DAUB Dynamic Brush

(To run, double click on the icon 'DAUB 1.5')

<u>Features</u>

DAUB is a Windows drawing program which has a unique and speedy approach to putting your graphics ideas onto the screen. **DAUB** simulates a broad brush that is controlled using the mouse, and offers many ways to vary the look of the brush strokes that you draw. Also, the brush strokes may be extensively modified after you have drawn them, in ways that allow the computer to do nearly all the work. Lines of text may be incorporated in the graphic, using any installed font.

As may be seen by the features described below, **DAUB** is a superb illustrative graphics tool, fully capable of complementing other software being used by the professional artist. Artists will be glad to know that **DAUB** graphics may be saved to disk as Encapsulated PostScript files [1] which may then be imported into most of the current major graphics packages. For educational or personal use, **DAUB** is able to print to any printer supported by Windows 3.1.

The main features of **DAUB** are:

Brush size fully adjustable.
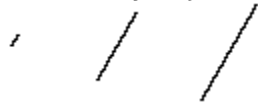
Brush orientation fully adjustable through 360 degrees. Orientations of 0 and 45 degrees respectively are illustrated below:
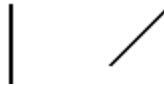
This results in calligraphy style brush strokes:

Variable orientation option, resulting in brush strokes of constant thickness:

This is like using an ordinary round brush.

Over 16 million colours available for the brush, although these will be approximated to an extent dependant on the capabilities of your graphics hardware and printer.

Variable brush size and/or colour while *drawing* the brush stroke, in accordance with variations in the path of the cursor. Sophisticated and complex effects can be achieved quite easily.

Text lines for headings, captions etc. All installed fonts are available, and TrueType [2] font text may be italicised, scaled and rotated. All fonts may be made bold and coloured with the full range of colour.

Selection of one or more drawn brush strokes for further manipulation, for example, re-colouring or stretching. Every drawn stroke has a small selection circle which is green if the stroke is selected and red if it is not selected.

Edit features, namely Cut, Copy, Paste and Delete for any selected object(s).

Positioning any selected object(s). Fine adjustment of position is also available.

Scaling and **rotation** of any selected object(s), also with fine adjustment. This may be done with no loss of detail.

Smoothing and/or **curve fitting** of the outlines of any selected object(s).

Automatic re-draw of any selected stroke(s) with specified alterations to brush size, orientation and colour.

Automatic re-draw using path attributes. Varies brush size, orientation and colour of any selected brush stroke(s), after they have been drawn. Very sophisticated and complex effects may be achieved by making different changes to brush strokes that have already been re-drawn one or more times.

Saving and **loading** of complete drawings on your hard disk or floppy disks using **DAUB**'s own special format. E.g. doodle.dob

Saving of selected brush strokes to the Windows Clipboard for easy

transfer to other Windows applications.

Printing to any Windows 3.1 compatible printer, at the printer's resolution. No jagged looking bitmaps here!

PostScript compatibility with commercially available graphics packages.

System Requirements

DAUB should run on any IBM compatible machine (preferably 386 or above) running Microsoft Windows version 3.1 or later. The graphics standard should be EGA or better. At least 3 megabytes of RAM is recommended.

Also, the use of a 80x87 Math Co-processor will improve performance due to the computational nature of the graphics manipulation. A further boost to performance may be gained by installing a graphics accelerator card.

Treat yourself to a truly innovative product! **DAUB Dynamic Brush**.

(To order a registered copy, please use the form in the file order.txt - this can be done via the Help menu)

(1) PostScript is a registered trademark of Aldus Corporation
(2) TrueType is a registered trademark of Apple Computer Inc.

Instructions

These instructions are based on the **DAUB** User Manual, and are intended to be a quick guide only, to help you get started with creating **DAUB** graphics. It may be helpful to print this document. Updates pertinent to the current version are at the end of this file.

Drawing - General Points

With **DAUB,** the basic drawing technique is the same as for other graphics programs. You specify a brush, click the mouse in the drawing area of the screen, and drag it wherever you want colour to appear.

With **DAUB,** a small red circle appears where you first clicked the mouse (i.e. at the beginning of the brush stroke), when the brush stroke is completed. This is the selector circle, and is used for choosing the stroke for further manipulation, at some later stage. Selecting the stroke is achieved by clicking inside the selector circle with the right mouse button.

In this version of **DAUB,** movement of the brush is limited to an area half a brush width smaller than the drawing area. This area is outlined by a light gray dashed line. When the cursor is in this area it will change to the 'no go' symbol.

A brush stroke cannot be started in the no go area. Also, if the cursor enters the no go area while a brush stroke is being drawn, the brush stroke is finished, exactly as if you released the left mouse button.

The Shift key may be used in conjunction with the mouse, to draw straight lines. Whenever the Shift key is pressed, while drawing a brush stroke, the program ignores the mouse until the Shift key is released. This results in a straight line from where the Shift key was pressed, to where it was released, provided the mouse moves after the Shift key is released. With the current version of the program, these straight lines will be drawn in one colour from end to end. (Later manipulation of the brush stroke may result in variable colour, however).

DAUB also allows the drawing of constrained lines. This means that you can draw a horizontal or vertical line from where the Shift key was pressed, depending on which is closest to the cursor. To draw a constrained line, hold down the Shift key, drag the cursor, and then click the right mouse button (while holding down the Shift key and left mouse button).

At this point, you can draw another constrained line by dragging the cursor again, and pressing the right mouse button again. Any number of joined straight lines can be drawn like this.

At any time, you can continue drawing freehand by releasing the Shift key, and continuing to drag the cursor.

Constrained lines will have variable colour, if drawn with a variable colour brush.

By using the T tool in the tool column, you can position the caret anywhere in the drawing area and begin to type in text. The text will appear according to the characteristics set in the Text Setup dialog box, accessed via the **Text** main menu item.

Upon pressing <Enter>, the line of text will become an object with its own selector circle, like the brush strokes.

Exporting Graphics

Graphics produced with **DAUB** may be 'exported', i.e. transferred to other graphics programs, in three ways.

1) Any **DAUB** graphic may be saved as a PostScript file, making it accessable to PostScript compatible programs such as PageMaker. This is explained in the section **Menu Items**, under **File**. This allows the most accurate reproduction of DAUB graphics in another application.

2) Any selected group of brush strokes may be copied to the Windows Clipboard as a bitmap, at whatever resolution and number of colours that your machine displays. This is also explained in **Menu Items**, under **Edit**.

3) Windows allows you to capture the contents of the screen as a bitmap, by pressing the Print Screen key. This action copies an image of the screen to the Windows clipboard. You can then paste the screen image from the clipboard while using any graphics program running under Windows.

Menu Items

The following items are described in the order that they appear in the **DAUB** menu bar.

The **File** menu item.

This menu item provides standard file operations plus PostScript options.

File | New

Create a new drawing.

File | Open...

Open a drawing file (e.g. doodle.dob) to make further changes to the drawing.

File | Save

Save the current drawing under the name that appears in the title bar.

File | Save As...

Save the current drawing under a different name.

File | Save (PostScript format)

Save any selected stroke(s) in Encapsulated PostScript (EPS) format. Future versions of DAUB will include text and other new object types in EPS files.

File | Save As (PostScript format)...

Save in Encapsulated PostScript (EPS) format, but under a different name e.g. doodle2.eps .

File | Print
Print the currently displayed graphic on the printer.

File | Printer Setup
Display the standard Windows printer setup dialog box.

File | Exit
Terminate the **DAUB** program i.e. quit when you are finished a drawing session.

The **Edit** menu item.

This menu item provides standard Edit operations, but these do not use the Windows clipboard since the graphics are not stored as bitmaps.

Edit | Undo

Undo a drawing operation that has only just been completed. Any change made to the drawing using main menu options **Edit, Alter, Move** or **Outline** may be undone this way.

Edit | Cut

Create a temporary copy (invisible) of the selected object(s) and delete it from the current drawing.

Edit | Copy

Create a temporary copy (invisible) of the selected object(s) for later pasting.

Edit | Copy to Windows clipboard

Stores a bitmap image of the selected object(s) for later pasting in a bitmap-enabled application, such as PaintBrush or Write.

Edit | Paste

Duplicate the most recently Cut or Copied stroke(s), a short distance from their original position. This may be done repeatedly, at any time, until the next **File | Cut** or **File | Copy** is done.

Edit | Delete

Delete the selected object(s) from the current drawing.

The **Strokes** menu item.

This menu item gives access to most functions pertaining to brush strokes.

Strokes | Draw Uniformly

This menu item brings up a dialog box which contains various parameters and their default values.

The brush parameters **Red, Green, Blue, Brush Size** and **Orientation**, and the drawing parameter **Delay** are for drawing uniformly. This means that the size and colour of the brush will not change from the beginning of a brush stroke to the end.

Red, Green and **Blue** are the components of the brush colour.

Brush Size is the diameter of the brush, in pixels.

The **Orientation** parameter determines whether the brush will stay at the specified angle (in degrees) during a brush stroke (**Constant**), or whether it will stay perpendicular to the path of the brush (**Follow curve**). The former will result in calligraphy style brush strokes, while the latter is much like using a round brush, apart from the strokes having flat ends.

Strokes | Draw Variable

This menu item brings up a dialog box which contains various parameters and their default values.

The brush parameters **Red, Green, Blue, Size** and **Orientation**, and the drawing parameters **Delay**, (averaging) **Colour** and (averaging) **Size** are for drawing with variation in the brush parameters. This means that the size and colour of the brush will vary, depending on changes in the path of the brush stroke. For example, a brush stroke may start red in colour and quite thin in width, and gradually change to a green colour and a larger width at the end. In terms of the dialog box, the above example could be set up by setting **Red Initial** to 220, **Red Final** to 0, **Green Initial** to 0, **Green Final** to 190, **Size Initial** to 12, **Size Final** to 43 and also selecting **Length** as the path attribute.

Length is the distance along a stroke's path, measured in pixels.

Speed (lo) is the speed at which the stroke is being drawn at any moment, measured in pixels per 2 seconds. This path attribute is most effective when a stroke is being drawn very slowly and carefully.

Speed (hi) is the speed at which the stroke is being drawn at any moment, measured by the distance between successive positions of the cursor. This path attribute is most effective when a stroke is being drawn smoothly and fairly quickly.

Index is the number of cursor positions that have been recorded by the computer at any moment, in the stroke being drawn. Thus, it is similar in effect to the **Length** attribute. The difference is that changes in the brush parameters are spread over varying distances on the screen when the mouse is moved slower or quicker.

Curvature is how tightly curled the stroke is at any point.

Slope is a measure of how close to vertical or horizontal the stroke is at any point. Using this path attribute, a circular movement of the cursor could produce blue brush marks on the top and bottom, and green on either side, with continuous variation in between.

In the bottom right corner, averaging values may be specified; **Colour** for red/green/blue values and **Size** for brush size. These drawing parameters are useful for smoothing out the effect of imperfect mouse movement.

Strokes | Alter Uniformly

This menu item brings up a dialog box which contains various parameters and their default values.

This is similar to **Draw | Uniformly**, except that it applies to selected strokes (see **Selectors**) that have already been drawn. It can be thought of as an automatic re-draw of the selected strokes, with the drawing parameters altered. For example, a stroke may be selected and re-drawn with the brush 80% of its previous size, and with some more red added in to the colour.

Brush Size % is a percentage of the existing brush diameter, as illustrated in the above example.

Red Inc is an increment which applies to the red component of the brush colour.

Green Inc and **Blue Inc** work the same as **Red Inc**, except that they affect the green and blue components of the colour, respectively.

Orientation Inc is an increment which is applied to the orientation of the brush, regardless of whether **Const** or **Follow curve** was selected when the stroke was drawn. A positive value (in degrees) rotates the brush marks clockwise, while a negative value rotates them anti-clockwise. The brush stroke itself is not rotated.

Strokes | Alter Variable

This menu item brings up a dialog box which contains various parameters and their default values.

This is similar to **Draw | Variable**, except that it applies to selected strokes (see **Selectors**) that have already been drawn. It can be thought of as an automatic re-draw of the selected strokes, where further manipulations are applied to the strokes. Thus, for example, a group of strokes which change from red to green over their lengths might be altered to go darker where they are tightly curved and remain unchanged elsewhere.

Red, Green, Blue, Size and **Orientation** are brush parameter increments which can be given initial and final values under the headings **Initial Inc** and **Final Inc**.

One path attribute from the list on the right (**Length, Speed** etc.) whose range is specified under the headings **Min** and **Max**, may be selected to govern the variation of the brush parameter increments.

The path attributes for **Alter | Variable** are described below.

Length is the distance along a stroke's path, measured in pixels.

Speed is the speed at which the stroke was drawn, measured by the recorded distance between successive brush marks. This is equivalent to the **Speed (hi)** path attribute described under **Draw | Variable**.

Index is the brush mark number, which increases by one for each mark, starting at 1 for the first mark, and is equivalent to the **Index** path attribute described under **Draw | Variable**.

Curvature is how tightly curled the stroke is at any point, and is equivalent to the **Curvature** path attribute described under **Draw | Variable**.

Slope is a measure of how close to vertical or horizontal the stroke is at any point. Using this path attribute, a circular brush stroke could be altered to go blue on the top and bottom, and green on either side, with continuous variation in between.

Strokes | Move

This menu item brings up a dialog box, in which three ways are provided to specify movement of the selected stroke(s).

The **Shift** group box lets you specify a shift in the x and y directions (i.e. across and down). For example, specifying 200 for the x direction and 100 for the y direction will shift all the selected brush strokes to the right by 200 pixels and down by 100 pixels. Negative values go in the opposite directions.

The **Scale (%)** group box lets you specify scaling in the x and y directions (i.e. across and down) as a percentage. For example, specifying 200 for the x direction and 50 for the y direction would make the selected stroke(s) twice as wide and half as high.

The **Rotation** group box lets you enter a rotation amount in degrees. E.g. a value of -30 would rotate the selected stroke(s) 30 degrees anti-clockwise.

The **Flip** group box lets you flip the selected brush strokes either vertically or horizontally according to which radio button is selected.

Strokes | Outline

This menu item brings up a dialog box which provides three ways to modify the outline of the selected stroke(s). The numbers typed in specify how many times the corressponding operation is repeated.

1) **Add brush marks (+) / Remove brush marks (-).**

A positive value doubles the number of brush marks in the selected stroke(s), the specified number of times. This has no visual effect, but the brush strokes will retain more of the original detail after other **Outline** operations have been applied.

A negative value halves the number of brush marks in the selected

stroke(s), the specified number of times. This can be used to remove 'shaky bits' if a stroke has just been drawn using the cursor. Curve Fit (see below) can then be used to improve the look of the stroke.

2) **Smooth.**

This operation smoothes the outline of the selected stroke(s) by averaging the position of the brush mark end points, but will retain the overall shape of the stroke(s).

3) **Curve Fit.**

This operation rounds the outline of the selected stroke(s) by adding an extra brush mark with just the right position and size, between every pair of existing brush marks. Thus, the curve looks smoother, while retaining all of its original detail.

The **Text** menu item.

Text | Enter

This menu item brings up a dialog box which lets you specify various text characteristics to apply to any text that you type in the drawing area.

The **Typeface** list box lets you pick a font to use, from all the fonts that you have installed under Windows. Select a font just by clicking on the name. If you do not select any font, the most recently selected font will be used. When you first start up DAUB, the selected font is System.

Height is the height of the font in pixels. The width of the characters will be scaled automatically to be consistent with the font's default width.

The **Weight** group box gives you a choice of **Normal, Bold** or **Other**. Normal gives the text a weight of 400, which gives a normal appearance. Bold has a weight of 700 (**like this**) and Other is there so you can specify anything from 1 to 999. Fonts have a limited number of possible weights - the nearest match will be selected. For example, some will only have 400 (normal) and 700 (bold). Hence, specifying 250 will result in the text having a weight of 400.

The **Italic** check box lets you turn on (checked) or off (unchecked) italics. This will only affect TrueType fonts.

The **Underline** checkbox lets you turn on (checked) or off (unchecked) underlining. This affects all fonts.

Red, **Green** and **Blue** are the RGB components of the colour used to display or print the text. Any values in the range 0 to 255 may be used, although your monitor will probably not be able to display the full range of colours.

Text | Alter

This menu item brings up a dialog box which lets you specify various alterations to the characteristics of any selected text objects.

The **Facename** list box lets you change the font of all selected text objects to the selected font.

Height Inc. lets you change the vertical extent of all selected text objects by the specified number of pixels. A negative number will decrease the vertical extent.

Width Inc. lets you change the horizontal extent of all selected text objects by the specified number of pixels **per character**. For proportional fonts, the average change in character width will corresspond to the specified figure. A negative number will decrease the horizontal extent.

Weight Inc. lets you change the weight of all selected text objects by the specified amount. A negative number will decrease the weight. As when entering text, the actual

weights used will depend on what values are available for each individual font.

The **Italic** check box lets you turn on (checked) or off (unchecked) italics for all selected text objects. This will only affect TrueType fonts.

The **Underline** checkbox lets you turn on (checked) or off (unchecked) underlining for all selected text objects. This affects all fonts.

Red Inc., Green Inc. and **Blue Inc**. let you adjust the colour of all selected text objects. Any values in the range -255 to 255 may be used. For example, setting Red Inc to 35 will increase the red value by 35, and setting Green Inc to -110 will reduce the green value by 110.

Text | Move

This menu item brings up a dialog box which lets you move and/or rotate any selected text objects.

The **Shift** group box lets you specify a shift in the x and y directions (i.e. across and down). For example, specifying 200 for the x direction and 100 for the y direction will shift all the selected text objects to the right by 200 pixels and down by 100 pixels. Negative values go in the opposite directions.

The **Rotate** group box lets you specify a rotation amount in degrees. For example, specifying 45 would rotate all selected text objects clockwise by 45 degrees. Negative values rotate the text anti-clockwise.

The **Selectors** menu item.

This menu item provides useful short-cuts when multiple objects are to be selected for manipulation, and the ability to hide or display all the selectors currently on the screen.

Selectors | Select All

Makes all objects active.

Selectors | De-select All

Makes all objects in-active.

Selectors | Toggle all

Makes all active objects in-active, and all in-active objetcs active.

Selectors | Display Selectors

Make all selectors visible, if they have been hidden.

Selectors | Hide Selectors

Make all selectors invisible, if they are currently visible.

The **Options** menu item.

This menu item brings up a dialog box which enables you to set miscellaneous options which can be useful at various times.

The **Grid** group box allows you to include a grid which displays behind all other graphics on the screen. The **pixel spacing** edit box lets you set the number of pixels between each line of the grid. The **Visible** check box determines whether the grid is displayed or not.

The **Drag 'snap to'** check box affects the operation of the drag tool. If checked, the top left corner of the dotted box always 'snaps' to the grid intersection points (regardless of whether the grid is visible), thus allowing accurate alignment of strokes or groups of strokes.

The **Screen Refresh** group box allows you to alter the way brush strokes are displayed on the screen (**Note:** only the way they appear on the screen is changed - for all other purposes the strokes are entirely unchanged). Any settings affect the currently selected strokes only, and remain in effect until set differently.

The **Every ... brush mark(s)** edit box may contain a digit from 1 to 9 - this affects the amount of detail shown when the stroke is displayed. A value of 1 results in the stroke being displayed in full detail. A value of 2 results in only half the detail being displayed, a value of 3 gives a third of the detail, and so on up to 9 which gives only a ninth of the detail. Reducing the detail also increases the speed at which the strokes are re-drawn, for example when a dialog box disappears from the screen. This feature is handy for very detailed and/or large graphics which may be relatively slow to re-draw.

The **Frame only** check box specifies whether the strokes are filled with colour. If checked, only the outlines of the brush marks making up the brush stroke will be visible. As well as being faster to re-draw, this allows you to easily see if any strokes are excessively detailed, leading to unnecessarily slow re-drawing and unneccessarily large .dob files.

The Tool Column

The following is a brief explanation of the tool column at the left side of the screen.

The first twelve boxes are a handy way to perform scaling, shifting and rotating. To operate, click with the left mouse button and hold down as long as required. To speed up the operation, hold the <Shift> key down as well. For text objects, only TrueType fonts will behave as expected. For example, most non-TrueType fonts cannot be rotated.

Stretches the selected object(s) horizontally.

Shrinks the selected object(s) horizontally.

Stretches the selected object(s) vertically.

Shrinks the selected object(s) vertically.

Expands the selected object(s).

Shrinks the selected object(s).

Shifts the selected object(s) to the left.

Shifts the selected object(s) to the right.

Shifts the selected object(s) upwards.

Shifts the selected object(s) downwards.

Rotates the selected object(s) anti-clockwise.

Rotates the selected object(s) clockwise.

The next 4 boxes implement the functions under the **Strokes | Outline** menu item.

Adds brush marks to the selected brush stroke(s) once.

Removes marks from the selected brush stroke(s) once.

Smooths the selected brush stroke(s) once.

Curve fits the selected brush stroke(s) once.

The next 4 boxes select the 4 different brush types as set in the **Strokes | Draw** menu item.

Selects the uniform brush with constant orientation.

Selects the uniform brush with follow curve orientation.

Selects the variable brush with constant orientation.

Selects the variable brush with follow curve orientation.

The last 6 boxes implement the following functions:

Drag and drop the selected object(s).

T

Position the caret and enable text entry.

Split the nearest selected stroke at the point closest to the cursor, when the left mouse button is pressed.

Join the tail of one selected stroke to the head of another selected stroke. Nominate the first stroke by clicking inside the selector circle, then nominate the next stroke in the same way. The two strokes will then be joined.

Examine the data of the brush mark or text object containing the cursor, when the left mouse button is clicked.

Select a group of objects. Nominate the area enclosing the desired selector circles by clicking at the top left corner and dragging to the bottom right corner. When you release the mouse button, all the enclosed red selector circles will turn green.

Note: These last 6 functions may be interrupted with the <ESC> key. For example, if you select the drag tool you can abort it before dragging anything by pressing <ESC>. The cursor will revert to the previously selected brush and you are ready to draw again, or select another tool.