Sneak Attack

by David Plotkin

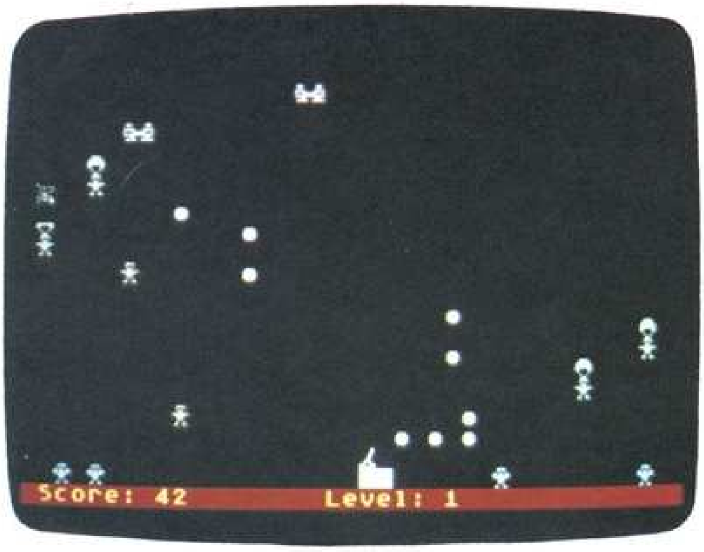
You knew it had been too quiet. Nothing had shown on the scanner for the whole watch. That in and of itself wasn't unusual, but intelligence had reported increased enemy activity. It seemed that a major move to capture and destroy the gunbases that protected the Interior was being planned.

Further, the enemy had developed a new type of intelligent robot, which could stand the shock of being parachuted to Earth and, once there, could team up with other robots to destroy the gunbases. Intelligence reports indicated that each robot could carry one-quarter of the explosives necessary to pierce the armor of the gunbase you manned.

The anticipated plan is that the enemy choppers will drop robots, which, if they land successfully, will wait until three more robots have also landed, then team up to destroy your base. Since radio silence must be maintained, the robots only "know" about other robots in their direct line of sight, so four robots must land successfully on one side of your base.

These robots are not invulnerable, however. If one parachuting robot lands on another, the one underneath will be crushed and immobilized.

Your gunbase is a pretty awesome weapon. The gun is mounted on a concrete pedestal and is aimed by your joystick. The missiles unleashed by your fire button are steerable—they will travel left and right if you press the joystick control in the appropriate direction, and rise toward the top of your scanner screen if you center the stick.



Sneak Attack.

The missiles are powerful, capable of obliterating the enemy's helicopters, as well as the robots. One strategic trick, learned in advanced gunnery class, is to use a missile to destroy a parachute by careful aiming, thus causing the robot to plummet to Earth, destroying any robots that happen to be beneath it.

This is really the only method of destroying robots that are already on the ground. The enemy has split the attack into levels, and each level is faster and fiercer than the previous one. Duty calls, so plug your joystick into port 1 and prepare to defend your home as the attack commences! Good luck.

Programming information.

Each procedure is commented with a brief description of what it does. Some of the procedures illustrate interesting programming tricks, however, and I want to expand on them.

The first is the procedure Title(). As stated, it prints the title screen. Notice that it checks the location of the vertical scan VCOUNT and puts color information directly into the hardware registers COLPF0-COLPF3. This causes each scan line on the TV screen to be drawn in a different color. Action! is so fast that you can do this without resorting to machine language display list interrupts.

By using the built-in jiffy timer (RTCLOCK), which advances by one each time a new screen is drawn, in the equation to compute what color is actually used, the colors are made to "scroll" up the screen, providing a rather neat effect. The speed of the scroll is determined by the RSH portion of the color term. RSH essentially does a divide, so the more times you RSH the RTCLOCK, the slower the scroll will be.

The other interesting procedure is MoveTroopers(), which moves the robots down the screen. As you can see by looking at the program listing, **Sneak Attack** is written in graphics 0, with a redefined character set. Yet the robots scroll smoothly down.

The way it works is this: each robot is two characters high (chute and robot) and is initially put on the screen by simply printing three characters one above the other—the two characters which make up the shape and a third character which is initially blank. These three characters appear one after the other in the character set.

To move the robot in what *looks* like a smooth scroll down the screen, the 16 bytes which make up the shape (two characters at 8 bytes per character) are shifted 1 byte further into the 24 bytes of the three characters which were printed on the screen.

This "dynamic character redefinition" goes on until the figure has been shifted 8 bytes down, at which time the top character of the three is blank, and the 16-byte figure resides in the lower two characters. Then, you move the 16 bytes back into the top two characters, and then print the three characters one position *lower* on the screen.

The shifting of 16 byte blocks is done using MOVEBLOCK. The location of the character set and the location of the 16 bytes which make up the shape are passed to MOVEBLOCK by using the names of the arrays which contain the data. Used in this manner, array names are treated as the memory addresses of the data in the array.

Sneaking around.

I've been programming Atari home computers for four years. The very first video game I ever saw running on a home computer was a little something from Sierra (then OnLine), called **Sabotage**. It was only available on the Apple and was never translated.

I've always enjoyed **Sabotage** and several times tried to program something similar myself. I was never very successful, mostly because BASIC just isn't up to the job. But Action! is, and I think you'll enjoy this version of a venerable game.

One more thing. The end is worth waiting for.

*David Plotkin is a Project Engineer for Chevron U.S.A., with a Master's in Chemical Engineering. He bought his Atari in 1980 and is interested in programming and design of games, as well as word processing. His work has been seen in **ANALOG Computing**, **Compute!** and other computer magazines.*

Listing 1.

```
; Sneak Attack by David Plotkin

MODULE

BYTE
  ChrBase=756,Max,Bkgrnd=710,
  Fate=53770,Level=[1],CursIn=752,
  Stick=632,Ps,Loud=[0],Indx=[0],
  DownL=[0],DownR=[0],Loud1=[0],
  Snd1=$D208,Snd2=$D20F,Freq=[169],
  Wsync=$D40A,Colbk=$D018,
  Nmien=$D40E,Hard=[15],
  Consol=53279

CARD
  Scrn=88,RamSet,HiMem=$2E5,
  Score=[0],Comp=[300],Sdlst=560,
  Vdslst=512

CARD ARRAY Linept(24)

BYTE ARRAY
  Charset,Chopperstatus(30),
  Chopperx(30),Choppery(30),
  Expx(60),Expy(60),ExpStatus(60),
  TrStatus(30),Trx(30),Try(30),
  MisStatus(30),Misx(30),Misy(30),
  Ll(20),Rr(20),Dlist,
  ShapeTable(0)=
    [254  16 124  71 127  12  62   0
     127   8  62 226 254  24 126   0
      96  96  48  48  24  60 231 255
      24  24  24  24  24  60 231 255
       6   6  12  12  24  60 231 255
     128  85  17  66  24 170  91 131
      60 126 255 255 195  66  36  24
      60  36  24 255  60  24  36 102
       0   0   0   0   0   0   0   0
      60  36  24 255  60  24  36 102
      60  36 219 255  60  24  36 102
      60  60  24  60  60  24  24  28
      60  60  24  60  60  60 102 195]


PROC Download()
;Step back HiMem and move the
;character set into RAM
CARD Index
BYTE Val
  RamSet=(HiMem-$400)&$FC00
  ChrBase=RamSet RSH 8
  HiMem=RamSet
  FOR Index=0 TO 1023 DO
    Val=Peek(57344+Index)
    Poke(RamSet+Index,Val)
  OD
  Charset=RamSet
RETURN


PROC Dlint()
;the display list interrupt routine
  [$48 $8A $48 $98 $48]
  Wsync=1
  Colbk=50
  [$68 $A8 $68 $AA $68 $40]


PROC ScoreLine()
;set up the dli
  Dlist=Sdlst
  Vdslst=Dlint
  Dlist(27)=130
  Nmien=$C0
RETURN

PROC Update()
;print score and level
  Position(1,23)
  Print("Score: ")
  Position(8,23)
  PrintC(Score)
  Position(18,23)
  Print("Level: ")
  Position(25,23)
  PrintB(Level)
RETURN


PROC Title()
BYTE colpf0=53270,colpf1=53271,
     colpf2=53273,colpf3=53273,
     rtclock=20,vcount=54283
  Graphics(18)
  Position(3,4)
  PrintD(6,"SNEAK ATTACK")
  Position(8,5)
  PrintD(6,"BY")
  Position(3,7)
  PrintD(6,"david plotkin")
  Position(3,9)
  PrintD(6,"PRESS start")
  WHILE Consol<>6 DO
    colpf3=Fate
    Wsync=0
    colpf0=128-vcount+rtclock RSH 2
    colpf1=vcount+rtclock RSH 2
  OD
RETURN


PROC Gr0Init()
;Set up the address of each screen
;line and initialize
CARD xx
  Graphics(0)
  CursIn=1
  Print(" ")
  FOR xx=0 TO 23 DO
    Linept(xx)=Scrn+(40*xx)
  OD
  FOR xx=0 TO 29 DO
    Chopperstatus(xx)=0
    Chopperx(xx)=0
    Choppery(xx)=0
    Misx(xx)=0
    Misy(xx)=0
    MisStatus(xx)=0
    TrStatus(xx)=0
  OD
  FOR xx=0 TO 59 DO
    ExpStatus(xx)=0
  OD
  FOR xx=0 TO 19 DO
    Ll(xx)=0
    Rr(xx)=0
  OD
  Bkgrnd=0
  Update()
RETURN


PROC Plot0(BYTE x,y,ch)
;Plot a char at location x,y
BYTE ARRAY line
  line=Linept(y)
  line(x)=ch
RETURN


BYTE FUNC Locate0(BYTE x,y)
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```
;Returns the value of the char at x,y
BYTE ARRAY line
  line=Linept(y)
RETURN(line(x))


PROC Noise()
;the explosion noises
  IF Loud=0 AND Loud1=0
            AND Freq=169 THEN
    RETURN
  FI
  IF Loud THEN
    Loud==-2
    Sound(0,90,8,Loud)
  FI
  IF Loud1 THEN
    Loud1==-2
    Sound(1,150,8,Loud1)
  FI
  IF Freq<168 THEN
    Freq==+8
    Sound(2,Freq,10,4)
  ELSE
    Freq=169
    Sound(2,0,0,0)
  FI
RETURN


PROC HitChute(BYTE wh)
;see which chute was hit by missile wh
BYTE lp
  FOR lp=0 TO 29 DO
    IF Misx(wh)=Trx(lp) AND
         (Misy(wh)=Try(lp) OR
          Misy(wh)=Try(lp)+1) THEN
      TrStatus(lp)=2
      Plot0(Trx(lp),Try(lp),0)
      Plot0(Trx(lp),Try(lp)+1,10)
      Plot0(Trx(lp),Try(lp)+2,0)
      EXIT
    FI
  OD
  IF Try(lp) LSH 3 < Freq THEN
    Freq=Try(lp) LSH 3
  FI
RETURN


PROC HitMan(BYTE wh)
;see which man was hit by missile wh
BYTE lp
  FOR lp=0 TO 29 DO
    IF Misx(wh)=Trx(lp) AND
         (Misy(wh)=Try(lp)+1 OR
          Misy(wh)=Try(lp)+2) THEN
      TrStatus(lp)=3
      Plot0(Trx(lp),Try(lp)+1,6)
      Plot0(Trx(lp),Try(lp),0)
      Plot0(Trx(lp),Try(lp)+2,0)
    FI
  OD
  Loud1=12
RETURN


PROC ExplodeChopper(BYTE lp)
;explosions in place of Chopper lp
BYTE lq
  FOR lq=0 TO 59 STEP 2 DO ;find empty
    IF ExpStatus(lq)=0 THEN
      ExpStatus(lq)=1
      ExpStatus(lq+1)=1
      Expx(lq)=Chopperx(lp)
      Expx(lq+1)=Chopperx(lp)+1
      Expy(lq)=Choppery(lp)
      Expy(lq+1)=Choppery(lp)
      Chopperstatus(lp)=0
      Plot0(Expx(lq),Expy(lq),6)
      Plot0(Expx(lq+1),Expy(lq+1),6)
      EXIT
    FI
  OD
RETURN

PROC HitChopper(BYTE wh)
;which chopper was hit by missile wh
BYTE lp
  FOR lp=0 TO 29 DO
    IF Misy(wh)=Choppery(lp) AND
       (Misx(wh)=Chopperx(lp) OR
        Misx(wh)=Chopperx(lp)+1) THEN
      ExplodeChopper(lp)
      EXIT
    FI
  OD
  Loud=12
RETURN

PROC MissileHit(BYTE wh)
;see if missile wh hit anything
BYTE dum
  dum=Locate0(Misx(wh),Misy(wh))
  IF dum=0 THEN
    Plot0(Misx(wh),Misy(wh),84)
    RETURN
  FI
  MisStatus(wh)=0
  IF dum=1 OR dum=2 THEN
    HitChopper(wh)
    Score==+1
  ELSEIF (dum=7 AND Indx<6 OR
          dum=8 AND Indx>3) THEN
    HitChute(wh)
    Score==+2
  ELSEIF (dum=8 AND Indx<4 OR
          dum=9 AND Indx>1) THEN
    HitMan(wh)
    Score==+1
  FI
RETURN


PROC Modify()
;Modify the RAM character set
CARD xx
  FOR xx=0 TO 103 DO
    Charset(xx+8)=ShapeTable(xx)
  OD
RETURN


PROC LaunchTrooper(BYTE wh)
;drop a paratrooper from chopper wh
BYTE lp
  IF Fate>240-(Level LSH 1) THEN
    FOR lp=0 TO 29 DO ;find MT trooper
      IF TrStatus(lp)=0 THEN ;got one
        TrStatus(lp)=1
        Trx(lp)=Chopperx(wh)
        IF Trx(lp)=0 THEN
          Trx(lp)=1
        FI
        Try(lp)=Choppery(wh)+1
        Plot0(Trx(lp),Try(lp),7)
        Plot0(Trx(lp),Try(lp)+1,8)
        Plot0(Trx(lp),Try(lp)+2,9)
        EXIT
      FI
    OD
  FI
RETURN


PROC EraseChopper(BYTE wh)
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```
;erase chopper number wh
  Plot0(Chopperx(wh),Choppery(wh),0)
  Plot0(Chopperx(wh)+1,Choppery(wh),0)
  Chopperstatus(wh)=0
  Chopperx(wh)=0
  Choppery(wh)=0
RETURN


PROC DrawChopper(BYTE wh)
;draw chopper number wh
  Plot0(Chopperx(wh),Choppery(wh),1)
  Plot0(Chopperx(wh)+1,Choppery(wh),2)
RETURN


PROC ClearScreen()
;clear the screen
BYTE lp
  FOR lp=0 TO 29
  DO
    IF Chopperstatus(lp) THEN
      EraseChopper(lp)
    FI
    IF TrStatus(lp) THEN
      TrStatus(lp)=0
      Plot0(Trx(lp),Try(lp),0)
      Plot0(Trx(lp),Try(lp)+1,0)
      Plot0(Trx(lp),Try(lp)+2,0)
    FI
    IF MisStatus(lp)=1 THEN
      MisStatus(lp)=0
      Plot0(Misx(lp),Misy(lp),0)
    FI
  OD
  FOR lp=0 TO 59 STEP 2 DO
    IF ExpStatus(lp)=1 THEN
      ExpStatus(lp)=0
      ExpStatus(lp+1)=0
      Plot0(Expx(lp),Expy(lp),0)
      Plot0(Expx(lp+1),Expy(lp+1),0)
    FI
  OD
RETURN


PROC MoveChopper()
;move the choppers
BYTE lp,ps=[0]
  FOR lp=0 TO 29 DO
    IF Chopperstatus(lp)=1 THEN ;right
      IF Chopperx(lp)=38 THEN
        EraseChopper(lp)
      ELSE
        Plot0(Chopperx(lp),
              Choppery(lp),0)
        Chopperx(lp)==+1
        DrawChopper(lp)
        LaunchTrooper(lp)
      FI
    FI
    IF Chopperstatus(lp)=2 THEN ;left
      IF Chopperx(lp)=0 THEN
        EraseChopper(lp)
      ELSE
        Plot0(Chopperx(lp)+1,
              Choppery(lp),0)
        Chopperx(lp)==-1
        DrawChopper(lp)
        LaunchTrooper(lp)
      FI
    FI
  OD
  IF ps=0 THEN
    Charset(8)=56
    Charset(16)=28
    ps=1
  ELSE
    ps=0
    Charset(8)=254
    Charset(16)=127
  FI
RETURN


PROC LaunchChopper()
;Decide whether to send off a new
;chopper, which side, how high up
BYTE lp
  IF Fate>230-(Level LSH 1) THEN
    FOR lp=0 TO 29 DO ;find MT chopper
      IF Chopperstatus(lp)=0 THEN
        Choppery(lp)=Rand(Hard)
        IF Fate>128 THEN
          Chopperx(lp)=38 ;right side
          Chopperstatus(lp)=2
        ELSE
          Chopperx(lp)=0 ;left side
          Chopperstatus(lp)=1
        FI
        DrawChopper(lp)
        EXIT
      FI
    OD
  FI
RETURN


PROC DrawBase()
;draw the base
BYTE lp
  FOR lp=19 TO 21 DO
    Plot0(lp,22,128)
  OD
  Plot0(20,21,4)
RETURN


PROC AimGun()
;read the joystick and move the base
  IF Stick=11 THEN
    Ps=3
  ELSEIF Stick=7 THEN
    Ps=5
  ELSE
    Ps=4
  FI
  Plot0(20,21,Ps)
RETURN


PROC Shoot()
;send off a bullet
BYTE trig=644,lp,flg=[0]
  IF trig=1 OR flg=0 THEN
    flg=1
    RETURN
  FI
  FOR lp=0 TO 29 DO ;find empty shot
    IF MisStatus(lp)=0 THEN ;got one
      MisStatus(lp)=1
      Misy(lp)=20
      IF Ps=3 THEN
        Misx(lp)=19
      ELSEIF Ps=5 THEN
        Misx(lp)=21
      ELSE
        Misx(lp)=20
      FI
      MissileHit(lp)
      EXIT
    FI
  OD
  flg=0
RETURN
```

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```
PROC MoveShots()
;move the fired bullets
BYTE lp
   FOR lp=0 TO 29 DO ;for each shot
      IF MisStatus(lp)=1 THEN
         Plot0(Misx(lp),Misy(lp),0)
         IF Stick=11 THEN
           Misx(lp)==-1
         ELSEIF Stick=7 THEN
           Misx(lp)==+1
         ELSE
           Misy(lp)==-1
         FI
         IF (Misx(lp)<>39 AND
             Misy(lp)<>255 AND
             Misx(lp)<>0) THEN
           MissileHit(lp)
         ELSE
           MisStatus(lp)=0
         FI
      FI
   OD
RETURN


PROC MoveExplosions()
;move the explosions
BYTE lp
   FOR lp=0 TO 59 STEP 2 DO
      IF ExpStatus(lp)=1 THEN
         Plot0(Expx(lp),Expy(lp),0)
         Plot0(Expx(lp+1),Expy(lp+1),0)
         Expy(lp)==+1
         Expy(lp+1)==+1
         Expx(lp)==-1
         Expx(lp+1)==+1
         IF Expy(lp)<>22 AND Expx(lp)<>0
            AND Expx(lp+1)<>39 THEN
           Plot0(Expx(lp),Expy(lp),6)
           Plot0(Expx(lp+1),Expy(lp+1),6)
         ELSE
           ExpStatus(lp)=0
           ExpStatus(lp+1)=0
         FI
      FI
   OD
RETURN


PROC BaseExplode()
;explode the base
BYTE ARRAY endx(0)=[16 24 17 23 20],
           endy(0)=[22 22 19 19 17]
BYTE lp,time=20
   color=38
   FOR lp=0 TO 4 DO
      Plot(20,22)
      DrawTo(endx(lp),endy(lp))
   OD
   FOR lp=0 TO 16 DO
      Sound(0,Fate,8,16-lp)
      Sound(1,Fate,8,16-lp)
      time=0
      DO
        UNTIL time=15
      OD
   OD
   SndRst()
   color=32
   FOR lp=0 TO 4 DO
      Plot(20,22)
      DrawTo(endx(lp),endy(lp))
   OD
RETURN


PROC EndRight()
;move the troopers from the right
;to the base
BYTE lp,lq,nn,time=20
   FOR lp=0 TO 19 DO
      IF Rr(lp)=1 THEN
         lq=21+lp
         WHILE lq>20 DO
           IF nn=12 THEN
             nn=13
           ELSE
             nn=12
           FI
           Plot0(lq,22,nn)
           time=0
           DO
             UNTIL time=10
           OD
           Plot0(lq,22,0)
           lq==-1
         OD
         Plot0(21,22,11)
      FI
   OD
   FOR lp=0 TO 3 DO
      Plot0(21,22-lp,11)
      time=0
      DO
        UNTIL time=10
      OD
   OD
   BaseExplode()
RETURN


PROC EndLeft()
;Move the troopers from the left to
;the base
BYTE lp,lq,lc,nn,time=20
   FOR lp=0 TO 19 DO
      lq=19-lp
      IF Ll(lq)=1 THEN
         FOR lc=lq TO 19 DO
           IF nn=12 THEN
             nn=13
           ELSE
             nn=12
           FI
           Plot0(lc,22,nn)
           time=0
           DO
             UNTIL time=10
           OD
           Plot0(lc,22,0)
         OD
         Plot0(19,22,11)
      FI
   OD
   FOR lp=0 TO 3 DO
      Plot0(19,22-lp,11)
      time=0
      DO
        UNTIL time=10
      OD
   OD
   BaseExplode()
RETURN


PROC EndPrint()
;print the end of game message and
;test for new game
BYTE trig=644,lp
   Position(10,7)
   Print("Game Over...Final Score:")
   Position(15,8)
   PrintC(Score)
   Position(15,9)
   Print("FINAL LEVEL :")
   PrintB(Level)
```

```
  Position(10,20)
  Print("Press FIRE to play again")
  DO
    UNTIL trig=0
  OD
  DownL=0
  DownR=0
  Put(125)
  FOR lp=0 TO 19 DO
    Ll(lp)=0
    Rr(lp)=0
  OD
  Score=0
  Level=1
  DrawBase()
  Update()
  Hard=15
RETURN


PROC GameOverTwo()
;game over when four troopers down
BYTE lp
  SndRst()
  ClearScreen()
  Loud=0
  Loud1=0
  Freq=169
  FOR lp=0 TO 19 DO
    IF Ll(lp)=1 THEN
      Plot0(lp,22,11)
    FI
    IF Rr(lp)=1 THEN
      Plot0(lp+21,22,11)
    FI
  OD
  IF DownL=4 THEN
    EndLeft()
  ELSE
    EndRight()
  FI
  EndPrint()
RETURN


PROC GameOverOne()
;game over when trooper lands on base
BYTE lp
  SndRst()
  ClearScreen()
  Loud=0
  Loud1=0
  Freq=169
  FOR lp=0 TO 19 DO
    IF Ll(lp)=1 THEN
      Plot0(lp,22,11)
    FI
    IF Rr(lp)=1 THEN
      Plot0(lp+21,22,11)
    FI
  OD
  BaseExplode()
  EndPrint()
RETURN


PROC TrooperDown(BYTE wh)
;redraw trooper wh at bottom of screen
BYTE cc
  TrStatus(wh)=0
  cc=Trx(wh)
  Plot0(Trx(wh),Try(wh),0) ;erase chute
  Plot0(Trx(wh),Try(wh)+1,11) ;replace
  IF Trx(wh)<20 AND Ll(cc)=0 THEN
    Ll(cc)=1
    DownL==+1
  ELSEIF Trx(wh)>20 AND
         Rr(cc-21)=0 THEN
    Rr(cc-21)=1
    DownR==+1
  ELSEIF Trx(wh)=20 THEN
    GameOverOne()
  FI
  IF DownL=4 OR DownR=4 THEN
    GameOverTwo()
  FI
RETURN


PROC TrooperFall()
;make trooper fall when chute hit
BYTE lp,qq,cc
  FOR lp=0 TO 29 DO
    IF TrStatus(lp)=2 THEN
      Plot0(Trx(lp),Try(lp)+1,0)
      Try(lp)==+1
      IF Try(lp)=21 THEN
        cc=Trx(lp)
        IF Trx(lp)<20 AND Ll(cc)=1 THEN
          DownL==-1
          Ll(cc)=0
        ELSEIF Trx(lp)>20 AND
               Rr(cc-21)=1 THEN
          Rr(cc-21)=0
          DownR==-1
        FI
      FI
      IF (Try(lp)<22 AND Trx(lp)<>20)
          OR (Try(lp)<20 AND
          Trx(lp)=20) THEN
        Plot0(Trx(lp),Try(lp)+1,10)
      ELSE
        TrStatus(lp)=0
      FI
    FI
  OD
RETURN


PROC MoveTroopers()
;move paratroopers down screen
BYTE lp,qq
BYTE ARRAY Trooper(0)=
     [60 126 255 255 195  66  36  24
      60  36  24 255  60  24  36 102
       0   0   0   0   0   0   0   0]
  FOR lp=0 TO Indx DO
    Charset(56+lp)=0
  OD
  MoveBlock(Charset+56+Indx+1,
            Trooper,16)
  Indx==+1
  IF Indx<8 THEN
    RETURN
  FI
  Indx=0
  FOR lp=0 TO 29 DO
    IF TrStatus(lp)=1 THEN
      Plot0(Trx(lp),Try(lp),0)
      Try(lp)==+1
      IF Try(lp)=21 THEN
        TrooperDown(lp)
      FI
    FI
    IF TrStatus(lp)=3 THEN
      TrStatus(lp)=0
      Plot0(Trx(lp),Try(lp)+1,0)
    FI
  OD
  MoveBlock(Charset+56,Trooper,24)
  FOR lp=0 TO 29 DO
    IF TrStatus(lp)=1 THEN
      Plot0(Trx(lp),Try(lp),7)
      Plot0(Trx(lp),Try(lp)+1,8)
      Plot0(Trx(lp),Try(lp)+2,9)
    FI
  OD
RETURN

PROC NewLevel()
;go to higher level
BYTE lp,time=20
  Level==+1
  IF Level>100 THEN
    Level=100
  FI
  SndRst()
  Loud=0
  Loud1=0
  Freq=169
  Comp==+300
  FOR lp=10 TO 150 STEP 10 DO
    Sound(0,lp,10,4)
    Sound(1,lp+10,10,4)
    time=0
    DO
      UNTIL time=2
    OD
  OD
  Position(25,23)
  PrintB(Level)
  IF Level>8 THEN
    Hard=19
  FI
  SndRst()
RETURN
```

```
PROC Main()
BYTE time=20,lp,ch=764
  Title()
  Gr0Init()
  Snd1=0
  Snd2=3
  Download()
  Modify()
  DrawBase()
  ScoreLine()
  DO
    LaunchChopper()
    MoveChopper()
    MoveExplosions()
    Noise()
    TrooperFall()
    MoveTroopers()
    Position(8,23)
    PrintC(Score)
    IF Score>Comp THEN
      NewLevel()
    FI
    time=0
    FOR lp=2 TO 6 STEP 2 DO
      AimGun()
      Shoot()
      MoveShots()
      DO
        UNTIL time=lp
      OD
    OD
  OD
RETURN
```

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