

Crystal Quest CrittterEditor

User's Manual

By Patrick Buckland

To my wife, Janet, for putting up with the stupid sounds.

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1) Overview

Crystal Quest CritterEditor is a program designed to allow you to customize the game "Crystal Quest" (© Casady & Greene Inc. 1987 and 1988). It allows you to change almost every conceivable aspect of the game, while keeping its basic nature intact. With the CritterEditor you can change the appearance of practically anything that appears on the screen; you can replace the sound effects with your own; you can speed things up or slow them down - in all, there are over 1000 things that you can change! You can create stand-alone versions of the game or save your changes in parameter files for later use.

For those of you who found Crystal Quest too difficult: revenge is yours! You can give yourself bonus lives every 1000 points or put only one Crystal on each wave but make it worth 30,000 points. (As you can see, you can quite happily defeat the object of the game with this program - but as if you'd do a thing like that!)

For all of you who can sit playing a single game of Crystal Quest for hours on end (until your intestines give up any hope of being needed again, escape, and apply for a job as a draft excluder for aircraft hanger doors), you can make the game as challenging as you dare. Make parasites start at wave one and travel twice as fast as you can, or make the gateway exactly the same width as your ship.

2) Hardware and Software Requirements

Crystal Quest CritterEditor runs on a Macintosh Plus, Macintosh SE and Mac II.

The CritterEditor can only modify copies of Crystal Quest marked Version 2.20 or later. If your version of the game is an earlier one than this, please contact Casady & Greene Inc. .

3) Program Basics

Before you do anything, make backup copies of both the game and the Editor. Put the masters away in a safe place. You will probably make mistakes building games and want to start over with a fresh game. Don't use the master disks for any purpose other than copying.

To run the program, select it from the Finder and choose Open from the File menu, or double click on it. Selecting one or more parameter files from the Finder and opening or double clicking on them will run Crystal Quest CritterEditor and automatically open those files. Parameter files are explained in section 4 below.

The program has only three menus. The first is the Apple menu which, as usual, contains the credits for the program and your collection of Desk Accessories. It also contains the item marked

Help. When selected, this brings up a series of pages of information which are largely similar to this manual. Clicking on *Next* or hitting the Space Bar takes you to the next page; *Previous* or the Delete key takes you back a page.

The *File* menu contains a series of commands to create new or open existing parameter files and save into new or existing parameter files. It also has commands to work directly with copies of Crystal Quest itself. These commands are explained fully in section 4 below.

The *Close* item in the *File* menus closes the front-most window, whether it be a Crystal Quest CritterEditor window or a Desk Accessory.

In the file menu you will find the commands *Revert* and *Revert to Defaults*. These change the contents of the current CritterEditor window, restoring it to the state it was in when it was last saved or to the default states respectively. The default state is that which the game is in when it was originally shipped. In both cases the program asks you to verify your choice, as it could well destroy all of your customizations. Note that after a *Revert To Defaults* command you have to *Save* the file to make the reversion permanent.

Also in the file menu is the command *Transfer to Crystal Quest*. This brings up a list of copies of Crystal Quest. Select the one which you wish to run and either double-click on it, click on *Run*, or press return or enter. If you have any changed files open, then you will be asked whether they should be saved first. The copy of Crystal Quest that you selected will be run as if you had run it from the Finder.

If you have a window open which corresponds to a copy of Crystal Quest, then it will also have a *Transfer* button on it. This does the same as selecting *Transfer to Crystal Quest* does but by-passes the file selection process and automatically runs that copy.

When you quit from Crystal Quest after transferring to it, you will be returned to the CritterEditor with the same windows open as when you left.

The *Edit* menu is only used by Desk Accessories, and is dimmed when a Crystal Quest CritterEditor window is front-most.

All windows that appear in the CritterEditor have four buttons in common. These are *Help*, *OK*, and *Revert to Defaults*. Most windows also have a *Cancel* button. These buttons are mostly self-explanatory. The *Revert to Defaults* button are similar to the commands in the *File* menu except that they only apply to the contents of the particular window that they appear in. For instance if you clicked on *Revert to Defaults* in the window for editing Parasites, the images for the parasite and the data

concerning its movement will be set to the default values, but all the other information in the file will remain unchanged.

4) Files

The CritterEditor can work on two different sorts of files. One type are copies of Crystal Quest itself, the other are parameter files created by the CritterEditor. The other very important difference between copies of Crystal Quest and parameter files is that parameter files can be distributed freely, while Crystal Quest may not be distributed. You are quite free to post parameter files on bulletin boards or give them to friends and user groups. Please do not distribute Crystal Quest itself or a modified version of Crystal Quest.

Unless you are running from a hard disk you should generally save your customizations as parameter files and only install them into Crystal Quest when you want to play. This is because parameter files are not very long while Crystal Quest is about 128K (note that the lengths of both these files increase substantially when custom sounds are added). Another reason to use parameter files is that if you have multiple copies of Crystal Quest around, you don't know which one will be run when you double click on a Crystal Quest game save file.

If you select *New* from the *File* menu, a new window is created. The window corresponds to an un-named parameter file which starts off containing default values throughout. This window can then be saved as a parameter file (with *Save as Parameter File*) or installed into an existing copy of Crystal Quest (with *Save into Crystal Quest*).

Selecting *Open* opens an existing parameter file or a copy of Crystal Quest and puts it in a window. You may then make any changes that you want and, if it was a copy of Crystal Quest that you opened, click on the *Transfer* button to try them out. However, it is wise to keep a copy of the changes in a parameter file, so that you may install other sets of parameters into this copy of Crystal Quest without losing any data.

The *Save* item in the *File* menu either saves the window as a parameter file or saves it into a copy of crystal Quest, depending on which was done last, or where it was opened from.

Remember that the contents of parameter files cannot be tried out until they have been saved into a copy of Crystal Quest. They are for storage of sets of customizations only.

The suggested method of using the CritterEditor is to only keep a few favorite customizations around as copies of Crystal Quest. Save most things as parameter files. When you want to create a new version of the game, start of with a new file, then save it into a

copy of Crystal Quest. Keep it this way while you are playing around with it, so that you can use the Transfer button to quickly try out your changes. When you are finished, save it as a parameter file.

All files (parameter and Crystal Quest files) can have a comment attached to them. This comment can be read and edited by selecting *Get Info* from the *File* menu when the window for that file is open. The comment can contain anything that you want, for instance a credit to the author of the file; a brief description of how the file modifies Quest; a few hints for play; ideas for extensions to the file etc. This comment is particularly useful if you're going to post a Parameter file on a bulletin board. Remember that Crystal Quest may not be posted on a bulletin board.

When the Get Info window is visible, you can Cut, Copy and Paste text by using the usual Command-X, C and V combinations.

Each parameter file also has its own set of high scores attached to it. If you revert a file to the defaults or start with a new file, then it will use the High Scores from the unmodified game. When you install a set of parameters into a copy of Crystal Quest, the high score table currently in use is used to update the parameter file that the was previously used to customize the game. In this way, high scores are kept specific to their parameters so that they remain meaningful. You needn't worry about what is happening here though - it is all done automatically for you.

If you open a saved game while using different parameters to those under which the game was saved, then you can play the game OK but you cannot register a high score. This is to stop you from saving a game using a really easy configuration, then re-open the file in a more difficult version and get an artificially inflated high score.

When running a non-standard version of Crystal Quest, the game display shows "Modified Crystal Quest" instead of just "Crystal Quest", so that you know that you are playing a customized copy.

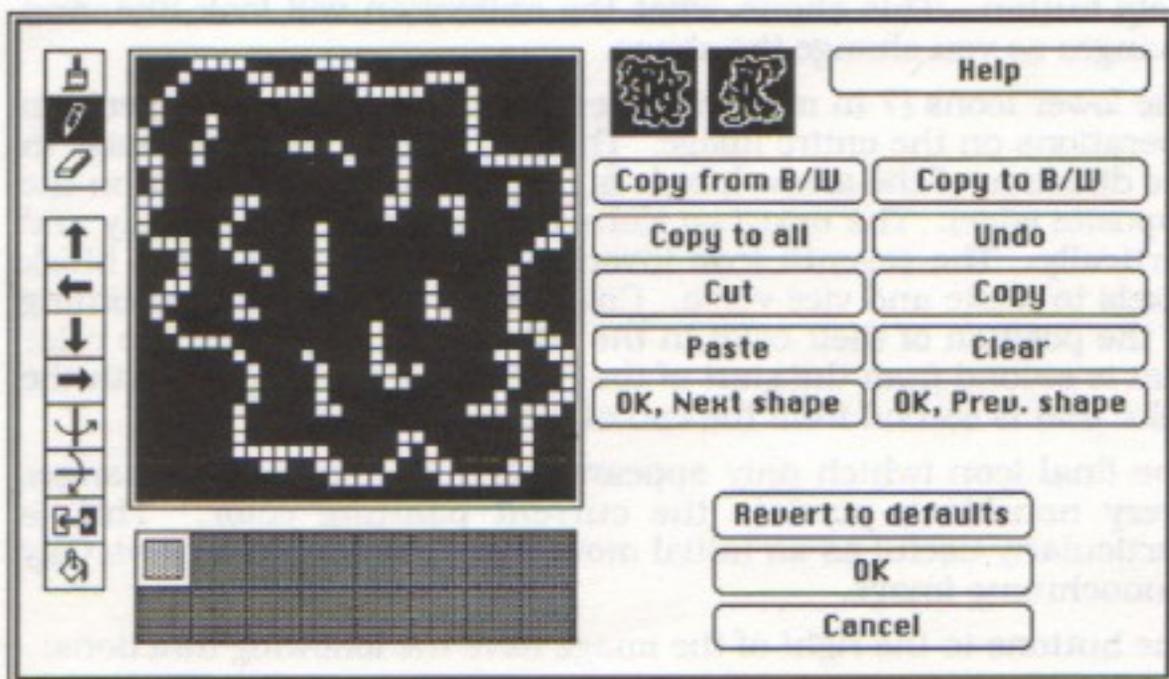
5) Editing graphics

Crystal Quest CritterEditor allows you to change the shapes of any of the objects that appear on the screen in Crystal Quest. This can be done by pasting in images created by another graphics program (e.g. MacPaint or MacDraw). The CritterEditor does however have an integral graphics editor which is quite sufficient for most tasks. Whenever a shape can be edited an image of it appears in the relevant window. Clicking on this image will bring up the graphics editor, and the image can be changed. Each shape actually has two parts - a black and white version and a color version. The two versions of the shape should really look similar, but they don't have to. If you are running on a Mac II set to at least

16 colors then a pair of images will always appear, with the black and white one on the left and the color one on the right. You will notice that all images appear on a black background – this is because they will appear against black in the actual game, so this lets you see them as they will look when in use.

If you have color on your Mac II, we recommend setting it to 16 color mode. (Crystal Quest will automatically switch to 16 color mode when it is run).

The graphics editor window is as shown below when you are running in color (the gray boxes will appear in different colors). The example shows it working on one of the images of Dummies.



If you are running on a monochrome Mac or a color Mac II set to 2 or 4 colors then the window will look the same except that there will be no color palette or Paint Can icon at the bottom of the icon bar and the buttons marked *Copy from B/W* and *Copy to B/W* will appear as *Copy from Color* and *Copy to Color* respectively.

Each image has a maximum size that it can be defined as, for instance the maximum size of a bullet is smaller than that of a nasty. This maximum size will be reflected by the size of the black background in the window.

The window shows a "FatBits" style view of the image and a normal-sized view. In black and white, select the pencil to change white pixels to black and vice versa, the eraser to erase areas to black; and the paintbrush to paint larger areas with white. In color, the palette shows the current painting color by drawing a border around it. Clicking on a different color makes this the current painting color. The pencil changes pixels to the painting color unless they were that color already, in which case it changes

them to black. The paintbrush paints larger areas in the painting color, and the eraser functions in the same way as it does in monochrome mode.

Many images are part of a group. A group of images is an associated collection of images that appear next to each other in a window, for instance the four different images that make up a Dimple or the left and right halves of the gateway. If the image that you are working on is part of a group, then the *Copy to all*, *OK, Next shape* and *OK, Prev. shape* buttons will appear. If the group of images will be animated within Crystal Quest (for instance the four images of a Dimple as opposed to the two images for the portals) then another full-size view will appear next to the *Help* button. This shows what the animation will look like, and changes as you change the shape.

The lower icons (7 in monochrome mode, 8 in color mode) perform operations on the entire image. The four arrows shift the image in the direction of the arrow (pixels falling off an edge reappear on the opposite edge). The next two icons flip the image horizontally and vertically. The seventh icon inverts the image - this turns black pixels to white and vice versa. Color pixels are swapped according to the position of their color in the palette, e.g., a pixel in the color that is second from the start of the palette will be swapped with the color that is second from the end of the palette, etc.

The final icon (which only appears when in color mode) changes every non-black pixel to the current painting color. This is particularly useful as an initial move when coloring in a previously monochrome image.

The buttons to the right of the image have the following functions:

Copy to B/W and *Copy to Color* copy the image to its counterpart, whether that be monochrome or color. This means that after creating an image in one mode, you can easily copy it over to be touched up in the other mode.

Copy from B/W and *Copy from Color* get the image from their counterpart, and are the reverse of the above.

Copy to All copies the image into all images of its group, both monochrome and color. This is very useful when starting afresh at the image of a nasty for instance. You can draw one image, click on this button to duplicate it throughout the group and then make detailed changes to the other images. If you hold down the **Option** key when clicking on this button, the image is only copied to the images for your current mode. For instance, if you are working in color, then the monochrome images will not be altered. Note that the *Copy to All* button doesn't appear when you are editing an image that doesn't belong to a group, for instance the shape for mines or the bullet shape.

Undo takes back the last change that you made. Clicking it again re-does the change. Note that you cannot *Undo Copy to...* operations.

Cut and *Copy* put a copy of the image into the clipboard. It can then be pasted into another graphics editor window, the scrapbook, a separate drawing program or anywhere else you might want. *Cut* clears the image to black afterwards.

Paste replaces the image with a picture from the clipboard. This picture can come from another graphics editor window, the scrapbook, a separate drawing program, etc. Normally the picture is placed with its top-left corner aligned with the top-left corner of the image and is clipped to the maximum size of the image. However, if the **Option** key is held down when *Paste* is clicked on, the picture will be scaled to fit the maximum image size (very rarely useful).

Clear clears the entire image to black.

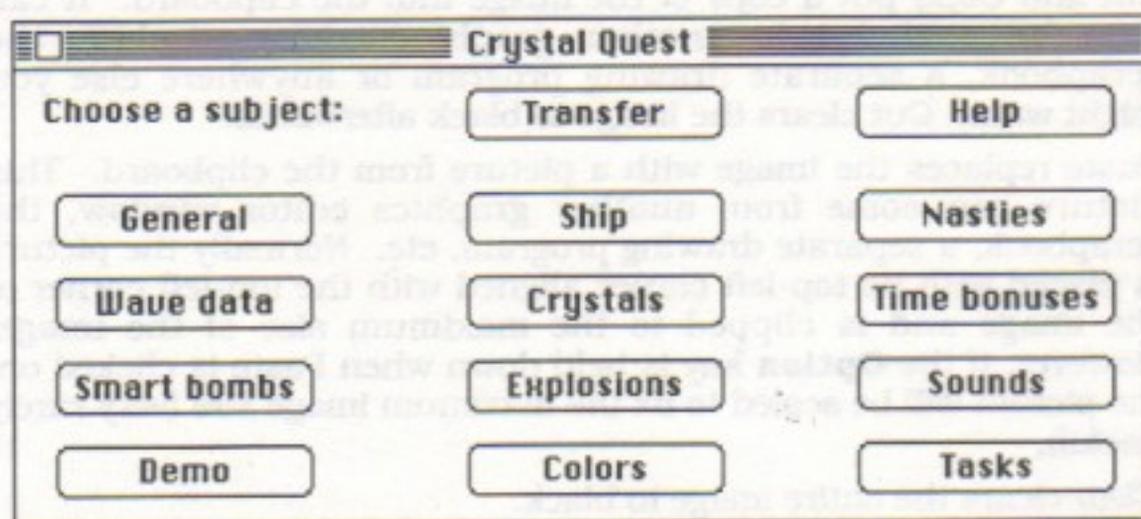
OK, Next shape accepts any changes that you have made to this shape, and takes you to the next shape in the group. Holding down the **Option** key while clicking here copies the current shape into the next one.

OK, Prev. shape accepts any changes that you have made to this shape, and takes you to the previous shape in the group. Holding down the **Option** key while clicking here copies the current shape into the previous one.

Note that hitting *Cancel* only cancels any changes that you made to the image you were editing. It does not cancel any changes made by clicking on a *Copy to...* button. However clicking on *Cancel* in the window that displayed the images originally will cancel the change.

6) General editing

When you open a file or create a new one, a window will appear that looks like this:

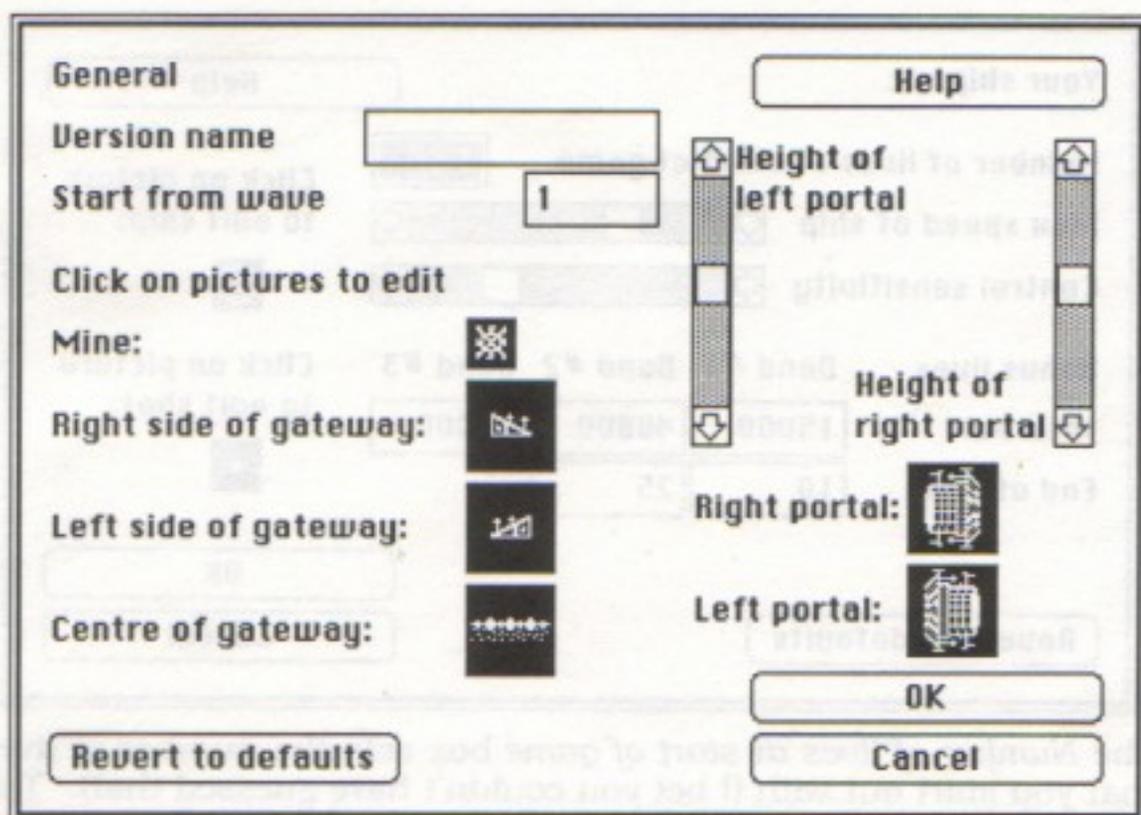


The *Transfer* button only appears if the file is a copy of Crystal Quest. The transfer button does not appear for parameter file (see section 3).

This window shows you twelve categories to choose from. Clicking on one of the buttons brings up a dialog box that gives you a further choice of what to edit, or actually change images and data. The following twelve sections describe each of the categories.

:6.1) General

This is where you edit things that don't fall into the other categories! You will see a window like this:



The version name is a string which will appear in brackets after the version number when you run the game. You may put anything here to identify this particular customization (eg a name, number, date, flavor of ice cream, etc).

The *Start from wave* box allows you to set the game to start at a wave other than 1.

The scroll bars let you change the heights of the portals (the portals are the things from which the nasties spurt out). The position of the thumb on the scroll bar corresponds to the position of the portal on the screen.

If you change the image of the center of the gateway, make sure that you keep it wide enough to get your ship through! When Crystal Quest draws the center of the gateway, it is vertically aligned so that its top lines up with the top of the **left** side of the gateway.

:6.2) Ship

This window lets you change information about your ship and bonus lives.

Your ship etc			Help	
Number of lives at start of game	<input type="text" value="3"/>		Click on picture to edit ship: 	
Max speed of ship	<input type="range"/>			
Control sensitivity	<input type="range"/>		Click on picture to edit shot: 	
Bonus lives	Band #1	Band #2		Band #3
Interval	<input type="text" value="15000"/>	<input type="text" value="40000"/>		<input type="text" value="75000"/>
End of band	<input type="text" value="10"/>	<input type="text" value="25"/>		
Revert to defaults			OK	
			Cancel	

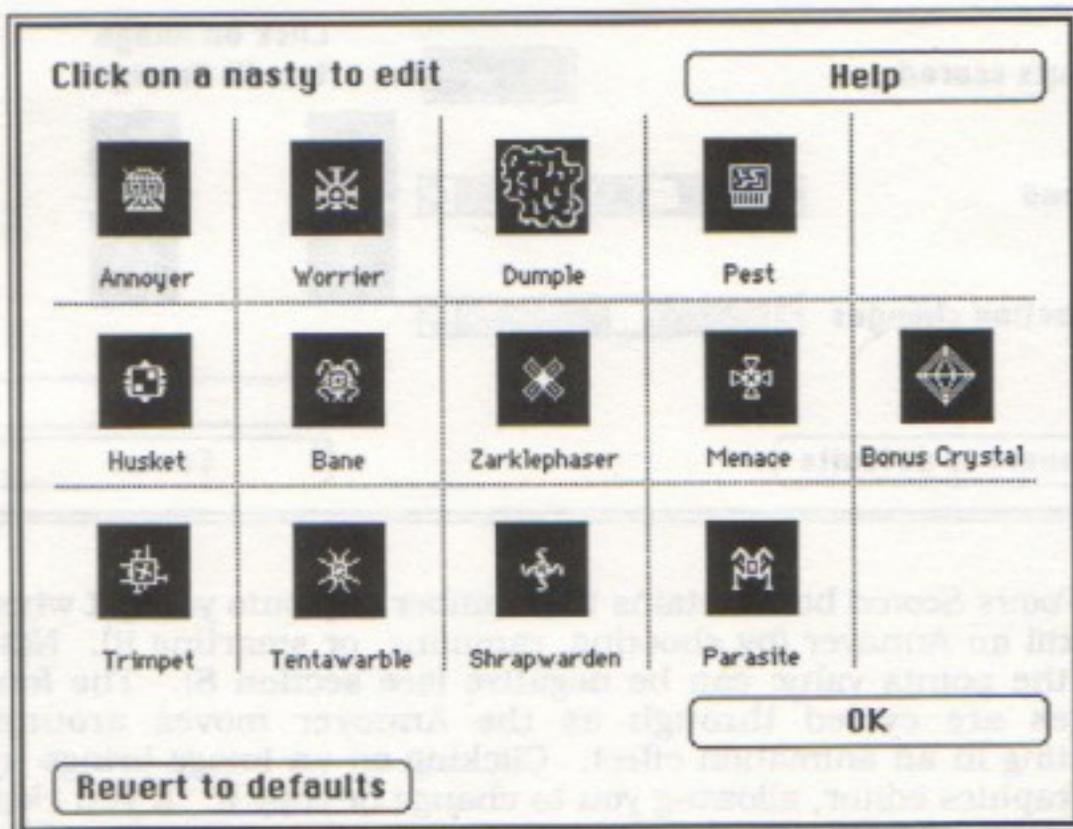
The *Number of lives at start of game* box sets the number of lives that you start out with (I bet you couldn't have guessed that). The *Max speed of ship* bar sets the limit to your ships speed. Setting this to the right allows you to go faster. The *Control sensitivity* bar changes how far you have to move the mouse to make the ship go at a certain speed. If you push this bar all the way to the left, you will have to move the mouse around as though you were stirring a cauldron to get anywhere; with it to the right just breathing on the mouse will send your ship flying.

Note that when Crystal Quest checks to see whether your shot has hit a nasty, it only checks the top-left hand corner of the shot (for reasons of speed), so making your shots big will only affect the graphics - it will not be any easier to hit things.

The bonus lives are split into three bands of waves. The first interval is the number of points between each bonus life up to the end of that band. The end of the band is the last wave to which that band applies. The second interval is the number of points between each bonus life to the end of that band. The third interval is the number of points between each bonus life from then on. Note that any amounts entered in the interval boxes will be clipped down to the nearest 1000.

:6.3) Nasties

When you click on the Nasties button you will get a window which looks like the one below. This window lets you choose a nasty to edit. If you are running in color, then the images will be the color ones.

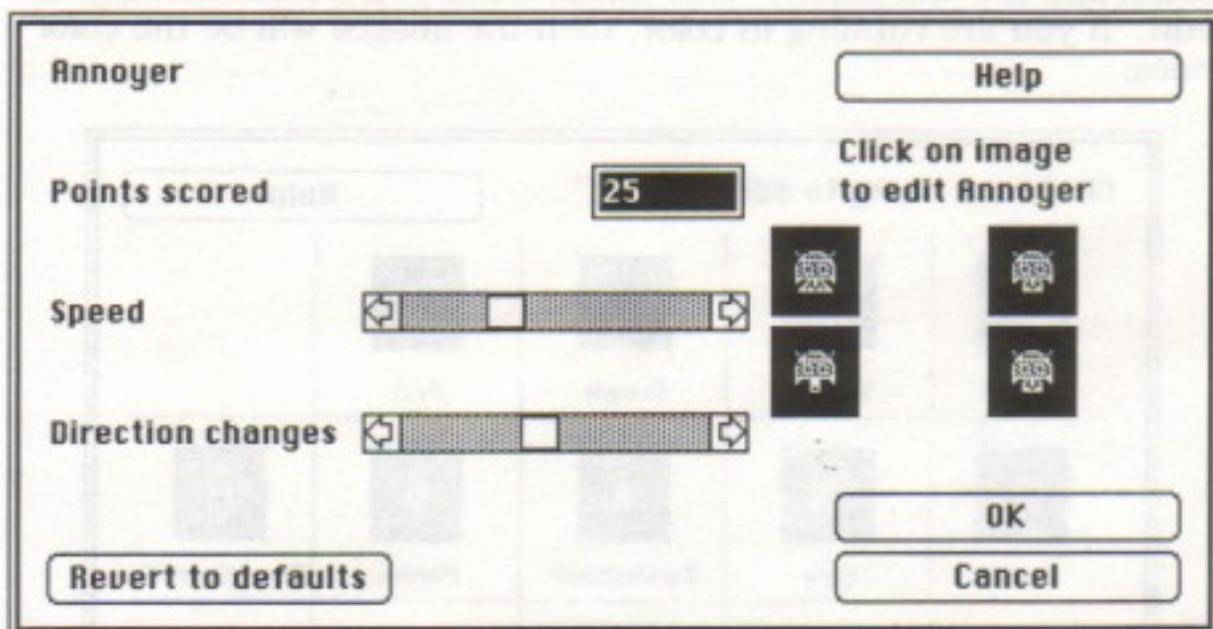


Note that clicking on Revert to Defaults applies to **all** nasties. Because of the gravity of using these buttons, you are asked to verify your choice before the reversion is performed.

When you click on one of the nasties, a window specific to that nasty comes up. The next thirteen sections explain each of the nasties in turn.

::6.3.1) Annoyers

The window for Annoyers is as shown below:



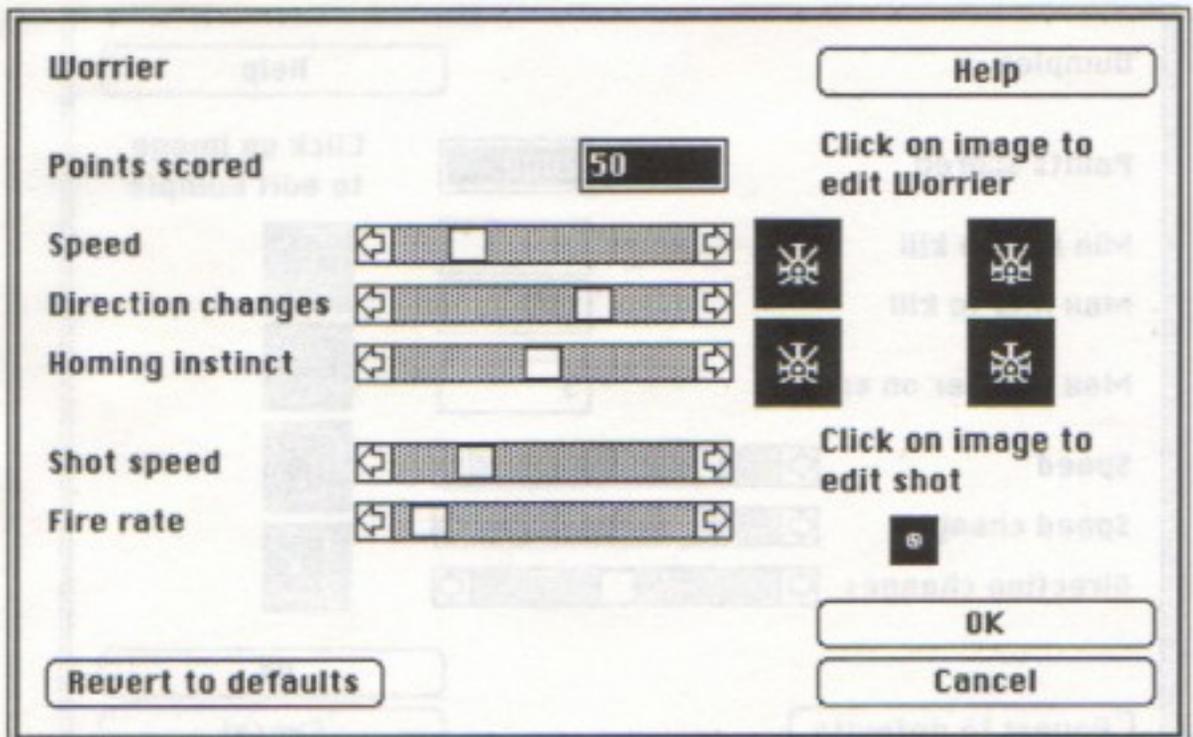
The *Points Scored* box contains the number of points you get when you kill an Annoyer (by shooting, ramming, or smarting it). Note that the points value can be negative (see section 8). The four images are cycled through as the Annoyer moves around, resulting in an animation effect. Clicking on an image brings up the graphics editor, allowing you to change or copy it. If you click on *Copy to all* in the graphics editor window, all three images of the Annoyer are set the the one being edited.

The *Speed* bar refers to the maximum speed at which the Annoyer can move. Moving the thumb to the right speeds it up, to the left slows it down.

The *Direction changes* bar refers to how often the Annoyer changes direction. Moving to the left makes it move more in straight lines, very seldom changing direction; to the right makes it change direction practically all the time - i.e., it jitters about maniacally (but doesn't tend to get anywhere).

::6.3.2) Worriers

The window for Worriers is as shown below:



For explanations of the *Points Scored* box, the *Speed* bar, the *Direction changes* bar, and the images, please refer to Annoyers (section 6.3.1).

Clicking on the image of the shot allows you to edit it. Note that only the top-left hand corner of the shot is used in collision detection (see note about your shots in section 6.2).

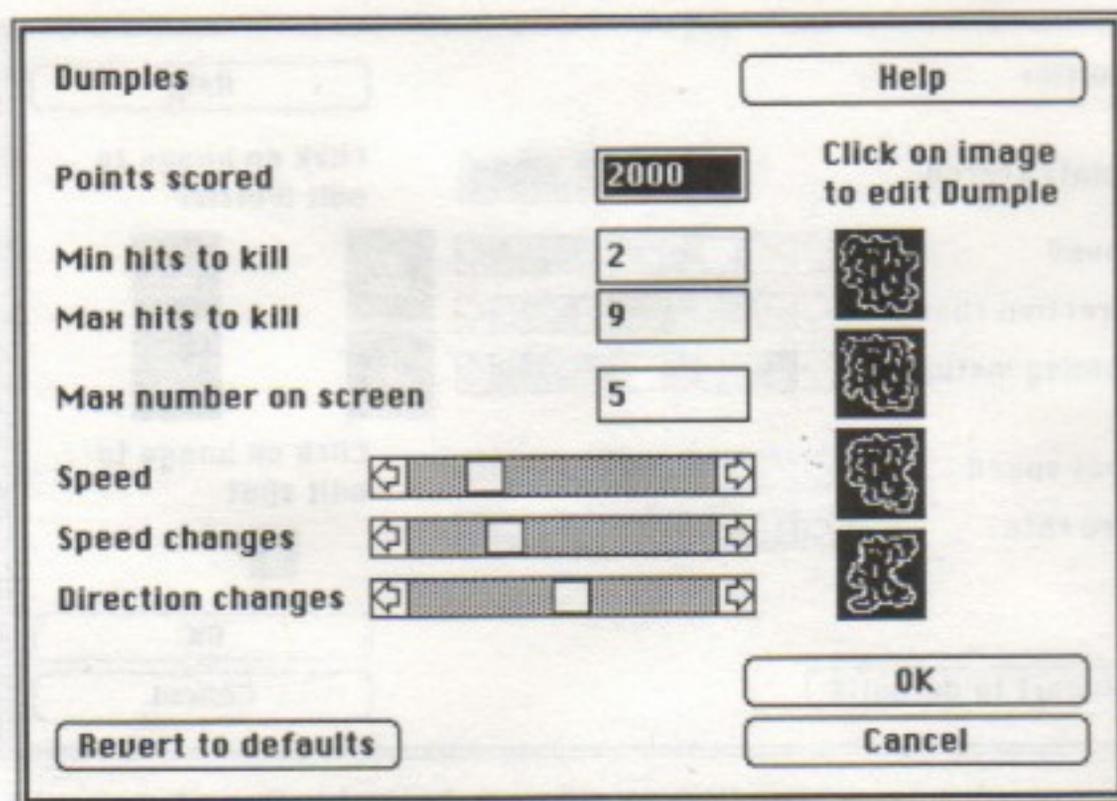
The *Homing instinct* bar refers to how likely it is that the Worrier will steer towards your ship when it changes direction. Moving the bar to the left means that its direction changes will always be random. To the right means that it will always steer towards you. Note that it only moves in your general direction, not straight at you as Tentawarbles and Parasites do. Note also that the effect of this parameter is closely linked to the setting of the *Direction changes* bar, as the move towards you can only be made when a direction change is being made.

Setting both the *Direction changes* and *Homing instinct* bars completely to the right turns Worriers into sort of shooting Parasites. Now that is nasty.

The *Shot Speed* bar refers to the maximum speed of of bullets that Worriers shoot. The *Fire rate* bar controls how often they fire. Note that even when the bar is set to its right-most limit (shoot practically all the time), their shooting is limited by the maximum number of missiles allowed in the current wave (see section 6.4)

::6.3.3) Dumples

The window for Dumples is as shown below:



For explanations of the *Points Scored* box, the *Speed* bar, the *Direction changes* bar and the images, please refer to Annoyers (section 6.3.1).

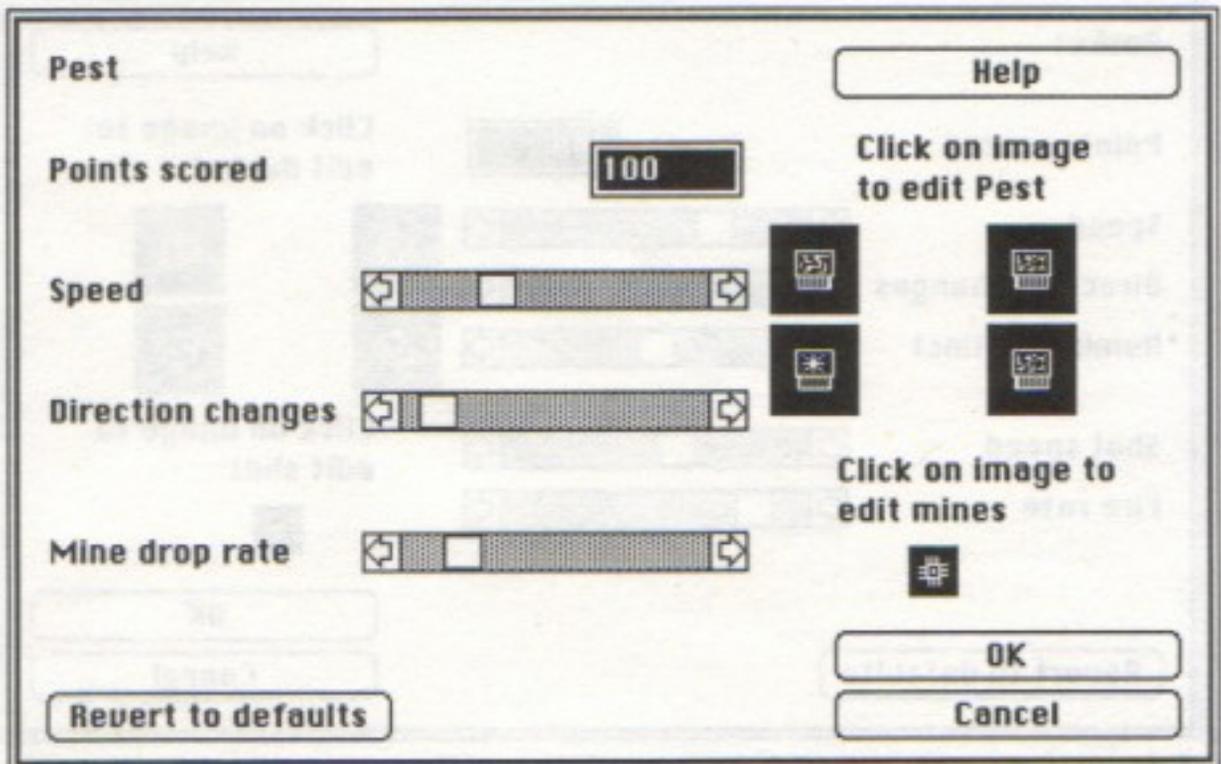
The *Speed changes* bar controls how rapidly Dumples can change speed. Putting it to the left means that they tend to move evenly, moving it to the right makes them speed up and slow down constantly.

The *Min hits to kill* and *Max hits to kill* boxes denote how many shots it takes to kill a Duple. When a Duple is created, it is given an energy level somewhere between these two values. Each time you hit it, it loses one energy level. When it runs out of energy, it dies. Hence to make Dumples always die from your first shot, set both the minimum and maximum to 1.

The *Max number on screen* box refers to the maximum number of Dumples that can appear on the screen at one time. This is needed because Dumples tend to stay around for a while as they are difficult to kill, so in a wave that is meant to contain a mixture of nasties, if they were unlimited in number they would tend to dominate the screen before long. Note that the number on screen is also limited by the *Max number of nasties* setting for the current wave (see section 6.4).

::6.3.4) Pests

The window for Pests is as shown below:



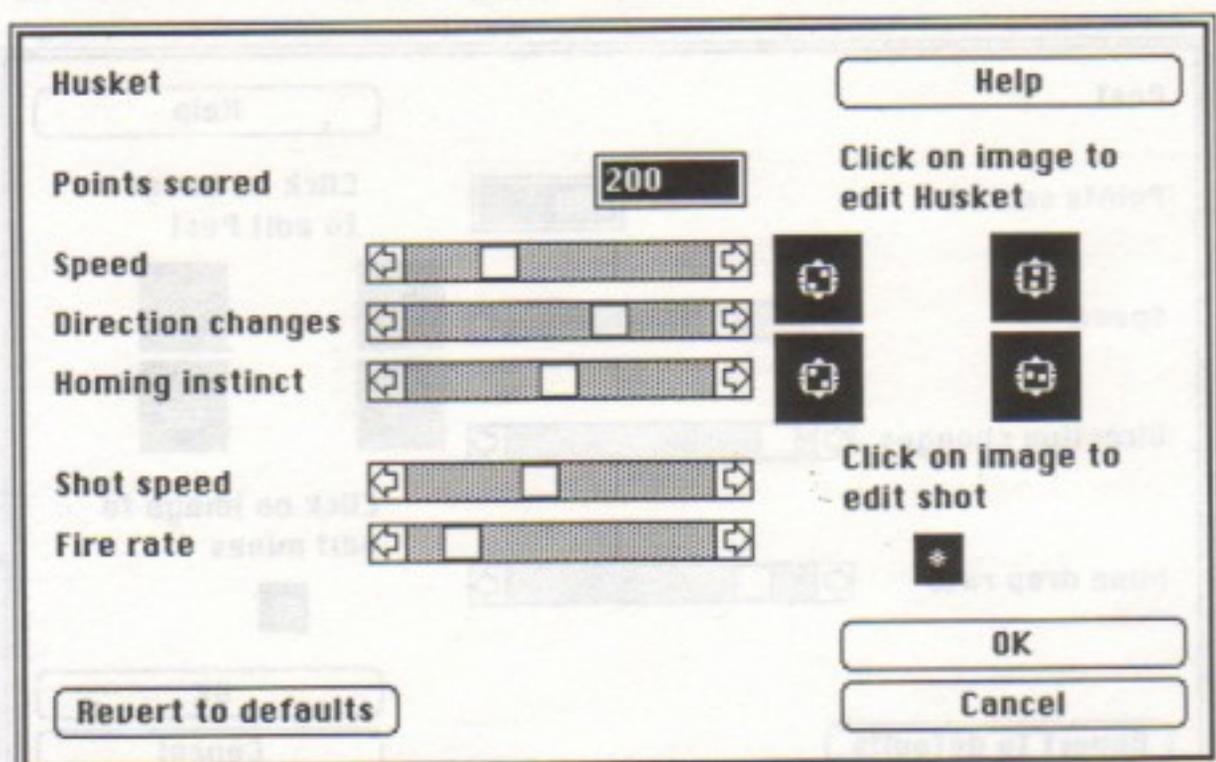
For explanations of the *Points Scored* box, the *Speed* bar, the *Direction changes* bar, and the images, please refer to Annoyers (section 6.3.1).

The *Mine drop rate* bar refers to how often the Pests will drop their mines. Moving it to the right makes them drop as often as they can, to the left: hardly ever. Note that Pests can only drop one mine for each crystal that has been picked up, so that even when this bar is set completely to the right, the number of Pest mines on a wave can never exceed the number of crystals collected so far that wave.

If you are working on a color machine, remember that the image of the Pest's mine has its colors constantly changed by Crystal Quest when it is drawn.

::6.3.5) Huskets

The window for Huskets is as shown below:



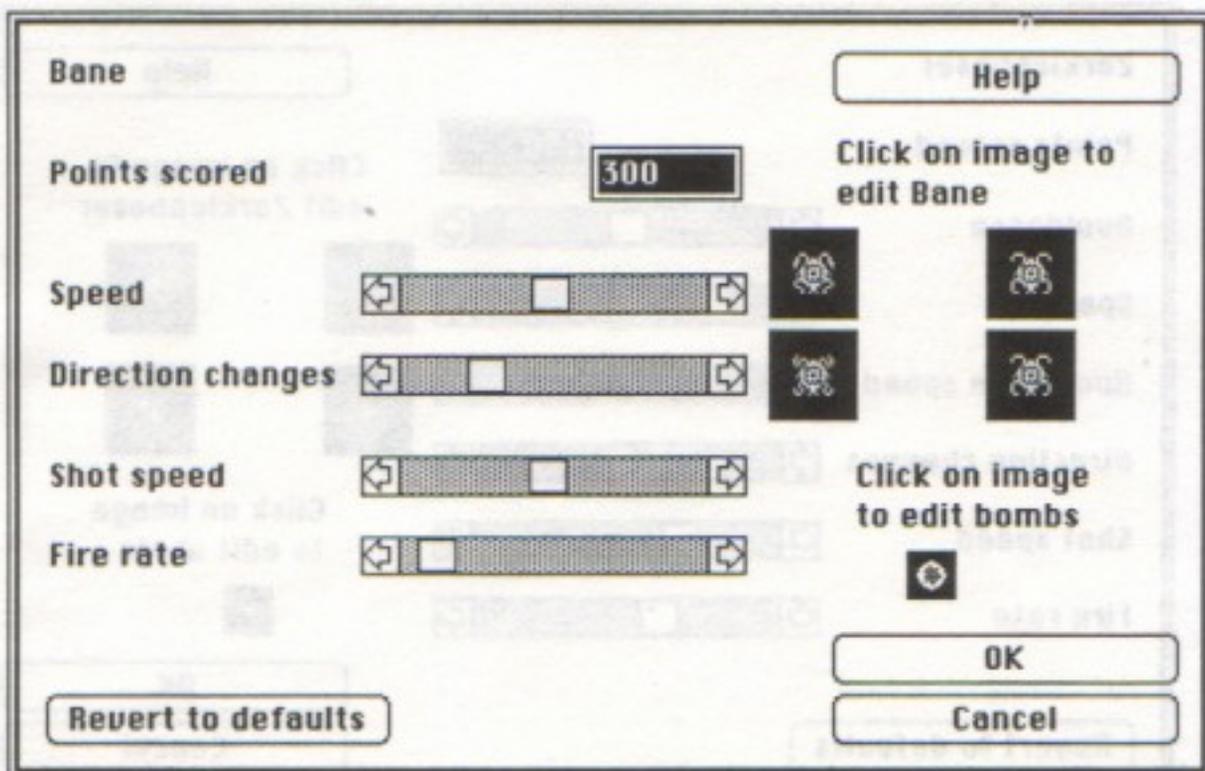
Huskets can be thought of as shooting Worriers (see section 6.3.2).

Moving the *Shot Speed* bar to the right increases the shot speed. Moving it the left, slows down the Husket's bullets.

Moving the *fire rate* bar to the right increases the number of shots. Moving it the left, slows down the Husket's trigger finger.

::6.3.6) Banes

The window for Banes is as shown below:



The *Points Scored* box contains the number of points you get when you kill a Bane (by shooting, ramming, or smarting it). Note that the points value can be negative (see section 8). The four images are cycled through as the Bane moves around, resulting in an animation effect. Clicking on an image brings up the graphics editor, allowing you to change or copy it. If you click on *Copy to all* in the graphics editor window, all three images of the Bane are set the the one being edited.

The *Speed* bar refers to the maximum speed at which the Bane can move. Moving the thumb to the right speeds it up, to the left slows it down.

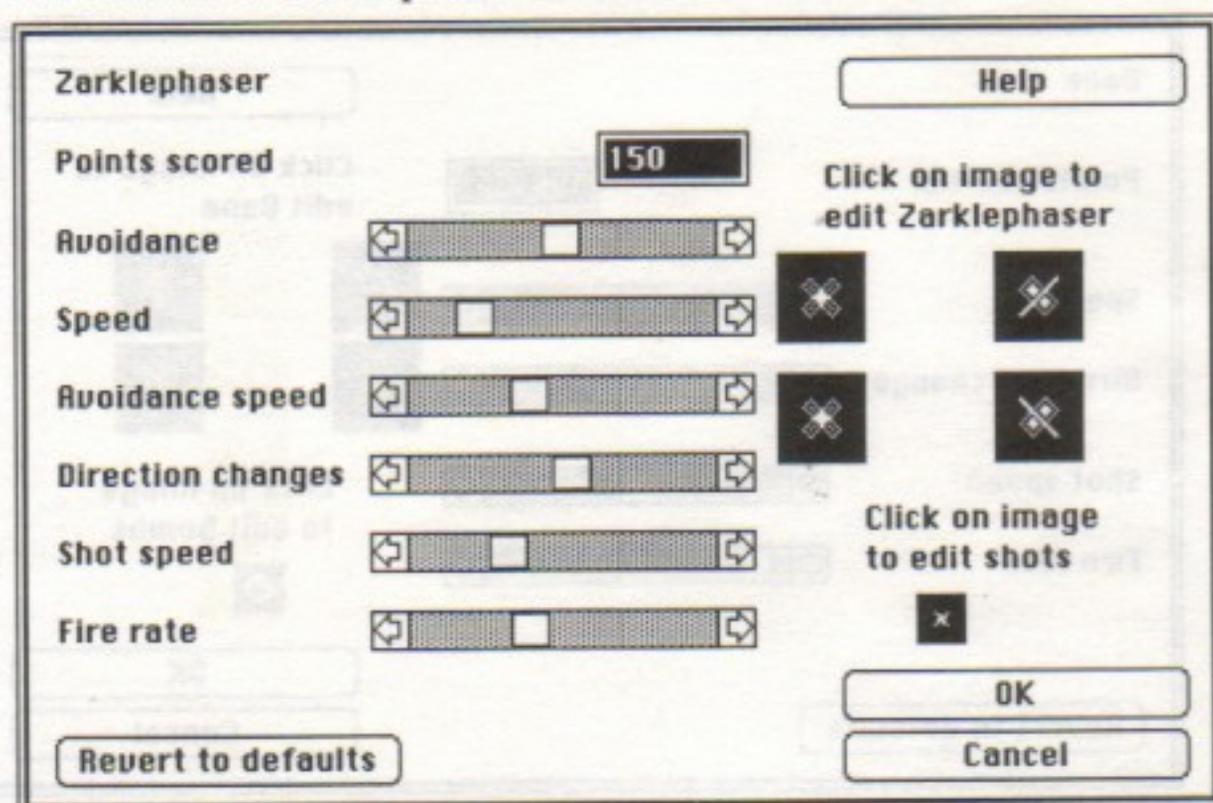
The *Direction changes* bar refers to how often the Bane changes direction. Moving to the left makes it move more in straight lines, very seldom changing direction; to the right makes it change direction practically all the time - i.e., it jitters about maniacally (but doesn't tend to get anywhere).

Moving the *Shot Speed* bar to the right increases the shot speed. Moving it the left, slows down the Bane's bullets.

Moving the *fire rate* bar to the right increases the number of shots. Moving it the left, slows down the Bane's trigger finger.

::6.3.7) Zarklephasers

The window for Zarklephasers is as shown below:



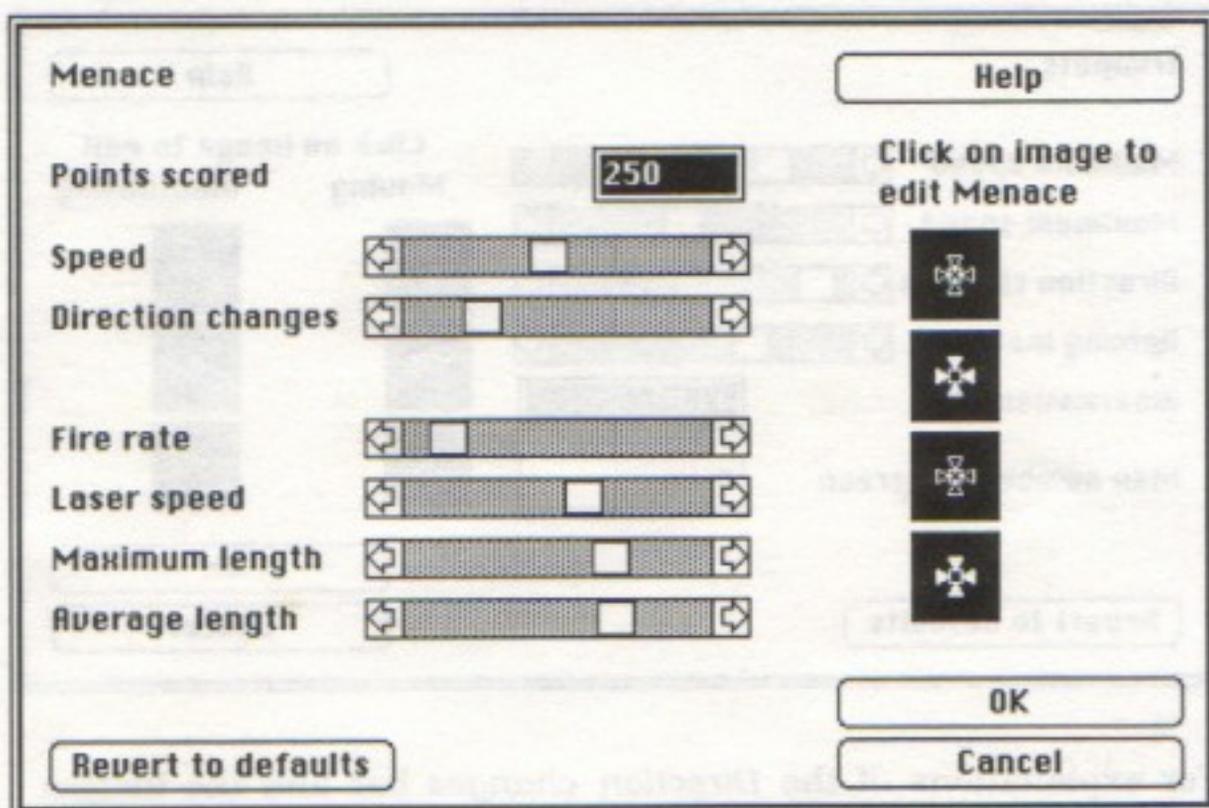
For explanations of the *Points Scored* box, the *Direction changes* bar, the *Shot Speed* bar, the *Fire rate* bar, and the images, please refer to Annoyers (section 6.3.1) and Worriers (section 6.3.2).

Zarklephasers move in a way subtly different from other nasties. They will tend to try to avoid you, preferring to shoot at you from as far away as possible (the wicked little devils). They are especially at home when hiding in corners, merrily shooting at you. Setting the *Avoidance* bar further to the right makes them do this far more prominently. Note that, like the homing instinct of Worriers, Huskets, and Trimpets, the *Avoidance* setting is directly linked to the *Direction changes* setting, as they can only decide to avoid you when they have already decided to change direction.

They have two different speed settings, marked *Speed* and *Avoidance speed*. The former is used when they are moving randomly, and the latter when they are avoiding you. If you put the *Direction changes* and *Avoidance* bars to the right, and the *Speed* bar quite far to the left, then they become terrified of you, and you can herd them around the screen as though you were a sheepdog.

::6.3.8) Menaces

The window for Menaces is as shown below:

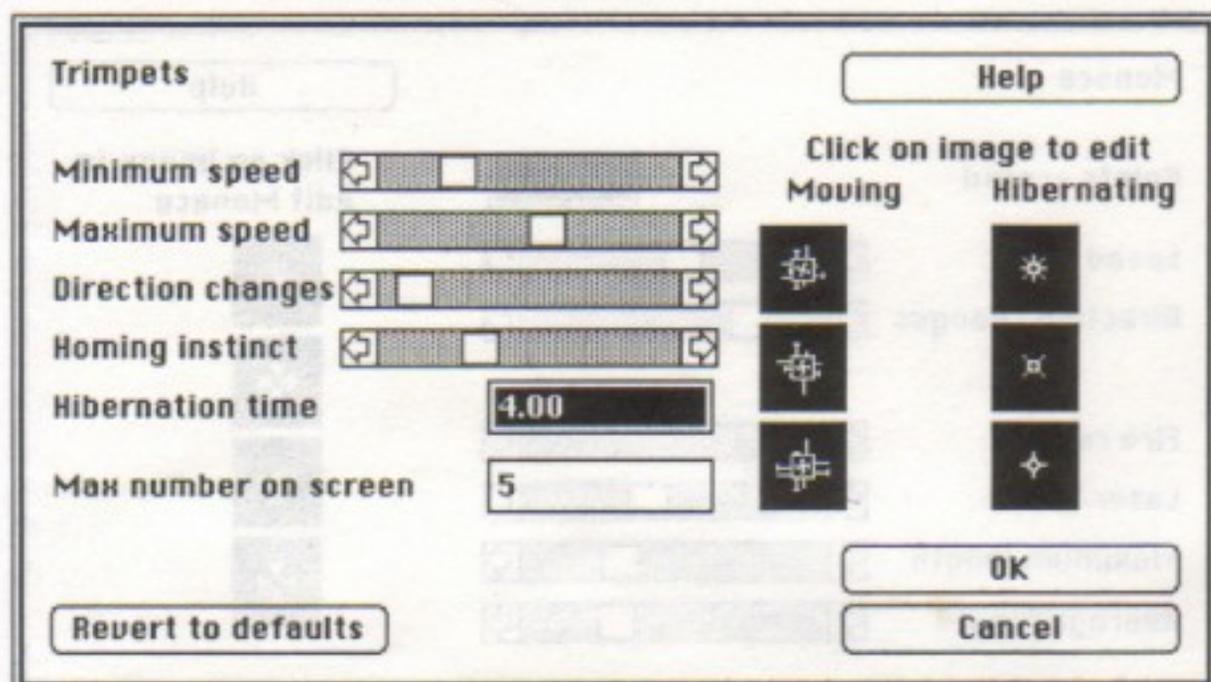


For explanations of the *Points Scored* box, the *Speed* bar, the *Direction changes* bar, the *Fire rate* bar, and the images, please refer to Annoyers (section 6.3.1) and Worriers (section 6.3.2).

The other three bars control the Menace's laser beams. *Laser Speed* sets the speed at which the laser beams come out of the Menace, *Maximum Length* is the longest that a laser beam can reach (at the left-most they are very short, at the right-most they can span the entire screen) and *Average Length* sets the likelihood that a beam can reach this maximum length. Set to the left means that the Menace will hardly ever fire a laser that reaches its maximum length, to the right makes the beams practically always go as far as they can.

::6.3.9) Trimpets

The window for Trimpets is as shown below:



For explanations of the *Direction changes* bar and the images please refer to Annoyers (section 6.3.1); for the *Homing Instinct* bar, see Worriers (section 6.3.2); for the the *Max number on screen* box, see Dumpsles (section 6.3.3).

Trimpets don't have a Points Scored box as they can't be killed (except by smarting, when they score zero).

They always move horizontally or vertically at a speed between the values of the *Minimum speed* bar and the *Maximum speed* bar.

The *Hibernation length* box gives the time, in seconds, for which they hibernate when shot. If they are shot again while hibernating, their timer is reset to this amount.

Note that there are two sets of images, one for their normal self and one for when they are hibernating.

::6.3.10) Tentawarbles

The window for Tentawarbles is as shown below:

Tentawarble

Help

Points scored 200 Click on image to edit Tentawarble

Normal speed

Homing speed

Homing threshold

Direction changes

Revert to defaults

OK

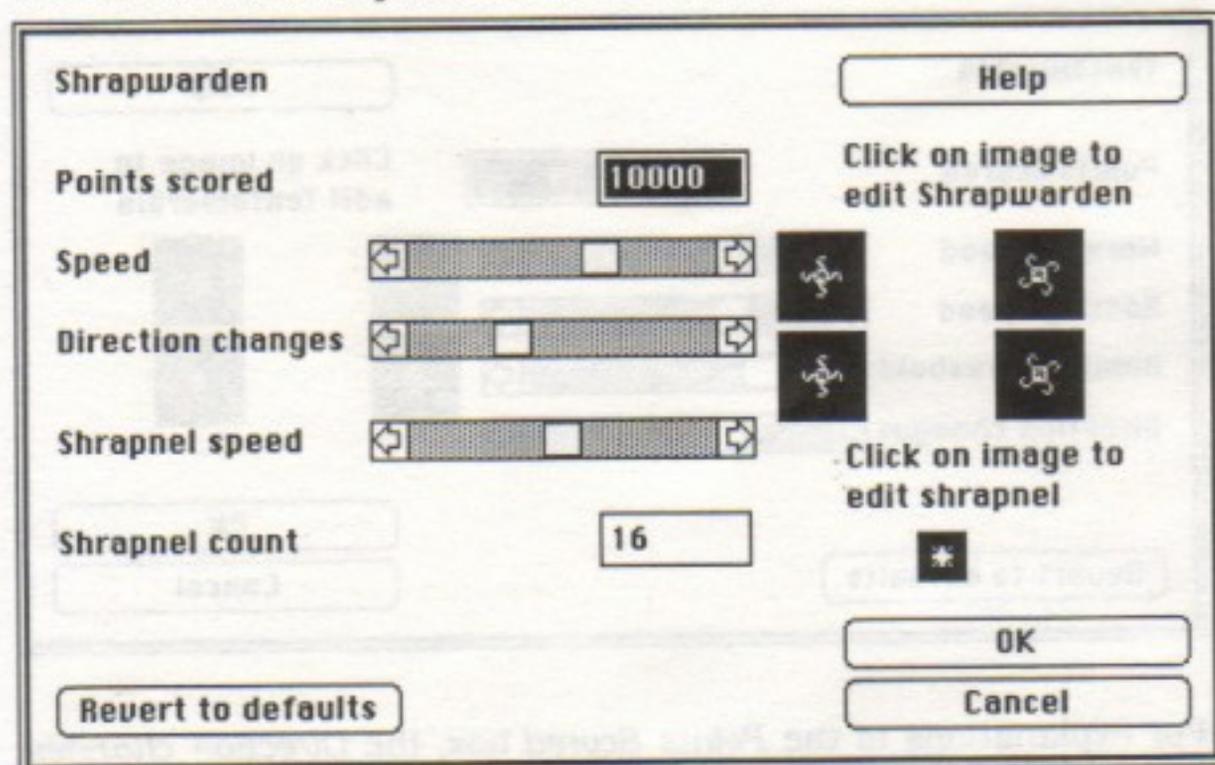
Cancel

For explanations of the *Points Scored* box, the *Direction changes* bar, and the images, please refer to Annoyers (section 6.3.1).

Tentawarbles usually move about randomly, at a speed governed by the *Normal speed* bar. However, when your ship's speed drops below a value set by the *Homing threshold* bar, they home in directly at you at a speed set by the *Homing Speed* bar. If the *Homing threshold* bar is set to the left, then you have to practically stop dead for them to home in; while if it is set the the right, then you have to be moving quite fast to prevent them from going for you.

::6.3.11) Shrapwardens

The window for Shrapwardens is as shown below:



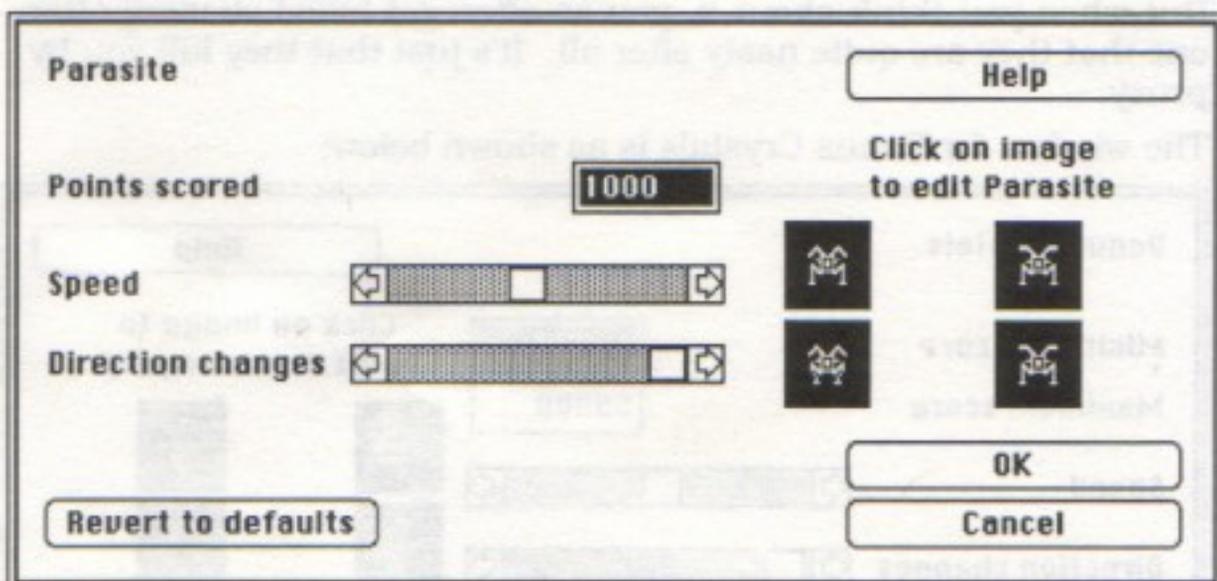
For explanations of the *Points Scored* box, the *Speed* bar, the *Direction changes* bar, and the images, please refer to Annoyers (section 6.3.1).

The other information refers to the shrapnel that comes from them when they are hit. The *Shrapnel speed* bar controls the speed at which the bits of shrapnel travel, and the *Shrapnel count* box sets the number of bits that they blow up into (up to a maximum of 64). Remember that too many pieces of shrapnel will slow the machine down considerably, and that shrapnel moving too fast can "skip over" your ship (see section 8).

There can only be one exploding Shrapwarden at a time. If one is already blowing up when you shoot another one, the first pieces of shrapnel will disappear as the second one blows up.

::6.3.12) Parasites

The window for Parasites is as shown below:



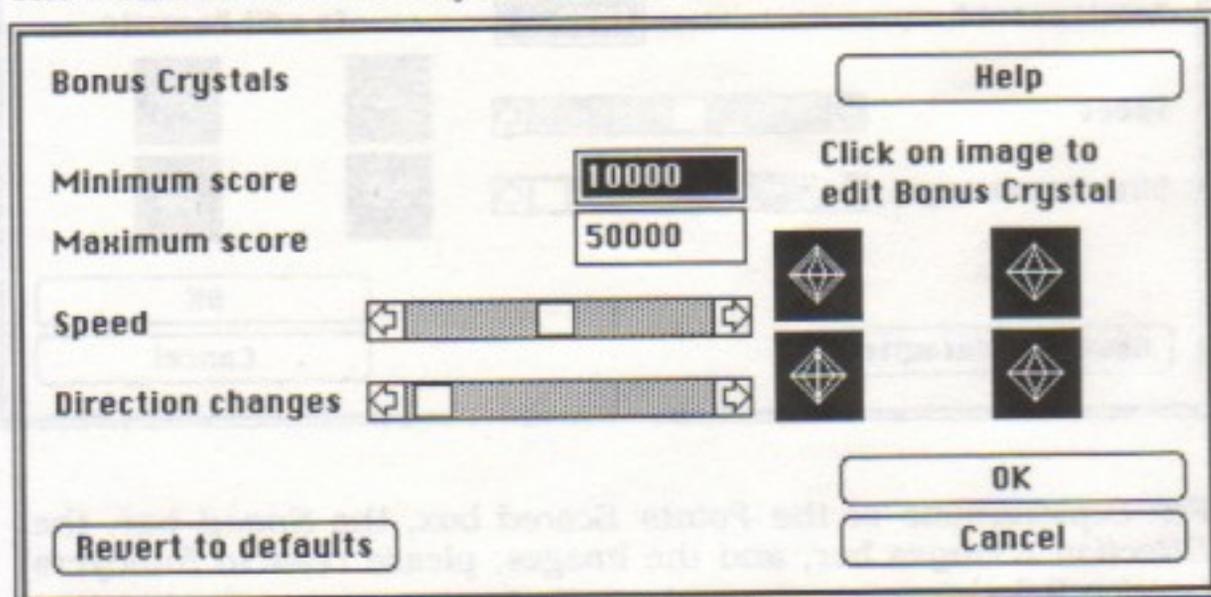
For explanations of the *Points Scored* box, the *Speed* bar, the *Direction changes* bar, and the images, please refer to Annoyers (section 6.3.1).

Parasites always home in on you, however, if the *Direction changes* bar is set more to the left, then they won't adjust their direction towards you so often, so they become less competent at following you.

::6.3.13) Bonus Crystals

Yes, alright, alright, Bonus Crystals aren't really all that nasty. But when you think about it, you so often get killed chasing after one that they are quite nasty after all. It's just that they kill you by proxy.

The window for Bonus Crystals is as shown below:



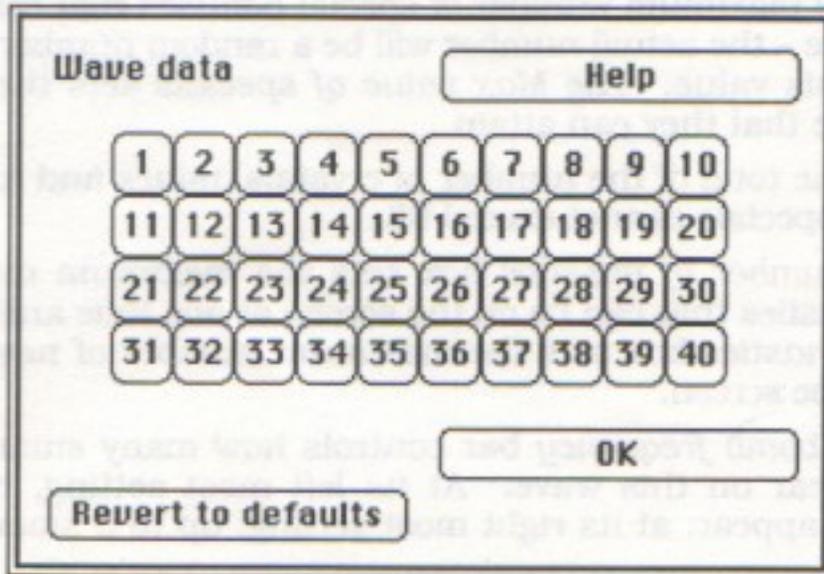
For explanations of the *Speed* bar, the *Direction changes* bar, and the images, please refer to Annoyers (section 6.3.1).

The *Direction changes* bar is usually set to the left, as Bonus Crystals tend to move in straight lines most of the time. Setting it more to the right makes them very hard to catch, although if it is too far to the right, they don't tend to get anywhere, so this can make things easier.

When you get a Bonus Crystal, you get a random number of points between the values in the *Minimum score* box and the *Maximum score* box. Note that any values entered here are rounded down to the nearest 1000. Also remember that you can enter negative values here (see section 8). The point value of a Crystal cannot be between -10000 and 10000 however, so any values between -10000 and zero are rounded down to -10000, and anything from zero to 10000 is rounded up to 10000. For instance, if you entered -50000 for the minimum score, and 50000 for the maximum score, the value of a Crystal could be in the range -50000...-10000 or 10000...50000.

:6.4) Waves

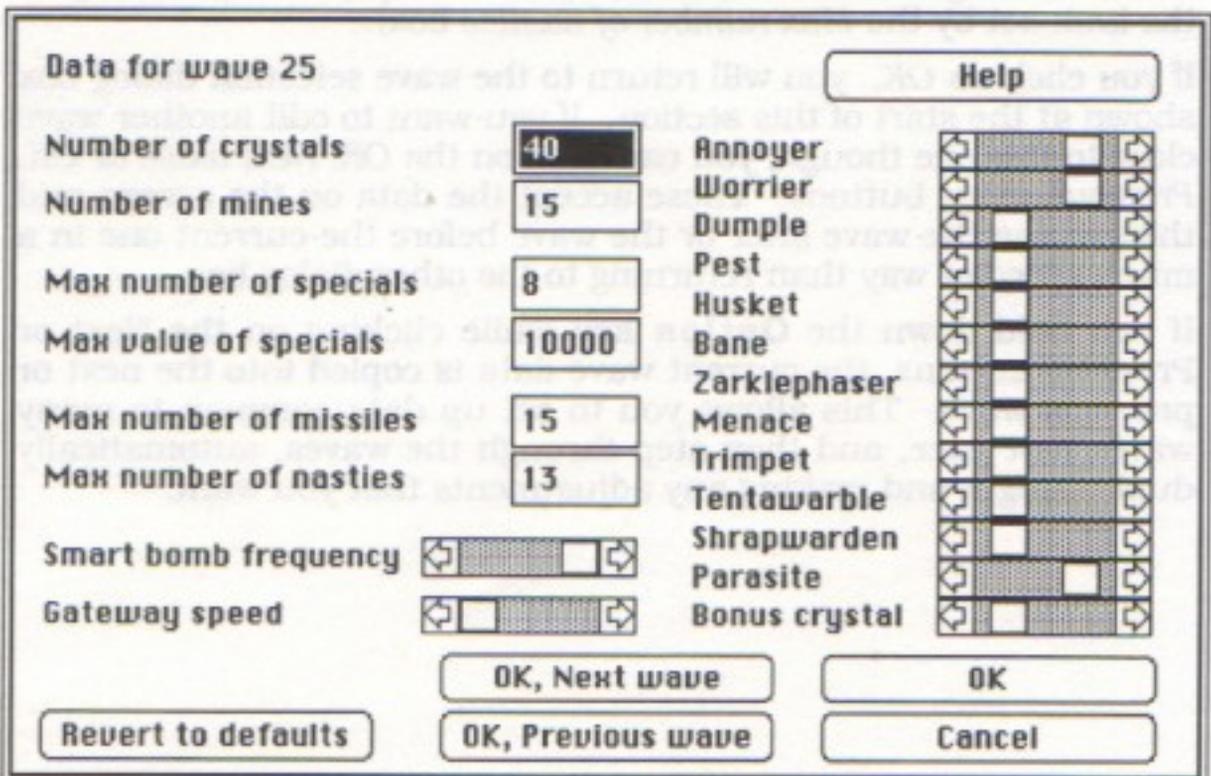
When you click on the waves button, you get the following dialog box, with a button for each of the 40 waves:



Remember that the data for wave 40 applies to all waves after that as well.

Clicking on the *Revert to defaults* buttons verifies your request first, as they operate on all 40 waves at once.

When you click on a wave button, you get another dialog box showing you all of the parameters for that wave. This window looks like the one below which, as an example, shows wave 25.



The *Number of crystals* box sets the number of crystals to be collected on that wave and the *Number of mines* box sets the number of mines on that wave. The *Max number of specials* box controls the maximum number of special bonuses that can appear on that wave – the actual number will be a random number between zero and this value. The *Max value of specials* sets the highest points value that they can attain.

Note that the total of the number of crystals, mines and maximum number of specials cannot exceed 95.

The *Max number of missiles* box sets the maximum number of nastie's missiles that can be on the screen at one time and the *Max number of nasties* box sets the maximum number of nasties that can be on the screen.

The *Smart bomb frequency* bar controls how many smart bombs might appear on this wave. At its left most setting, no smart bombs will appear; at its right most setting, up to 5 smart bombs can occur.

The *Gateway speed* bar controls the speed of horizontal movement of the gateway. At the left the gateway doesn't move, while at the right it chops back and forth like a bacon slicer.

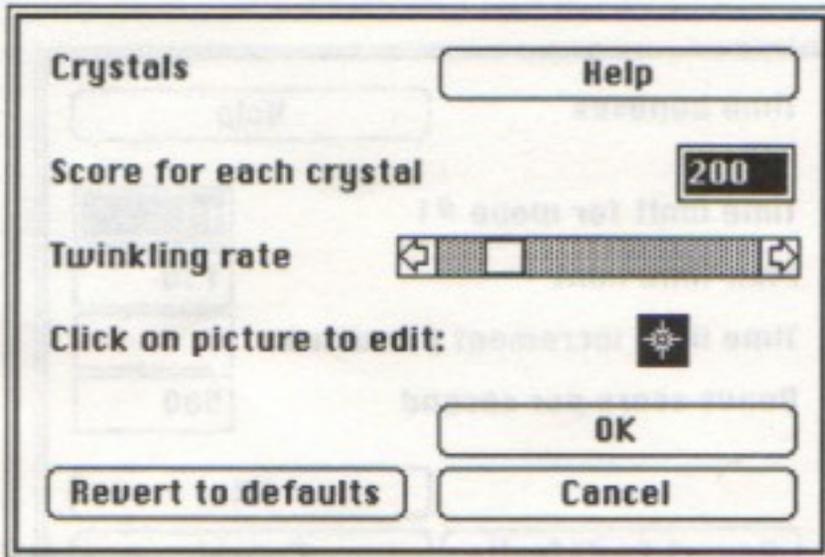
Down the right-hand side of the dialog box are scroll bars for each of the nasties and the Bonus Crystal. Each one controls the likelihood of a nasty of that type appearing on this wave. At their left-most, that particular nasty doesn't appear at all on this wave, and at the right-most, those nasties will keep pouring out (up to the limit set by the *Max number of nasties* box).

If you click on *OK*, you will return to the wave selection dialog box shown at the start of this section. If you want to edit another wave close to this one though, you can click on the *OK, Next wave* or *OK, Previous wave* buttons. These accept the data on the screen and then go the the wave after or the wave before the current one in a much speedier way than returning to the other dialog box.

If you hold down the **Option** key while clicking on the *Next* or *Previous* buttons, the current wave data is copied into the next or previous wave. This allows you to set up data common to many waves just once, and then step through the waves, automatically duplicating it and making any adjustments that you want.

:6.5) Crystals

The edit window for Crystals is as shown below:



The *Score for each crystal* is the amount you receive when you pass over one and take it (remember that this can be negative). The *Twinkling rate* only applies when playing the game in color. At the left-most, the Crystals don't twinkle; at the right-most they flash wildly.

Note that the colors in the color image for the crystal will be constantly modified if it is set to twinkle.

:6.6) Time bonuses

This window sets the amount of points you get after completing a wave.

Time bonuses	Help
Time limit for wave #1	10
Max time limit	150
Time limit increment per wave	5
Bonus score per second	500
Revert to defaults	OK
	Cancel

Each wave has a time limit, after which no bonus points are awarded. The *Time limit for wave #1* box sets the time limit (in seconds) for the first wave. The amount is increased by the number of seconds shown in the *Time limit increment per wave* box each wave, up to a maximum value controlled by the *Max time limit* box. For each second quicker than the limit that you complete the wave, you receive the number of points indicated by the *Bonus score per second* box.

:6.7) Smart bombs

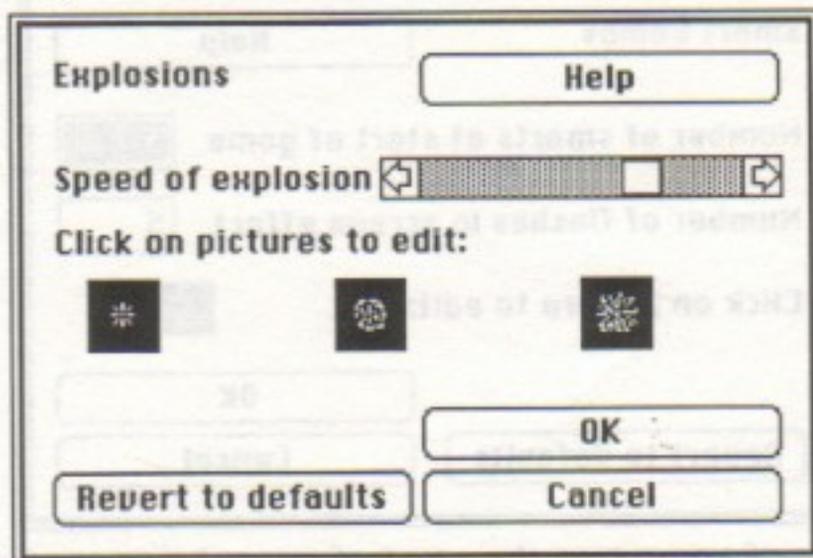
Clicking on the this button gives you the window shown below:

The image shows a dialog box titled "Smart Bombs". At the top left is the title "Smart Bombs" and at the top right is a "Help" button. Below the title are two numeric input fields: "Number of smarts at start of game" with the value "3" and "Number of flashes in screen effect" with the value "5". Below these is a label "Click on picture to edit:" followed by a small square icon containing a bomb. At the bottom of the dialog are four buttons: "Revert to defaults" on the left, "OK" in the center, and "Cancel" on the right.

The *Number of smarts at the start of game* box sets how many smart bombs you get at the start of a new game (surprise surprise). The *Number of flashes in screen effect* box sets how many time the screen flashes when you let a smart bomb off. Setting this to a lower value can be particularly useful when playing in color, as the smart bomb effect can be off-putting.

:6.8) Explosions

This window lets you change the explosions that appear on the screen when you have shot and killed a nasty.

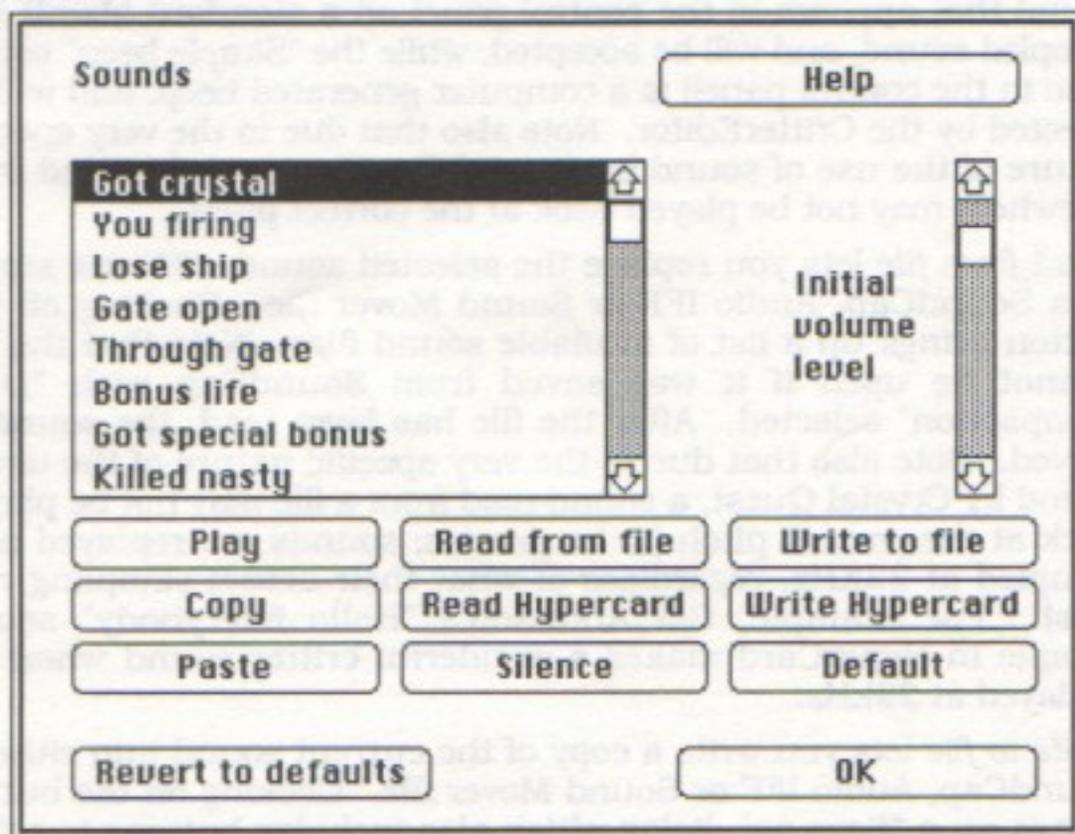


The explosions consist of three images that are cycled through and then back to the start again at a rate controlled by the *Speed of explosion* bar. With this bar set to the left, each image will stay on the screen for quite some time, so the explosion will be slow. Set to the right, the explosion will happen very quickly.

When editing one of the explosion shapes, the speed of the animation box depends on the current setting of the scroll bar.

:6.9) Sounds

The sounds window lets you hear and change the sounds used by Crystal Quest.



The *Initial volume level* bar sets the volume level used when you run Crystal Quest. With the scroll bar at the bottom, the sound is off at first. When it is at the top, the sound is at maximum volume, and uses only 2 channels. Anywhere in between sets different volume levels for 4 channel sound. These settings correspond to hitting the keys 0 through 9 when in Crystal Quest.

The scrolling list shows you a list of all the sounds used by the game. Click on the arrows to move up and down the list, or use the arrow keys on your keyboard. The nine buttons below the list each operate on the sound currently high-lighted in the list.

Play lets you hear the sound (using only 1 channel - which can be pretty loud). You can also play a sound by double-clicking on it. If you hold down the Option key when you click on the play button, the CritterEditor automatically plays each of the sounds in turn. Clicking the mouse or hitting a key will stop the process.

Copy copies the sound into the clipboard. The sound can be pasted back into Crystal Quest or any other program that accepts standard Apple sound resources (e.g., Hypercard or the error sound on a Mac II).

Paste pastes a sound previously copied from Crystal Quest or any other program that allows sounds to be exported in the standard

Apple format. The sound is played after it has been pasted. Note that the CritterEditor will only accept "sampled" sounds, not those generated by the Mac itself. For instance, the "Monkey" sound that appears in the control panel on a standard Mac II is a sampled sound, and will be accepted, while the "Simple beep" sound (also in the control panel) is a computer generated beep, and will be rejected by the CritterEditor. Note also that due to the very specific nature of the use of sound by Crystal Quest, a sound pasted from elsewhere may not be played back at the correct pitch.

Read from file lets you replace the selected sound with one stored as a SoundCap, Audio IFF or Sound Mover file. Clicking on the button brings up a list of available sound files. Note that the file cannot be used if it was saved from SoundCap with "Data Compaction" selected. After the file has been read, the sound is played. Note also that due to the very specific nature of the use of sound by Crystal Quest, a sound read from a file may not be played back at the correct pitch (to be precise, sounds are replayed as if sampled at 22KHz, regardless of what their actual sampling rate was). For example, Bill Atkinson's "Hello Everybody" sound sample in HyperCard makes a wonderful critter sound when it's replayed at 22kHz.

Write to file lets you write a copy of the current sound into either a SoundCap, Audio IFF or Sound Mover file. Clicking on the button brings up a "Save as" dialog which also includes buttons to select between the three formats. The sound can then be used by a number of other programs.

Read from Hypercard lets you replace the selected sound with one stored in a Hypercard stack, or in Hypercard itself. Clicking on the button brings up a list of available stacks and the Hypercard application. When you select one of these, you are given a list of the sounds - if any - that are to be found in this file. Holding down the *Option* key when clicking this button gives you a list of *all* files. You may then open any of them and see what sounds are contained within them for you to use. An example is the System File - it contains the 4 standard Apple System beeps on the Mac II.

Write to Hypercard lets you write a copy of the current sound into a Hypercard stack, or into Hypercard itself. Clicking on the button brings up a list of available stacks and the Hypercard application. After selecting where you want the sound to go, you are prompted for a name for the sound. Holding down the *Option* key when clicking this button gives you a list of *all* files. You may then install the sound into any of them - although very few files will be able to use this feature. An example of something you can do with this feature is to add different System Beeps to the System File on a Mac II.

Warning: Don't read or write to Hypercard from the CritterEditor if you are running under MultiFinder and Hypercard is already open. Quit from Hypercard first; do the the read or write operations and then re-run Hypercard.

Warning: Always make sure that the sounds you use in Hypercard all have different names from the ones in the System File. Hypercard and the System Beep (on the Mac II) use a slightly different sound format. Hypercard searches the System File before itself when looking for a sound. Because of this, if you have a sound with the same name in the System File and in Hypercard, Hypercard will find the System File one first, and fail to play it because of the different format.

Default reverts just that particular sound to its default.

Silence effectively removes that sound from Crystal Quest (although why anybody should want to do that, I can't imagine).

The *Revert to defaults* button reverts all sounds to their defaults, but asks for verification first as it's a bit drastic.

Note that there's no *Cancel* button in this window.

It is important to remember that sound data takes up a lot of disk space. As soon as you start adding customized sounds to a copy of Crystal Quest or a parameter file, the size of the file will sky-rocket instantly.

:6.10) Demo

The Demo window controls various aspects of the demo that starts when you hit the *D* key from Crystal Quest, or when you leave the game unattended for a while.

The screenshot shows a dialog box titled "Demo". At the top right is a "Help" button. Below it are several input fields and a slider:

- "Start from wave": a text box containing the number "1".
- "Time limit": a text box containing the number "180".
- "Auto demo trigger time": a text box containing the number "120".
- "Fire rate (shots per second)": a text box containing the number "6".
- "Smart trigger": a text box containing the number "4".
- "Ship speed": a horizontal slider bar with arrows at both ends, currently positioned in the middle.

At the bottom of the dialog are three buttons: "OK", "Revert to defaults", and "Cancel".

The *Start from wave* box sets the wave at which the demo starts.

The *Time limit* box sets the maximum time (in seconds) that a demo can run. When this time limit has expired, the demo will stop.

The *Auto demo trigger time* box sets the time (in seconds) that the game can stand idle before a demo will start.

The *Fire rate* box sets the number of shots, on average, that the ship will fire per second. Remember that whatever this value is set to you can only have five of your shots on screen at one time.

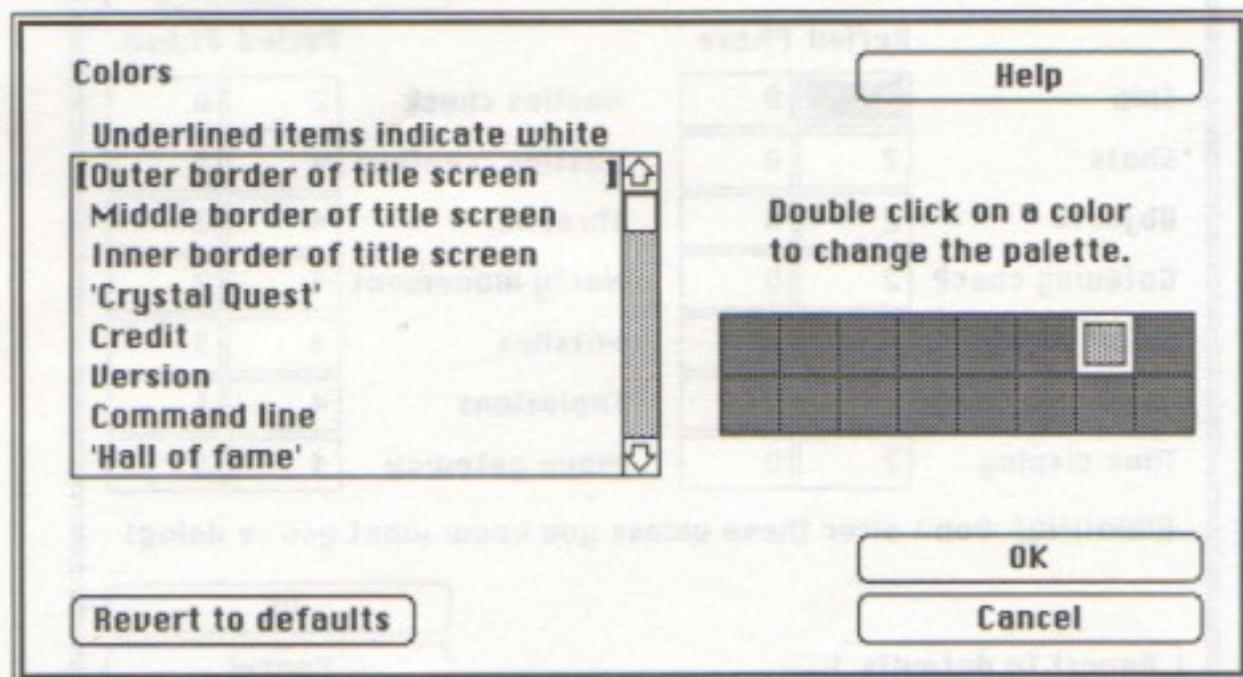
The *Smart trigger* box sets the number of nasties that have to be on screen at one time before the demo fires a smart bomb. Note that Dumples and Trimpets are counted as 2 when using this figure because they can't be killed as easily as most nasties.

The *Ship speed* bar controls the speed of the ship as it does the demo. Note that this is also limited by the *Max speed of ship* bar in the Ship window (see section 6.2). By setting both of these bars to the right, the demo is performed at an awesome pace – so fast that the ship quite often flies straight through mines (see section 8).

:6.11) Colors

This edit window can only be brought up when running on a Mac II set to 16 or more colors. It allows you to change the colors of various miscellaneous things, particularly pieces of text, that appear on the screen. It also allows you to change the color palette used by Crystal Quest.

The gray squares shown below will be in color on your screen.



The scrolling list on the left hand side of the screen shows each of the miscellaneous items whose color you can change. Items in quotes show the actual text of what appears on the screen, for instance "Hall of fame", while others give a description, for instance, "Outer border of title screen". Each item is shown in the color that it appears within Crystal Quest, except for white items, which are shown in underlined black (white doesn't show up very well on a white background you see...).

The current item is shown by brackets either side (see picture above), and the color of that item is high-lighted in the palette. To change the color of an item, simply click on a different palette color.

Crystal Quest sets up its own palette of 16 colors, as shown in this and the graphics editor windows. You can change these colors by double-clicking on a palette entry in this window. This brings up the standard Apple "Color Picker" dialog box from which you can choose a different color. If you change a color, remember that all instances of this color in the game will change, including miscellaneous items and images.

:6.12) Tasks

The tasks window is an advanced part of the CritterEditor which can radically change the way in which parts of the game interact. Crystal Quest divides the program up into tasks, each of which is shown in this window.

Task periods and phases				Help	
	Period	Phase		Period	Phase
Ship	2	0	Nasties check	2	0
Shots	2	0	Nasties creation	4	0
Objects	2	0	Shrapnel	4	2
Gateway check	2	0	Nasty movement	4	2
Smart bomb	1	0	Missiles	4	3
Obstacles check	2	0	Explosions	4	1
Time display	2	0	Move gateway	4	3

WARNING! Don't alter these unless you know what you're doing!

Revert to defaults OK Cancel

A task is a particular function of the program that is carried out periodically while the game is in progress.

Each task has a period and a phase value. The period is the time, in 1/60ths of a second between consecutive executions of that task, for instance the *Ship* task usually has a period of 2/60ths of a second, which means that the part of the program that moves your ship is called 30 times a second. By changing a value, you can make a task get called more or less often in relation to the other tasks.

Each task also has a phase value. This ensures that tasks with the same period value are not all called at once. This phase value is also in 1/60ths of a second, and should be less than the period setting.

Each task is briefly described below:

Ship is the task which reads the mouse position and moves the ship accordingly. Decreasing this value will speed up your ship.

Shots moves your shots about the screen. Decreasing this value will speed up your shots.

Objects checks for intersections with Crystals, Mines, Smart bombs and Special bonuses.

Gateway check checks to see whether you are trying to go through the gateway when it is open.

Smart bomb performs the screen effect for the smart bomb.

Obstacles check checks for collisions with the portals or the gateway.

Time display updates the time shown in the score line.

Nasties check checks for nasties colliding with you or your bullets.

Nasties creation creates new nasties according to the wave parameters. Decreasing this value will make nasties appear more often.

Shrapnel moves the pieces of shrapnel from an exploding Shrapwarden.

Nasty movement moves the nasties. Decreasing this value will speed up all nasties.

Missiles moves the nastie's shots. Decreasing this value will speed up all nastie's shots.

Explosions cycles explosions through their 3 images. It also performs the timer for Bonus Crystal score boxes, so decreasing this period will make those scores stay on the screen for less time.

Move gateway moves the gateway in waves that specify gate motion. Decreasing this period will speed up the gateway.

It is worth noting that when the game gets very heavy, particularly on an older Mac or a Mac II in color, the processor can get bogged down, and the tasks can't be executed as often as you would like. When this happens, the program tries to even out the calling of the tasks, so that they stay the same in relation to one another. If Apple ever introduces a graphics chip that speeds up Quickdraw, Crystal Quest will really blaze!

7) Short Cuts

There are a number of keyboard shortcuts that you can use:

For all windows Return or Enter correspond to *OK* and Command-Period or Clear (Numeric keypad) correspond to *Cancel*. Command-? is *Help*; Command-R is *Revert*; and Command-D is *Revert to defaults*.

On a Crystal Quest window, Command-T is *Transfer*.

In the Save before Closing/Quitting/Transferring confirmation dialog, Return or Enter is *Yes*, Delete is *No* and Command-Period or Clear is *Cancel*.

Double-clicking on a sound in the Sounds window plays it.

If the graphics editor window, there are keyboard equivalents for just about everything:

Command- Z, X, C, V and B correspond to *Undo*, *Cut*, *Copy*, *Paste* and *Clear*.

Command- T, F and A correspond to *Copy to....*, *Copy from...* and *Copy to all*.

Command- N and P correspond to *OK*, *Next shape* and *OK*, *Prev. shape*.

Command- (any arrow key) corresponds to clicking on an arrow icon (moves shape).

Command- [and] correspond to clicking on the reflect horizontal and vertical icons.

Command-I corresponds to clicking on the invert icon.

Command-L corresponds to clicking on the fill icon (color only).

Command-Tab, Space and Delete set the mode to Paintbrush, Pencil and Eraser.

In the Get Info window, you can Cut, Copy and Paste text by using the usual Command-X, C and V combinations.

7.1) Option Key Uses

When clicking on *Copy to All* in a graphics editor window: only copies to color or monochrome images in the group, according to current mode (see section 5).

When clicking on *Paste* in a graphics editor window: scales the picture to the maximum size of the image, rather than clipping it (see section 5).

When clicking on *Next Wave* or *Previous Wave* in a wave data window: copies the data for the current wave over to the next or previous wave (see section 6.4).

When clicking on *Next Shape* or *Previous Shape* in the graphics editor window: copies the data for the current shape over to the next or previous shape (see section 5).

When clicking on *Play* in the sounds window: automatically plays each of the sounds in turn. Clicking the mouse or hitting a key will stop the process.

When clicking on *Read Hypercard* or *Write Hypercard* in the sounds window: allows you to select from a list off *all* files, rather than just Stacks and Hypercard.

8) Hints, Tips and Caveats

Crystal Quest was designed to work with all of the default settings intact. As soon as you start changing things, you may find that

anomalies start creeping in. Casady & Greene Inc. cannot guarantee that all combinations of parameters will work satisfactorily together and still produce a fully working game. It is up to you to change the settings in a constructive manner and still keep the game playable.

In particular, you will find that if you start making things go too fast, then collision detection may start to fail. This is because if, say, your ship and a nasty were heading for each other at high speed, the game might check for a collision just before they should hit - returning a negative result, and then again just after they have passed - again returning negative. The effect would be that of your ship passing through the nasty unharmed.

Another pitfall in building a game is getting carried away with the sounds. Sounds take an extraordinary amount of space and it is not at all difficult to build a game that is too big to fit in your machine. The more sounds you add in or the longer each sound is the higher the likelihood that your game will get too big to play.

If you find a game is impossible to play, you can always revert to the default so don't be afraid to change things. Just remember to keep backups at all times.

Remember that the scores of any or all of Nasties, Crystals and Bonus Crystals can be made negative if you want. This gives you scope for some fascinating game configurations. For instance giving Crystals a negative value would force you to try to make up for these lost points by completing the wave as fast as you could and/or shooting as many nasties as possible. Bonus Crystals could be set to knock off hundreds of thousands of points if you are unfortunate enough to run into one. Alternatively, Bonus Crystals could be configured such that their minimum score is, say, -50,000 but their maximum is 100,000 - this way you are taking a chance when going for a Bonus crystal that it might actually lose you points, rather than gain them. By the way, the current game score can never go negative, it is always rounded up to a minimum of zero.

After creating a new version of the game, you will probably want to zero the high score table using Command-Shift-Z, so that you can start afresh.

Because a saved game can only be registered on the high score table if it is played using the same parameters as it was saved under, you may want to include the parameter file's name in its name, for instance if you wanted to save a game at wave 27 using a parameter file called "Frantic", you might use the file name "Frantic.Wave 27". Alternatively you could create a folder for each version and place the parameter file and all associated save files in this folder.

9) Zen and the art of game design

If you want to make a version of the game that stays fun to play for some while, rather than just playing around, try to balance things out. Making the ship smaller can be fun, as you can get through much smaller gaps. If you do make the ship smaller, the gateway should also be made narrower to balance the game. If you increase the points values of nasties and/or crystals, consider increasing the intervals between bonus lives as well.

You will find that it is particularly difficult to satisfy people with all levels of skill. A game easy for a four year old won't be interesting to a 30 year old. On this point, remember to make the game progressive by careful use of the bonus life bands and the data for each successive wave.

Crystal Quest is an addictive game because a lot of psychology went into its design. The secret of an addictive game is the use of incentive and reward. If you make things too easy or too hard then you lose this fundamental aspect of the game, and it becomes boring. After a while playing with the CritterEditor, you will probably start to appreciate how difficult this balance can be to achieve.

10) Totally Silly

Totally Silly is a sample parameter file that contains new graphics and sounds. To see how different Crystal Quest can be just by changing the graphics and sounds, do the following.

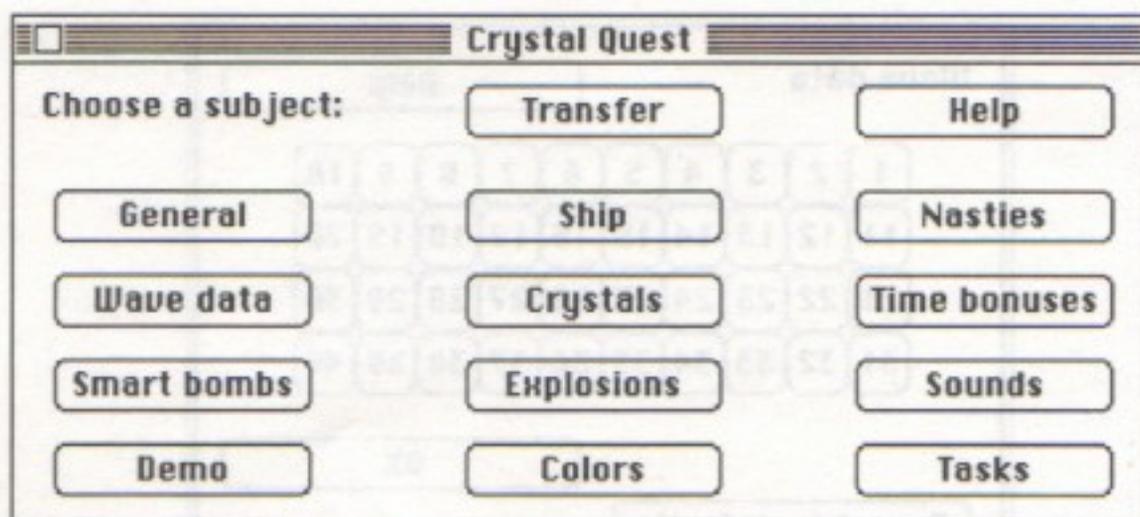
1. If you haven't already done so, make a backup copy of the master disks
2. Using the copies, double click on the parameter file, Totally Silly.
3. Select *Copy into Crystal Quest* in the **File** menu.
4. Highlight and open the Crystal Quest copy.
5. Click on the **Transfer** button.

11) Trying it out.

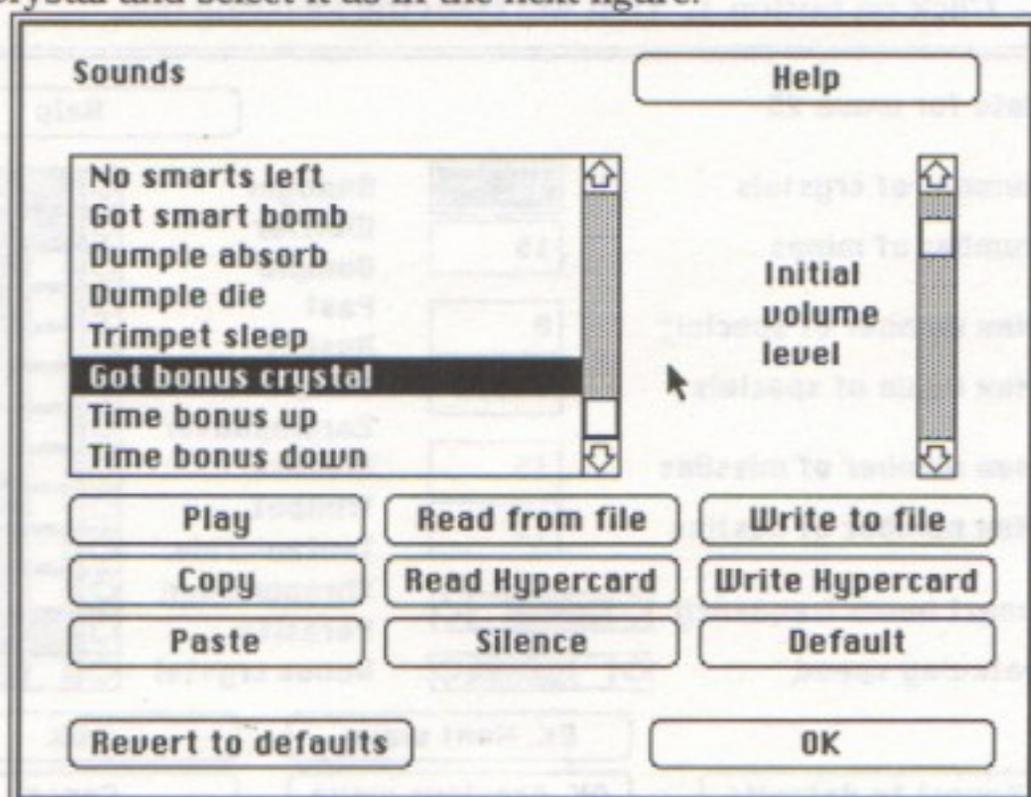
This section will lead you through a sample session in which you will make some changes to Crystal Quest, save the changes and try them out. For simplicity, the example presumes that you're working on a hard disk.

You're going to change the sound that signifies catching a Bonus Crystal and the number of Bonus Crystals in wave 1 so you can hear the sound you just installed.

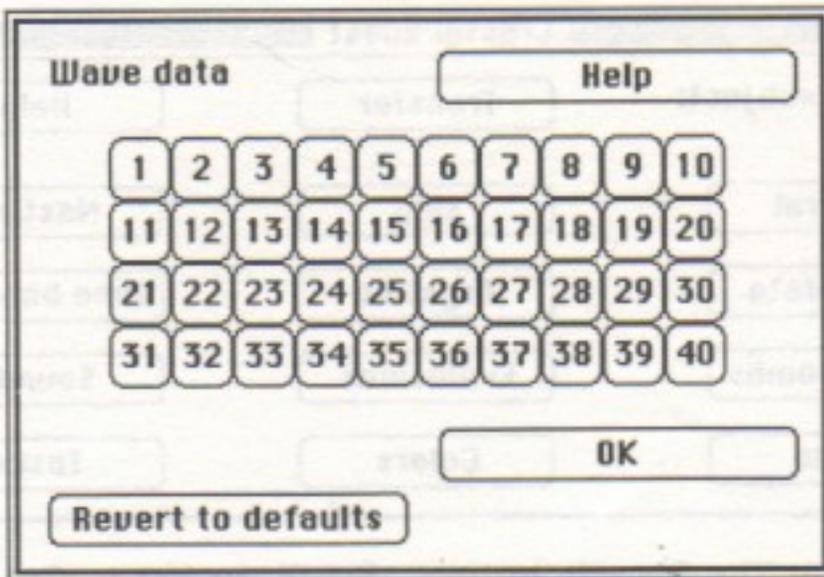
1. Start the program by double clicking the Crystal Quest CritterEditor icon.
2. Select *New* from the File menu. You'll see the following box:



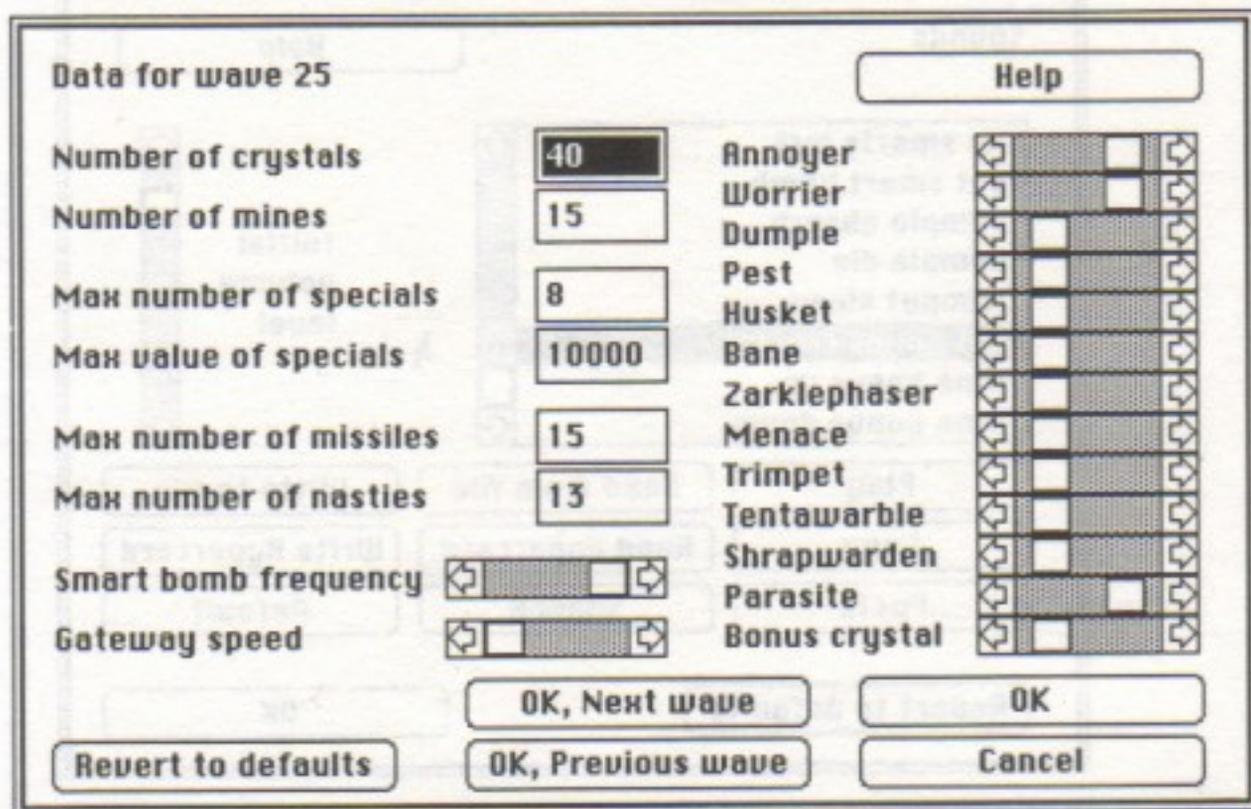
3. Click on The Sounds button. Scroll the list to Got Bonus Crystal and select it as in the next figure.



4. Click on *Read from file*.
5. Open "That's nice" in the file dialog.
6. You'll hear the sound when it's installed.
7. Click *Ok*. That will return you to the opening dialog box.
8. Click on *Wave Data*. That will open the following dialog box.



9. Click on button 1. That will open the following box.



10. Adjust the Bonus Crystal scroll bar all the way to the right and click *Ok*.
11. Select *Save into Crystal Quest* item in File menu. You'll need to locate and open a copy of Crystal Quest.
12. When the save is complete, click on the *Transfer* button to start Crystal Quest. This version of Crystal Quest that you've created will have lots of crystals on the first wave. Every time you catch one, you'll hear the new sound.

12) Posting Parameter files on Bulletin Boards.

This section will show you how to save your changes in a way that you can post them on a bulletin board. Since we would like Quest enthusiasts to purchase Crystal Quest and the CritterEditor, we ask that you not share modified versions of Crystal Quest. Instead, you may pass around copies of the parameter files. To do this, select the *Save Parameter Files As...* item in the file menu. When CritterEditor asks you to name the document, type "My Changes/Shareable." That will create a parameter file that you may post on a Bulletin Board. The icon for a parameter file looks like this:



When you are given a parameter file to play with, open the parameter file using CritterEditor. Then select *Save into Crystal Quest* item on the file menu. After the save is finished, click on the transfer button to play the game. You can save the modified game for future playing without having to use CritterEditor, we simply ask that you not pass that game around.

13) Problems

I get beeps instead of sounds.

Make sure the Sound file is in the same folder as the modified version of Crystal Quest.

I get a message that says "Eek! Out of Memory."

Sound files can burn up a lot of memory. Try reducing the number of sounds in your game or shortening the sounds.

If you experience other problems with CritterEditor or don't understand how to do something, please contact us at

Casady & Greene Inc.

PO Box 223779

Carmel, CA 93922

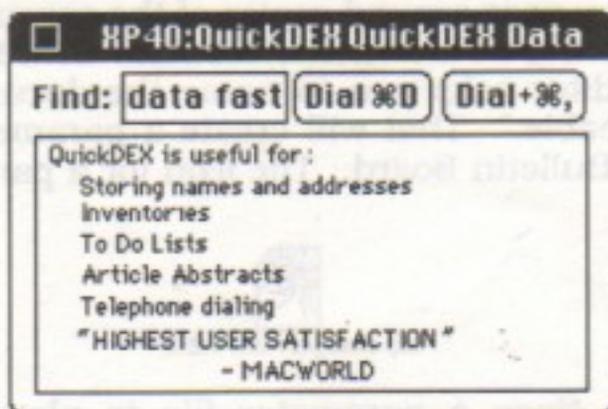
(408) 624 8716

Please recognize that the Editor gives you the capability to make unplayable games. Further, given the large number of variables, we can't guarantee that every game you create will always work. The number of cross checks would number in the millions and make the Editor unusable. Part of the fun in designing a game is in finding that sense of balance that is the hallmark of a good game.

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