Memo: Atari US. What plans for NZ?
Reply: Ask Australia

The somewhat chequered history of Atari in New Zealand looks like continuing for a few months yet as once again the distributorship comes up for grabs. For years now, we at Bits & Bytes have been aware of rumblings amongst Atari users; rumblings over lack of support, lack of information, and lack of product.

Five years ago David Reid Electronics was the Atari distributor here. At that time the enthusiast or home market was being mooted as having huge potential internationally. In New Zealand the sales tax priced the microcomputer beyond the reach of many potential hobbyists and it was not until the tax and licensing regulations changed that products were more readily accessible to the low end user.

By that time the technology had advanced significantly; the desktop capability was greatly increased and the Asian manufacture of product brought pricing even lower. The Atari distributorship had moved to Montek Equipment Ltd and Felix Meijer, formerly David Reid Electronics, moved with it, keen to promote the range and its increased capability.

In the US, like many micro manufacturers, Atari was going through some changes. Impacted by erratic demand, manufacturers became cautious about producing large quantities until the market response was tested. New micros were being launched at a furious pace and buyers were becoming cautious, holding out on purchase until they could compare the releases of all the main players. In the meantime, development costs and the race to be the first to market were taking their toll on the entreprenurial but high flying industry.

Last post

Small countries like New Zealand became the last to have their orders shipped when new products were launched. Keen to woo the large populations of Europe, the UK and the US, micro manufacturers did not find the numbers here worth compromising their own local market for.

While the price situation here improved and demand for micros increased enormously the supply situation never changed very much. Today some of the early players' brands are being manufactured in the South East Asian region, both for economic and supply reasons, but supply remains a major hassle for many distributors here.

The public got tired of waiting and brand loyalty moved aside to welcome the readily available and increasingly capable clones.

One of the casualties was Atari. Montek had persevered with little support from the US, according to Paul Dilner, who presently holds Meijer's former job.

"We resigned the Atari agency for various reasons. We were having trouble getting stock from the USA. At the moment we are still importing parts until another dealer takes over, but we are not importing either hardware or software. Existing stocks are being sold off and we are caretaking for spare parts."

In May Atari's director of international sales and marketing, Max Bambridge, was here. He spoke then of the new products that would be launched here during Computing 87 including the new series of IBM compatibles and the 2Mb and 4Mb ST series, particularly suited to desktop publishing. There had been a lot of interest expressed in the range for this application here but it never got off the ground properly. Contacted at the time of going to print Bambridge had little comment to make from California and referred the matter to the newly established Australian subsidiary, headed by Nigel Shepherd.

Shepherd established Commodore Australia in 1980 and then, when the US organisation became troubled, moved in as general manager of Commodore, North America.

In the recent (mid-May) coup when chief executive officer of Commodore Thomas Rattigan was fired by chairman Irving Gould, Nigel Shepherd went too along with the treasurer, controller and computer services manager.

Shepherd returned to Australia where he recently accepted the task of setting up Atari Australia. He confirmed Montek's stand that there had been no support here from Atari in America.

No more dumping

He acknowledged that the New Zealand market is a sophisticated one which had moved past its early days reputation as a dumping ground.

While the whole range would not necessarily be sold here he said the new range of IBM compatibles would be relaunched when a distributor is appointed.

He intends to have Atari up and running in New Zealand by February, with discussions currently under way with a half dozen prospective distributors and a decision promised by the end of this month.

One can't help wondering if Atari has missed the boat altogether. Will we really get excited at the prospect of some US manufactured compatibles when the Asians have it down to a fairly fine art? Is the software superior to what is already being offered? And what price competitive edge will be presented with?

No doubt there are some Atari stalwarts there. There are many enquiries at Bits & Bytes computer shows and throughout the year from Atari users looking for software, offering programs and pursuing new products. Perhaps, at last, these people will be properly supported. All should be revealed come February. . . or March. . . or.

Introducing MicroBYTES

Welcome to *MicroBYTES,* a new bi-monthly liftout which comes to you as part of *Bits & Bytes.*

We aim to provide that extra Bit for the microcomputer user whose main support might now be fellow-users and enthusiasts; the sort of person for whom fifth-generation spreadsheets on a 25MHz 80386 machine might be somebody else's dream, and who is happier delving into the technicalities of something he or she can understand.

Each issue will bring such themes and topics as:

- Utilities
- Programming tips
- Questions and Answers on those tricky little things that somebody else has discovered at some stage
- Games for those who allow themselves the luxury of actually enjoying their machines
- MicroNews
- Bulletin Board news
- User Group and Club news — so send in your newsletters

MicroBYTES is interactive, so we look forward to receiving your letters, suggestions and programs.

Going too far?

We've all heard of shoot-'em-ups and flight simulator games, and even those which manage to combine the two. From the US comes word of new and better ways to destroy your computer...

The Bullet Shop, in Marietta, Georgia, specialises in letting people bring in their unloved hardware and dispose of it with a Uzi or Thompson sub-machine gun. One poor unfortunate in New Jersey must have thought that was too far to travel, so he took to his IBM PC with an Israeli Arms Desert Eagle, and is presently out on bail of $2,500. It seems that shoot-'em-ups in a commercial establishment are acceptable, but not the same thing in the privacy of your own home.

An Oshkosh, Wisconsin, man was delivered a 23 kg computer in a novel way last month — it fell out of the cargo pod of a passing airliner on approach to the airport. The machine was apparently not what he ordered, but nobody was hurt and the real owner had his computer replaced by the airline, Northwest Airlink.

Chocbytes for Christmas!

Hamilton —

Just in time to sweeten the festive season is this new 4,000K (for calories) floppy disk from Hamilton-based Paperback Software.

This "eatware" provides the ideal bite for computer users who plan to put some energy into computing, programming or just plain partying in the coming weeks.

Weighing in at almost five ounces, the full sized 5.25 inch chocolate floppy disk is an ideal gift from computer companies to their customers. It comes attractively packaged in a reusable software case which just happens to also include discount vouchers for products in the Software Paperback range, making it an innovative and highly suitable Christmas gift for computer users and computer clients.
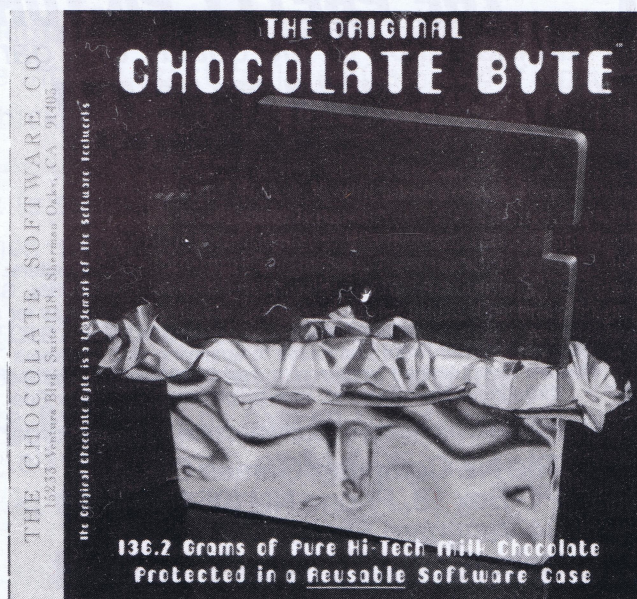
A Match for the Masters

A new range of electronically converted chess sets has appeared on the market, endorsed by none other than Garry Kasparov himself. Nigel Burrell goes into battle against the champion.

The rewards of technological advancement certainly become apparent when playing against any one of the 12 models in the Kasparov range by SciSys. Each one, complete with various subtleties, has had its playing memory influenced by the world champion of chess and has his full endorsement.

With the aid of the Coach and Help options on some of the models, the average and even advanced chess player can be assured of obtaining better skills, thus gaining more confidence in the game and the attraction of the opportunity of playing against the Kasparov-oriented computer brain.

Most of the models are surprisingly thin in construction, leaving me wondering just where the mnemonics of the operating circuit lie. However, this is really typical of the better streamlined appearance and convenience of modern manufacturing.

LEDs indicate the horizontal rank and vertical column of each square. A move is made by pressing down on the piece to be played, placing it on the destination square and pressing down again, when inbuilt sensors will result in that move's acknowledgement with a short beep. (The top two models have different sensors and merely need to be moved.) An illegal move will not be accepted, indicated by a double beep and the LEDs of the old position staying illuminated. The computer shows its move by lighting the LEDs of origin and destination squares in turn to indicate to its human opponent where it wants its piece moved.

The range starts with the Pocket Size model, retailing at $75.00 (including GST) and measuring only 164 by 107 by 18mm, powered by three AAA-size alkaline penlight cells which provide 350 hours of use. Top of the line is the $999.00 Leonardo, with wooden stained and oiled board and hand-crafted wooden pieces, and 32kb program running at 12MHz said to meet the needs of 95 per cent of all chess players (1950 Elo). Its user-programmable library can store up to 40 games, to be replayed at any time.

Each model has its own features, the number and complexity increasing with the price. Each game does not have to be completed at any one time, as the computer can be turned off, the complete set-up and moves being memorised for as long as two years. Even if the pieces have been taken off or accidentally moved, the position of each can be verified by means of the Piece keys.

Different levels of skills can be set, ranging from eight in the more basic models up to 32 in those catering for the serious club player or chess enthusiast. The Pocket Chess, although suited to the occasional player or beginner, still has some powerful features, such as the Non-Auto button which allows the user to force the computer to play a certain continuation. The computer will keep track of the board position and make sure the moves entered are legal, and pressing the key again resumes normal play.

The Play key is mainly used when the player wants to change sides at any stage of the game, and is especially useful when help is wanted and the computer can suggest a move (or when you've been backed into a corner and don't want to admit being beaten yet again by a machine!). Also, when the computer is contemplating a move, it can be interrupted by pressing Play, which will cause it to stop computing and play the best move it has found so far.

The Mk 12 model at $199.00 is recommended for more serious players, as it has more entertaining functions and a bigger, more standard-sized board with overall dimensions of 286 by 237 by 26mm. Its four AA batteries also give it 350 hours of play, and it teaches chess tactics, shows the best moves and warns of threat to pieces by pieces of lesser value.

Three different levels of Help are available, and eight preset Studies help the player learn in a practical way. This excellent feature works by having certain pieces set up on the board as shown in the owner's manual, and the player is able to go through different sections of play without having to start from the beginning. The different Studies teach what piece should be moved to where, and when, with a warning when you go wrong. By applying these skills to normal play, the user builds confidence and skill within his or her game.

The Display Move function allows the player to see the best move the computer has thought up while it is computing its next move, and it can be watched as it changes its mind while computing deeper. The Evaluate key shows what the computer thinks of a certain position, ranking it on a score of 1 to 8 (probable win situation).

Each model comes with its owner's manual, guarantee card, catalogue of other models and a guide for absolute beginners. Even if you are fairly new to the world of chess, the excellent descriptions of each function within the manual will leave you starry-eyed as to the apparent sophistication of the features available.

Review chess sets supplied by Commodore computer (NZ) Ltd, Auckland.

A different train of thought

by Timothy Howell

This is software of a different kind, games for the railway enthusiast or anybody who has an interest in the way that railways are run. They are not action-packed arcade games, but rather are simulators or strategy games involving railways which provide action in their own steady way.

All of the games have been imported into New Zealand by the Silverstream Railway Club, which has obtained the rights from Signal Computer Consultants in the United States.

When I first received the games, I was most impressed with the packaging and documentation that came with them. Each comes in its own plastic folder which has a keyboard overlay and the manual inside. The keyboard overlay is a great help because the games can't be used with a joystick, and sometimes I find I forget what keys I need to use at a crucial moment in a game. The manuals are well presented and are detailed in their instructions on how to play the games. In the middle of each manual is a coloured piece of paper which has the bare essentials of how to play as well as explaining what each key does, for those who want to get straight into the game.

Train Dispatcher is the first game, in which you control the movement of up to 12 trains over 150 miles of territory. To do this you must use the switches and clearing signals on the track to enable the trains to move. You have an eight-hour shift (or 15-30 minutes real-time) to get as many trains as possible over the territory and into their yards.

You do not actually move the trains yourself, but rather clear the signals (which are like traffic lights but only red and green) in front of the trains to get them to move on. Progress and performance are constantly monitored, and are based on the total distance covered by your trains in your shift. Various levels of play determine how fast the clock, which times your shift, goes.

The game incorporates several safety features to prevent you having 'accidents', and I found it quite complicated to play, with all the various controls that have to be monitored, but the program almost goes out of its way to help you and to make things as simple as possible.

However, I did gain some satisfaction from getting a number of trains through before my shift ended. I feel that a lot more could be gained from this program by somebody who is more enthusiastic about trains since though I am not a train enthusiast myself, I can see that many who are would enjoy this program.

More advanced

The second was Super Dispatcher, a more advanced version of Train Dispatcher and including enhancements that were suggested by users of the original program. The player in this game controls up to 80 trains on any of three different territories. Some of the features that have been added include signal fleeting, which helps you to keep the switches cleared automatically when a train has left that block of track; train reversing, which allows you to reverse the direction a train is travelling in; and randomly introduced hot-boxes and derailments which add a bit of 'danger' to the game.

This game is more complicated than Train Dispatcher but in many respects is more fun to play. The manual is much more detailed and it includes clearer examples and summaries to help you understand things. The added possibilities of designing your own tracks with Super Track Builder (see later) also help to make this game more worthwhile, and an option to print out the tracks helps you map them if you wish to do so. The graphics in both Train Dispatcher and Super Dispatcher are poor compared with what you may be used to in arcade games or other simulators, but they do serve their overall purpose of clearly depicting what is going on.

Super Track Builder allows you to build your own custom tracks for Super Dispatcher (but not Train Dispatcher). Tracks are quite easily made by using this program, and with it you can build single, double and triple track territories, and with it you can build single, double

and triple track territories, using 16 interlocking pieces of track in any configuration to make a territory. You can also position the trains and name your own stations.

Locomotive Switcher is different from the two Dispatcher programs as in it you actually drive a train rather than act as traffic controller for several trains. The graphics on this game are much more attractive than on the other games, and there is also a jingly but irritating tune. Every car in your train has to be moved to its assigned location as quickly as possible.

The game has two modes of operation: flat yard and hump yard. In flat yard mode, cars are shunted to and from various factories or docks, according to your own or a computer-generated assignment. In hump yard mode the cars free-roll to their destinations once you have set their retarder speeds and turning alignments. Points are scored depending on how many cars are sent safely to their destinations, the number of train moves, the damage you may have inflicted on the cars as well as the time it takes to finish the assignment.

You are given an aerial view of the track system and can clearly see what is going on. For instance, when a switch is changed on the track, you can see how it has changed. You can drop off cars either while stopped or by 'kicking' them off when you are moving.

Of the three train-related games, I enjoyed this one the most because I got more satisfaction from actually driving my own train than controlling several of them. I found it easier and more enjoyable because most of the information that I needed was on screen at the same time so I didn't need to switch through a couple of other screens to get something done.

Of the games I have reviewed here, Sonar Search is the odd one out because you are not controlling anything connected with trains at all, but instead you act as a destroyer commander in World War II. In this game you are the commander of three destroyers which have been sent to intercept a pack of five enemy submarines. You're equipped with sonar equipment and depth charges, and with the help of sightings from other ships and aircraft, you must get directly above a submarine to hit it with a depth charge.

By using the sonar gear you have to gauge where the submarine is and then

manoeuvre one or more of your three ships to intercept the target. The sonar can be used to provide bearing (direction) to the target, and the time it takes the sonar echo to return allows you to estimate how far away the target is. I found this game to be fun, even though I wasn't very successful at it. The use of the sonar 'pings' to find the targets appealed to me as most often sound is used for a frill rather than having any functional use in a program.

Of the four games (and one track designer) that I played, I found the latter two, Locomotive Switcher and Sonar Search, the most fun to play, probably because of the direct involvement I had in what happened in the game and the ease of how I could get those actions to happen. However, it must be stressed that I am not a railway enthusiast, and any enjoyment (or lack of it) that I got from these games may not be shared by someone who is really interested in trains.
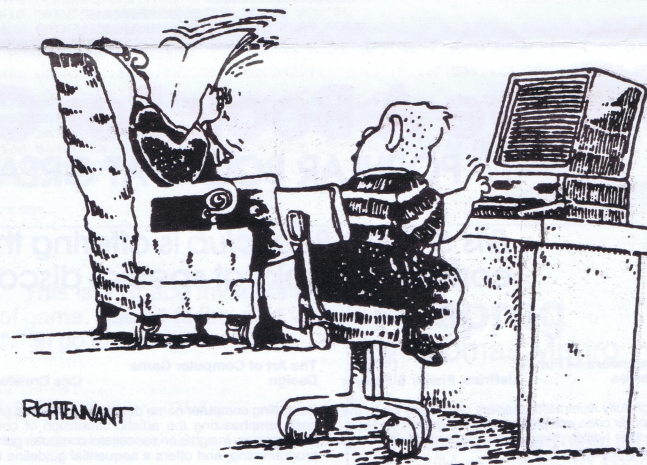
All the games reviewed here are available on disk only for the Commodore 64, but some of them are also available on Atari, Apple and IBM computers.

Useful and fun – something for everyone

Introduction by Joe Colquitt

This year's program special covers a very diverse range of ideas and machines. As well as the traditional arcade-type games for some light relief, there are many educational programs and utilities to keep your brains busy over the next month or two.

Altogether, the routines have been thoughtfully prepared, and obviously a lot of time and effort have gone into them. Despite the complexity of some programs (Equations, for example), little trouble should be expected if you wish to rewrite them for other computers, and the topics of some authors may generate some enthusiasm to compile utilities of your own.

Bits & Bytes is looking for contributions all year round, so if you have something to share, send it in. A lot of people out there are writing programs, and even if you don't think yours is worth publishing, send it in anyway. Payment is made to those whose material does appear in print.

AMSTRAD
Easter Sunday
by John Howard

The date of Easter Day (ie the Sunday) can be calculated using this program, based on an algorithm devised in 1966 by Thomas O'Beirne. The range is limited to any year between 1900 and 2099. The actual algorithm is at lines 70-150, and can be modified to run on any other machine.

```
15 POKE 23609,35: CLS
20 PRINT "This program will gi
ve you the  date of Easter Sunda
y in any  year in the period 1
900 to 2099 inclusive:"
40 INPUT "Which year?";y
50 IF y<1900 THEN PRINT "That
is too far back, another  year
please!": GO SUB 500: GO TO 40
60 IF y>2099 THEN PRINT "That
is too far ahead, another  year
please!": GO SUB 500: GO TO 40
70 LET n=y-1900
80 LET r=INT (n/19): LET a=n-1
9*r
90 LET b=INT ((7*a+1)/19)
100 LET f=11*a+4-b: LET s=INT (
f/29): LET m=f-29*s
110 LET q=INT (n/4)
120 LET g=n+q+31-m: LET t=INT (
g/7): LET u=g-7*t
130 LET d=25-m-u
139 IF d<=9 AND d>0 THEN PRINT
" ";
140 IF d>0 THEN PRINT d;" April
";y: GO TO 160
150 LET d=d+31: PRINT d;" March
";y
160 INPUT "Another year? (y/n)"
;y$
165 IF y$<>"y" AND y$<>"n" THEN
PRINT "Only ""y"" or ""n"" plea
se!": GO SUB 500: GO TO 160
170 IF y$="y" THEN GO TO 40
180 IF y$="n" THEN STOP
500 FOR v=1 TO 20: BEEP .025,12
: BEEP .025,23: NEXT v: RETURN
```

EPSON
Printer Controls
by Milo Davies

Written in IBM Basic, it is designed to activate/deactivate printing features such as expanded, italics, compressed, underlining etc.

```
20 WIDTH 40
23 L=36
25 CLS
30 PRINT TAB(10);"PRINTER CONTROLS"
40 PRINT:PRINT
50 PRINT "1) DOUBLE WIDTH"
60 PRINT "2) COMPRESSED"
70 PRINT "3) ITALICS"
80 PRINT "4) EMPHASIZED"
90 PRINT "5) DOUBLE STRIKE"
100 PRINT "6) UNDERLINED"
110 PRINT "7) LINE SPACING"
120 PRINT "8) SKIP PERFORATION"
130 PRINT "9) TEST PRINTING"
135 PRINT "10) FINISH"
140 LOCATE 4,23:IF D=1 THEN PRINT"ON" E
LSE PRINT"OFF"
150 LOCATE 5,23:IF C=1 THEN PRINT"ON" E
LSE PRINT"OFF"
152 LOCATE 6,23:IF C=1 THEN PRINT"ON" E
LSE PRINT"OFF"
154 LOCATE 7,23:IF E=1 THEN PRINT"ON" E
LSE PRINT"OFF"
156 LOCATE 8,23:IF DS=1 THEN PRINT"ON"
ELSE PRINT"OFF"
158 LOCATE 9,23:IF U=1 THEN PRINT"ON" E
LSE PRINT"OFF"
160 LOCATE 10,23:PRINT L
172 LOCATE 11,23:PRINT S
190 PRINT:PRINT
200 INPUT "ENTER NUMBER";A
210 IF A=10 THEN CLS:PRINT "TO RESET PR
INTER TURN IT OFF AND THEN ONAGAIN. HAP
PY
    PRINTING !!":END
300 REM DOUBLE WIDTH
310 IF D=0 THEN LPRINT CHR$(27);"W";CHR
$(1):D=1:GOTO 25
320 LPRINT CHR$(27);"W";CHR$(0):D=0:GOT
O 25
400 REM COMPRESSED
410 IF C=0 THEN LPRINT CHR$(&HF);C=1:GO
TO 25
420 LPRINT CHR$(18):C=0:GOTO 25
500 REM ITALICS
510 IF I=0 THEN LPRINT CHR$(27);"4":I=1
:GOTO 25
520 LPRINT CHR$(27);"5":I=0:GOTO 25
600 REM EMPHASIZED
610 IF E=0 THEN LPRINT CHR$(27);"E":E=1
:GOTO 25
620 LPRINT CHR$(27);"F":E=0:GOTO 25
700 REM DOUBLE STRIKE
710 IF DS=0 THEN LPRINT CHR$(27);"G":DS
=1:GOTO 25
720 IF DS=1 THEN LPRINT CHR$(27);"H":DS
=0:GOTO 25
800 REM UNDERLINED
810 IF U=0 THEN LPRINT CHR$(27);"-";CHR
$(1):U=1:GOTO 25
820 IF U=1 THEN LPRINT CHR$(27);"-";CHR
$(0):U=0:GOTO 25
900 REM LINE SPACING
910 PRINT:PRINT
920 INPUT "ENTER LINE SPACE (1-200)";L
925 IF L<1 OR L>200 THEN GOTO 920
930 LPRINT CHR$(27);"3";CHR$(L):
940 GOTO 25
1000 REM SKIP PERFORATION
1010 PRINT:PRINT:INPUT  "HOW MANY LINES
TO SKIP(0-20)";S
1013 PRINT "GET PRINTER HEAD TO TOP OF
PAGE, JUST  BELOW PERFORATION. PRESS
RE
TURN":INPUT GG$
1015 IF S<0 OR S>20 THEN GOTO 1010
1020 LPRINT CHR$(27);"N";CHR$(S)
1025 GOTO 25
110C REM TEST PRINTING
1120 PRINT:PRINT "THIS IS A PRINTING EX
AMPLE"
1130 LPRINT "THIS IS A PRINTING EXAMPLE
"
1135 LPRINT "DO YOU LIKE IT?"
1140 GOTO 25
```

SPECTRAVIDEO
Two-player Tennis
by Mitchell Hughes

This two-player game is written in MSX Basic for the SVI 738.

```
10 REM JOYSTICK CONTROLS ARE:JOYSTICK 1 1)PULL DOWN HITS DOWN 2)PULL DOWN & RIG
HT HITS DOWN & RIGHT 3)PULL DOWN & LEFT HITS DOWN & LEFT
20 REM JOYSTICK CONTROLS ARE:JOYSTICK 2 1)PUSH UP HITS UP 2)PUSH UP & RIGHT HIT
S UP & RIGHT 3)PUSH UP & LEFT HITS UP & LEFT
30 REM WHERE  THERE  IS A SIGN  LIKE THIS ħ WRITE ⌘
40 REM WRITTEN BY MITCH III
50 CLS:INPUT "INPUT LEVEL MUST BE UNDER 7":L:IF L=7 OR L>7 THEN 50
60 SCREEN 2,2:X=100:Y=180:A=100:S=100:G=1:CS=1:Q=100:W=10:CP=5
70 LINE (60,0)-(60,191)
80 LINE (195,0)-(195,191)
90 LINE (60,96)-(195,96)
100 LINE (10,35)-(10,191),0
110 LINE (255,35)-(255,191),0
120 A=CHR$(255)+CHR$(255)+CHR$(255)+CHR$(255)
130 SPRITE(1)=A$
140 SPRITE(5)=A$
150 SPRITE(2)=CHR$(30)+CHR$(63)+CHR$(63)+CHR$(63)+CHR$(63)+CHR$(30)
160 B$=CHR$(3)+CHR$(15)+CHR$(63)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$(252)+CHR$(24
15)+CHR$(3)
170 SPRITE(6)=B$
180 SPRITE(3)=B$
190 C$=CHR$(192)+CHR$(240)+CHR$(252)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$(63)+CHR$
(15)+CHR$(3)
200 SPRITE(4)=C$
210 SPRITE(7)=C$
220 SPRITE "grp:" AS ħ1
230 ON SPRITE GOSUB 600
240 SPRITE ON
250 PLAY "L16O5CR16ER16DR16CR16"
260 PLAY "L16ER16GR16FR16AR16"
270 PLAY "ER16ER16DR16CR16AR16CR16"
280 FOR I=1 TO 1500:NEXT
290 C=STICK(1):CC=STICK(2)
300 SPRITE ON
310 IF S<5 THEN 530
320 IF A<60 THEN 690
330 IF A>185 THEN 710
340 IF S>191 THEN 730
350 IF C=3 THEN X=X+4:IF X>190 THEN X=X-8
360 IF CC=3 THEN Q=Q+4:IF Q>190 THEN Q=Q-8
370 IF C=7 THEN X=X-4:IF X<58 THEN X=X+8
380 IF CC=7 THEN Q=Q-4:IF Q<58 THEN Q=Q+8
390 IF C=6 THEN PUT SPRITE 1,(X,Y),0:PUT SPRITE 4,(X,Y),0:CS=3
400 IF CC=4 THEN PUT SPRITE 5,(Q,W),0:PUT SPRITE 7,(Q,W),0:PS=6:CP=6
410 IF C=1 THEN PUT SPRITE 3,(X,Y),0:PUT SPRITE 4,(X,Y),0:CS=1
420 IF CC=5 THEN PUT SPRITE 6,(Q,W),0:PUT SPRITE 7,(Q,W),0:SS=5:CP=5
430 IF C=2 THEN PUT SPRITE 3,(X,Y),0:PUT SPRITE 1,(X,Y),0:CS=4
440 IF CC=6 THEN PUT SPRITE 5,(Q,W),0:PUT SPRITE 6,(Q,W),0:SS=7:CP=7
450 PUT SPRITE CS,(X,Y),15
460 PUT SPRITE CP,(Q,W),1
470 PUT SPRITE 2,(A,S),15
480 IF G=1 THEN S=S-L+1
490 IF H=1 THEN S=S+L+7
500 IF I=1 THEN A=A-3
510 IF H=1 THEN A=A+3
520 SPRITE ON:GOTO 290
530 MIS=MIS+1:G=0:H=0:I=0:J=0
540 COLOR 4,4,4:DRAW "BM10,180":PRINT ħ1,MIS-1
550 COLOR 15,4,4:DRAW "BM10,180":PRINT ħ1,MIS
560 A=S:S=10:H=1:GOTO 350
570 GOTO 350
580 IF G=1 THEN H=1
590 GOTO 350
600 SOUND 10,17:SOUND 13,9:G=0:H=0:I=0:J=0
610 IF S>96 THEN NO=1:PUT SPRITE 2,(A,S+10),15
620 IF S>96 THEN NN=1:PUT SPRITE 2,(A,S-10),15
630 IF NN=1 AND CS=3 THEN I=1:G=1:S=S-10:NN=0:GOTO 480
640 IF NO=1 AND CP=6 THEN J=1:H=1:S=S+10:NO=0:GOTO 480
650 IF NN=1 AND CS=1 THEN G=1:S=S-10:NN=0:GOTO 480
660 IF NO=1 AND CP=5 THEN H=1:S=S+10:NO=0:GOTO 480
670 IF NN=1 AND CS=4 THEN I=1:G=1:S=S-10:NN=0:GOTO 480
680 IF NO=1 AND CP=7 THEN I=1:H=1:S=S+10:NO=0:GOTO 480
690 SOUND 10,17:SOUND 13,9:IF H=1 THEN J=1:I=0:GOTO 350
700 IF G=1 THEN J=1:I=0:GOTO 350
710 SOUND 10,17:SOUND 13,9:IF H=1 THEN I=1:J=0:GOTO 350
720 IF G=1 THEN I=1:J=0:GOTO 350
730 MS=MS+1:G=0:H=0:I=0:J=0
740 COLOR 4,4,4:DRAW "BM10,10":PRINT ħ1,MS-1
750 COLOR 15,4,4:DRAW "BM10,10":PRINT ħ1,MS
760 A=X:S=180:G=1:GOTO 350
770 GOTO 350
```

SINCLAIR

Date Check
by Eric Gudgion

This procedure sets the system's date. It checks for illegal dates, and if one is found, sets the system variable to 'error invalid date'. Input the date in the format DDMMCCYY, so that 19041987 would be 19 April 1987.

```
COPY OF FILE DATE_CHECK
600 DEFine PROCedure date_check
601 REMark THIS MODULE CHECKS THE DATE SO ONLY CORRECT DATES ARE USED
602 REMark THE DATE IS PASSED TO THIS MODULE IN 'TRANSACTION_DATE$'
603 REMark IN THE FORMAT OF 'DDMMCCYY' IF THE DATE IS INCORRECT
604 REMark THEN SYSTEM_DATE$ IS SET TO 'error invalid date'
605 system_date$='error invalid date'
606 REPeat check
607 IF LEN(transaction_date$)<>8 THEN EXIT check
608 IF transaction_date$(3 TO 4)<1 OR transaction_date$(3 TO 4)>12 THEN
609 EXIT check
610 END IF
611 n=transaction_date$(7 TO 8)
612 w=n/4-(INT(n/4))
613 IF w=0 THEN
614 temp$='y'
615 ELSE
616 temp$='n'
617 END IF
618 RESTORE 631
619 n=transaction_date$(3 TO 4)
620 FOR a=1 TO n
621 READ a,a$
622 NEXT a
623 IF temp$='y' AND transaction_date$(3 TO 4)='02' THEN a=29
624 IF transaction_date$(1 TO 2))0 AND transaction_date$(1 TO 2)<a+1 THEN
625 system_date$=transaction_date$(1 TO 2)&'-'&a$(1 TO 3)&'-'&transaction_date$(5 TO 8)
626 EXIT check
627 ELSE
628 EXIT check
629 END IF
630 END REPeat check
631 DATA 31,'JANUARY',28,'FEBRUARY',31,'MARCH',31,'APRIL',31,'MAY',30,'JUNE',31,'JULY',31,
'AUGUST',30,'SEPTEMBER',31,'OCTOBER',30,'NOVEMBER',3
1,'DECEMBER'
632 END DEFine
```

SEGA

Paratrooper
by Craig Schwitzer

A game involving a paratrooper and a boat, which is controlled using keys 'G' and 'H'.

```
1 REM ****************************
2 REM ***                      ***
3 REM ***    PARATROOPER       ***
4 REM ***                      ***
5 REM *** by C.Schwitzer 1986  ***
6 REM ***                      ***
7 REM ****************************
10 R=122:SC=0:MN=310:Z=7,15,15
20 SCREEN 2,2:CLS:COLOR4,15,1
30 LINE (0,170)-(255,170)
40 PAINT(0,171),4
50 LINE (0,160)-(60,169),11
60 LINE (0,169)-(60,169)
70 LINE (200,169)-(232,140),11
80 LINE (238,140)-(255,140),2
90 PAINT(250,150);1
100 PAINT(5,165),11
110 M=INT(RND(1)*150)+70
120 PATTERN$#1,"0000000000183C10"
130 PATTERN$#2,"0000406040FFFE7C"
140 FOR X=1 TO 170STEPQ  :IF X>70 THEN
N 240
150 IF INKEY$="G" THEN R=R-1
160 IF INKEY$="H" THEN R=R+1
170 IF R<60 THEN R=60
180 IF R>247 THEN R=247
190 SPRITE1,(A,X),1,1
200 SPRITE2,(R,162),2,1
210 NEXT X
220 SPRITE 1,(A,X),1,1
230 NEXT X
240 PATTERN$#1,"3C2EC34224183C18"
250 PATTERN$#2,"0000406040FFFE7C"
260 FOR X=71 TO 164 STEP2:IF X>164 THE
N 240
270 IF INKEY$="G" THEN R=R-1
280 IF INKEY$="H" THEN R=R+1
290 IF R<60 THEN R=60
300 IF R>247 THEN R=247
310 SPRITE1,(A,X),1,1
320 SPRITE2,(R,162),2,1
330 NEXT X
340 IF A<R-8 THEN 380
350 IF A>R+8 THEN 380
360 SC=SC+10:IQ=Q+:2:Z=Z+.1
370 GOTO 110
380 MN=MN-11:IF MN<1 THEN 410
390 FOR X=155 TO 170
400 GOTO 110
410 SCREEN 2,2:CLS:PRINT "          G
AME OVER ":SC
420 FOR I=1 TO 500 :NEXT I

USE THE KEYS 'G' & 'H' TO CONTROL THE
BOAT
```

SINCLAIR

Simultaneous Equations
by John Stinchcombe

This educational program, easily translatable to other machines, is designed to teach equation solving. It can be paused during operation or run in swift mode, and has the capability to generate about 100,000 different equations.

```
10 REM "SIMULTANEOUS"
20 PRINT "WITH PAUSES?"
30 INPUT A$
40 CLS
50 LET X=INT (RND*10+1)
60 LET Y=INT (RND*10+1)
70 LET Z=INT (RND*10+1)
80 LET T=INT (RND*9+2)
90 LET U=INT (RND*10+1)
100 PRINT "(1)   X+";Z;"+Y="X+
Z+Y
110 PRINT "(2)   ";U;"Y+";U;"+X
=";U+Y+U+X
120 IF A$(1)="Y" THEN GOSUB 460
130 PRINT AT 3,6;"FROM (1)"
140 PRINT
150 PRINT "   X+Y=";X+Z+Y;"-";Z
160 IF A$(1)="Y" THEN GOSUB 460
170 PRINT AT 6,0;"SO   X+Y=";X+Y
180 IF A$(1)="Y" THEN GOSUB 460
190 PRINT AT 9,5;"FROM (2) SUBS
TITUTING FOR "
220 PRINT AT 10,5;
230 IF A$(1)="Y" THEN GOSUB 460
240 PRINT AT 11,0;"
250 IF A$(1)="Y" THEN GOSUB 460
260 IF U<>2 THEN PRINT AT 12,0;"
=U;"/";U;"=";X+Y;" X+Y;"
270 IF U<>2 THEN PRINT AT 13,0;
";U-1;"Y+";U;"+";X+Y;"=";U
X+U+U+X
280 IF U=2 THEN PRINT AT 13,0;"
";U-1;"Y=";U*Y+U*X-U-(X+Y)
310 IF A$(1)="Y" AND U<>2 THEN
GOSUB 460
320 IF U<>2 THEN PRINT AT 14,0;
";U-1;"Y=";U*Y+U*X-U-(X+Y)
330 IF A$(1)="Y" AND U<>2 THEN
GOSUB 460
340 IF A$(1)="Y" THEN GOSUB 460
350 PRINT AT 16,0;"       Y=";
360 IF A$(1)="Y" THEN GOSUB 460
370 PRINT AT 17,0;"       FROM (
1)"
390 PRINT "    ";X+Y;"-";Y
400 PRINT "     X=";X+Y;"-";Y
410 IF NOT X=10 AND Y<10 THEN
PRINT "                Y=";Y;"X=";
Y
420 IF X=10 AND Y<10 THEN PRINT
"    X=";X;"Y=";Y
430 IF NOT X=10 AND Y=10 THEN P
RINT "    X=";X;"Y=";
440 IF Y=10 AND X<10 THEN PRINT
"    X=";X;"Y=";
450 STOP
460 REM PAUSE SUBROUTINE
470 IF INKEY$()"" THEN GOTO 470
480 PRINT AT 21,3;"TO CONTINUE
TOUCH ANY KEY "
490 IF INKEY$="" THEN GOTO 490
500 PRINT AT 21,3;"
510 RETURN
```

CAT

Dodge
by Milo Davies

Steer your 4-wheel-drive vehicle through a desert, dodging the boulders. Use keys Q and P for left and right. Any other key makes you travel in a straight line.

```
1 HOME
2 S = 0,
5 Y = 20
20 R = INT ( RND (1) * 40) + 1
30 HTAB R: INVERSE : PRINT " ": NORMAL
:
40 VTAB 4: HTAB Y: PRINT "##"
46 IF SCRN( Y - 1,9) < > 10 THEN
110
47 IF SCRN( Y,9) < > 10 THEN 1
10
50 IF PEEK ( - 16384) > 127 THEN
GET I$
60 IF I$ = "Q" THEN Y = Y - 1
70 IF I$ = "P" THEN Y = Y + 1
80 IF Y < 1 THEN Y = 1
90 IF Y > 39 THEN Y = 39
95 S = S + 1
96 VTAB 24
100 GOTO 20
110 VTAB 20: PRINT "SCORE - ";S
120 INPUT "ANOTHER GAME?";A$: IF
A$ = "Y" THEN RUN
130 IF A$ = "N" THEN END
140 GOTO 120
```

COMMODORE

PI-calc
by Stephen Ruddock

PI-calc is a routine, run together with Simons' Basic, that calculates the value of pi. Although designed for the C64, it could be easily modified for other machines.

It determines estimates of pi by firing random shots at a circle within a square. The theory is that as the number of shots gets larger, then shots in circle/total shots = area of circle/area of square. So if the circle has a radius r, a square just touching the circle will have sides 2r long. Thus area of circle/area of square = PI r squared/4 r squared, which, with r squareds cancelled, gives PI/4. So shots in circle/total shots is approximated by PI/4.

```
100 call main program
110 proc draw screen
120 :  colour  0,0
130 :  hires  1,0
140 :  rec   0,0,199,199,1
150 :  circle  99,99,100,100,1
160 end proc
170 proc display estimate
180 :  pi$=str$(4*c/n)
190 :  n$=str$(n): c$=str$(c)
200 :  text 210,10,"estimate of",1,1,8
210 :  text 210,20,"pi for this ",1,1,8
220 :  text 210,30,"run is...",1,1,8
230 :  text 210,40,pi$,1,1,8
240 :  text 210,50,"with n="+n$,1,1,8
250 :  text 210,60,"and   c="+c$,1,1,8
260 :  pause 10
270 end proc
280 proc main program
290 c=0: n=1500: r=1e4: a=100: b=100
300 exec draw screen
310 for z = 1 to n
320 :  x = int (199*rnd(1))
330 :  y = int (199*rnd(1))
340 :  if (x-a)^2+(y-b)^2 <=r thenc=c+1
350 :  plot x,y,1
360 next z
370 exec display estimate
380 nrm: cset1: print chr$(147)
390 input "Do you wish to do another
run";yn$
400 if yn$ = "Y" or yn$ = "y" then call
main program
410 end

100 rem program: "Estimate of PI using
           random numbers"
110 rem author: "S.D.Ruddock  18/3/87"
120 rem constants:
130 rem    n = total no. of shots
140 rem    r = radius squared
150 rem    a = x co-ordinate centre
                of circle
160 rem    b = y co-ordinate centre
                of circle
170 rem variables:
180 rem    c = no. of shots in
                circle
190 rem    x = x co-ordinate in
                square
200 rem    y = y co-ordinate in
                square
210 :
220 rem call main program
230 :
240 :
250 proc draw screen
260 :  colour  0,0
270 :  hires  1,0
280 :  rec   0,0,199,199,1
290 :  circle  99,99,100,100,1
300 end proc
310 :
320 :
330 :
340 proc display estimate
```

COMMODORE

Dodge the Missile
by Adam Rosner

The program uses redefined characters, with an MC routine to copy the rest of the character set. Your player simply scores points by avoiding the dropping missiles. If anyone would like a copy, send $2 and a blank tape to 45 Durham St, Levin.

```
READY.

5 REM DODGE-THE-MISSILE (C) A.ROSNER           28/12/86
6 REM:
10 POKE53280,0:POKE53281,0
20 PRINT"     USE JOYSTICK 2 TO GUIDE YOUR MAN ON THE PLATFORM. TRY TO DODGE THE
":
30 PRINT"NUCLEAR":PRINT" BOMBS. YOU START WITH 3 LIVES, AND EACH BOMB YOU AVOID"
40 PRINT" EARNS YOU TEN POINTS."
50 PRINT"          PRESS FIRE TO PLAY."
60 GOSUB510
70 PRINT"
80 FORT=49152TO49213:READY.:POKET,Y:NEXT
90 SYS49152:REMCOPYCHARS
100 FORT=12288TO12303:READY.:POKET,Y:NEXT
110 LI=3:SC=0:POKE53272,29
120 PRINT"
130 PRINT"
140 PRINT"                          SCORE="SC"   HI="HI"
150 PRINT"                          "="LI"
160 FORT=55633TO55637:POKET,6:NEXT
170 L=X361
180 L=INT(RND(1)*4)
190 L=L+1041
200 POKEX,0:POKEX+1,32:POKEX-1,32
210 POKEL,1:POKEL-40,32
220 IFL=1360THEN290
230 LE=PEEK(56320)AND8
240 RI=PEEK(56320)AND4
250 IF LE THENX=X-1:IFX=1360THENX=1361:GOTO270
260 IF RI THENX=X+1:IFX=1365THENX=1364
270 L=L+40
280 GOTO200
290 FORE=1360TO1365
300 IFPEEK(E)=1THENPOKEE,32
310 NEXT
320 IFL=XTHEN360
330 SC=SC+10:IFSC)HITHENHI=SC
340 PRINT"                          SCORE="SC"   HI="HI
350 GOTO180
360 PRINT"                          YOU GOT HIT!"
370 LI=LI-1:IFLI=0THEN400
380 FORW=0TO250:NEXT
390 GOTO120
400 POKE53272,21:PRINT"                 GAME OVER!"
410 PRINT"         YOUR SCORE WAS"SC
420 PRINT"       PRESS FIRE TO PLAY AGAIN."
430 GOSUB510
440 GOTO110
450 GOTO110
460 DATA120,166,1,202,202,202,202,134,1,169,0,133,251,133,251,133,253,169,208,13
3
470 DATA22,169,48,133,254,160,0,177,251,145,253,230,251,230,253,208,246,230,252
480 DATA230,254,165,252,201,223,208,236,166,1,232,232,232,232,134,1,88,169,29
490 DATA141,24,208,96
500 DATA8,54,93,93,28,20,20,99,255,255,126,60,60,60,60,24
510 IFPEEK(56320)=111THENRETURN
520 GOTO510

READY.
```

COMMODORE

Invader
by Ian Campbell

This is a Space Invaders type of game. Use F1 to fire, and "," or "." to go left or right.

```
0 PRINT"     POKE53280,0:POKE53281,0:TI$="000000":HI=100
1 FORA=0TO126:READ200:POKE8256+0,200:NEXT0:POKE40,129:POKEV+40.5:POKE2041,130
2 V=53249:POKEV+21,15:A=88:POKE2042,130:POKEV+39,12:POKEV+40,10:POKEV+41,9
3 POKE54296,15:POKE54277,240:POKE54278,120:POKE2043,130:POKE54276,17
4 FORA=0TO230STEP2.5
5 Y=SIN(C)*50+100:V1=COS(C)*30+100:V2=TAN(X)-88)+120:POKE54273,0:POKE54273,0
6 POKEV+2,0:POKEV+4,0:X=25:POKEV+6,X=25
7 POKEV+3,Y:POKEV+5,Y1:POKEV+7,Y2
8 SETA:
9 IFAA"" THEN A=A+3
10 IFAA="," THEN50
11 IFAA="." THEN60
12 IFAA=""THENA=A+3
13 IFA<0THENA=A+3
14 POKEV,A:IFTI)"000200"THEN100
15 POKEV+1,220
17 PRINT"  PRINT"SCORE ="INT(SC)" TIME "MID$(TI$,4,1)" "RIGHT$(TI$,2)"  HI=
CORE"HI
19 IFTI)00=INT(TI/40)THENPOKE54273,34:POKE54272,75
18 IFTI)120=INT(TI/120)ANDINT(X/16)=INT(A/16)THENPOKE54273,34:POKE54272,75
20 NEXT:
21 GOTO4
25 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,24,0,90,0,161,0,1,110,128,2,247
31 DATA64,5,239,160,147,247,208,23,239,232,47,247,244,95,239,250,191,247
32 DATA85,170,170,170,85,85,85,170,170,170,0
33 DATA0,0,0,0,0,0,0,0,0,0,0,56,0,116,0,127,0,0,124,0,2,56
34 DATA99,73,211,192,15,255,200,15,255,200,15,255,208,14,56,96,8,40
35 DATA85,170,170,85,85,85,85,170,170,0
44 DATA64,5,239,160,11,247,208,23,239,232,47,247,244,95,239,250,191,247,253,85
50 IFA=0THEN50:A=A-2:GOTO IFX=0THENX=0:ORINT(A/2)=INT(X/2)THEN60
51 POKE54273,34:POKE54272,75
52 PRINT"":GOTO17
56 A=A+2:A=2:IFA<0TO51
80 PRINT"     "
100 PRINT"NOW SCORED "INT(SC)" IN 2 MINUTES "
105 IFSC)HITHENHI=SC:PRINT"YOU HAVE GOT THE HIGHEST SCORE SO FAR"
110 PRINT"TRY AGAIN ?"
115 GET A$:IFA$=""THEN115
120 IFA$="Y"THENRUN:POKEV+21,0 END
125 IFA$="N"THENPRINT"BYE BYE":POKEV+21,0 END
130 GOTO15

READY.
```

CP/M

Teleprog
by Thomas Munro

Teleprog is a terminal program for CP/M machines to send data via phone lines. To use it, press '1' to transmit, or '2' to receive.

```
                 TELEPROG

10 PRINT "1)Send"
20 PRINT "2)Receive"
30 INPUT a
40 IF a=1 THEN GOTO 1000
50 PRINT "File"
60 INPUT a$
70 OPEN "O",1,a$+".COM"
80 INPUT a
90 IF a=999 THEN RESET:RUN
100 PRINT#1,CHR$(a);
110 GOTO 60
1000 PRINT "File"
1010 INPUT a$
1020 OPEN "I",1,a$+".COM"
1030 INPUT#1,a$
1040 FOR t=1 TO LEN(a$)
1050 PRINT ASC(MID$(a$,t,1))
1060 NEXT
1070 NEXT
1080 ?"13"
1090 IF EOF(1) THEN ?"END":RESET:RUN
```

VIC
Prowriter
by Antony Lyne

Prowriter is a word processor for the unexpanded VIC. It has line editing and will print on an MPS803. Another feature is tape save/load. If you would like a copy, send $4 and a blank tape to 20 Sutherland Cres, Palmerston North.

```
4
10 POKE36879,127
15 DIM2#<30>:X=1
20 PRINT">PRO WRITER"
30 FORA=1TO22:PRINT"=":NEXT
40 PRINTSPC<6>"CHOICES"
50 PRINT:PRINT" READ PREVIOUS FILE"
60 PRINT:PRINT" WRITE FILE ON TAPE"
80 PRINT:PRINT" EDIT FILE"
85 PRINT:PRINT" PRINT FILE "
86 PRINT:PRINT" DELETE FILES"
87 PRINT:PRINT" VIEW FILE"
89 PRINT:PRINT" QUIT"
90 PRINT:PRINT"ENTER CHOICE"
100 GETA#:IFA#=""THEN100
110 IFA#="1"THEN1000
120 IFA#="2"THEN2000
130 IFA#="3"THEN3000
140 IFA#="4"THENSYS58719:INPUT"LINE NUMBER TO EDIT";LN:GOTO4000
145 IFA#="5"THEN5000
146 IFA#="6"THENSYS58719:PRINT"XXXXXXXXXXXXXXXXXDONE":FORA=1TO1000:NEXT:RUN
147 IFA#="7"THENPRINT"Z":GOTO0200
148 IFA#="8"THENSYS58719:END
150 GOTO100
200 PRINT"FILES ARE":FORAM=1TOX:PRINTZ#<AM>:NEXT:PRINT"PRESS A KEY":POKE198,0:WA
IT198,1
201 GOTO20
1000 SYS58719:POKE650,128
1020 PRINT"ENTER WHAT YOU ARE   GOING TO WRITE"
1025 FORA=1TO22:PRINT"=":NEXT
1026 PRINT"X"
1030 INPUTW#
1031 IFW#=""THENPRINT"OK":POKE198,0:WAIT198,1:GOTO20
1032 IFLENCW#>80THENPRINT"LINE TOO LONG":PRINT"PRESS A KEY":FORA=1TO1000:NEXT:G
OTO1000
1033 Z#<X>=W#:X=X+1:IFX>80THENPRINT"I CAN TAKE NO MORE":FORA=1TO2000:NEXT:GOTO20
1035 PRINT"NEXT LINE":GOTO1030
2000 SYS58719
2001 PRINT"HOW MANY FILE LINES   ARE THERE"
2002 INPUTL
2010 V=L:OPEN1,1,0,"PRO FILES"
2015 FORAM=1TOL
2020 INPUT#1,Z#<AM>
2030 PRINTZ#<AM>
2040 NEXTAM
2050 CLOSE1
2060 PRINT"XXXXXXXXXXXDONE":FORA=1TO1000:NEXT:GOTO20
3000 SYS58719
3010 OPEN1,1,1,"PRO FILES"
3015 FORAM=1TOX
3020 PRINT#1,Z#<AM>
3025 NEXT
3030 CLOSE1
3040 PRINT"XXXXXXXXXDONE":FORA=1TO1000:NEXT:GOTO20
4000 SYS58719:INPUT"#THE LINE YOU TYPED WAS"Z#<LN>
4010 PRINT#:PRINT"XXXTHE NEW LINE IS...."
4020 INPUTW#
4025 IFLENCW#>80THENPRINT"TOO LONG":GOTO4000
4030 Z#<LN>=W#:PRINT"PRESS A KEY":POKE198,0:WAIT198,1:GOTO20
5000 SYS58719:PRINT"LINES TO BE PRINTED IS":L=X:FORAM=1TOL:PRINTZ#<AM>
5010 OPEN1,4:PRINT#4,Z#<AM>
5020 CLOSE4:NEXT:PRINT"PRESS A KEY":POKE198,0:WAIT198,1:GOTO20
READY.
```

ATARI
1020 Printer Program
by Stephen Botha

The 1020 printer cannot print listings in 20 or 80 columns. This utility will allow listings in 20, 40 or 80 columns, and needs any model Atari and a disk drive.

Save the program to be printed by listing it to the disk (not by saving it), then run the utility. The disk must remain in the drive while the printer is working.

```
0 REM *1020 PRINTER/PLOTTER PROGRAM*
BY STEPHEN BOTHA
1 GRAPHICS 17:POSITION 0,0:? #6;"1020 PR
INTER/PLOTTER":POSITION 0,1:? #6;"  BY S
TEPHEN BOTHA"
2 FOR W=1 TO 3000:NEXT W:DIM F#(15)
3 TRAP 3:GRAPHICS 0:POKE 710,0:? "HOW MA
NY COLUMNS?(20,40 OR 80)":INPUT C
5 IF C=20 OR C=40 OR C=80 THEN 10
6 GOTO 3
10 ? "DO YOU WANT CTRL CHARACTERS PRINTE
D?":? "(1) YES          (2) NO."
20 TRAP 20:INPUT YES
35 IF CH=1 OR CH=2 THEN 40
36 GOTO 10
40 ? "WHAT IS THE NAME OF THE FILE TO BE
PRINTED?"
41 ? "(E.G. IF FILE IS 'BIRD',THEN FILEN
AME IS THIS- 'D:BIRD'"
50 TRAP 50:INPUT F#
60 ? :? :? "IS EVERYTHING CORRECT?TYPE (
1)YES OR 2(NO)"
65 TRAP 65:INPUT Q
66 IF Q=1 THEN ? "INSERT CORRECT DISK,TU
RN DISK DRIVE ON,MAKE SURE THE PRINTER IS
PROPERLY    CONNECTED.":GOTO 90
67 IF Q=1 THEN RUN
70 GOTO 60
90 ? "PRESS START TO BEGIN THE PRINTING.
"
91 IF PEEK(53279)=6 THEN 95
92 GOTO 91
95 ? "APRINTING OUT...PLEASE WAIT."
110 TRAP 300:OPEN #2,8,0,"P:"
116 IF C=20 THEN ? #2;CHR$(27);CHR$(16)
117 IF C=40 THEN ? #2;CHR$(27);CHR$(14)
118 IF C=80 THEN ? #2;CHR$(27);CHR$(23)
119 IF CH=1 THEN ? #2;CHR$(27);CHR$(23)
120 IF CH=2 THEN ? #2;CHR$(27);CHR$(24)
125 OPEN #7,4,0,F#:FOR I=1 TO 100000:GET
#7,Z:? CHR$(Z);:POKE 77,0:NEXT I
300 FOR G=1 TO 3:? CHR$(253):NEXT G:? "D
ONE.":END
1000 REM REMEMBER-THE FILE YOU WISH TO P
RINT OUT MUST BE A PROGRAM THAT IS NOT L
OADED,BUT LISTED TO DISK.
1010 REM THAT IS,WHEN YOU HAD WRITTEN TH
E FILE,YOU MUST HAVE LISTED IT ONTO DISK
,NOT SAVED IT.
```

AMSTRAD
Note Recognition
by John Stinchcombe

Using the sound production capabilities of the Amstrad, this program can improve the ear for tone and recognition of the interval between any two notes. It is written in Amstrad Basic, with colour changes to heighten the user appeal.

```
                      What is this note? E
nter A, or B, or D, or E, or F, or G, or
 C for Middle C, or C2 for upper C."
340 INPUT M#
350 IF M#="A" OR M#="a" THEN M=284
360 IF M#="B" OR M#="b" THEN M=253
370 IF M#="C" OR M#="c" THEN M=478
380 IF M#="D" OR M#="d" THEN M=426
390 IF M#="E" OR M#="e" THEN M=379
400 IF M#="F" OR M#="f" THEN M=358
410 IF M#="G" OR M#="g" THEN M=319
420 IF M#="C2" OR M#="c2" THEN M=239
430 IF M=Q1 THEN END
440 IF M= Q1 THEN GOTO 400
450 FOR X=1 TO 4000: NEXT X
460 IF M>Q1 THEN control=1
470 IF M<Q1 THEN GOTO 170
480 control=0
490 PAPER 7
500 CLS
510 SOUND 1,M,300
520 FOR x=1 TO 25: PRINT M#: NEXT x
530 LOCATE 15,12: PRINT "WELL DONE."
540 FOR N=1 TO 6175:NEXT N
550 GOTO 30
```

COMMODORE
REM Highlighter
by Daniel Hunt

This short ML routine puts REM statements in the current Basic program into reverse text, making them easier to read and find. The highlighted program can be edited normally, as changes are made only to the REM statements, which are virtually transparent to Basic. The search is done with an indirect Y loop, looking for a 143 (REM token) followed by two spaces (CHR$32). The second space is then replaced by CHR$(18) (reverse code).

```
100 ADR = 828
110 FOR I= ADR TO ADR+57:READ A:POKE I,A:Q=Q+A:NEXT
120 IF Q <> 9156 THEN PRINT "ERROR IN DATA":END
130 DATA 165,43,133,251,165,44,133,252
140 DATA 160,2,136,136,230,251,208,2
150 DATA 230,252,177,251,201,0,240,25
160 DATA 201,143,208,240,200,177,251,201
170 DATA 32,208,232,200,177,251,201,32
180 DATA 208,224,169,18,145,251,76,70
190 DATA 3,200,185,251,0,201,0,208
200 DATA 210,96
210 REM THIS WILL NOT BE HIGHLIGHTED
220 REM   THIS WILL BE!
230 SYS ADR
240 END
```

User Group Directory

AUCKLAND

NZ COMPUTER COMMUNICATION USERS GROUP, P.O. Box 6662, Wellesley St, Auckland. Contact: Stephen Williams.

The following groups are part of the NZ Microclub.

DESKTOP PUBLISHING USERS GROUP. Contact: Selwyn Arrow 491-012.
TURBO PASCAL USERS GROUP. Contact: John Maindonald 893-435.
SORCERER USERS GROUP. Contact: Selwyn Arrow 491-012 (h).
SINCLAIR USERS GROUP. Contact: John Setters 504-805 (h). Meetings: Fourth Wednesday each month.
POCKET & PORTABLE COMPUTER USERS GROUP. Contact: Brian Thompson 565-837 (h).
NORTH SHORE COMPUTER USERS GROUP. Contact: Ross Parkes 436-120 (h). Meetings: Third Saturday each month. 5pm. St Georges Presbyterian Church Hall, 2 The Terrace, Takapuna.
MSDOS USERS GROUP. Contact: Simon Brown 478-5732 (h). Meetings: First & third Mondays each month.
KAYPRO USERS GROUP. Contact: Russell Clement. Meetings: Fourth Monday each month.
IBM PC USERS GROUP. Contact: Terry Bowden 452-639 (h) 778-910 (w). Meetings: Second Monday.
GENEALOGICAL USERS GROUP. Contact: Martin de Vries 267-4886.
FORTH USERS GROUP. Contact: Brian Conquer 695-669 (h).
C-UNIX USER GROUP. Contact: Peter Taylor 576-618 (h). Meetings: Fourth Wednesday 7.30pm.
CP/M USER GROUP. Contact: Peter Ensor 653-011 (h). Meetings: Fourth Monday each month.
BUSINESS USER GROUP. Contact: Sam Chan 639-518. Meetings: Third Thursday each month.
NZ MICROCOMPUTER CLUB, P.O. Box 6210, Auckland. Meetings: Second Wednesday each month. Oranga Scout Den, Fergusson Park, Oranga. 7.30pm.
ZX81 USER GROUP, 60 Sunvue Rd, Glen Eden, Auckland. Contact: David Pomeroy 818-3901.
ATARI MICROCOMPUTER USER GROUP. Contact: Allan Clark 836-8922 (h) 505-409 (w). Meetings: Second Wednesday each month. Remuera Primary School Hall. For Atari enthusiasts living in Auckland.
SYMPOOL (NZ SYM USER GROUP), P.O. Box 580, Manurewa, Auckland. Contact: John Robertson 267-5188.
SANYO USER GROUP, 77 Boundary Rd, Auckland. Contact: Noel Weeks 540-118 (w).
OSI/BBC USERS GROUP, 77 Boundary Rd, Auckland. Contact: Ken Harley (Secretary). Meetings: Hazel Ave, Mt Roskill.
NZ TRS-80 MICROCOMPUTER CLUB, 203A Godley Rd, Titirangi, Auckland. Contact: Olaf Skarsholt 817-8698. Meetings: First Tuesday each month. OSNZ Hall, 107 Hillsborough Rd, Mt Roskill.
NZ OSBORNE USERS GROUP (NZOG), P.O. Box 43-182, Auckland. Contact: Neil Williamson 275-4310. Meetings: Second Tuesday each month. Auckland University, Human Sciences Bldg. 7.30pm.
NZCOMMODORE USERS GROUP, P.O. Box 5223, WEllesley St, Auckland. Contact: Kaye Coddington 817-6746. Meetings: Second Wednesday each month.
NZ AMSTRAD USER GROUP, 22 Ellice Rd, Glenfield, Auckland. Contact: Roger Manson 444-4044. Meetings: Second Wednesday each month.
MSX/SPECTRAVIDEO USER CLUB, P.O. Box 22-620, Otahuhu, Auckland. Contact: Bill Ferguson (Secretary) 276-1966 x 803 (w). Meetings(Third Wednesday each month. 56 Ranfurly Rd, Epsom.
MS-DOS USERS GROUP, 112 Mountain Rd, Epsom, Auckland. Contact: Chon Chai. Meetings: First Monday each month. At 112 Mountain Rd, Epsom.
LXIV NZ, 2175 Richmond Rd, Auckland. Contact: Brother Bosco Camden. Aligned towards those using C64s mainly in education.

CENTRAL NORTH ISLAND

MANAWATU ATARI USERS GROUP, 29 Rewi St, RNZAF Base, Ohakea. Contact: Savern Reweti 49-746, 69-109 ext 830.
MANAWATU MICROCOMPUTER CLUB. contact: Richard Anger 64-108 (w) 63-808 (h). Meetings: Twice each month. PDC Social Club Rooms.
MOTOROLA USER GROUP, P.O. Box 1718, Palmerston North. Contact: Harry Wiggins 82-527.
WANGANUI COMMODORE 64 USER GROUP, 7 Broadhead Avenue, Wanganui. Contact: P. Northway 42-916. Meetings: First and Third Thursdays of each month. Wanganui Community College.
TOKOROA COMMODORE USERS GROUP, 220 Balmoral Drive, Tokoroa. Contact: Peter Rowe. Meetings: Second Wednesday each month. Balmoral School Library.
SOUTH TARANAKI MICROCOMPUTER SOCIETY, 21 Princes St, Hawera. Contact: APPLE Jim Callaghan 86-667 (Hawera) S80, TRS80 J Robers-Thompson 84-495 SEGA Dave Beale 85-108, SECTRUM Guy Oakly 8060 (Manaia). Meetings: Third Wednesday each month. Whole society – periodically in Hawera High School Computer Room.
TARANAKI MICRO COMPUTER SOCIETY, P.O. Box 7003, Bell Block, New Plymouth. Contact: Mr K. Smith 8556 (Waitara).

NORTHLAND

WHANGAREI SINCLAIR USERS CLUB. Contact: B.M. van Gelder 83-886 or President 81-733. Meetings: First Sunday each month. 1pm-5pm. Whangarei Community College.
WHANGAREI COMPUTER GROUP, 15 James St, Whangarei. Contact: 84-416. Meetings: Second Wednesday each month. Northland Community College.
KERI KERI COMMODIRE 64 USER GROUP, Skudders Beach, Keri Keri. Contact: Brett Snow.
BAY OF ISLANDS COMMODORE 64 USER GROUP, P.O. Box 119, Okaihau. Contact: Mrs B. McLeish (secretary).
TARANAKI APPLE USER GROUP, 3 Wood St, Waitara. Contact: Tony Luxton 8554.
GLOWWORM COMPUTER ENTHUSIASTS. Contact: Colin Wilkins (president) Oto 8331. Meetings: Second Sunday of the month. Otorohanga district Councils boardroom.
ROTORUA COMPUTER CLUB, 6 Urquhart Place, Rotorua. Contact: Ken Blackman. Meetings: Third Tuesday of each month at 7pm. Waiariki Community College.
ROTORUA AREA SANYO USERS GROUP. Contact: Pam Dowling (073) 24-17. Meetings: Second Sunday each month 1pm.
HJP41C USERS GROUP, Calculator Centre, P.O. Box 6044, Auckland. Contact: Grant Buchanan 790-328 (w). Meetings: Third Wesnesday each month. 7pm at Centre Computers, Gt North Rd, Epsom.
EPSON HX20 USERS GROUP, 231 Khyber Pass Rd, Auckland. Contact: C.W. Nighy (774-268 Ansaphone).
COLOUR GENIE USER GROUP, P.O. Box 27-387, Auckland. Contact: Mrs Nola Huggins (Secretary) 655-718. Meetings(fourth Monday each month. All Saints Church Hall, Ponsonby Rd.
BBC USER GROUP. Contact: Dave Fielder 770-630 X 518. Meetings: Second Wednesday each month.
ATARI MICROCOMPUTER USER GROUP, 25 Manutara Ave, Forrest Hill, Auckland. Contact: Ian Mason. Meetings: Second Tuesday each month. Western Suburbs Radio Club, Gt North Rd, New Lynn.
APPLE USER GROUP, 107 Hillsborough Rd, Hillsborough, Auckland. Contact: Ivor 836-2543 or Ross Bryon 761-670 (h). Meetings: Third Tuesday of each month at 107 Hillsborough Rd. 7.30pm.
AUCKLAND COMPUTER EDUCATION SOCIETY, Computer Centre, Secondary Teachers College, Private Bag, Symonds St. Contact: Director. Meetings: Third Thursday of each month at college.
MSX & SPECTRAVIDEO USER GROUP. Contact: George Mitchell 453-306 (h). Meetings: Third Wednesday and fourth Saturday. 7.30pm.

BAY OF PLENTY

WAIHI COMPUTER ENTHUSIASTS, 10 Smith St, Waihi. Contact: G.C. Jenkins 8478. Meetings: workshops – second Tuesday each month. Meet – last Tuesday each month.
BEACH COMPUTING CLUB, P.O. Box 132, Waihi. Contact: Jamie Clarke 45-364.
BAY OF PLENTY TAURANGA COMMODORE USERS GROUP. Contact: 62-083, 651-33, 83-610. Meetings: First and third Monday each month. 7pm.
BAY MICROCOMPUTER CLUB, G.L. McKenzie, Snodgrass Rd, Tauranga. Contact: G.L. McKenzie (secretary) 25-569.
AZTEC, Brian Mayo, Church St, Katikati. Contact: Brian Mayo 490-326.

WAIKATO

TOKOROA ACORN USERS GROUP, 24 Papanui St, Tokoroa. Contact: Don Fraser 68-813 or Graeme Robertson (secretary) 65-346. Meetings: First Friday of each month. Tokoroa High School.
HAWERA COMMODORE COMPUTER CLUB, P.O. Box 651, Hawera. Contact: Dave Gallie (secretary) 86-936. Meetings: First Wednesday each month. 7.30pm. Hawera Intermediate School.
WAIKATO Macintosh User Group. Contact: Geoff Pooch, Waikato Computer Services 391-670.
WAIKATO PC USER GROUP, P.O. Box 9585, Hamilton. Contact: Bruce Ferguson 391-670.
WAIKATO SPECTRAVIDEO USERS GROUP. P.O. Box 16113, Glenview, Hamilton.
WAIKATO SPECTRUM USERS GROUP, 18 Heath St, Hamilton. Contact: Roger Loveless (secretary) 492-080. Meetings: First Tuesday each month.
WAIKATO COMPUTERS IN EDUCATION SOCIETY, Fraser High School, 72 Elliott Rd, Hamilton. Contact: Geoff Franks (secretary) 81-050.
WAIKATO COMMODORE USERS GROUP, 32 Kenny Crescent, Hamilton. Contact: Mrs Eileen Woodhouse (secretary).
WAIKATO ATARI USERS CLUB, P.O. Box 6087, Heaphy Terrace, Hamilton. Contact: Bob 78-434 or Albert 73-380.
HP HANDHELD USERS GROUP, 11 Leonard Place, Hamilton. Contact: Don Garry 78-001, 391-199 (w).
HAMILTON SUPER 880 USERS, P.O. Box 16113, Glenview, Hamilton.
THE ATARI CONNECTION, 29 McDiarmid Cres, Huntly. Contact: Paul Cormack 88-695.

HAWKES BAY

GISBORNE MICROPROCESSOR USERS GROUP, P.O. Box 486, Gisborne. Contact:

Hastening the Thunderclap

Hour by hour, day by day, monks in the great temple of Benares are playing a game. When they finish it, the world will end. Tim Hartnell decided to give them a hand.

In 1883 a toy invented by the French mathematician Edouard Lucas went on sale. It was an immediate hit. The toy, marketed under the name Tower of Hanoi, consisted of eight discs of different sizes, and a base containing three pegs. The aim of the game was to move the discs, one by one, from the initial peg to one of the other pegs in the shortest number of moves. The only rule was that you could never place a disc on top of one which was smaller than itself.

It sounds like a simple game, but it is one which demands a great many more moves than you might think. Those monks, in the "great temple of Benares beneath the dome which marks the centre of the world" (as the instructions with the original game explained it), are working with 64 solid gold plates. They have a brass plate, on which rests three diamond needles "each a cubit high and as thick as the body of a bee".

Apparently the Creator put the 64 discs on one of the needles at the moment of creation, and told the hapless monks to get on with it, and move them. When they finish the game, they are told, the universe will pack its bags and go home. (The game instructions actually put it a bit more poetically: "When the sixty-four discs shall have been thus transferred from the needle on which, at the creation, God placed them, to one of the other needles — tower, temple, and Brahmans alike will crumble into dust, and with a thunderclap, the world will vanish.")

How long will it take them until Thunderclap Day? If there are n discs, it takes a minimum (assuming you don't make any dumb moves) of 2 raised to the power of n minus 1 moves. The numbers increase quite rapidly. With three discs, it will take you seven moves (in theory; it always seems to take me 12). Fifteen moves are needed with four discs, 31 moves with five discs, 63 moves with six, 127 with seven, 255 with eight, 511 with nine discs and 1,023 moves when you have ten discs.

That means our monkish persons, with 64 gold plates, will take 18,446,-744,073,709,551,615 moves. If a plate was transferred every second, and the monks didn't drink their Horlicks and get any sleep, it would take them thousands of millions of years to finish the task (580,454,204,615 and a bit years, according to my calculations).

The eight discs provided with the original toy would take, as pointed out before, a minimum of 255 moves to transfer the discs. The program I've written for this article allows you to choose how many discs you want to transfer (from two to nine), then draws up the scene for you, and lets you get on with it.

If you want a mathematical project, try working out a proof that you can always move n discs in 2 raised to the n power minus 1. Another project would be to write a program which would tell you the best way to move the discs. You can do this with the assistance of binary numbers.

Let's say you had three discs. You know, from 2 raised to the third power minus one, that it will take seven moves. You write down the numbers one to seven, in binary, one under the other. In order to work out which disc to move, you count the digits from the right until you reach the first 1. The number of digits you have counted will tell you which disc to move.

You can see that, counting from the right with move number one, you'll hit a 1 right away, so you move the first (that is, the smallest, disc).

To find out where to put the disc, you start counting again and keep moving across the binary number. If you don't come to any other 1s, then place the disc on the first needle you come to. In this case, you'd place it on needle number 2. If you were on needle number 3, as you will be when using more than three discs, you move it to 1.

If there are other 1s to the left of the first 1, you count across from the right until you hit the next 1. This identifies the disc you moved on the previous move. Now, if there are no zeroes between the first 1 and the second 1, or there is an even number of zeroes, place the disc on top of the one you moved in the previous move. If there is an uneven number of zeroes, then you skip that move.

Here's how it works in practice:
1-001 move disc 1
2-010 move disc 2
3-011 move disc 1 on disc 2
4-100 move disc 3
5-101 skip this move (odd number of zeroes between the 1's)
6-110 put disc 2 on disc 3
7-111 put disk 1 on disc 2

You might also be interested in writing a program which not only works out the above, but actually moves the disc for you. Then you could get in on the 64 gold disc problem, and start packing your bags for Thunderclap Day. ■

```
10 REM TOWER OF HANOI
20 REM (C) TIM HARTNELL, 1987
30 REM INTERFACE PUBLICATIONS
40 CLS:PRINT"TOWER OF HANOI - TIM HARTNELL":PRINT:PRINT
50 DIM A$(9),B(20),C(20),D(20):MV=0
60 Q=9:REM CHANGE TO Q=5 ON AN APPLE OR 40-COL DISPLAY
70 PRINT "HOW MANY DISKS DO YOU WANT ( 2 TO";Q;")";:INPUT DK
80 IF DK=0 THEN END
90 IF DK<2 OR DK>9 THEN 70
100 Q=DK
110 PRINT:PRINT "PLEASE STAND BY..."
120 REM ** SET UP **
130 FOR J=0 TO Q:A$(J)=""
140 B(J)=J
150 FOR Z=1 TO 10-J:A$(J)=A$(J)+" ":NEXT Z
160 FOR Z=1 TO 2*J+1:A$(J)=A$(J)+"*":NEXT Z
170 FOR Z=1 TO 10-J:A$(J)=A$(J)+" ":NEXT Z
180 NEXT J
190 Q=DK
200 REM ** PRINT OUT **
210 CLS:SC=-1
220 B(0)=0:C(0)=0:D(0)=0
230 PRINT "AFTER MOVE";MV:PRINT
240 REM FOR NUMBERS ONLY, CHANGE NEXT LINE TO:PRINT B(0);" ";C(0);" ";D(0)
250 PRINT A$(B(0));" ";A$(C(0));" ";A$(D(0))
260 FOR J=0 TO DK
270 REM FOR NUMBERS ONLY, CHANGE NEXT LINE TO:PRINT B(0);" ";C(0);" ";D(0)
280 PRINT A$(B(J));" ";A$(C(J));" ";A$(D(J))
290 B(J+10)=B(J):C(J+10)=C(J):D(J+10)=D(J+10)
300 IF D(J)=J THEN SC=SC+1
310 NEXT J
320 PRINT "------------------------------------":REM DO FULL WIDTH OF SCREEN
330 IF SC<>0 THEN PRINT "SCORE IS"SC
340 IF SC=DK THEN PRINT "YOU'VE DONE IT IN";MV;"MOVES":END
350 MV=MV+1
360 INPUT "MOVE DISK FROM WHICH COLUMN";A
370 IF A<1 THEN END
380 IF A<1 OR A>3 THEN 360
390 INPUT "                TO WHICH COLUMN";B
400 IF B=A OR B<1 OR B>3 THEN 390
410 REM ** FIND TOP DISK IN COLUMN **
420 E=0
430 FOR J=DK TO 1 STEP -1
440 IF A=1 AND B(J)<>0 THEN E=J
450 IF A=2 AND C(J)<>0 THEN E=J
460 IF A=3 AND D(J)<>0 THEN E=J
470 NEXT J
480 IF E=0 THEN 360:REM NO DISK IN THAT COLUMN
490 REM ** FIND TOP SLOT TO PLACE DISK **
500 F=0
510 FOR J=1 TO DK
520 IF B=1 AND B(J)=0 THEN F=J
530 IF B=2 AND C(J)=0 THEN F=J
540 IF B=3 AND D(J)=0 THEN F=J
550 NEXT J
560 IF F=0 THEN 390:REM NO ROOM IN THAT COLUMN
570 REM ** NOW MAKE MOVE **
580 REM ** FIRST REMOVE DISK **
590 IF A=1 THEN TEMP=B(E):B(E)=0
600 IF A=2 THEN TEMP=C(E):C(E)=0
610 IF A=3 THEN TEMP=D(E):D(E)=0
620 REM ** NOW PLACE IN NEW POSITION **
630 IF B=1 THEN B(F)=TEMP
640 IF B=2 THEN C(F)=TEMP
650 IF B=3 THEN D(F)=TEMP
660 REM ** NOW CHECK IF DISK BELOW IS LARGER **
670 OK=1:FOR J=1 TO DK-1
680 IF B(J)>B(J+1) THEN OK=0
690 IF C(J)>C(J+1) THEN OK=0
700 IF D(J)>D(J+1) THEN OK=0
710 NEXT J
720 IF OK=1 THEN 200
730 PRINT TAB(4)"*=>" THAT MOVE IS ILLEGAL
740 FOR J=1 TO 500:NEXT Z:REM ADJUST THIS DELAY FOR YOUR SYSTEM
750 FOR J=1 TO Q
760 B(J+10)=C(J+10):C(J+10)=D(J+10):D(J+10)=D(J+10)
770 NEXT J
780 MV=MV-1
790 GOTO 200
```

User Group Directory

Stuart Mullett-Merrick 88-828.
HBCES (HAWKES BAY COMPUTERS IN EDUCATION SOCIETY), 89 King St, Taradale, Napier. Contact: Grant Barnett 446-992.
HAWKES BAY SPECTRAVIDEO USER GROUP, P.O. Box 799, Napier. Contact: P. Lawrence or secretary. Meetings: First Tuesday each month. Taradale Intermediate School, Murphy Road.
HAWKES BAY COMMODORE COMPUTER CLUB, 1022 Sussex St, Hastings. Contact: Raymond Choplaw 82-589, Ann Ferguson 83-057. Meetings: First Tuesday of month at HB Community Centre.
HAWKES BAY MICROCOMPUTER USERS GROUP, Primai Pharmacy, Primai Plaza, Napier. Contact: Bob Brady 439-016.
HAWKES BAY APPLE COMPUTER CLUB. Contact: Bert Tripp 700-442, Charlie Lum 438-005. Meetings: First and third Mondays each month. 7pm. Napier Boys High School.
NAPIER VZ-200 USERS GROUP, 9 Cranby St, Orekawa, Napier. Contact: Peter Cox 435-126 after 4pm.
SHARP PC1500 USER GROUP, P.O. Box 155, Napier. contact: Allan Thomas.
NZ SOFTWARE EXCHANGE ASSOCIATION, P.O. Box 333, Tokoroa. Contact: Ian Thain. Non-profit group for exchange of software written by programmer members.

NATIONAL

NZ UNIX USERS GROUP, P.O. Box 7087, Auckland.
SANYO USER GROUPS, P.O. Box 6810, Auckland.
BBC/ACORN COMPUTER USER GROUP OF NZ, P.O. Box 9592, Wellington. Contact: Dave Fielder 770-630. Meetings: Individual local meetings.
NZ AMIGA USER GROUP, 156C Queens Drive, Wellington 3. Contact: Tony Wills 877-258, 850-559.

WELLINGTON

WELLINGTON SANYO USERS GROUP, P.O. Box 6114, Wellington. Contact: Henry Chan. Sanyo microcomputers and MS-DOS machine users.
HUTT VALLEY COMMODORE USER GROUP, P.O. Box 64047, Wellington. Contact: 671-992 or 646-254 evenings. Meetings: First and third Mondays of each month. St Bernards College. 7.30pm.
WELLINGTON SYSTEM 80 USERS GROUP. Contact: Bill Lapsley 266-175 (h) 268-939, Andrew Vincent 740-371 (h).
SEGA OWNERS CLUB. Contact: Murray Trickett 724-356 (w) 662-747 (h). Meetings: First Monday each month.
WELLINGTON SPECTRAVIDEO CLUB, P.O. Box 7057, Wellington South. Contact: Don Stanley 746-906 (w). Meetings: One Monday each month at Staff Common Room, Wellington Clinical School, Main St, Newtown.
WELLINGTON SEGA USER GROUP, P.O. Box 1871, Wellington. Contact: Shaun Parsons 897-985 (h). Meetings: First Thursday each month at Paprangi School Hall.
WELLINGTON MICROCOMPUTER SOCIETY, P.O. Box 1581, Wellington. Contact: Bill Parkin 725-086. Meetings: Fellowship room, St Johns Church, 176 Willis St. Second Tuesday each month.
WELLINGTON COMMODORE USERS GROUP, P.O. Box 2828, Wellington. Contact: Peter March 86-701.
WELLINGTON APPLE USER GROUP, P.O. Box 6642, Wellington. Contact: Grant Collison 872-537 (h). Meetings: Last Saturday of each month.
POLY USERS GROUP, Wellington Teachers College, Private Bag, Karori, Wellington. Contact: Christine Greenbank computer studies.
OHIO USERS GROUP, 65b Awatea St, Porirua. contact: R.N. Hislop.
NEC COMPUTER USERS GROUP, P.O. Box 3820, Wellington.
MICROBEE USERS CLUB, P.O. Box 871, Wellington. Meetings: Second Sunday of month.
KAPITI COMMODORE USERS GROUP INC., 115 Matai Rd, Raumati Sth. Contact: Derek Millett (president). Meetings: First Friday in moth. Paraparaumu Primary School Library. 7.30pm.
CROG (CENTRAL REGION OSBORNE GROUP), 5 Dundee Pl, Chartwell, Wellington. Contact: Bruce Stevenson 791-172. Meetings: First Wednesday each month. 7.30pm. For Osborne, Amust, Kaypro & other CP/M computer users.
ATARI USERS GROUP, P.O. Box 16011, Wellington. Contact: Eddie Nickless 731-024. Meetings: first Wednesday of each month.
UPPER HUTT COMPUTER CLUB, 18 Holdsworth Ave, Upper Hutt, Wellington. Contact: Shane Doyle
CENTRAL DISTRICTS COMPUTERS IN EDUCATION SOCIETY, 4 John St, Levin. Contact: Rory Butler (069) 84-904.
WAIRARAPA MICROCOMPUTER USERS GROUP, 27 Cornwall St, Masterton. Contact: Geoffrey Petersen.
HOROWHENUA MICROCOMPUTER CLUB, P.O. Box 405, Levin. Contact: Wally Withell. Meetings: Fourth Thursday of month.
AMSTRAD USERS GROUP, P.O. Box 2575, Wellington. Contact: Murray Thessman 722-627.

CHRISTCHURCH

CHRISTCHURCH CP/M USERS GROUP, P.O. Box 4574, Christchurch. Contact: Murray Tasker 227-252. Meetings: Third Sunday each month. 7pm.
CHRISTCHURCH VZ-200 USERS GROUP, P.O. Box 22-094, Christchurch. Contact: Brian Sheppard 228-778, Graham Dillon 324-117. Meetings: Second Tuesday each month.
DICK SMITH WIZZARD COMPUTER CLUB, 34 Mayfield Ave, Christchurch. Contact: Tony Dodd 557-327.
CHRISTCHURCH SEGA USERS GROUP, 15 Jebsdon St, Shirley, Christchurch. Contact: James O'Donnell 856-884.
CHRISTCHURCH SORD MS USERS GROUP. Meetings: First Thursday each month. 7pm.
CHRISTCHURCH COLOUR GENIE USERS GROUP, P.O. Box 25-125, Christchurch. Contact: D. McEchen 327-063. Meetings: Second Wednesday. 7pm. Abacus Shop, Shades Arcade.
CHRISTCHURCH BBC AND ELECTRON USERS GROUP, 87 Palmers Rd, Christchurch 9. Contact: Jack 883-787, Michael 582-267, Mike 494-939. Meetings: Alternate Monday nights 6.30. Hagley High School.
CHRISTCHURCH COMMODORE USERS GROUP, P.O. Box 4665, Christchurch. Contact: Don Dawson 882-078. Meetings: Fourth Monday each month. Sacred Heart College.
SINCLAIR USERS GROUP CANTERBURY INC., P.O. Box 4063, Christchurch. Contact: Gary Parker (president) 894-820. Meetings: Last Monday each month. 7.30pm. Phone for meetings place.
OSI USERS GROUP, 9 Innes Road, Christchurch. Contact: Tony Martin 555-048.
CHRISTCHURCH '80 USERS GROUP, P.O. Box 4118, Christchurch. Contact: Brendan Thompson 370-381 (h).
CHRISTCHURCH TRS-80 COLOUR USER GROUP, 21 Frankleigh Street, Christchurch 2. Contact: Dennis Rogers 34-731. Meetings: Last Wednesday each month.
CHRISTCHURCH SPECTRAVIDEO USERS GROUP. Contact: Lester Reilly 428-686. Meetings: Thrid Tuesday of each month.
CHRISTCHURCH ATARI USERS GROUP, 184 Milton Street, Christchurch 2. Contact: Donna Hosling 370-354.
CHRISTCHURCH APPLE USER GROUP. Contact: Peter Fitchett 328-189. Meetings: First Wednesday each month. Third floor, Tower Building, Christchurch Teachers college.
CANTERBURY COMPUTER EDUCATION SOCIETY, P.O. Box 31-065, Llam, Christchurch. Contact: Graeme Sauer (secretary).

SOUTH ISLAND

GORE COMPUTER CLUB. Contact: Allan 87-488, Dave 85-836. Meetings: First and third Tuesdays each month. 7pm.
SOUTHLAND COMPUTER EDUCATION SOCIETY, Bob Evans, Southland Boys High School, Herbert Street, Invercargill. Contact: Bob Evans 73-050.
SOUTHLAND COMMODORE USER GROUP, c/o Office Equipment Southland, P.O. Box 1079, Invercargill.
SOUTHLAND MICRO USERS GROUP, 40 Elm cres, Invercargill. Contact: B.J. Brown 88-920. Meetings: Second Monday each month. St Pauls Church Hall. 7.15pm.
SPECTRUM AND QL COMPUTER CLUB, 37 Sunbury St, Dunedin. Contact: James Palmer 44-787 Mon-Fri after 4pm.
ATARI USER GROUP, 38 Calder Ave, North East Valley, Dunedin. Contact: Graeme Wheeler 737-907. Meetings: Fortnightly on Thursday. Phone for meeting details.
CABLE HOUSE, 829 Cumberland St, Dunedin. Contact: Helen Bradbury 771-900.
CENTRAL CITY COMPUTER INTEREST GROUP, P.O. Box 5260, Dunedin. Contact: Terry Stevens 882-603. Meetings: Second Tuesday each month.
DUNEDIN SORD USERS GROUP. Contact: Terry Shand 771-295(w) 881-432(h).
OTAGO COMMODORE 64 CLUB, 41 Eglinton Road, Otago. Contact: Geoff Gray 53-986. Meetings: First Tuesday each month. 7.30pm.
HOKITIKA COMMODORE COMPUTER USERS GROUP, 185 Sewell Street, Hokitika. Contact: Adrian Mehrtens 943.
BULLER COMPUTER USERS GROUP, P.O. Box 310, Westport. Contact: R.J. Moroney (secretary) 7956.
MARLBOROUGH COMMODORE USERS GROUP, 32 Rousehill St, Renwick. Contact: Murray Herd (secretary). Meetings: Second Thursday each month. 7.30pm. IHC Rooms, Weld St.
BLENHEIM COMPUTER CLUB, P.O. Box 668, Blenheim. Contact: Ivan Meynell (secretary) 85-207 (h) 87-834 (w). Meetings: Second Wednesday each month.
NELSON HOME COMPUTER CLUB, P.O. Box 571, Nelson. contact: Mike Jenkins 87-930. Meetings: First and third Tuesdays each month. 7pm. Nelson Intermediate.
NELSON COMMODORE USERS GROUP, P.O. Box 860, Nelson. Contact: Peter Archer (054)70-362.
LEADING EDGE HOME COMPUTE CLUB, P.O. Box 2260, Dunedin. Contact: Elaine Orr 55-268.
NORTH OTAGO COMPUTER CLUB, P.O. Box 281, Oamaru. Contact: Peter George 29-106 (w) 70-646 (h).
SOUTH CANTERBURY COMPUTER GROUP, P.O. Box 73, Timaru. Contact: Geoff McCaughan 60-756. Caters for all machines from ZX81 to IBM34.
ASHBURTON COMPUTER SOCIETY, 4 Willow St, Ashburton. Contact: Peter Boyce 83-664. Meetings: First Monday each month. 7.30pm.

Games Review

Christmas cheer

by Timothy Howell

Christmas is nearly upon us once again and I feel it's a good time to look at some games that would be great presents to find under the tree.

The British and American software companies sell at Christmas approximately 30 per cent of their total sales for the year, which shows just how important this time of year is for both the companies and their retailers. With big names like US Gold, Elite, Firebird, Activision, Ocean, Imagine and Gremlin Graphics all battling to get the software buyer's dollar, Christmas is the best time to bring out some of their most prestigious games.

However, and I intend this as a warning, in the rush to get their releases out in time for the yuletide shopping sprees, occasionally the quality of the software drops. Often this does not deter the software buyer who is eager to get his or her hands on the latest arcade conversion, for example, but it may not go down too well with the person who wants a good game to *play*. In New Zealand we are between a month and two months behind our overseas counterparts as far as software releases go, but this does not stop us from getting the best games for our computers.

This Christmas should hopefully see the release of many new and exciting games, but instead of going straight to preview these I would like to recap on some of the software highlights of 1987. Some of these games I may have mentioned in earlier articles in more detail than I will here, and others I may not have reviewed at all yet, but they will be covered in detail, with the addition of many newer games, in months to come.

Some of the more exciting games that I have seen this year are:

- Gauntlet (US Gold): Possibly the biggest game this year, as far as both hype and game playability go. Based on the arcade game of the same name, you (and a friend) have to combat hundreds of creatures around 512 mazes. You use potions to kill them and collect treasures to gain points.
- Paperboy (Elite): Another arcade conversion, but this time you have to deliver newspapers in a very hazardous neighbourhood. You have to watch out for many dangers such as runaway lawnmowers, cars and dogs. At the end of each day you can gain an extra bonus by trying to complete a BMX course.
- Tenth Frame (US Gold/Access): This is a ten-pin bowling simulation which features very realistic sound effects as well as accurate representations of the pins falling.
- Dragon's Lair II (Software Projects): The sequel to Dragon's Lair, this continues and surpasses the standard set by its predecessor and is a very enjoyable game with many difficult screens to get your adventurer through. You have to conquer river rapids, boulders, mud monsters and many other creatures before you complete the game. (Reviewed in the October issue of *Bits & Bytes*).
- Future Knight (Gremlin Graphics): Future Knight is an arcade adventure spread over many graphically impressive screens. You have to solve logical problems to help Randoph save his beloved.
- Delta (Thalamus): This is one of many horizontally scrolling shoot-em-ups that are on the market at the moment. Using your spaceship, you have to blast your way through hundreds of screens and destroy many different kids of aliens using the different weapons that you can collect throughout the game. Delta is one of the best games of this type available.
- Gunship (Microprose): Gunship is an accurate simulation of the Hughes AH-64A Apache helicopter and in this game you have to use this machine and its many functions to complete varous missions.
- Super Huey II (US Gold/Cosmi): While perhaps not as complicated as Gunship, Super Huey II is nevertheless a very enjoyable simulation of the UH2X helicopter. Again you have to complete several different mis-

sions, some as diverse as pursuing UFOs and putting out blazes on oil rigs.

- World Class Leaderboard (US Gold/Access): This is a continuation of the highly successful Leaderboard golf simulation series. It is very easy to play and this version offers a much greater challenge than the previous two games, including computerised versions of real-life golf courses.
- Wizball (Ocean): Wizball is a somewhat unique game as it involves many gameplay elements not found in any other game. You control a Wizard who has to colour in each screen, but there are many other features that are too numerous to list here — have a good look at it.
- The Last Ninja (System 3): Two years in the making, this game sets new standards in graphics and character animation. As the name suggests, you are a Ninja who has to battle other enemies in more than a hundred picturesque graphic screens.
- Slap Fight (Imagine): Another arcade conversion in which you have to destroy as many enemy spaceships as possible — yes, it's another shoot-em-up. You move around an upwards scrolling landscape and during the game can pick up a variety of weapons and other implements to help you.
- Moonmist (Infocom/Activision): Moonmist is one of the many Infocom games released this year. As usual, the parser (or interpreter) is of a high quality and so is the game. Moonmist is a whodunnit type of adventure and you have to question various characters to discover where the missing person is and why. This game has very clever character interaction features to help you question the possible criminals.
- Hollywood Hijinx (Infocom/Activeision): In this adventure you have to search your deceased aunty's house for ten treasures so you can claim your inheritance from the fortune she has left. The parser and descriptions are up to the usual Infocom standard and these help to make it a very interesting game. Both of the Infocom games do not feature graphics, but the accurate descriptions make up for this to a large extent.

This Christmas looks as though it could be one of the best yet as far as the quantity of games go. Let's just hope that the programmers get it right and produce games that no only look good but also play well.

When buying yourself or your children a game this Christmas, try to get a demonstration of it at your local computer shop, and don't be overawed by technical features alone but rather see if you enjoy playing it as well. This year was a good year for the 64 gamer and it seems that 1988 could be just as good.

Have a happy Christmas and a prosperous New Year.

Into little pieces

reviewed by Ben Connor

Elite is a fantastic piece of software. It is a space trading/combat game which takes place over eight galaxies of more than 250 planets each.

The game is based on a simple idea — capitalism. You fly around planets buying and selling commodities, choosing your destination planets based on their economic and political profiles. At the same time you must fight off a barrage of pirates, bounty hunters, and even police ships.

It is not so much the idea behind Elite which is brilliant as its execution. The space sequences are all done with vector graphics, and space is truly three-dimensional in nature. Ships, space stations and planets can be located on both the tri-axial grid and the compass, and move on each as you climb, dive and roll. As the relative up and down change, their positions alter to reflect their new position in relation to your ship.

You begin Elite with a poorly equipped ship, a combat rating of Harmless, and a legal status of Clean. With your initial 100 credits, you must trade your way to equipping your ship and amassing money.

Your combat rating reflects the number of kills you have made. From Harmless, it moves slowly to Mostly Harmless, Poor, Average, and so on up to Elite.

Your legal status is initially Clean, but after your first offence it shifts to Offender and after multiple offences to Fugitive. Offences are constituted by shooting innocent shipping, attacking space stations or police ships, or trading in contraband goods.

As you gain more money, you can better equip your ship. Your initial front-firing pulse lasers can be upgraded to beam, mining or even the expensive (6000 credits) military lasers. Extra lasers may be added on the rear or on either side.

As well as weapons, you can buy a wide variety of miscellaneous equipment, including escape pods which come with insurance for all your ship except the cargo it carried, ECM systems which destroy enemy missiles in mid-space, fuel scoops for skimming hyperspace fuel from the sun and picking up space debris, and Galactic Hyperdrives, which move you from one galaxy to another.

Elite is naturally flexible. There are more ways of generating income than trading, such as asteroid mining, piracy or bounty hunting. This flexibility ensures that Elite seldom becomes boring.

Okay, you ask, so I've traded everywhere, met everything and killed it, and amassed a fortune. What now?

In Elite, your developing skills do not go unrecognised. From time to time you receive missions to perform, such as rescuing the occupants of a space station in a star system going nova, or finding and destroying a stolen prototype ship. Even your combat victories are not unnoticed, and from time to time after downing a tough opponent, you will receive an encouraging, "Right on, Commander".

Elite comes with a 60-page manual, an interesting novelette *The Dark Wheel*, a reference card, and a ship spotter's chart, all of exceptional quality. Elite is great value for money, so go out, buy a copy, and blow those pirates into little pieces!

Game: Elite
Computer: Commodore 64 or Apple II
Software company: Firebird

Not just a game

an Atari software review by Michael Fennessy

Game: Flight Simulator II
Software company: subLOGIC

This program is not just a game. It is a simulator of a Piper PA-28-181 Archer II aircraft, and contains solid graphics unlike many other flight simulators which use flicking graphics. It features clouds, seasons, different times of night and day and lots of scenery, for the Chigaco, Los Angeles, Seattle and New York areas. This scenery is contained on a special scenery disk which comes with the package.

In Flight Simulator II you can fly around a world of about 10,000 by 10,000 miles, which contains the whole continental United States. To help you find your way around the world the plane is equipped with all the necessary navigation equipment, but fortunately you don't have to fly everywhere, as there are various ways to select where your plane starts off.

Flight Simulator II contains various reality levels and two books to teach you about flying: *Pilot's Operating and Airplane Flight Manual*, which tells you about controlling the plane and the simulation, such as clouds, seasons and the time of day; and *Flight Physics and Aircraft Control*, which is about the theory of flight. It contains eight flying lessons which will tell you how to fly a plane and also how to navigate. This book also contains a section on basic aerobatics.

The package also contains a World War I fighter plan game in which the player fights six enemy aircraft and also can attack an enemy airfield and ammunition dump. Overall, Flight Simulator II is an excellent program and from it one could learn a great deal about flying a plane.

Review copy supplied by J.E. Cagney & Sons Ltd, Mosgiel.

Trains and skateboards

reviewed by Brent Dickens

Game: Express Raider
Software company: Data East

The steam hisses as the train starts, the wheels begin to turn, and before you know it you're on your way as an express radier, with eight trains all waiting for you to rob. The first battle is on the rooftops as passengers try to hinder your progress, and while most just try to beat you up, one biffs bottles in your direction and another has a shotgun.

Once the rooftops are traversed it's on to the next stage of the robbery, where you must ride beside the train on horseback and shoot anyone trying to stop you reaching the engine and the end of the train. To top it all off there is a time limit for each carriage, and when all eight trains are done you go inside to take the loot from the occupants.

The graphics are chunky and not too colourful, but the movement is very smooth. The game proves addictive at first as you try to get that little bit further, but you soon run out of things to see as the stages only get harder. It has a painful tune but with fairly good spot effects, and the overall rating is average.

Game: Metro Cross
Software company: Nameco

Metro Cross is a lonely race game, with one player having to race across a chequered board towards the finish line as time runs out. Plenty of things slow you down, such as Coke cans and rats, while landscape features can also help or hinder progress. Green squares slow you down and glass squares stop you for a while as you fall through them, but springboards give extra speed with a huge jump.

Blue cans when kicked give extra points up to 10,000, and a skateboard helps with speedy transport along the way, as well as giving extra points if you cross the finish line on it.

The mai sprite is rather chunky, but most of the other graphics are adequate with very smooth scrolling. The music gets annoying after a while, but can be turned off at the beginning if desired. Presentation is above average, but playability can become a bit boring.