Convert "TAIPEI" from *
1004 REM * Joystick to Mouse Input *
1005 REM *           *
1006 REM *****
1007 REM * Terry Chamberlain Mar92 *
1008 REM *****
1009 REM
1100 DIM LD$(89),MH$(244),PD$(186),BF$
(256)
1110 TRAP 1800
1120 ? :? "INITIALISING STRINGS"
1130 BF$(1)=CHR$(0):BF$(256)=CHR$(0):B
F$(2)=BF$
1140 ? :? "LOADER":D=2000:L=5:GOSUB 15
00:IF E<>0 THEN 1810
1150 LD$=BF$(1,89)
1160 ? :? "MOUSE HANDLER":D=3000:L=15:
GOSUB 1500:IF E<>0 THEN 1810
1170 MH$=BF$(1,244)
1180 ? :? "DISK PATCHER":D=4000:L=11:G
OSUB 1500:IF E<>0 THEN 1810
1190 PD$=BF$(1,186)
1270 REM *****
1280 REM * DISK PATCH OPERATION *
1290 REM *****
1300 ? :? "INSERT <COPY> OF TAIPEI IN
DRIVE 1"
1310 ? :? " ... THEN PRESS RETURN"
1320 CLOSE #1:OPEN #1,4,0,"K:"
1330 GET #1,A:IF A<>155 THEN 1330
1340 CLOSE #1
1350 N=USR(ADR(PD$),ADR(BF$),89,ADR(LD
$),244,ADR(MH$))
1360 IF N<>1 THEN 1820
1370 ? :? "PATCHES COMPLETE":END
1470 REM *****
1480 REM * STRING DATA LOADER *
1490 REM *****
1500 RESTORE D:E=0
1510 FOR I=0 TO L:C=0
1520 FOR J=1 TO 16
1530 READ A:BF$(J+16*I,J+16*I)=CHR$(A)
:C=C+A
1540 NEXT J
1550 READ A:IF A<>C THEN E=D+10*I
1560 NEXT I
1570 RETURN
1770 REM *****
1780 REM * ERROR HANDLING *
1790 REM *****
1800 ? :? "ERROR ";PEEK(195);" AT LINE
";PEEK(186)+256*PEEK(187):GOTO 1840
1810 ? :? "ERROR IN DATA IN LINE ";E:G
OTO 1840
1820 IF N=255 THEN ? :? "INCORRECT DIS
K INSERTED":GOTO 1840
1830 ? :? "ERROR ";N;" PATCHING DISK"
1840 CLOSE #1:END
1970 REM *****
1980 REM * DATA FOR STRINGS *
1990 REM *****
2000 DATA 169,0,141,11,3,141,4,3,169,2
6,141,5,3,169,128,141,1254
2010 DATA 10,3,32,83,228,48,251,238,10
,3,169,128,141,4,3,32,1383
2020 DATA 83,228,48,251,169,0,141,10,3
,141,4,3,169,32,141,5,1428
2030 DATA 3,169,1,141,11,3,32,83,228,4
8,251,238,10,3,173,4,1398
2040 DATA 3,24,105,128,141,4,3,173,5,3
,105,0,141,5,3,173,1016
2050 DATA 10,3,201,99,144,224,76,176,2
6,0,0,0,0,0,0,959
3000 DATA 0,0,0,0,169,0,141,3,210,141,
8,210,169,64,141,2,1258
3010 DATA 210,169,42,141,18,2,169,26,1
41,19,2,120,165,16,9,2,1251
3020 DATA 133,16,141,14,210,141,9,210,
88,96,138,72,174,0,211,138,1791
3030 DATA 41,10,205,2,26,240,17,10,10,
77,2,26,41,8,240,5,960
3040 DATA 238,0,26,144,3,206,0,26,138,
41,5,205,3,26,240,17,1318
3050 DATA 10,10,77,3,26,41,4,240,5,238
,1,26,144,3,206,1,1035
3060 DATA 26,138,41,10,141,2,26,138,41
,5,141,3,26,104,170,104,1116
3070 DATA 64,173,0,26,208,10,173,1,26,
208,5,169,0,141,254,83,1541
3080 DATA 173,254,83,201,32,176,10,238
,254,83,165,64,41,1,240,1,2016
3090 DATA 96,173,0,26,24,109,250,31,14
1,250,31,173,1,26,24,109,1464
3100 DATA 251,31,141,251,31,169,0,141,
0,26,141,1,26,76,49,58,1392
3110 DATA 32,4,26,169,76,141,26,58,141
,224,72,169,145,141,27,58,1509
3120 DATA 169,26,141,28,58,169,113,141
,225,72,169,26,141,226,72,169,1945
3130 DATA 10,141,139,46,162,17,189,226
,26,157,194,57,202,16,247,76,1905
3140 DATA 176,64,174,239,57,160,16,169
,0,157,0,116,202,136,16,249,1931
3150 DATA 234,174,251,31,0,0,0,0,0,0
,0,0,0,0,0,690
4000 DATA 104,104,141,5,3,133,204,104,
141,4,3,133,203,169,1,141,1593
4010 DATA 1,3,169,82,141,2,3,169,0,141
,11,3,169,26,141,10,1071
4020 DATA 3,32,83,228,48,31,169,0,160,
127,24,113,203,136,16,251,1624
4030 DATA 201,149,240,3,152,48,14,169,
9,160,98,145,203,169,87,141,1988
4040 DATA 2,3,32,83,228,48,104,160,0,1
52,145,203,200,208,251,104,1923
4050 DATA 104,168,104,133,206,104,133,
205,177,205,145,203,136,192,255,208,26
78
4060 DATA 247,169,0,141,11,3,169,3,141
,10,3,32,83,228,48,67,1355
4070 DATA 104,104,168,104,133,206,104,
133,205,177,205,145,203,136,192,255,25
74
4080 DATA 208,247,169,0,141,11,3,169,1
28,141,10,3,32,83,228,48,1621
4090 DATA 23,238,10,3,173,4,3,24,105,1
28,141,4,3,173,5,3,1040
4100 DATA 105,0,141,5,3,32,83,228,169,
0,133,213,132,212,96,104,1656
4110 DATA 104,104,104,104,104,104,104,
24,144,238,0,0,0,0,0,0,1134

```


TAIPEI and a Mouse

order to set up the rest of the routine and link it into the TAIPEI program. After loading (as will be explained below) the routine INSTAL (line 1740) first calls an initialisation subroutine MSINIT (line 0610). This sets up POKEY Timer 2 to generate the 1msec interrupt (Timers 1 and 4 are already used by TAIPEI for other purposes), loads the interrupt vector VTIMR2 to point to the ACCMOV routine, then enables the timer interrupt before returning to INSTAL.

Two jump instructions, to UPDCCO and CHKMOV, respectively, are then patched into the TAIPEI program's VBI routine to replace the joystick code with the mouse handler.

When testing the mouse handler at this point a couple of problems cropped up. Firstly, TAIPEI uses a Display List Interrupt (DLI) to make the background of the top menu line darker than the rest of the screen background. Unfortunately, the timer interrupt installed for the benefit of the mouse interacts with this DLI periodically and causes the menu line to flicker - not disastrous, but annoying. The easiest way to stop the flicker is to make the intensity of the menu line background the same as the main screen - it may still flicker, but you can't see it! The INSTAL routine does this by changing the value of one byte at location TPSBAK.

The second problem arose with cursor movement. TAIPEI uses a standard 8 by 16 pixel player in the shape of an arrow as cursor (like the ST). Using a joystick the cursor is limited to move only one step of 4 pixels at each VBI so TAIPEI only clears the top 4 lines of the cursor before moving it to its new position. However, with a mouse, movement between VBIs can be considerably greater than 4 pixels and the result is that a trail of partial cursor images is left behind on the screen. The fix is to replace the existing "clear cursor" routine with the code shown at CLRCUR (line 1980). This removes all 16 lines of the cursor image before it is redrawn elsewhere. The replacement code (one byte less than the original TAIPEI routine, hence the NOP in line 2070) is written into TAIPEI by the routine PATCHC (line 1910) after which a jump is made to the main program entry point to start the game.

The Loader

Having sorted out a mouse handler and its supporting routines, we next need somewhere in memory to put it, some space on the TAIPEI disk to store it, and a way of

getting it from the disk into its allocated memory as part of the TAIPEI load procedure. In this case the mouse handler is placed at address \$1A00 and stored in disk sectors \$80 and \$81, none of which are otherwise used by TAIPEI.

The means chosen to transfer MOUSHAND from disk to memory was to modify the second TAIPEI loader (held in sector \$03 and itself loaded to address \$1F00) to the form shown in the listing of TPLOADER. Here the Atari Resident Disk Handler is first used to load the two sectors containing MOUSHAND (lines 390 to 550) and then to load the 99 (\$63) sectors of the TAIPEI program proper (line 620 onwards). The latter section of code is essentially the same as the original loader except that now its final action is to jump to the INSTAL routine in MOUSHAND instead of directly to the TAIPEI entry point.

In case any of you worry, the other necessary Disk Handler Device Control Block (DCB) parameters, DUNIT and DCOMND, will have already been set up by the first TAIPEI loader so that they do not need to be set or altered by TPLOADER.

The Disc Patcher

The final part of the conversion process is to write both MOUSHAND and TPLOADER to the correct sectors on a copy of the TAIPEI disk. This is done by the TPDPATCH routine which is loaded to a BASIC string (PDS) and executed as aUSR function in line 1350 of the TPEICONV program. Five parameters, namely the address of a 256-character blank string for use as a read/write buffer, and the length and address of each of the strings containing the code of TPLOADER and MOUSHAND, are needed by TPDPATCH - which progressively retrieves them from the microprocessor stack.

As a safety check, the first action of TPDPATCH is to read a specific sector from the disk, compute a checksum of its contents, and verify this against an expected value (line 720). If the checksum does not match, the routine exits to BASIC with an appropriate error status, and the conversion is abandoned. Otherwise, if the correct disk seems to be in Drive 1, TPDPATCH proceeds with a little extra tidy-up operation.

The sector chosen for checking (\$1A) is the part of the TAIPEI initialisation program which checks for a key-press or joystick movement. Now, connecting a mouse instead of a joystick produces a Port 1 input value which looks like a deflected joystick, so the program will immediately start to

load the main TAIPEI code. To give you a chance to look at the title screen the value of a branch instruction parameter is changed (lines 770 to 790) to skip around the joystick check. The altered sector is then written back to the disk.

The next section of TPDPATCH clears the buffer area, retrieves the length and address values of the TPLOADER code from the stack, copies the code into the buffer, and writes it to disk sector \$03. A similar sequence is then executed to place the MOUSHAND code on disk. Here, since MOUSHAND is longer than TPLOADER, there is no need to clear the buffer first - MOUSHAND will completely overwrite the previous contents. In addition, as MOUSHAND occupies more than 128 bytes, it takes up two sectors (\$80 and \$81) and needs two write operations for its transfer. Any errors occurring during these disk operations will be trapped, and the status values returned to BASIC will prompt the TPEICONV program to display a suitable error message.

Tools and Techniques

The principal aid to investigating TAIPEI and debugging the mouse conversion has been the Newell Industries RAMROD

```
0100 ; *****
0110 ; *
0120 ; *          MOUSHAND          *
0130 ; *
0140 ; * Mouse Handler and Program *
0150 ; * Patch Routines for TAIPEI *
0160 ; *
0170 ; *****
0180 ; * Terry Chamberlain Mar'92 *
0190 ; *****
0200 ;
0210 ; *****
0220 ; *          HANDLER EQUATES    *
0230 ; *****
0240 ;
0250 POKMSK = $10
0260 VTIMR2 = $0212
0270 TPLOC1 = $40
0280 CURHOR = $1FFA
0290 CURVER = $1FFB
0300 TPSBAK = $2E8B
0310 CURUPD = $39C2
0320 PRECUR = $39EF
0330 TPJOYS = $3A1A
0340 CHKEDG = $3A31
0350 TPENTR = $40B0
0360 TPPROP = $48E0
0370 TPLOC2 = $53FE
0380 ADRPL0 = $7400
0390 AUDF2 = $D202
0400 AUDC2 = $D203
0410 AUDCTL = $D208
0420 STIMER = $D209
0430 IRQEN = $D20E
0440 PORTA = $D300
0450 ;
0460          *= $1A00
0470 ;
0480 ; *****
```



```

0490 ; * MOUSE MOVEMENT REGISTERS *
0500 ; *****
0510 ;
0520 XCOUNT .BYTE 0
0530 YCOUNT .BYTE 0
0540 PREVXB .BYTE 0
0550 PREVYB .BYTE 0
0560 ;
0570 ; *****
0580 ; * INITIALISE MOUSE HANDLER *
0590 ; *****
0600 ;
0610 MSINIT
0620 LDA #000
0630 STA AUDC2
0640 STA AUDCTL
0650 LDA #040 ;Set Up Timer 2 for
0660 STA AUDF2 ; - 1 mSec Period
0670 LDA #ACCMOV&255
0680 STA VTIMR2 ;Set Timer 2 Vector
0690 LDA #ACCMOV/256
0700 STA VTIMR2+1
0710 SEI
0720 LDA POKMSK
0730 ORA #02 ;Add Timer 2 to
0740 STA POKMSK ; - Interrupt Mask
0750 STA IRQEN ;Enable Interrupts
0760 STA STIMER ;Start Timers
0770 CLI
0780 RTS
0790 ;
0800 ; *****
0810 ; * TIMER 2 INTERRUPT HANDLER *
0820 ; *****
0830 ;
0840 ; Read Mouse Every 1 mSec
0850 ; and Count Movement Pulses
0860 ;
0870 ACCMOV
0880 TXA
0890 PHA ;Save X Register
0900 LDX PORTA ;Fetch Mouse State
0910 TXA
0920 AND #0A ;Mask X Bits
0930 CMP PREVXB
0940 BEQ CHKMVY ;Skip if No X Move
0950 ASL A
0960 ASL A ;Shift New X LSB
0970 EOR PREVXB ;Compare Old X MSB
0980 AND #08 ;Mask Result Bit
0990 BEQ LEFMOV
1000 INC XCOUNT ;Move to Right
1010 BCC CHKMVY ; - and Exit
1020 LEFMOV
1030 DEC XCOUNT ;Else Move to Left
1040 CHKMVY
1050 TXA
1060 AND #05 ;Mask Y Bits
1070 CMP PREVYB
1080 BEQ UPDATE ;Skip if No Y Move
1090 ASL A
1100 ASL A ;Shift New Y LSB
1110 EOR PREVYB ;Compare Old Y MSB
1120 AND #04 ;Mask Result Bit
1130 BEQ FORMOV
1140 INC YCOUNT ;Move to Bottom
1150 BCC UPDATE ; - and Exit
1160 FORMOV
1170 DEC YCOUNT ;Else Move to Top
1180 UPDATE
1190 TXA
1200 AND #0A ;Mask New X Bits
1210 STA PREVXB ; - & Save as Old
1220 TXA
1230 AND #05 ;Mask New Y Bits
1240 STA PREVYB ; - & Save as Old
1250 PLA
1260 TAX ;Restore X Reg
1270 PLA
1280 RTI
1290 ;
1300 ; *****
1310 ; * CHECK FOR MOUSE MOVEMENT *
1320 ; *****
1330 ;
1340 CHKMVY
1350 LDA XCOUNT
1360 BNE MOUSMV ;Check for Non-Zero
1370 LDA YCOUNT ; - X & Y Counts
1380 BNE MOUSMV
1390 LDA #00 ;If No Move, Reset
1400 STA TPLOC2 ; - this Location
1410 MOUSMV
1420 LDA TPLOC2 ;Else Check It
1430 CMP #02
1440 BCS UPDCCO ; - As in TAIPEI
1450 INC TPLOC2
1460 LDA TPLOC1
1470 AND #01 ;Then Either Update
1480 BEQ UPDCCO ; - Cursor Co-ords
1490 RTS ; - or Exit
1500 ;
1510 ; *****
1520 ; * UPDATE CURSOR COORDINATES *
1530 ; *****
1540 ;
1550 UPDCCO
1560 LDA XCOUNT
1570 CLC ;Add X Move to
1580 ADC CURHOR ; - Cursor X Posn
1590 STA CURHOR ; - And Update
1600 LDA YCOUNT
1610 CLC ;Add Y Move to
1620 ADC CURVER ; - Cursor Y Posn
1630 STA CURVER ; - and Update
1640 LDA #00
1650 STA XCOUNT ;Clear Accumulated
1660 STA YCOUNT ; - Mouse Moves
1670 JMP CHKEDG ;Go Check Scr Edges
1680 ;
1690 ; *****
1700 ; * INSTALLATION OF CODE *
1710 ; * PATCHES INTO "TAIPEI" *
1720 ; *****
1730 ;
1740 INSTAL
1750 JSR MSINIT ;Enable Mouse Drvr
1760 LDA #04C ;Jump Instruction
1770 STA TPJOYS ; - to Patch Mouse
1780 STA TPPROP ; - Routine into
1790 LDA #UPDCCO&255 ; - TAIPEI
1800 STA TPJOYS+1 ; - to Replace
1810 LDA #UPDCCO/256 ; - Joystick
1820 STA TPJOYS+2 ; - Handler and
1830 LDA #CHKMOV&255 ; - Associated
1840 STA TPPROP+1 ; - Code
1850 LDA #CHKMOV/256
1860 STA TPPROP+2
1870 LDA #0A ;Eliminate DLI
1880 STA TPSBAK ; - Flicker in Menu
1890 ;
1900 LDX #11 ;Prepare to Patch
1910 PATCHC
1920 LDA CLRCUR,X ; - Cursor Update
1930 STA CURUPD,X ; - Routine
1940 DEX
1950 BPL PATCHC ;Replace 18 Bytes
1960 JMP TPENTR ;Exit to TAIPEI
1970 ;
1980 CLRCUR
1990 LDX PRECUR ;Code to Replace
2000 LDY #10 ; - Existing Cursor
2010 LDA #00 ; - Clear Operation
2020 CLRPL0
2030 STA ADRPL0,X ;Removes Cursor
2040 DEX ; - Completely from
2050 DEY ; - Previous
2060 BPL CLRPL0 ; - Position
2070 NOP
2080 LDX CURVER ;New Cursor Y Coord
2090 ;
2100 .END
0100 ; *****
0110 ; *
0120 ; * TPLOADER *
0130 ; *
0140 ; * Loader for Mouse Handler *
0150 ; * and Main TAIPEI Program *
0160 ; *
0170 ; *****
0180 ; * Terry Chamberlain Mar'92 *
0190 ; *****
0200 ;
0210 ; *****
0220 ; * LOADER EQUATES *
0230 ; *****
0240 ;
0250 DBUFLO = $0304
0260 DBUFHI = $0305
0270 DAUX1 = $030A
0280 DAUX2 = $030B
0290 INSTAL = $1A00
0300 DSKINV = $E453
0310 ;
0320 *= $1F00
0330 ;
0340 ; *****
0350 ; * LOAD SECTORS CONTAINING *
0360 ; * MOUSE DRIVER CODE *
0370 ; *****
0380 ;
0390 LDA #00
0400 STA DAUX2
0410 STA DBUFLO
0420 LDA #1A ;Load Mouse Code
0430 STA DBUFHI ; - at $1A00 from
0440 LDA #80 ; - Sector $80
0450 STA DAUX1
0460 LMOUS1
0470 JSR DSKINV ;Call Disk Handler
0480 BMI LMOUS1 ;Loop if Error
0490 ;
0500 INC DAUX1 ;Get Next Sector
0510 LDA #80
0520 STA DBUFLO ;Load at $1A80
0530 LMOUS2
0540 JSR DSKINV ;Call Disk Handler
0550 BMI LMOUS2 ;Loop if Error
0560 ;
0570 ; *****
0580 ; * LOAD SECTORS CONTAINING *
0590 ; * MAIN "TAIPEI" CODE *
0600 ; *****
0610 ;
0620 LDA #00
0630 STA DAUX1
0640 STA DBUFLO
0650 LDA #20 ;Load TAIPEI Code
0660 STA DBUFHI ; - at $2000 from
0670 LDA #01 ; - Sector $100
0680 STA DAUX2
0690 LDTPEI
0700 JSR DSKINV ;Call Disk Handler
0710 BMI LDTPEI ;Loop if Error
0720 ;
0730 INC DAUX1 ;Get Next Sector
0740 LDA DBUFLO
0750 CLC ;Increment Load
0760 ADC #80 ; -Address for
0770 STA DBUFLO ; -Next Sector
0780 LDA DBUFHI
0790 ADC #00
0800 STA DBUFHI
0810 LDA DAUX1 ;Check if All
0820 CMP #63 ; -Sectors Loaded
0830 BCC LDTPEI ;Continue if Not
0840 JMP INSTAL ; -Else Do Patches
0850 ;
0860 .END

```


TAIPEI and a Mouse

XL, with OSNXL and OMNIMONXL, installed in my 800XL. This alternative operating system not only gives you a resident machine-code monitor program (allowing you to view and change any area of memory) instantly available by pressing SELECT and RESET, but also incorporates a comprehensive disk sector editor and a disassembler with direct output to screen or printer. It is highly recommended if you are keen to investigate the inner workings of your (or anybody else's) programs.

OMNIMON was used to investigate the TAIPEI loader routines then, once the disk sectors and memory areas used by the initialisation and main game programs had been identified, the programs were loaded in under control of OMNIMON and the full disassembly listings printed out. The next stage, as always, is just pure slog, going through the listings to figure out how the program works, although OMNIMON can be of great assistance in searching the code in memory for particular instruction sequences or references to known memory locations (such as VBI vectors, or Port registers). A copy of "Mapping the Atari" is essential to find your way around.

Once you have the necessary fixes identified and have written the appropriate pieces of assembler code, these can be loaded as usual via your favourite DOS and then tested and run under control of OMNIMON, including being patched into any desired sector on your target disk. You then have the option of either leaving it at that, with a working patched disc, or you can tidy it all up (as I have done with TAIPEI) so that the fixes can be done from scratch using only BASIC and/or assembler routines.

Finally, even if you are not particularly interested in TAIPEI as a game I hope you will find some of the code, particularly the mouse handler, of use in other applications.

```

0100 ; *****
0110 ; *
0120 ; * TPDPATCH *
0130 ; *
0140 ; * Disk Check and Patch *
0150 ; * Utility to Install *
0160 ; * Mouse Handler and Loader *
0170 ; *
0180 ; *****
0190 ; * Terry Chamberlain Mar'92 *
0200 ; *****
0210 ;
0220 ; Called as a USR Function
0230 ; from BASIC - Relocatable
0240 ;
0250 ; *****
0260 ; * UTILITY EQUATES *
0270 ; *****
0280 ;
0290 BUFPTR = $CB
0300 CODPTR = $CD
0310 FRO = $D4
0320 DUNIT = $0301
0330 DCOMND = $0302
0340 DBUFLO = $0304
0350 DBUFHI = $0305
0360 DAUX1 = $030A
0370 DAUX2 = $030B
0380 DSKINV = $E453
0390 ;
0400 *= $2000
0410 ;
0420 ; *****
0430 ; * LOAD & PATCH TITLE SCREEN *
0440 ; * "WAIT FOR KEY" ROUTINE *
0450 ; *****
0460 ;
0470 PLA ;Discard No. Params
0480 PLA
0490 STA DBUFHI ;Load Sector Buffer
0500 STA BUFPTR+1 ; - Address (High
0510 PLA
0520 STA DBUFLO ; - and Low Bytes)
0530 STA BUFPTR
0540 LDA #$01
0550 STA DUNIT ;Drive Number = 1
0560 LDA #$52
0570 STA DCOMND ;Read Command
0580 LDA #$00
0590 STA DAUX2
0600 LDA #$1A ;Read Sector $1A
0610 STA DAUX1
0620 JSR DSKINV ;Call Disk Handler
0630 BMI ERREXA ;Exit if Error
0640 ;
0650 LDA #$00 ;Clear Checksum
0660 LDY #$7F ;Set Buffer Length
0670 CLC
0680 CHKSUM
0690 ADC (BUFPTR),Y ;Calc Checksum
0700 DEY
0710 BPL CHKSUM ; - for Sector $1A
0720 CMP #$95 ;Verify Checksum
0730 BEQ CHKSOK ;Continue if OK
0740 TYA ;Else Set Minus
0750 BMI ERREXA ; - and Exit
0760 CHKSOK
0770 LDA #$09 ;Set Patch Value &
0780 LDY #$62 ; - Patch Location
0790 STA (BUFPTR),Y ;Load to Buffer
0800 LDA #$57
0810 STA DCOMND ;Write Command
0820 JSR DSKINV ;Call Disk Handler
0830 ERREXA
0840 BMI ERREX1 ;Exit if Error
0850 ;
0860 ; *****
0870 ; * WRITE REVISED LOADER *
0880 ; * BACK TO DISK *
0890 ; *****
0900 ;
0910 LDY #$00 ;Prepare to Clear
0920 TYA ; - Disk Buffer
0930 CLRBUF
0940 STA (BUFPTR),Y
0950 INY ;Continue for
0960 BNE CLRBUF ; - 256 Bytes
0970 PLA ;Retrieve Length
0980 PLA ; - of Loader Code
0990 TAY
1000 PLA
1010 STA CODPTR+1 ; - and Address
1020 PLA
1030 STA CODPTR ; - of Loader Code
1040 TRFLDR
1050 LDA (CODPTR),Y ;Copy Loader
1060 STA (BUFPTR),Y ; - to Buffer
1070 DEY
1080 CPY #$FF
1090 BNE TRFLDR
1100 ;
1110 LDA #$00 ;Prepare to Write
1120 STA DAUX2 ; - Loader Code
1130 LDA #$03 ; - to Sector $03
1140 STA DAUX1
1150 JSR DSKINV ;Call Disk Handler
1160 BMI ERREX2 ;Exit if Error
1170 ;
1180 ; *****
1190 ; * WRITE MOUSE HANDLER *
1200 ; * TO SPARE DISK SECTORS *
1210 ; *****
1220 ;
1230 PLA
1240 PLA
1250 TAY ;Length of Mouse
1260 PLA ; - Handler Code
1270 STA CODPTR+1 ;Address of
1280 PLA
1290 STA CODPTR ; - Mouse Handler
1300 TRFMOS
1310 LDA (CODPTR),Y ;Copy Handler
1320 STA (BUFPTR),Y ; - to Buffer
1330 DEY
1340 CPY #$FF
1350 BNE TRFMOS
1360 ;
1370 LDA #$00 ;Prepare to Write
1380 STA DAUX2 ; - First Part of
1390 LDA #$80 ; - Mouse Handler
1400 STA DAUX1 ; - to Sector $80
1410 JSR DSKINV ;Call Disk Handler
1420 BMI EXTBAS ;Exit if Error
1430 ;
1440 INC DAUX1 ;Access Sector $81
1450 LDA DBUFLO ;Point to Second
1460 CLC ; - Part of Mouse
1470 ADC #$80 ; - Handler Code
1480 STA DBUFLO ; - by Adding 128
1490 LDA DBUFHI ; - to Disk Buffer
1500 ADC #$00 ; - Address
1510 STA DBUFHI
1520 JSR DSKINV ;Call Disk Handler
1530 EXTBAS
1540 LDA #$00
1550 STA FRO+1 ;Store Exit or
1560 STY FRO ; -Error Status &
1570 RTS ; -Return to BASIC
1580 ;
1590 ERREX1
1600 PLA ;Adjust Stack
1610 PLA ; - Before Exiting
1620 PLA
1630 PLA
1640 ERREX2
1650 PLA ;Adjust Stack
1660 PLA
1670 PLA
1680 PLA
1690 CLC
1700 BCC EXTBAS ;Unconditional Jump
1710 ;
1720 .END

```


Lightguns Rule OK?

By Thomas Holzer

Hello folks, here is, as promised a quick review on lightguns and lightgunner games. The trouble with these kind of games is that there is really not a lot to do, you wait for something to appear, aim, shoot, wait for some more, aim and shoot again. You are just testing your shooting skills and reflexes and if you ever played *Duck Hunt* on the Nintendo the playability can get very boring, very quickly.

The other most annoying factor is that the guns themselves are not very accurate. Take *Bug Hunt* on the XL for example, you'll have to aim at the top left hand corner to shoot something in the bottom right hand corner. The problem with that is mostly the guns fault, but the software should be written to compensate for that little "off-read". The worst gun I have come across is the C64 light fantastic gun and the best gun I've tried must be the Sega Master System shooter. Both of these will work on your 8-bit, but a little bit of re-wiring is necessary (to rewire the Sega shooter see Antic magazine August 1988, available from Gralin International). For the Nintendo there are three guns available, firstly the normal zapper which is quite accurate, secondly the not so accurate, but much fun, voice activated laserscope, which you wear like a headset. I'm pretty sure you can re-wire these as well and they'll work fine on the XL. Further, and brand new for the Super Nintendo, is the Drainpipe Bazooka. It's big and uses ultra-violet rays which makes it totally useless for the 8-bit.

Atari's 8-bit lightgun, the XG-1, is pretty much in the middle. The performance is not the best, but neither the worst and after a little practice I believe you will get the hang of it.

For your Atari there are four light gun cartridges and two disks available. They are as follows:

Crossbow. help your friends through danger;

Barnyard Blaster. shoot'em up on the farm;

Crime Buster. kill gangsters in cars;

Bug Hunt. shoot insects on a grid;

Light Gun Blaster. PD software available from "Page 6" and

Gangsterville. an old shooter from Italy, probably deleted.

I have also played four shooting carts on the Nintendo and some of them are, I must admit, very playable. In *Hogans Alley* you have to shoot gangsters, but watch out not to kill the good guys; a comparison here with *Gangsterville* is not far wrong.

Further I played *Gumshoe*. Here you guide a detective along the screen and shoot balloons, birds, falling rocks and more. The cart *Duck Hunt* was Nintendo's first gun cart and whilst the graphics are not bad the game itself must be the worst of the lot. Shoot up to four ducks on the screen or take part in the clay pigeon shooting competition. Not a lot there really.

The fourth cart I have played on the Nintendo called *Gyromite* wasn't really a shooter, but it used "Robo" the robot, an extra piece of hardware

Crossbow ... I can truly say that you should go out and buy a 7800 just for this game

you could buy for this machine. Your little 12" friend was placed in front of the telly (sounds rude, I know!), a second controller was plugged in and you guide a character along the screen whilst Robo raises doors and lowers bridges using rotating gyros. It was all pretty cumbersome to control but this lightgun idea was nevertheless quite unique.

To the best of my knowledge there are four more light gun carts available, of which one is another robot controlled game.

On the Sega Master System you will also find your fair share of gun games, ranging from mediocre to very good. The best on this system is without doubt *Operation Wolf* which guarantees lots of action and variety. New carts were still being made in 1990 but with the death of the Master System in the States no new games will be developed.

Atari's 7800 is blessed with three

lightgun cartridges and if you ever played *Alien Brigade* on this machine you'll get a first class *Operation Wolf* rip-off. The scenery varies, animation is top notch and the playability is fun with a capital "F". Set in a jungle situation you have to free all POW's and shoot aliens, sometimes disguised as soldiers, and make sure the hostages arrive safely at the helicopter. Later levels include a river bank, a mine shaft, a water scene and a mountain top and you can play this game with either joystick or gun. If you don't like the feel of Atari's own joystick, Sega's Megadrive pad should work.

Barnyard Blaster on the 7800 is just like the XL version, except the graphics are improved. It is fun for a while but with repetitive gameplay the novelty of shooting things grows tiresome very quickly. Mind you, it still beats the *Duck Hunt* game.

Last but not least, *Crossbow*, a game no XL or 7800 owner should be without. Eight levels of blasting every enemy in sight, this game features great graphics and ace gameplay, strategy is involved and the difficulty level is set just right. I never played the computer version but I can truly say that you should go out and buy a 7800 just for this game. You can buy *Crossbow* for the Pro system more easily as well.

I don't know of any gunner games on the VCS (at least not here in Europe), but the potential was there. *Gangster Alley* is an old Spectravision game on which games like *Hogans Alley* and *Gangsterville* are based. The game *Crossbow* made it's first appearance on the VCS way back in 1987. *Missile Command* would have made a perfect gun game and CBS took the old gun coin-up *Carnival* to the Coleco and later the VCS. All of these used only joystick controls but nevertheless they were accurate and fun to play.

That's it, whatever system you choose or prefer (even for the ST you can buy a lightgun), make sure they do have enough good carts available, but for me and my 7800, 2 out of 3 ain't bad.

DAISY-DOT III USER'S GUIDE

Review by Max Gerum.

This article has been written for the benefit of those Daisy-Dot III (DD3) user's who don't know of this user guides existence. I would like to mention that I haven't seen or read any article written about this manual in any British magazine and if there is any resemblance to any article of this kind in existence it is without my knowledge.

This user guide is public domain, and has been endorsed by Roy Goldman, creator of Daisy-Dot III, and by permission of David Richardson this manual can be copied and distributed freely.

This document is available only on disk, either on 5 single density double sided disks in ARCDed form, or 9 single density double sided disks in unARCDed form. The ARCDed files need to be unARCDed first before you can print the manual, the unARCDed disks are ready for printing.

This manual consists of 47 pages of text and fonts, the title page, the index of the fonts in the manual, the Author's Notes and two articles on creating fonts with DD3 and one article on double-column printing. The article for printing in double-column is interesting because DD3 has not got a facility for this kind of printing.

The original 50 fonts from DD3 are included in this manual and printed in their entirety. Instructions are included on setting character and line spacing for best results, and indicating which characters are not being used and which are being used for which special characters. Besides the original DD3 fonts, about 59 new fonts have been added including Printshop icons, which can be printed with any DD3 text, after conversion. There are also 10 graphics fonts which are pictures converted from digitized or Micropainter pictures, and of course the instruction on how to convert them.

There are also a number of special fonts. CRAZYDOT.NLQ lets you create a "DOTTY" game of geometric designs, it can be found on page 10 in the manual. There is CHESS.NLQ with which you can create and print a layout of a chess game, can be of interest for chess players, it is on page 12. There is a crossword puzzle font for puzzle and answers, on pages 14, 15, and 16. Page 14 is printed in double-column, first P14.1 is printed it prints the left side of the page, you now re-wind the page back to the top and print P14.2 for the right side. There is a GRID.NLQ, you will find that on page 20, you can print your own graph paper with this font. Do you play the Yahtzee game, I am sure you are using score sheets to play that game, well now you can print your own with YAHTZEE.NLQ, on pages 22 and 23.

There are also fonts to print hand signs for the deaf on page 19, Morse code on page 28 and Braille on page 29 and on page 30 is a sample printout.

Now how do we print out this remarkable manual. First of all you need Daisy-Dot III and a Ramdisk will do nicely,

otherwise one disk drive is sufficient. To check the content of each disk use a wordprocessor and you can check the set up of the pages at the same time. Each disk side to be printed contains the fonts and text for printing. You only print the textfiles without an extender, any NLQ extenders are the fonts which will be printed with the text. Each P file on the disk fills one page, first page is of course P1 and the last page number is P47.

The Title page is one page, Fontier.1 and Fontier.2 are three pages each and Fontier.3L and Fontier.3R print in double-column. Start with FONTIER.3L and print the ODD pages first, there are two pages 1 and 3, next return the paper to page 1 and print FONTIER.3R EVEN pages, 2 and 4. There is also an Index page which needs two pages, the Author's Notes covers two and a half pages.

To convert Printshop icons to Daisy-Dot III fonts you need a programme by Mr.McGowan called PSTODD3B.BAS. First select your icons you want to convert, the maximum is 30 icons. Go to BASIC run the converter program, first question is what drive for source, next drive for destination, then a filename. My advise is enter a short filename, two or three characters only. Next enter the file name of the icon and press return. If you do not want to enter 30 icons, all you have to do after you entered the last filename, press CTRL+Q and the program will stop and the READY prompt will appear. Now you have a new

Daisy-Dot III font set, after the conversion the font is far larger than need be so save it onto another formatted disk to delete that unwanted space. Why not make good use of the Ramdisk when converting the icons.

You could use PS2DD3.MOD also by Mr.McGowan, this program is also run from BASIC. When it is running the same questions are asked but you enter all the filenames up to 30 names, again if you don't want all 30 icons, press CTRL+Q for the rest of the questions. Make certain that the icons you choose are the ones you want as you cannot delete any of them once they are converted, you would have to start from scratch again. The icons are saved on the disk in the same order as the filenames have been entered for conversion. Now on page 26 of the manual is a table of characters which you give each icon. Starting with the first icon you would enter the characters !''# after the font. I give you an example, we'll say you entered the filename IC, so you would enter \fic\!''#, this would print the first icon saved after the conversion. Check the manual on how to set up for printing.

When checking the directory of the font you have just converted you will find that the font has the extender of a four times magnified DD3 font. These fonts can now be entered into any DD3 text for printing, there is only one drawback, only one line of text can be printed next to the

icon. It does leave a big gap between the lines of text this way, but there's a way around that. Mr. McGowan kindly created a macro file to use with Textpro, FNTSPLIT.MAC, this macro file splits the icons horizontally.

To use the macro file, first load Textpro, when loaded use your CTRL+V to enter the macro file FNTSPLIT.MAC. Press Start to begin, enter the filename of the converted font, no extender please. We'll say for argument sake you've use for the filename IC, so you just enter IC and press return. When the splitting is done you will have another new font with the filename IC1.NLQ, IC2.NLQ, IC3.NLQ and IC4.NLQ. It looks as if we now have four different NLQ font, I assure you you have not, to printout one icon you need all 4 fonts, here is an example on how to set up a print.

To print the first three icons the set up is as follows:

```
\XV00\s0
\l\fic1\!'#\c\fic1\$%&\r\fic1\'()
\l\fic2\!'#\c\fic2\$%&\r\fic2\'()
\l\fic3\!'#\c\fic3\$%&\r\fic3\'()
\l\fic4\!'#\c\fic4\$%&\r\fic4\'()
```

There we are this is a typical setup to print one icon on the left, centre and on the right margin. This is after they have been split again with the macro file. Now for instance you would want to include text after the icon, what about doing it this way, printing the icon on the left margin:

```
\XV00
\l\fic1\\s0!'#\font\\s2text
\l\fic2\\s0!'#\font\\s2text
\l\fic3\\s0!'#\font\\s2text
\l\fic4\\s0!'#\font\\s2text
\XV004
```

This example is printing the first icon saved with four lines of text next to the icon, make sure you do not overshoot the right margin or the icon will be split. There is a bit more work setting up a text but I think it is worth it in the end.

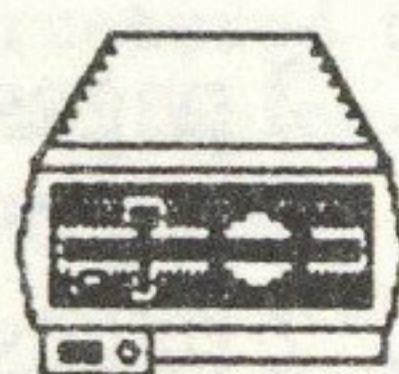
Above I mention that the converted fonts have a four times DD3 magnification extender, with such an extender DD3 cannot magnify any more, 4 times is the limit. Aha!!! Yes, that was before Textpro split the fonts again. What about loading the Font Utility of Daisy-Dot 3 and choosing the option Magnify. To magnify the fonts, choose twice the size magnification and give the font a new filename.

For instance, if IC1.NLQ is used, give it EXP1.NLQ, all four split fonts must be magnified. This is only my suggestion for filenames, you can give it any filename you wish. After the magnification you will have some nice large icons for printing Handbills for instance, it looks great with magnified DD3 fonts as well. I've printed some bills and they really look good, it is very handy for club notices too. To print these magnified icons the setup is the same as the demonstration above, except you put the filename in you gave the magnified font. Only three icons can be printed across the page, but printing the smaller icons six can be printed across.

Verdict: Excellent.

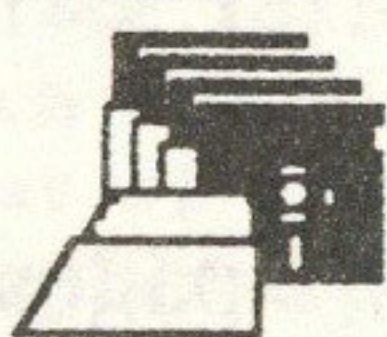
EXAMPLE PRINT

This printout has been done with DAISY-DOT 3 and Print Shop Icons converted into DD3 fonts.



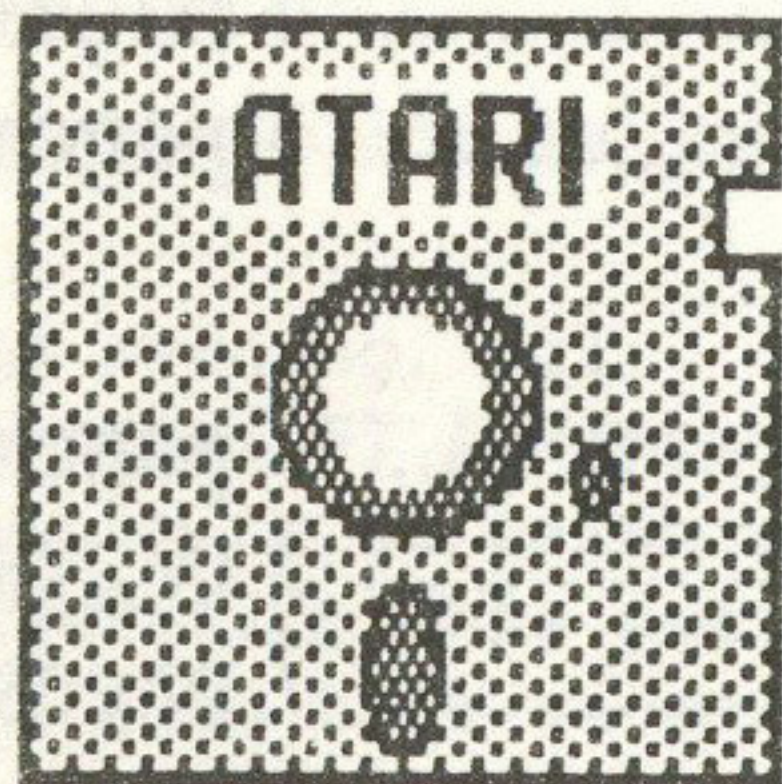
There are two Basic programs to convert Print Shop

Icons into Daisy-Dot 3 fonts. PSTODD3B.BAS will convert one icon at a time, using PS2DD3.MOD you can enter as many icons up to 30 maximum before conversion begins. The icons will be converted into a magnified font, therefore only one line can be printed before or after the font.



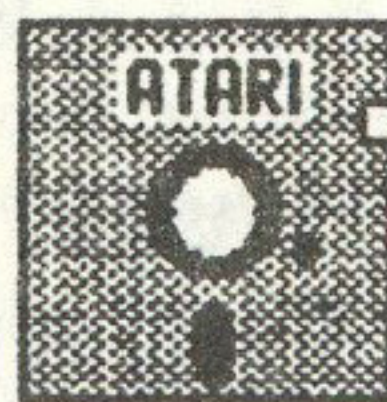
Using a macro file FNTSPLIT.MAC with Textpro the icons will be converted back to a single

font and at the same time will be split horizontally into four parts by this conversion. It is now possible to print three or four lines before or after the font, depending on the size of the icon, as this example shows.



After converting the icon back to a single font, with FNTSPLIT.MAC, the font can now be magnified. Use the DD3 Font Utility and use the

Magnify option. This icon or DD3 font as it is now called, has been magnified two times. The magnified sizes in DD3 Magnify option are: 2, 3, and 4, the option 2 has been used for this icon



Compare the size of this icon with the magnified version above and you can judge the result yourself. Printing a handbill with DD3 and including a magnified icon looks very impressive. This is a little example of

what can be done, including different sized fonts will make it look very professional indeed.

User Group File

Local Groups

Name: **Bournemouth & Poole Atari User Group (BaPAUG)**
 Contact: Mike Hoskings, 110 Bridle Way, Canford Bottom, Wimborne, Dorset BH21 2UX
 Meetings: 1st Friday every month at the Kinson Community Centre, Pelhams, Millhams Lane, Kinson.

Name: **Cheshunt Computer Club**
 Contact: Derryck Croker - 0923 673719
 196 Coates Way, Garston, Watford, Herts. WD2 6PE
 Notes: ST-Others, Meetings

Name: **London Atari Computer Enthusiast (LACE)**
 Contact: Glenn Leader
 143 Richmond Road, Leytonstone, London E11 4BT
 Notes: 8-bit only, newsletter.

Name: **Midland Amateur Radio ST Group (MARSTG)**
 Contact: Michael Nyman
 12 Ainsdale Gardens, Grange Road, Erdington, Birmingham B24 0EP
 Meetings: Last Friday every month at Midland Amateur Radio Society, Unit 22, 60 Regent Place, Caroline Street, Hockley, Birmingham

Name: **North East Atari 8-bit Club**
 Contact: David Ewens
 48 Fouracre Rd., Cowgate, Newcastle-On-Tyne, NE5 3AX
 Meetings: Every Friday, starting 7pm.

Name: **Norwich User Group**
 Contact: Ken Ward - 0603 661149
 45 Coleburn Road, Lakenham, Norwich NR1 2NZ
 Meetings: 1st Sunday every month. Contact Ken for time & place.

Name: **The Friday Club**
 Contact: Nicholas Bavington (0908) 612272
 8 Byron Drive, Newport Pagnel, Bucks. MK16 8DX
 Meetings: Every Friday at Ousedale School Physics Dept. OR a members house.
 Notes: XL-ST, Hardware & Software development.

National Groups

Name: **Association of Atari User Groups**
 Address: 45 Coleburn Road, Lakenham, Norwich NR1 2NZ
 Telephone: 0603 - 661149

International Groups

Name: **Club Cenacle**
 Address: B.P. 49, 95110 Sannois, France

Name: **Genesee Atari Group**
 Address: PO Box E, Flint, MI 48507, USA

Name: **Johannesburg Atari Computer Enthusiasts (JACE)**
 Address: 2 Whitehall Street, Hurst Hill, Johannesburg, South Africa, 2092

Name: **North East Atari Team (NEAT)**
 Address: P.O. Box 18150 - 0150, Phila., Pa. 19116, USA
 Newsletter: The Atarian

8:16 Back Issue Service

Issue 12£ 1.50 including P&P (Overseas £2.25)
 Includes PACDEMO Revisted; a look at PL65. Disk Drives & The Device Control Block. Turbo-Info part 5. Deskjet 500 Review. Switching MAC/65 and BASIC without re-booting. AtariWriter + tutorial.

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 Includes review of the Roland Sound Canvas SC55, report from WAACE Atarifest '92, Net_News, discussion on improving the speed of your ST, final part of Turbo-Info, 600XL video modification, AtariWriter + part 7, 1050 battery backup modification and a light hearted look at one persons computing experience.

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8:16 Article Re-prints

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 The 8 bit Mouse (Part 1) 2 pages
 Inside Turbo BASIC (A look at DSOUND) 3 pages
 Turbo BASIC de-Tokeniser 2 pages

From Issue 5
 The 8 bit Mouse (Part 2) 3 pages
 Inside Turbo BASIC (INSTR & UINSTR commands) 2 pages

From Issue 6
 The 8 bit Mouse (Part 3) 7 pages
 Inside Turbo BASIC (Speed comparison) 2 pages

From Issue 7
 Programmers Guide To The Controller Card 2 pages
 The Lords of Time (Maps & Solution) 6 pages

From Issue 8
 Inside Turbo BASIC (PACDEMO) 1 page
 The STopper (Halve the speed of your ST) 1 page
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 32,768 Colour Support for the Atari ST 2 pages

From Issue 11
 Introduction To C Programming (Part 4) 3 pages
 Turbo-Info (Part 3 & 4) 3 pages

Please make cheques or postal orders payable to The BaPAUG and send to 248 Wimborne Road, Oakdale, Poole, Dorset BH15 3EF

NET_News

Compiled by Colin Hunt

Within this installment of NET_News we have something special - the complete transcript of a recent conference with Sam Tramiel on the new Atari 68030 based computer - The Falcon.

This conference transcript is the exclusive property of the ST Advantage on DELPHI. Permission to reprint is granted only if this notice is included and the transcript is left unchanged.

To get your own DELPHI account and join in on the many activities sponsored by the ST Advantage and the Atari Advantage on DELPHI, use your modem to dial up DELPHI at 1-800-365-4636. Press <RET> once or twice to get a connection, then at Password:, type in IP26 then press <RET> again. Basic sign-up is free!

Transcript of Formal Conference
August 13, 1992
Special Guest: Sam Tramiel
(copyright 1992, DELPHI's ST Advantage)

BIBLINSKI:Gordie>

Good evening, everyone, and welcome to tonight's formal Conference. Our very special guest this evening is Sam Tramiel, president of Atari Corporation. This is Sam's first visit to DELPHI, and he's here to make an official announcement to us DELPHI members about Atari's newest 68030 based computer. Hopefully, he'll like it so much here, that he'll be back for some future Conferences. <g>

I'd like to remind everyone that we are formal tonight (not in dress, but in behavior), so our format is a little more structured than usual. Sam will have some opening remarks, after which he will take questions about those remarks, and answer when he can. He can't talk about everything, yet, but we should be able to get a fairly good feel for what the new machine is like.

Because formal COs tend to take a bit longer than our regular informal ones, we'd like to try to limit the questions to tonight's topic, so we don't end up with a marathon session. So, please don't stray too far from the topic at hand.

To ask questions when the time comes, you need to use the /queue command. You'll be prompted for your question, then for a brief description of the question. To provide as many people as possible with a chance to ask questions, we won't take direct follow-ups tonight. So, try to ask your question in such a way as to be as complete as possible. I'll be keeping a list of who has questions and will be trying to let as many people as possible ask them.

Remember, too, that Atari will be formally debuting the new machine in Dusseldorf, Germany, next week. And they want to keep some secrets for that event!

Gordie>

With that done, and everyone digesting it, <g> I'd like to thank Sam for taking a little time this evening to join us here.

Sam, the floor is yours.

Sam>

Good evening, all. I'm very pleased to be here on DELPHI in the Atari ST Advantage area for the very first time! We're excited to be celebrating the 20th anniversary of Atari Corporation this year. We're especially excited because this is a time that we can introduce another milestone product to the world.

I'd like to take this opportunity to recognize some people that have been close allies of Atari Corporation. The entire staff of the Atari areas on Delphi, under the direction of Clayton Walnum and Gordie Meyer have been providing stellar support to our customers for many years now. As most of you know, the roots of the Delphi area were established in the days of A.N.A.L.O.G. Magazine. Delphi has long been a supporter of Atari products. Thank you Clay, Gordie, and the rest of the ST Advantage staff for your support of our mutual customers.

Tonight, we're pleased to be able to finally announce the Atari Falcon 030 Computer. This computer will be unveiled to the buyinic at the Dusseldorf Atari Messe in Germany next week. The Falcon is a machine that we're very excited about. We think that it places us back in the forefront of the "Power without the Price" place in the market.

Here's the specs on the Atari Falcon 030:

CPU: Motorola 68030 running at 16 Mhz
32-bit Bus
Optional 68881 or 68882 FPU
RAM: 1, 4, or 14 megs
Standard Atari Cartridge Port
Motorola 56001 DSP chip

Expansion Bus:

Internal direct processor slot for 386SX PC emulation, or other coprocessor

Graphics:

Super VGA graphics: 640x480 with 256 colors
True color 16 bit mode allowing a display of up to 65,536 colors
Accepts external video sync signal to allow high quality genlocking
Overlay mode for easy video titling and special effects
Overscan on TV's and ST Color monitors
262,144 possible colors
hardware-assisted horizontal fine scrolling
BLITTER graphics co-processor

Sound features:

Eight 16 bit audio DMA record and playback channels
Stereo 16 bit digital DMA input
Stereo 16 bit DMA audio output
SDMA sound/DMA Coprocessor

Standard Ports

SCSI II port with DMA
High speed LocalTalk compatible LAN
Connector for analog RGB color (ST or VGA) or composite video
RS232C serial port
Bidirectional parallel port
MIDI IN/MIDI OUT
Stereo microphone input, miniature stereo plug
Stereo audio out, miniature stereo plug
Two joystick connectors
Two enhanced digital/analog controller/light pen connectors

Data Storage

1.44 Mbyte floppy disk drive
Optional internal IDE Hard Disk

System software

Pre-emptive Multitasking with adaptive prioritization (MultiTOS)
Inter process communication
NewDesk desktop and eXtensible control panel
Multiple window user interface; number of windows limited only by memory or software in use.

We see this computer as exceeding all of the multimedia expectations of the computer buying public. As well as being an exceptional value as a home computer system.

Extensive testing with the Falcon has already been done on existing software. We are very pleased with the high degree of compatibility. For instance, PowerNet, a increasingly popular LocalTalk networking solution works fine with no modifications. Calamus SL, PageStream, WordFlair II, Cubase 3.0, STalker 3.0, STeno, Arabesque, and many other well written applications will work perfectly.

I'm taking the liberty tonight of responding to some questions that have already been submitted by the Delphi Staff, in order that we might conserve some time:

What monitors will work with the Falcon?

The Atari Falcon030 will work with any VGA, or Atari ST Color Monitor...SC1224 or SC1435

Suggested retail price?

Sorry, tonight we will not be giving out the suggested retail price of the Atari Falcon030. That information will be announced at the Dusseldorf Atari Messe in Germany next week.

Will there be a trade in plan?

It is not our practice to offer a trade in plan directly from Atari. This is something that is up to the discretion of our dealers.

Will there be a LAN?

Yes, there is a LocalTalk port on the Atari Falcon030. It is

fully compatible with the Atari Mega STE and Atari TT030.
PowerNet from DragonWare Software works fine with it.

Will there be a method to connect to a mainframe via ethernet?

No, there is no ethernet connector on the Atari Falcon030

Why no detachable keyboard?

We felt that offering the unit in this configuration was the most cost effective. Also, using the 1040STE case allowed us to save on design costs, as it is the only unit (until the Atari Falcon030) that has analog joy sticks in it.

Will the DEKA work with it?

We do have a new keyboard controller in the Atari Falcon030. We've not checked a DEKA unit with it yet. We'll have to get back to you on that.

Have we hired a good technical writer, to document system interconnectivity, and add ons?

Our developer documentation for the Atari Falcon030 has met with rave reviews from all of the developers that are in possession of an Atari Falcon030. YES, the documentation is greatly improved.

MultiTOS- how is it configured, ram or rom, and what software will run on it?

MultiTOS is a combination of rom and disk based software. Most well written applications seem to work fine. We've made certain that our developers have been closely involved in the enhancements of MultiTOS. I'm confident that it will be HIGHLY compatible with your software library.

Is there anything being done with multimedia, and/or speech recognition software?

Yes, Multimedia is one of the key area for the Atari Falcon030. However, I cannot go into specifics at this time. We do expect to see a lot of exciting applications at the Duesseldorf Atari Messe next week, though!

Will it be advertised? How big is the budget, is there an agency, will it be in mainstream media, or specialty publications?

Sorry, we're not going to enter into those kinds of specifics tonight. We'll be making announcements on all of those things either at the Duesseldorf Atari Messe, or shortly after it.

Any dealer incentive programs?

Again, we will not discuss the marketing issues tonight. That will be something that we'll pick up after the Duesseldorf Atari Messe.

Any bundled software with the Falcon?

Yes, there will be a number of things packaged with the Atari Falcon030. There will be a couple of games written especially for the Atari Falcon030... LandMines, and a BreakOut kind of game. We will also have a Rolodex type of application called Cal/Apt, a calculator application called ProCalc, and a Talking Clock desk accessory.

Is there a lease/purchase plan?

We already have such an arrangement in place for our products. However it is more orientated toward business purchases than home users.

That's it from us for now, we're ready to take questions from the audience.

Gordie>

Okay, folks. Sorry for the delay. There's a lot of buffer to search through for questions. Hang on a sec.

LMCCLURE>

Will the Falcon retain that name after it's release? If not, what will it be called?

.Sam>

Yes, the name is the Atari Falcon030.

BRITFLASH:Brit>

Will there be support for the future release of Apple/IBM OS "Pink"?

.Sam>

When we see it, we'll answer you. It's still in development.
ga

PWRIGHT:PaulW>

Will it be able to run other operating system and which ones?

.Sam>

With plugging in optional third party coprocessor boards, you will be able to run PC type software, and maybe even MacIntosh software. ga

PIZZA_THIEF>

Is some sort of direct-to-disk recording/edit package under development (or slated for released concurrent with) the falcon? With the D/A converters it is reported to possess, this should be relatively easy to write.

.Sam>

Yes, there are several direct to disk recording systems under development. And we expect at least a few of them to be debuted next week at the Atari Duesseldorf Messe.

ATARIO:Steve>

Will memory upgrades be through SIMMs?

.Sam>

Memory upgrades will be through a "Atari Falcon" ram board.

RMARIANO:Ralph@STReport>

Sam, congratulations on the Falcon its quite the promising NEW product. I understand 500 are to reach Europe within two weeks. What is the time table for North America and the States in particular?

.Sam>

I'm happy that you have information on what is going to Europe. But, you're wrong, the plans are for North America to have machines by mid to late October.

BRYEDEWAARD:MegaRob>

What kind of keyboard will the Falcon come with? The old mushy ST-style version, or the newer Mega ST/Mega STE/TT one?

.Sam>

The Atari Falcon030 keyboard is the same wonderful keyboard that you can find on a 1040STE.

MERICKSON:Miles>

I noticed that the standard ACSI DMA port wasn't on your list of "standard ports." Does this mean that the Atari laser printer will not work with the Falcon, or will a new controller be made available for use with the Falcon?

.Sam>

There are a number of fine third party developers that are working on a SCSI to ACSI converter box. ga

DAVIDNIELD:David Nield>

Sam, Thank you for coming. The introductory information was great. I would like to know what kind of digital recording the Falcon030 is capable of: Will the 16 bit digital recording be useful for direct to disk recording or 'simply' as a sound source for midi manipulative sounds? Any light you can shed on that aspect would be helpful.

.Sam>

Yes, you can use the Atari Falcon030 for direct to disk recording with appropriate software. Just plug a microphone into the microphone input.

HOWBAR>

Will the microphone input sounds directly, like the mac?

.Sam>

Yes.

CHUNK>

What kind of speed enhancements for the 030?

.Sam>

I don't understand the question...it is using a 68030.

.Gordie>

Chunk, did you want to clarify your question? <no response>
I'd guess he wonders about using a faster 68030.

.Sam>

The design and supporting chips is for a 16Mhz 68030, and 32 Mhz bus, which gives you a dynamite machine. Terrific performance! ga

TRIX:Trix>

Will there be a port of Microware's OS-9 Operating system for the Falcon030?

.Sam>

We're in regular contact with Microware, and OS/9 works for the most part just fine under the Atari Falcon030.

JBWHIT:JB>

When will development tools that support the 68030, math coprocessors and DSP56001 be available?

.Sam>
The developer machines that have been shipping to select developers for the past few months, have all the tools. A complete 56000 debugger will begin shipping next Thursday.

Ron <ym>
You stated memory of 1, 4, or 14 Meg. Why 14 Meg? What's wrong with 16?

.Sam>
2 megabytes of RAM are masked out for backward compatibility with ST I/O space. We pride ourselves on maintaining downward compatibility with all of our products.

STGUEST:Oliver>
Sam, it was reported that Atari is going to introduce a new software packet called ST-Sutra at the Duesseldorf show next week (source: Atari Journal, Germany). Could you give us some details (features, price, availability...) Another software-related question: Can you confirm that there will be a MultiTOS upgrade available for old STs (MC68000 machines)? Thanks!

.Sam>
We are saving this for Germany, Oliver. See you at the show! :) MultiTOS will be available for the Atari TT030. But we have no plans at present to make it available for 68000 based Atari STs.

TURBONICK:Nick>
You said that the Falcon can have 1,4, or 14 MB of RAM. In the 14MB configuration, is some of that RAM "fastRAM" like the TT has? Will the '030 have "burst mode" (or whatever it's called when it fetches multiple longwords in one instruction) access to that RAM?

.Sam>
All ram accesses are 32 bits wide. By the way, the supertechnology questions are being answered by the ever capable Bill Rehbock. :) The ram does NOT operate in Nybble mode like an Atari TT030. ga

SGTR>
32 MHZ bus. Does that mean that the Falcon030 is capable of 32MHZ to RAM,HardDisk etc... If not then what is the main impetus ?

.Sam>
That's a 32 bit bus, sorry for the confusion. It means that the Atari Falcon030 memory controller and DMA and video chips access memory at 32 bits wide at a time.

HUDSONHARDY:Hudson>
How will the TT and the Falcon relate compatibility-wise?

.Sam>
They are very compatible. The Atari Falcon030 is actually more STE compatible than the TT030.

DPJ:Dana@STReport>
Sam, first, welcome to Delphi. In light of the recent Forbes article, how do you feel the Falcon will do to re-establish Atari in the marketplace? It sounds like the Falcon will be the finest Atari computer yet to come. GA

.Sam>
Regardless of the Forbes article, we feel that the Atari Falcon030 is a giant step in personal computing. It will help Atari re-establish itself in the North American market.

.Gordie>
Sam, one thing that sounds really exciting is the 8 channel 16 bit sound. Won't that make the Falcon030 a virtual recording studio in a box?

.Sam>
Gordie, YES! We are very excited. We foresee desktop editing in the future with the Atari Falcon030.

.Gordie>
Have any MIDI developers been working on implementing that capability? That you know of, anyway?

.Sam>
YES, a leading developer in the UK, around Cambridge, is working on this type of software.

.Miles>
In a previous message, you said "and maybe even MacIntosh software." Does this mean that the Falcon isn't compatible with Spectre?

.Sam>
The Atari Falcon030 does not have an external floppy connector, and this of course makes it difficult to connect the existing Spectre GCR. We simply do not want to comment on Dave Small's behalf. :)

DAVIDSHORR:Dave>
Would you comment on some of the changes that were necessary to make the Falcon 030 more STE-compatible than its big brother the TT030 (the 16meg address space seems to be one)? Can the Falcon run Spectrum Holobyte's Falcon<grin>? GA.

.Sam>
Mostly custom chip issues. We haven't given Bill enough time to try Spectrum Holobyte's Falcon yet! He's been working too much!!

PHULSE2>
Hi Sam & Co. Two questions, first off, could you list the various developers which have been working on products for the Falcon? Any who previously dropped our computer and have show a renewed interest with the Falcon? Secondly, will the 'brains' of the Falcon be easily upgradeable to the inevitable 68040 release, or is that possible? Thank you very much for appearing here! Max @ 734

.Sam>
MultiTOS will indeed work with a 68040 platform. On the first question regarding developers, there are too many to mention now. And yes, some that were not working on our system are now. Such as NeXT developers because of the DSP 56000 which opens the world to really exciting software.

DIGISOFT>
Is there a true expansion bus or just a coprocessor slot, and is 640x480 the highest standard resolution? ga

.Sam>
Yes, there is a true expansion bus. It is a direct processor slot with all of the necessary goodies...interrupts, etc. 768x480 in overscan is the highest standard rez.

.Ralph@STReport>
Sam, all my info may not be accurate, but that is not the question, I asked; "What is the timetable for North America and in particular, the USA?"

.Sam>
With all due respect, we've already answered you. The US is part of North America, and we plan mid to late October.

CRYSTAL>
As I see it, most Atari users have little criticism of the hardware Atari produces, but are upset with the marketing of that hardware. The Forbes article also made that point. If not tonight, when will we learn what marketing strategy Atari has for the Falcon?

.Sam>
We felt that the present ST/STE family was not strong enough to market in the US. We have been waiting for this new product, and we do plan to support it and market it in the US. It will be a hard battle, but we will put a good effort behind it.

.Gordie>
Okay, folks, the clock on the wall says we have time for just one more question. And, that lucky person is... NORM!

NORMAN238:Norm!>
Will there be any "HANDS ON" looking at the Boston Computer Society's Meeting?

.Sam>
There will be hands, feet, etc on looking, touching, at BCS. We will have more than one machine there, Norm.

Thank you all for coming tonight. We appreciate your support. We've enjoyed our first visit to Delphi. Good night all, there will be more information coming after the Duesseldorf Atari Messe. Good night!

.Gordie>
That about fills up our time for tonight, folks. I want to thank Sam, Bob and Bill for dropping by. Good night!

This CO is officially over!

MIDI In Practice *by Jack Bartley*

MIDI Scores Again

In all probability BaPAUG members will not have heard of the organisation called U3A. The converse is probably true since the hobby of computing to a very large extent appears to be the prerogative of the young rather than retired who are eligible to join the University of the Third Age. 'Le Troisiem Age' was originally a French concept, the 1st Age being that of childhood when you had to do everything that your parents or teachers told you to. The 2nd Age being your active working life when you had to do everything the boss told you or your business dictated. The 3rd Age of retirement when you are at last free to do whatever you so wish before the onset of the 4th (and last) Age which we try not to dwell upon.

U3A members who have acquired particular skills over their working lives freely give their services by taking classes for other members who wish to learn that skill.

Thus it was that I came to take on a U3A class on musical keyboards. Casting around for teaching methods for folks who are unlikely to aspire to concerto performances calling for extensive use of scales and arpeggios, I decided to write my own arrangements of popular songs to suit the level of skill of the pupils. This, I thought, would be a way of maintaining their interest and advancing their tuition by modifying the complexity of the arrangements as their skill increased.

As a member of the MIDI group of the Atari club it was unlikely that I should start to laboriously notate the arrangements in manuscript but rather that I should look to my Atari and its sequencer/Notator program to provide the score, which once produced, would be sitting there on file available for updating against student progress.

Being a happily married man and wishing to stay that way I have my MIDI equipped Electronic multi-timbral keyboard in a living room and my computer gear in the upstairs bedroom.

In order to record in real-time or step-time into the sequence my first move on loading the program was to pull down the Options menu, click on remote Control and allocate control of the 'tape recorder' functions of the sequencer to individual keys on the lower keyboard of the organ via the inter-connecting MIDI cables. Exiting 'Remote Control' and clicking on 'Synchronization' the next step was to switch the sync from internal to 'Midiclock' and click on the sync button to accept timing from the organ. Initialising Track 1 on Midi Channel 1 from the Arrange screen I'm then off down the stairs, switch on the organ, press lower keyboard Octave-2 'F' key to enable remote control, then G sharp on Octave -2 to switch the sequencer to 'Record' and play in from the music sheet just the top line of the melody in the treble clef (simplicity being the keyword).

At the end of the 32 bars it's organ off and up the stairs to work on the results. A funny thing, most times when I play music the tune is recognisable but put me in front of a recording machine and nerves take over. The sequence is no exception to this rule hence the indispensability of the editor. I haven't yet worked with a score editor that is easy to use, so in selecting an editor from the menu I invariably go to the Key Edit which I find much easier to manipulate.

Although my objective in this case was a score printout I find it much faster to edit in the key edit window, frequently looking in at the score screen to see where any additional quantising is necessary for it to write the correct note. The score edit can be very fussy with its values and I have

sometimes had to go into the Grid edit and set the actual note length values for the Score edit to get it right. However, I still find this preferable to cancelling half a dozen demi-semi-quavers and attendant rests and substituting the right note value in the Score edit.

We now have in the Score edit window a perfect single clef score of 32 bars. Now for the next simplification. Nothing puts the new student off more than all those sharps or flats that adorn the first bar to designate the key. A click on the transpose button and winding it down to the key of C quickly takes care of that and puts them securely onto the white notes only.

Since initial instruction will be in Easy-Play method using 'Busker' type scores which consist of a single treble clef with textual chord symbols, a type of score which is particularly suited to today's keyboards which include a rhythm unit and auto-accompaniment patterns, it only remained to add the necessary text to the score by calling up the symbols into the Score edit screen and typing in the song titles as a heading with the font at large size and then the chord symbols at the relevant positions in the score.

As the students (hopefully) progress, the single note Treble clef will be embellished, a Base clef added with fully scored chords, and the pedal notes included. This is assuming that by that time I shall not have been driven completely round the bend by the constant repetition of the standard chords and accompaniment patterns that these keyboards produce.

AAUSAC

This new Atari user group recently started up to bring together teachers and lecturers who use the Atari in their work.

Called the Association of Atari Users in Schools And Colleges, the group aims to provide information exchanges between its members including the exchange of copyright free software written by any individual who would be willing to save other educationalists re-inventing the wheel.

To kick off, the club's founder, Terry Freedman, has produced a questionnaire, the results of which will be entered into a database which will be made available to anyone sending a blank disk and SAE.

Terry plans to produce a club newsletter on disk. For further information please send an SAE to:

Terry Freedman, AAUSAC, 16 Hall Rise, Witham, Essex. CM8 1DH.

ST Articles Needed Now!

Send any contributions to the ST Editor

In the heyday of CAD 3D and the Cyber series from Antic Software, animation was more a product of good programming than artistic talent. I personally never got involved with Cyber Control and CAD 3D because those packages didn't help the creative process they got in the way of it.

After briefly looking at what the Cyber series had to offer, I gave up on my computer animation aspirations. Now, along comes Chronos-3D from Lexicor Software. I approached Chronos-3D with a hope that it would live up to its advertised claims. It does that and much more!

Before getting the package, I felt very much like someone who has recently been in a very bad car accident deciding to get behind the wheel once again. I was not expecting a very pleasant experience. I was wrong.

What Is Chronos-3D?

Chronos-3D is a "Key Frame" animation package that allows you to create animations using CAD 3D objects (created by CyberSculpt, CyberTexture, etc.) or .3D4 files translated using Lexicor's Rosetta-3D.

Anyone who has seen documentaries on the animation work done by Disney, Don Bluth

Chronos-3D

Reviewed By Bill Rayl

Reprinted from Atari Interface Magazine; December 1991

and others, has seen Key Frame Animation in action. A master animator creates key frames that contain the start and end points of some action. Later, an animator's assistant creates the "inbetween" frames (or "twens" for short).

Basically, Chronos-3D and your computer function as your professional animation studio. You are the master animator and you define the start and end points for movement of the objects in your animation. You decide the number of tween frames between each set of key frames - the more twens, the slower the motion.

As your assistant, Chronos-3D automatically creates all the tween frames. No mess, no fuss, and no programming!

Look Ma, No Programming!

The ability to create complex animations with absolutely no programming knowledge is a very big plus for Chronos-3D.

Using CAD 3D and the Cyber packages, animation was not for the faint of heart. If you didn't know the proper mathematical formula, you couldn't invoke the magic.

Chronos-3D frees your creative spirit and lets you do whatever your imagination desires. You create movement by dragging objects to desired positions with the mouse. You can rotate objects around X, Y or Z axis independently or around the X and Y axis at the same time.

You can stretch, squash and otherwise shrink or enlarge an object (or multiple objects). You can slant or tilt one or more objects. And you can do all these things with a couple mouse clicks and mouse movement.

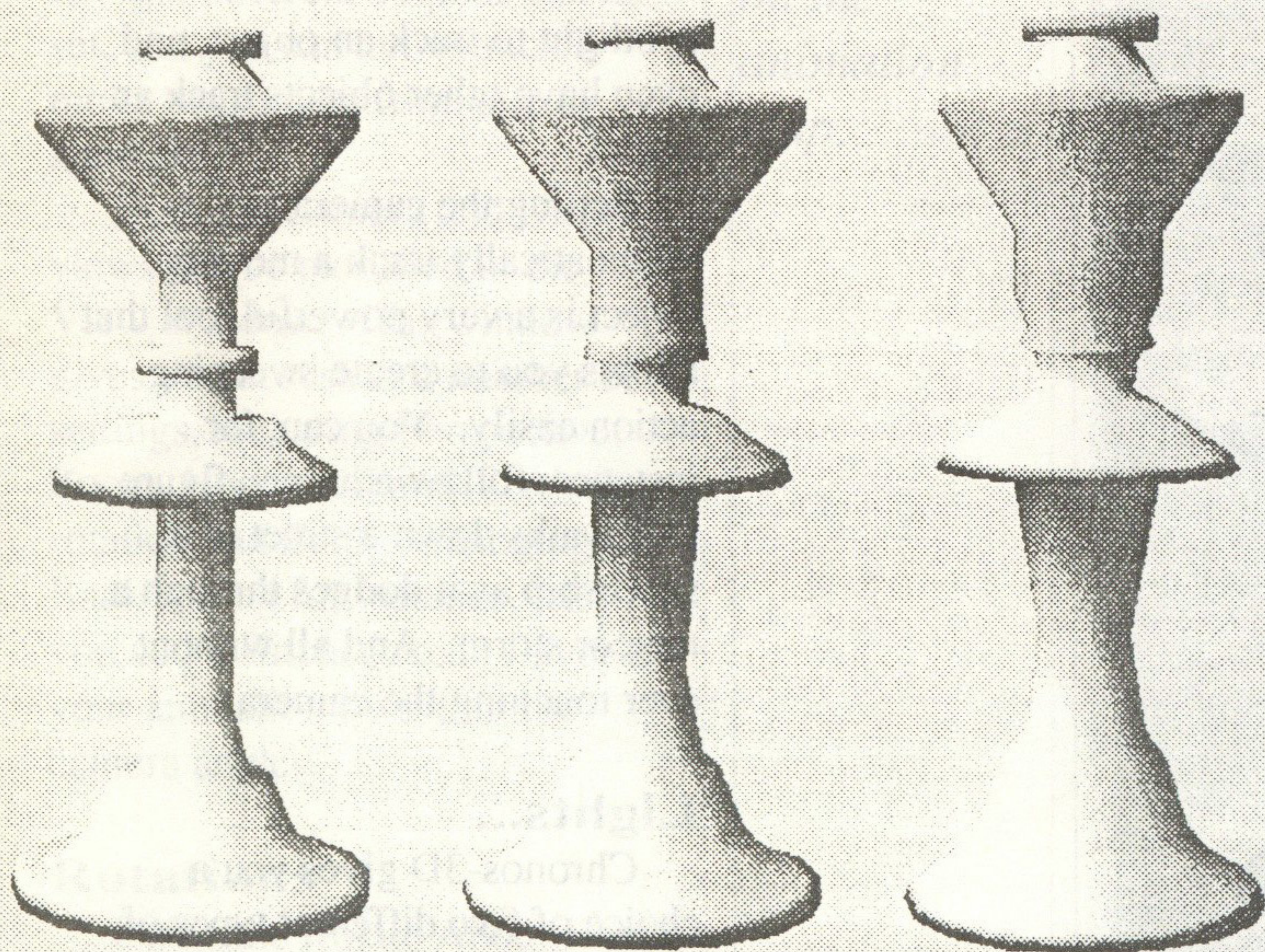
The Main Screen

When you first boot up Chronos-3D, you are presented with the Chronos Main Screen, your little window onto the world of computer animation. A Tool Palette on the left side of the screen contains the move, rotate, scale and skew tools, as well as editing mode tools and quick view tools. The very excellent manual details how to use all these tools, so I won't go into them here in much detail.

To help you understand how the package works, though, try to think of Chronos-3D as a movie studio and you are making a film. This metaphor is held throughout the Chronos-3D package. In fact, the ending result of a successful animation is the creation of an.FLM (film) file.

The two standard viewing (or editing) modes in Chronos are Director mode or Camera mode. At any time during the animation process, you can jump from the director's chair to looking

This is a package that takes the Atari ST and TT to a new level of animation...



through the camera lens by a click of an icon. This allows you to watch as your "actors" (the CAD objects) pass in front of the camera while also allowing you to take a step back as the director to "get the whole picture."

Timelines

Each object in your animation has its own "timeline." This timeline consists of a series of frames in which the object appears. Modifying the timeline of one object does not necessarily modify timelines for other objects, although you can do global changes if you wish.

You can think of each timeline as a filmstrip containing only one object's motion. When Chronos-3D "records" your animation, it overlays these timelines on each other to produce the entire "film".

Keeping each object's motion independent of the object itself and the motion of other objects gives Chronos a lot of power and flexibility. This gives you full control of each object's timing and motion without changing any other aspect of your animation.

One useful benefit of this independence is the ability to create a complex animation sequence using a simple "stand-in" object. Once the sequence is ready for recording, you can

replace the stand-in with a far more complex object. Using the simple object reduces the amount of time you spend creating the animation.

You can edit, cut and paste, insert or delete one or more frames in an object's timeline. When pasting, you have the option of including the original frames as is or pasting only the object's motion. Using Paste Motion, you can quickly create a sequence of motion with very little work.

Cycling and Morphing

The ability to create cycles is one of the most powerful features of Chronos-3D. Using this feature, you can create very complicated motion automatically.

The third tutorial in the Chronos manual uses cycling to make a human figure walk across the screen. The figure is made up of 15 different versions of a man in various stages of walking.

In the Cycle dialog box, you load the objects you wish to use into the Cycle list in the order in which you want them to be used. Chronos will then cycle through these objects, one per frame until the cycle is completed, and then start the cycle again until it runs out of frames in the timeline.

Basically, Chronos-3D and your computer function as your professional animation studio.

You can use any objects you wish in a cycle. The objects do not have to be modified versions of the same object, as in the case of the walking tutorial.

As if this was not a powerful enough feature already, Chronos-3D can also add a Morph (short for metamorphosis) process to a cycle.

What this feature does is allow you to change one object into another before your eyes. In order for a morph to work, the two objects used must have the same number of points and faces.

To create a morph, you simply add the first object to the cycle list, click on Add Morph as many times as you want tween frames, then add the second object to the list.

As an example, I've taken two chess pieces and morphed the queen into the king in a total of nine frames to show how the process works. All I did was supply the two objects and Chronos-3D did all the work. The resultant morph cycle is shown in the three pictures on pages 16-19.

You cannot simply choose any two objects for a morph. You will need a program such as CyberSculpt to create objects that will work.

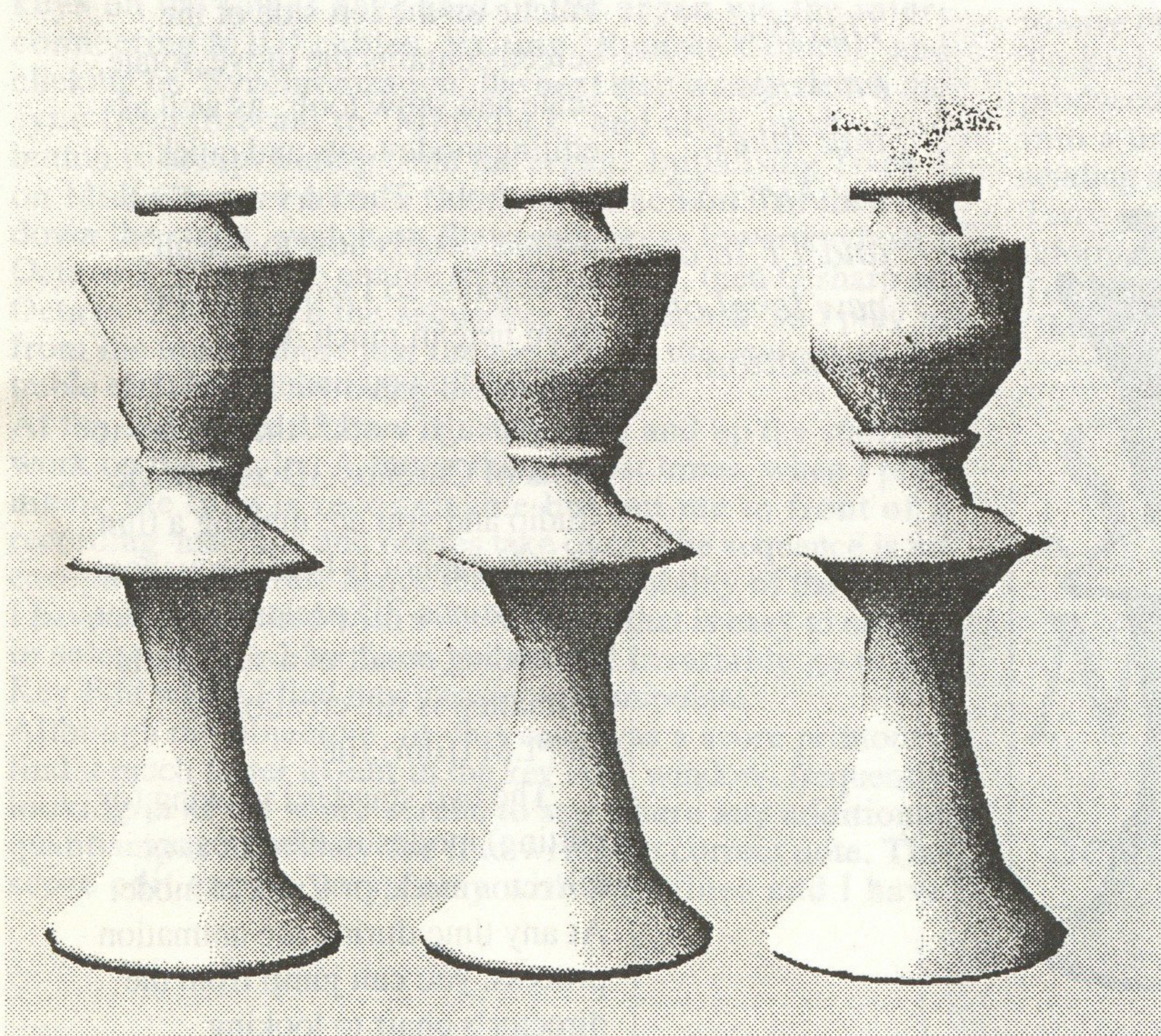
Tracking

One of my favorite features of Chronos-3D is its tracking abilities. You can automatically set the camera to track an object over selected frames, set a spotlight to track an object, and even have other objects track an object.

Setting the camera to automatically track a moving object is a very powerful tool that allows you to create sweeping action easily. You can, for instance, follow a human figure as it walks down a street or a spaceship as it dodges through a meteor storm. And all without ever touching the camera.

Lights...

Chronos-3D gives you a choice of five different types of lighting. Global Illumination



supplies an even amount of fill lighting to the entire Chronos universe. Global Illumination is independent of any light source.

Point Source lights give lighting equivalent to an unshielded light bulb, emitting light in all directions with decreasing intensity the further you get from the source. Solar lighting imitates the outdoor lighting supplied by the sun.

Using Ambient lighting creates a diffused light source similar to Global Illumination, but with the ability to vary the intensity from frame to frame. The final light source is the Spot Light for creating focused beams of light similar to stage lighting.

The types of lighting in Chronos-3D are compatible with light source standards from the popular RenderMan package from Pixar.

Camera...

The camera in Chronos-3D is basically treated just like any other CAD object. You can select it, rotate it and move it from the Director mode. The camera has its own timeline, so you can have different camera angles and settings for different frames of your animation. Chronos-3D will even create tween frames for camera movement.

Once you have set your camera on a given spot, you can save the current camera position and view by setting a Tripod. Up to eight different Tripods can be set, and you can automatically move the camera from one to another.

Both the Camera and Director views can be modified in the View Window. This window gives you access to a number of settings, including Perspective, Zoom, Horizontal and Vertical rotation and Bank. Changing the Bank setting for instance, lets you add a Hitchcockian flavor to your animation by tilting the camera angle.

Rotations

Using the Rotate About Home setting in conjunction with the

Record Setup

Frames: All Selected From: 1 To: 1
Every: 1 Frames

Resolution: Current 16 Color 256 Color ISAC 1024 ISAC 800

Render Mode: Wire Frame Solid Faces
 All Edges Faces
 Visible Edges Faces & Edges

Shading:
 None
 Lighted
 Object Depth Cue
 Group Depth Cue
 World Depth Cue

Palette: None Gray Scale Real

View: Current Camera

Quality: Draft Final

Format: .FLM .DLT

Cull Back Faces
 White Background
 Show as Boxes
 Show Grid
 Show Camera
 Show Lights
 Show Frame Number

Set Home command lets you move the camera around a defined center point. The default is the center of the Chronos universe. You can, for example, define this point as the place upon which an object appears. Then, you can use the camera to film while moving around this object.

The Rotate About Self setting in the View Window keeps the camera (or director) locked into the current spot, allowing the view to pivot around that position.

Using the About Home icon in the Tool Palette, you can make all objects rotate about a selected point - planets, for instance. I

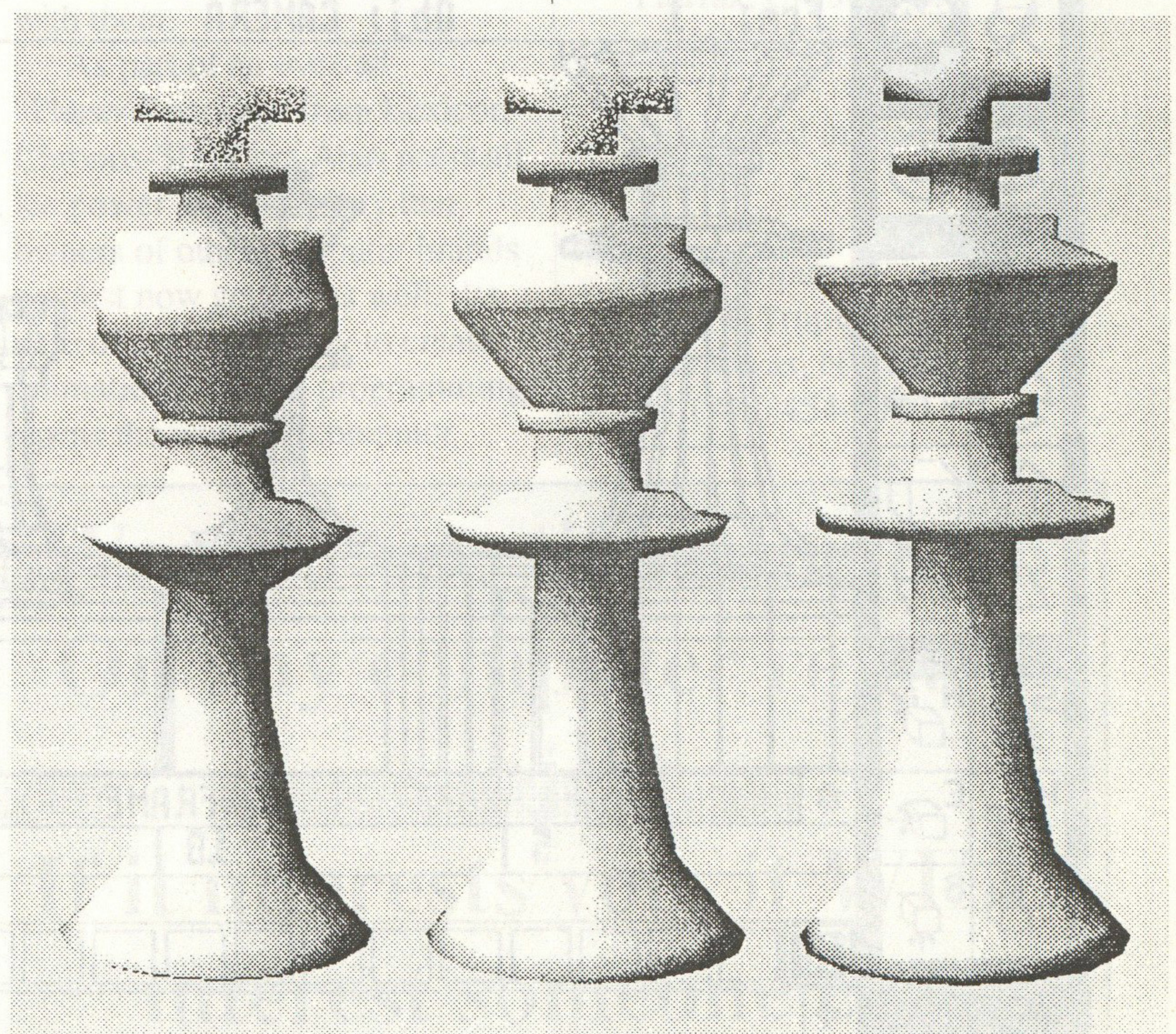
find it personally satisfying to create a universe in which the Earth is the center and everything else rotates around it. Take that, Copernicus!

The About Center icon can be used to rotate an object around their own center point. So, now you can make the Earth rotate around its center while the universe rotates around the Earth. Both the About Home and About Center icons are used in conjunction with the Motion tools in the Tool Palette.

Fading Away

Another neat feature is the ability to set Visibility for an object or a group of objects.

Chronos-3D puts the Atari back on the animation map...



Using this capability, you can easily make objects fade from view, appear and disappear instantly or create Star Trek-like transporter effects ("Beam me up, Scotty!").

This Visibility feature is simply great for creating images of an object in water, a reflection in a mirror or a view of an object as seen through a fog or cloud. Using Visibility in conjunction with a Morph can give you some pretty spectacular effects. The possibilities are almost endless.

Object Appearance

You also have a good deal of control over how the objects in your animation will be shaded, dithered, etc. The Object Appearance dialog allows you to select one of three shading methods - Flat, Gouraud and Phong.

Flat shading is, by far, the fastest shading method, but it is also the least impressive or realistic in its results. Each face of the object is shaded individually. Gouraud shading is far more impressive, as it takes into account the light sources being used and the end points of each face to determine how to shade each face.

Phong shading does a pixel-by-pixel shading of the object and is particularly useful when dealing with curved or rounded objects under spot or point light source. Phong shading does take considerably more time to render, especially with complex objects, but the results are quite impressive.

A Smooth Faces option is also available when using either Gouraud or Phong shading. Turning Smooth Faces on causes a perfect blending of all faces, particularly useful for spheres and other rounded objects.

Finally, you can set Fixed or Random dithering, or no dithering at all. Choosing None tells Chronos to use only solid colors when rendering. Fixed dithering sets the same dither pattern to be used for a selected object throughout the entire animation and is most useful for stationary objects. When dealing with objects in motion, Random dithering is the preferred method. This tells Chronos to recalculate a new dithering pattern for each frame.

Rendering

When you've finally completed the design of your anima-

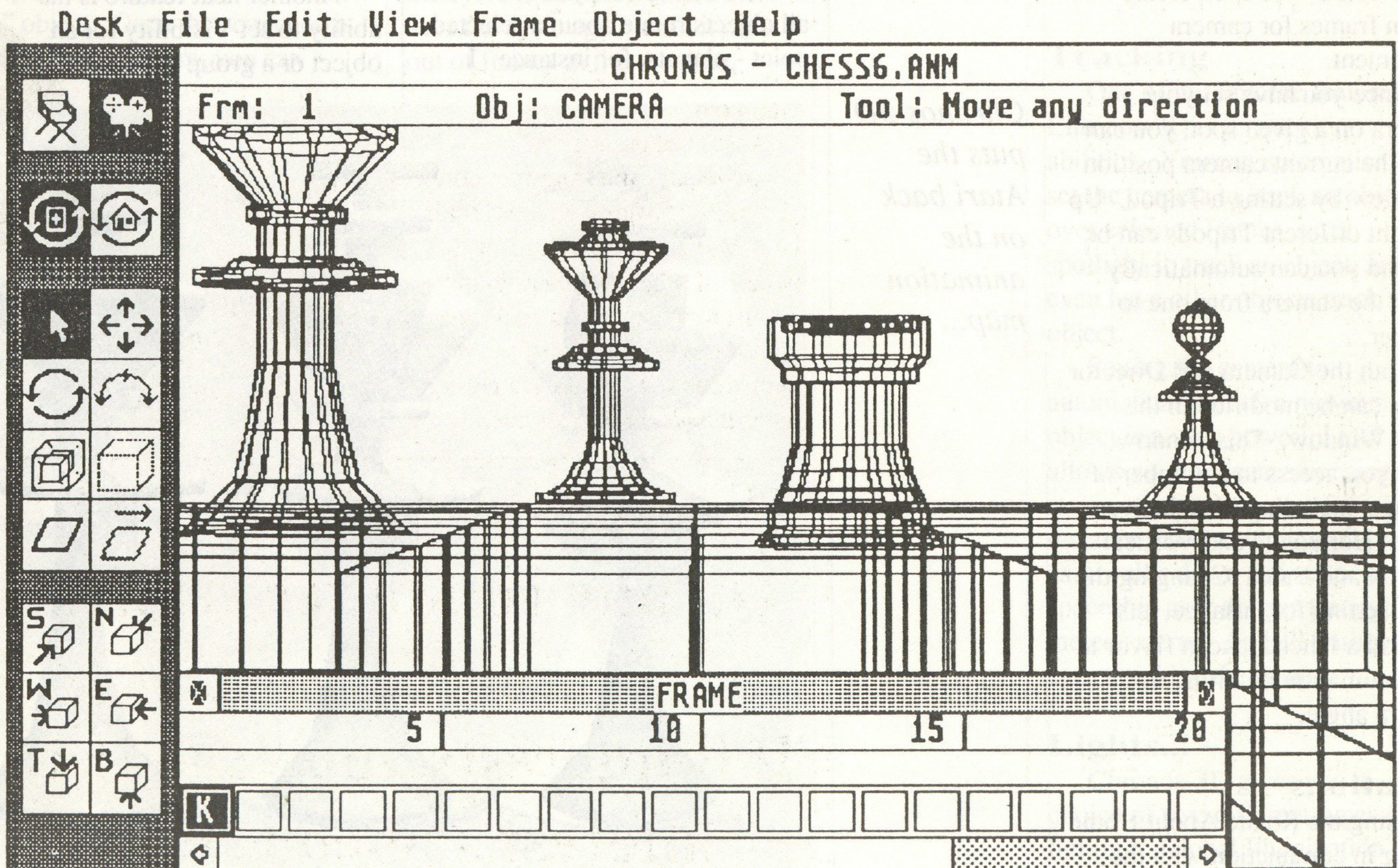
I wholeheartedly recommend this package to anyone who is interested in computer animation...

tion and it's time to record the "film," Chronos-3D offers a multitude of rendering options. Chronos currently supports all ST and TT resolutions and the ISAC board designed by Jay Craswell in 1024x768 or 800x600 resolutions with 16 colors.

You can render as a Wire Frame animation with rendering of all edges or only those edges that are visible. Solid rendering lets you select Faces or Face & Edges. Using Faces, the individual parts of the object are blended smoothly together, while Faces & Edges retains the individuality of the parts and gives a more angular appearance to the objects.

At the time of rendering, you can also choose from a number of overall shading options and whether to use an actual color palette or gray scale mode (or no palette). You can record the animation from camera's point of view in each frame or from the currently selected view in the main screen. You also have the option of rendering your creation in Draft or Final mode, as well as saving the resultant file in .FLM format or Antic's .DLT format.

At the bottom right of the Record dialog, you have a



number of options and check boxes from which you can select. These options allow you to include the lights, camera and grid in the recorded animation (normally, they disappear in the final product). You can also toggle between a white or black background for your animation.

At the very top of the dialog box, you can choose which frames appear in your animation. For instance, you can decide to record only frames 10 to 80 of a 100 frame animation and only record every other frame or every third frame, etc.

Manual

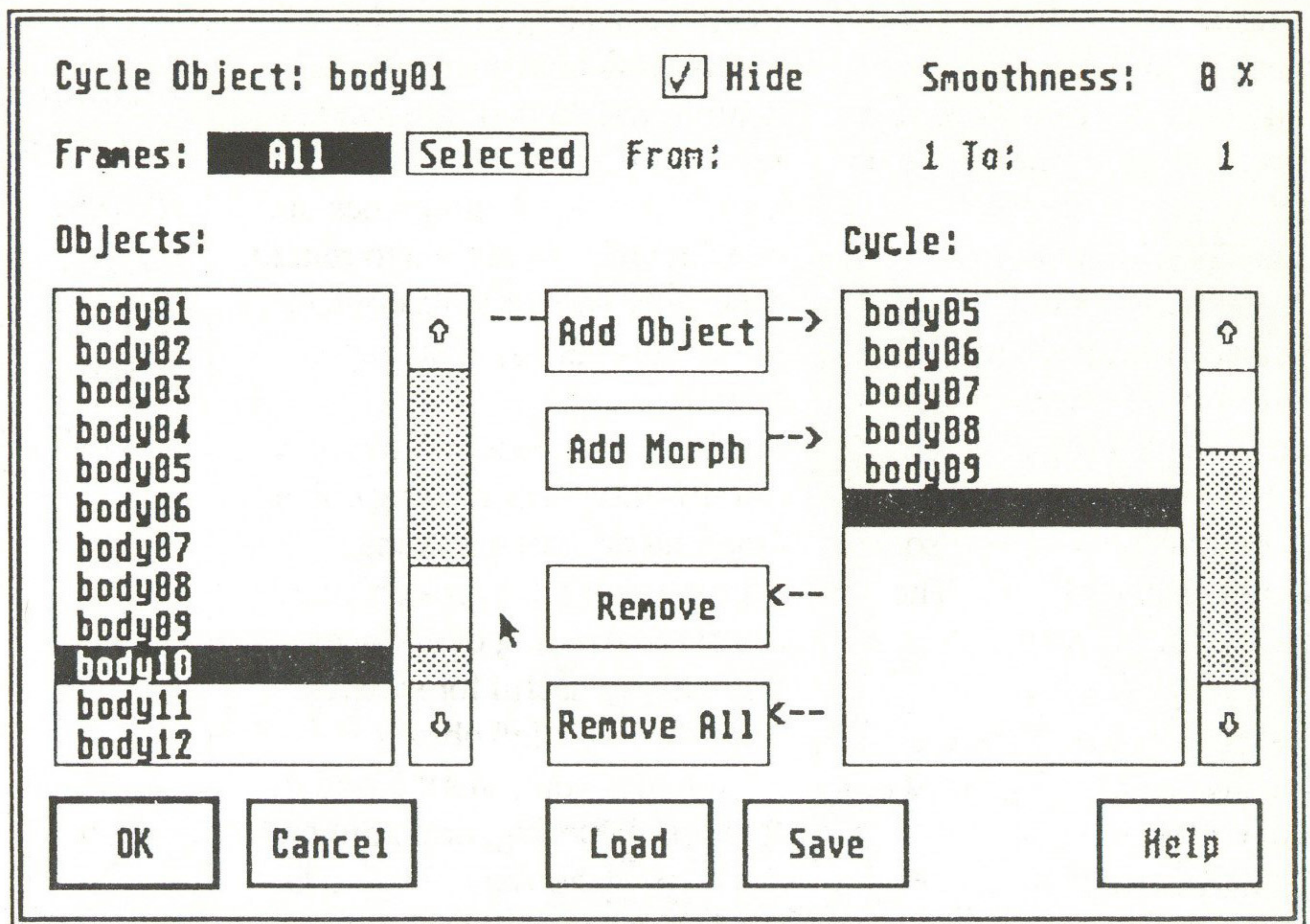
With any powerful software package, you need a very thorough and well organized manual. With Chronos-3D, you get it! The 11 chapters of the manual take YOU step-by-step through the entire program, with detailed tutorials and reference sections you'll turn to again and again.

The eight page Table of Contents and 11 page Index have never failed me yet. Whenever I needed to find some piece of information, the Index pointed the way and the manual contained exactly what I was looking for.

If you're a new user to the ST, the manual has sections detailing how to use your computer, the mouse, etc. If you're new to animation, there is some fairly good discussion of key frame animation principals in the first chapter. Chapter 10, "Putting It All Together," has a number of useful tips on speeding up the design of your animation, using CAD objects, creating motion and lots more.

For the new animator, there is even a Glossary of terms in the back of the manual with definitions of animation, computer and Chronos jargon.

The manual comes with a hard plastic 3-ring D binder that's built to take a lot of use. A serial protection dongle also comes with the package. That's right, Chronos-3D is copy protected. The dongle plugs into the serial port (you need a 9-pin



to 25-pin adapter if using a TT or Mega/STE) and has a pass-through. You can then plug your modem into the dongle and forget about the whole thing. A parallel port version of the dongle is also available.

Conclusions

I've tried to touch on most of the major features that Chronos-3D has to offer. This is a package that takes the Atari ST and TT to a new level of animation capability while still allowing CAD 3D and Cyber series users to take a lot of their past work with them.

As part of an over-all "Phase4" package from Lexicor, Chronos-3D offers Atari users all the power and flexibility that owners of other computer brands are just now getting as well. Its ease of use and ability to create animations with no programming opens the world of computer

animation to many people who otherwise couldn't be involved.

I wholeheartedly recommend this package to anyone who is interested in computer animation, from the professional animator to the novice animator who has never used a computer to create animations. At about 1/2 to 1/4 the cost of comparable animation packages on the IBM, Macintosh and Amiga, Chronos-3D puts the Atari back on the animation map.

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