

From Slides to Digital

John McCormack
Hertfordshire Group
The Hardy Plant Society



© The Hardy Plant Society

The author and the Society hope that these notes will be widely used and permission to reproduce all or part of these notes will normally be given.

Any society wishing to copy and distribute these notes should contact:

The Hardy Plant Society
Little Orchard
Great Comberton
Worcs WR10 3DP UK

email: admin@hardy-plant.org.uk

Editor: Pam Ratcliffe
Typography: Indigo, Alnwick, NE66 1HB



FROM SLIDES TO DIGITAL

Converting
from slide
lectures to
digital
presentations



John McCormack
Hertfordshire Group

THE HARDY
PLANT SOCIETY



Please note

To avoid at least some confusion, in these notes a 'film-slide' is the product of a conventional film camera, the product of a film camera, and a 'picture'/'image' is the product of a digital camera or of some magic worked on your computer. Film-slides and picture images are turned into *slides* to be used in a digital presentation.

Similarly, *words in italics* are computer-speak jargon or *commands* (instructions to your computer), where the words have a particular meaning in this context and do not necessarily mean what the dictionary has always had us believe.



The Hardy Plant Society
Little Orchard
Great Comberton
Worcs
WR10 3DP UK

email: admin@hardy-plant.org.uk
www.hardy-plant.org.uk



The Hardy Plant Society
Little Orchard
Great Comberton
Worcs
WR10 3DP UK

email: admin@hardy-plant.org.uk
www.hardy-plant.org.uk

You already have a conversion programme in your computer – a small programme called *Paint* which is found under *Start > All Programmes > Accessories > Paint*. You might wish to find this programme first of all, open it up and then minimise it on to the lower toolbar.

Now open up *Google Maps* on the internet, navigate to the map you wish to use and just above the map press *Print*. This will bring up an enlarged map image without much of the surrounding data. Press the *Print Screen* button which should be on your keyboard (not on the screen – it is usually somewhere on the upper right of your keyboard). This will temporarily save the image into the clipboard memory of your computer. Cancel the *Print Menu* which will appear superimposed on top of this map image.

Next bring up the *Paint* programme you found before, put your cursor near the top left of the screen, press the left mouse button and then press *Control+V*. The screen image of your map with the *Google* toolbar etc. will be pasted into your *Paint* programme screen. It is now possible to change the image into *JPEG* by saving the image which is now on the screen. Choose *File > Save as* and you can now choose *JPEG*. Once you have done this you can save this to a convenient place, perhaps the desktop, as a *JPEG* file which is now usable in your *Photoshop* programme.

Open this picture file in *Photoshop* and *crop* off all the *Google* toolbar and other parts you don't need. You have created a new working image. Remember to confirm on the top toolbar under *Image > Mode* that *RGB* is selected.

This image can be used just like a photograph. Remember to save it first, then you can crop it to your working size (1024 X 768 of course). You can now add text, and in particular you can draw in a route, perhaps using the *pencil tool* from the toolbox.

Remember that with tools such as the *brush* or *pencil tool* you can select any colour. Go to the black box at the bottom of the toolbox, right-mouse-click on it, and up will come a *colour picker frame* and you can choose any colour you wish. This means that you can use different colours to indicate types of information relating to the map – perhaps to accentuate roads or features, or to add in a route, or to shade in a particular region.

Text can actually be rather difficult with a map, which may be already filled with lots of other text. I would suggest in this instance that you create a white blank area for your text, so that it is not muddled up with the rest of the map.

To do this use the *rectangular marquee tool* from the *toolbox* and draw a selected area, preferably on the top of your map image. Right mouse click in this area and select *fill*. A *fill* box will appear and you can select white, or navigate to an alternative colour as you wish.

Select your *Text tool* from the toolbox and type in your text. Then click anywhere on the rest of the map. When you select *Layer* from the top menu you can click on *Image merge* to consolidate the text. Your new map can now be saved and used in your presentation

From Slides to Digital

John McCormack
Hertfordshire Group
The Hardy Plant Society



© The Hardy Plant Society

The author and the Society hope that these notes will be widely used and permission to reproduce all or part of these notes will normally be given.

Any society wishing to copy and distribute these notes should contact

The Hardy Plant Society
Little Orchard
Great Comberton
Worcs
WR10 3DP UK

email: admin@hardy-plant.org.uk

Editor: Pam Ratcliffe
Typography: Indigo, Alnwick, NE66 1HB



From slides to digital – and enhanced presentations

Once you have experienced a digital lecture that has been well put together and well presented, any film-slide projection lecture will almost certainly seem second rate. There is no clunk of film-slides changing, and all the picture images are instantly in pin-sharp focus, with no adjustment needed after the first picture is shown. If the speaker has taken the time, the names of plants can be superimposed on any appropriate image. With the right projection programme, a subtle *fade* (or *dissolve*) can be made to take place between the pictures. This can make the presentation sequence progress so smooth that the audience completely forgets about the projection and becomes totally immersed in the speaker's story.

These notes have been written to explain and clarify some of the problems likely to be encountered in changing from traditional film-slide presentations and lectures to using digital projection systems. The same methods can, of course, be used to set up your own personal library of pictures, without making a presentation. The discussion focuses on digital photography, putting together a digital show, buying or using projectors, and a host of tips to help the sequence run smoothly. There are some personal suggestions, but the great flexibility of our new digital world means that you can, and should, build-up your own presentation in an individual way, once the basic principles are understood.

The appendices provide greater detail and step by step descriptions are given for programmes such as *Photoshop Elements*. Please remember that different versions of such programmes often use slightly varying *menu* and key sequences to achieve the aimed for result, but the procedures described are very similar. There are nearly always other methods of preparing a presentation. These notes describe sequences which have been tried and tested but new software and methods will undoubtedly appear. This is just a guide and, as with all technical guides, it will get out of date.

I also aim to throw light on some of the technology involved. The notes refer to a PC system, but Macintosh computers work in a very similar manner. All photographic and display systems, whether mechanical or digital, can of course be vulnerable to problems and even failure. Experience has shown that a well-prepared digital procedure is the most reliable. The use of digital images also allows display techniques which are virtually impossible with a film-based system

Although written for the Hardy Plant Society, with examples of a horticultural nature, these notes will, I hope, help you to make the transition to digital presentations whatever your field of interest.

John McCormack
Hertfordshire Group
The Hardy Plant Society

Go back to *Slide Show* on the *menu* bar and choose: *Set Up the Show* – this will open the *Set up Show control* box. In this box select:
Show type: Presentation by Speaker
Show Slides : All
Advance slides: manually
Slide show resolution : 1024x768
Click *OK*

Again, you can now save this as a presentation. (Using *File > Save as*) directly on to your hard disc and/or transfer to your laptop for your live presentation.

When you wish to play your *slide show*, double-click on the *icon* of this file, it will bring up PowerPoint with the album all ready to run. Just press *F5* and the *slide show* will start.

Power Point Viewer

A slightly more sophisticated method is to download the mini-programme, *PowerPoint Viewer*, a free download from Microsoft. The advantage is that you can save a shortcut of this *Viewer* programme on the desktop screen. When you come to the actual presentation, you just open the viewer programme and in the selection box click on your *Photo Album* file. This will then be opened full screen at the first picture without revealing to the audience the open PowerPoint programme itself.

Pictures to Exe

There are a number of other presentation programmes available. *Pictures to Exe* is favoured by many members of camera clubs for digital presentation. It can be downloaded as a free trial over the internet, and the final charge for the basic software, which is completely adequate for our use, is around \$40. I have used this many times and would particularly recommend its *help* file, which teaches you how to use the programme.

Appendix L: Working with Google maps

Google maps for our purpose are copyright free, so are ideal for use as projected images in a presentation.

Google maps cannot be saved directly as JPEG images, so if you want to use one for illustrating your lecture, there are some additional steps to go through. By far the most simple way is to go into Google Maps, navigate to the geographical area you wish to use and to print this out as a hard copy. You can then scan this and with the scanner software save this image as a JPEG file. (If you don't have a scanner you could photograph the map, though there will probably be some distortion.) Now you have an image which you can open in *Photoshop* and can add additional data.

You can also take a Google bitmap image and turn it into JPEG format without scanning, but several stages are necessary and it is a more involved procedure. Again it needs some practice.

suggest first of all making a practice folder, perhaps of some discarded images, and using it to become familiar with the settings you are going to use with your master lecture pictures.

First you must create a *Photo Album*. Then you can set up the actual presentation folder all ready for the projector. Remember to work on a duplicated folder.

Open PowerPoint

On the *menu bar* > *Insert* > *Picture* > *New Photo Album*.

This brings up the *Photo Album control* box.

Choose *Insert picture from file/disk*, > *Insert new pictures* box appears

In the *Insert New Picture* selection box navigate to the practice folder you have made containing your sized and numbered images. Click to open it.

Next click on the first picture, press *Control+A* to select all picture and then click *insert* This takes you back to the *Photo Album control* box again, but with your new list of the pictures appearing in the left hand *Photo Album* window box. One image should be visible in the right hand viewing box.

At this stage you can preview the pictures and remove any not required. New images can be added too. Finally click and select the top image on the list, press the *shift* key and navigate with the small *slider* bar to the bottom picture, keeping the *shift* key depressed. Click on this bottom picture, and all the image numbers should be coloured blue and properly selected. Click *create*, and you should then return to the *Power Point* main page with all your pictures in the left hand column. (You can change the title page text and type in your own title, or delete that *slide*.) You now have created a *Power Point Photo Album* that can be saved on your hard disk or elsewhere.

This *Photo Album* can be fine tuned to make your presentation really professional. Click *Control+A* on the top picture in the left column of images, so that all are selected.

Go to the *menu bar* > *Slide Show* > *Slide transition*. This opens a new window which enables you to apply *dissolves* to your presentation.

In the *slide transition* window choose:

Apply to selected slides – fade smoothly could be a choice but remember you have selected all *slides*, so this will apply to all images.

You can modify the *fade/transition* to your preferred speed – perhaps start with medium. Click on the box for *Advance slide on mouse click*.

Now you can double check your presentation again by clicking the *Slide Show* button on the lower right of the screen. This opens up the *slides* to a full screen size. You can now play your sequence by using the forward and back keyboard buttons. If all is well, press *escape* to return to your main screen.

Contents:

Introduction

- 1 Projectors and Projection
- 2 Screens
- 3 Digital photographs – picture images
- 4 Setting up for a lecture
- 5 Converting film-slide photographs to digital picture image *files*
- 6 Adjusting the picture images
- 7 Making up the lecture
- 8 The presentation process
- 9 More picture image preparation
- 10 Adding text/titles to picture images
- 11 Maps and photographs
- 12 Lists and scripts
- 13 Highlighting parts of picture images
- 14 Projection programmes
- 15 Projecting single images in that questions to answer section
- 16 The lecture – finally . . .

Appendices:

- A *Portrait to landscape* conversion
- B Making a grey or black *slide* with Photoshop
- C *Cropping* the image
- D *Resizing* the image
- E *Resizing* the image with Microsoft Office Picture Manager
- F *Thumbnails* and *contact prints*
- G Adding text to picture images and making text picture images
- H *Highlighting* parts of images
- I Camera requirements
- J Requirements of digital picture libraries
- K PowerPoint presentations
- L Working with Google maps



First, I think it worthwhile to go over some recent changes in equipment and how it will affect us. Let's remember that success in communicating to an audience often depends on good photographic images – the depth of colour saturation and the sharpest, most accurate images have the greatest impact.

I Projectors and Projection

Many speakers, and many Local Groups who hire speakers, are now considering obtaining a digital projector instead of buying a replacement for their ageing slide projector. Choosing a digital projector can be difficult if you don't have hands-on experience of digital projection techniques. It's always worthwhile getting advice from someone locally with this experience, but if that isn't an option then here are some suggestions.

Most small to medium halls, which can accommodate 50–100 people for a typical lecture, will need a projector with a minimum of 2000 ansi lumens to illuminate a screen large enough for an adequate 2m by 2m display. (Ansi lumens are the output units of digital projectors). On a dark evening with good curtains and blinds, and a smaller audience, then less projector illumination will be needed than on a sunny afternoon in a full hall with poor blackout. The worst-case scenario is that the back rows of the audience can't really see the screen images at their best. A lecturer who is buying a projector to use in a number of different situations might usefully consider purchasing a more powerful one to cover all eventualities. Because many schools are now using digital white boards which use a similar digital projector (which can show stills and video), competition has forced prices down, and a more powerful projector giving a brighter picture may well be considered – the cost is falling, not increasing.

Unlike slide projectors, digital projectors do not use a bulb, but instead have a discharge tube for the light source. There is no filament to blow and the tubes usually last around a thousand hours or more. Usually, the tubes eventually fail with a gradual dimming of the light output, not with a sudden bulb catastrophe, so a spare discharge tube is not a priority (it may cost half as much as the projector!). But there is an important rule with the care of these projectors, and that is not to suddenly switch the power off at the end of a lecture, but to allow the fan to run on and cool the tube for a minute or so. There is usually a proper power-down sequence built into the projector switching to aid this, but beware of a 'helpful' person just pulling the plug out of a wall socket! This could destroy the discharge tube which needs cooling down first. Careful handling of all projectors is absolutely essential, especially when loading in and out of a car – particularly on a dark evening.

An important advantage of digital projectors is that the shape of the projected picture can be changed to make good any skewed image. With a slide projector, if the screen is lifted up high and the projector is on a stand in the middle of a hall, a distorted picture can result

mainly for lectures and presentations using a computer system, but the images may also be used for printing. There are many pictures in your files which the HPS Image Library is keen to use, and these pictures should be taken at the maximum pixel density that your camera can achieve.

Please do not be put off by the paragraphs which follow here, which are appropriate to professional or near professional photographers. However, you should be aware of the gold standards which hopefully we will all eventually attain.

Pictures for a larger size printed poster, or for reproduction on a glossy magazine cover require higher image quality. There are a number of commercial picture libraries which demand very high standards so that their images can be reproduced for this type of use.

These requirements may well not be possible or necessary for smaller amateur societies, but as more members are now acquiring top quality SLR cameras it is worthwhile explaining the requirements.

A major stock picture library such as Alamy requires uncompressed images of at least 48mb. Other botanical picture libraries require similar quality images. To achieve this you need an SLR or other high quality camera taking pictures of at least six to eight megapixels. Pictures should be taken in an uncompressed format, e.g. TIFF or RAW (not in the more usual JPEG format). Most cameras compress JPEG images, and at this quality level may damage the purity of the picture.

The TIFF or RAW images will create a *non-interpolated* file size of around 17 MB at 8 bit, which is the most common camera recording level. These pictures can be digitally enlarged, with no loss of quality, to obtain a final size of around 50mb. You can find out how to do this at:
<http://www.youngimaging.com/Article-HowDoISizeAnImageSoAlamyWillAcceptIt.asp>

You will then have an image of the highest standard which would be suitable for any form of use or reproduction. Also it is the image size you might use for selling your pictures.

Appendix K: PowerPoint Presentations – some details

PowerPoint is a large programme, and it can be used to make all kinds of animation effects and to show video. However, as a photographer you are far more likely to be using Photoshop to create and adjust your picture folder. When the pictures are ready for presentation, showing them is best carried out by a dedicated presentation programme. PowerPoint is ideal for this, and the subtle dissolves between images can be added.

Here are brief instructions to use PowerPoint. The programme itself has a good *help* file, but a proper manual is probably necessary for anything more than this basic procedure. This sequence is quite complicated, so to make sure you have understood it I would



Many new models of all types of camera now have some kind of *vibration resistance*, either built into the camera itself or into some removable lenses. This improves the ability to take photographs with a shaky hand or in difficult conditions. It is a worthwhile feature.

It should be added here that if these options are available, pictures should be taken with the colour space set to *Adobe RGB*, and not to *sRGB*, which does not accept so many colours. Also use the highest setting for JPEG images. Cameras which have the ability to take RAW or TIFF images can be set to employ these preferences, but the sequence to make these image files usable is beyond this article. It is assumed that photographers using these options know how to manipulate such files.

Small, pocketable, digital cameras are amazing pieces of technology, but their miniaturised components have limits in producing the top quality images. They will produce excellent photographs for viewing on a monitor or for making small prints, which is what they are designed for. However, they will rarely produce pictures with the image quality, sharpness or colour saturation that is really needed for bigger prints or projection on to any larger size screen. The truth is that the larger the camera, the bigger the sensor, and its superior lens with more elements will together produce a better image. You have to balance the portable convenience of the small camera against picture quality. Once again it is the ‘family snap’ against an image which will stand up to scrutiny by your fellow horticulturalists, whose knowledge of plants is often of a professional standard. With a good SLR camera it is really quite feasible to raise pictorial standards to a level which matches the factual excellence of the rest of the presentation.

A final few points for lecturers aiming at the highest quality, colour correct images: A high degree of control is needed to obtain images with perfect colour recording and saturation. This includes controlling the input of colour into the camera, using a grey card or similar tool to manage the initial image capture. Your monitor should be calibrated so that the picture you see is exactly what the camera recorded. This may mean a new, better quality monitor of course. Finally, if you are going to print out any pictures then your printer probably needs profiling, too, to the brand and type of printing paper you are using.

Attention to these details can lead to colour accuracy which far exceeds that obtainable in the past.

Appendix J: Requirements of digital picture libraries

Here is some extra information. If you are taking many plant pictures and have ambitions that they will be used nationally in digital *slide* libraries or commercial stock libraries, you may well be interested in this appendix.

Digital image libraries, such as the HPS Image Library, require pictures which are used

if the projector is tilted up in an attempt to fill the screen – the picture will be wider along the top edge and narrower along the bottom, as in fig 1.

Most digital projectors are now able to correct this distortion by digitally reshaping the whole image to make a perfectly squared off picture on the screen, as in fig. 2. This means that the screen can be lifted up higher than usual, and the projector stand can be lower, and hence rather more stable. This should enable the people at the back of the hall to have a better view. The adjustment regulation is an integral part of the projector controls and is called a *keystone correction*. It can be used whenever the projector is set up and can easily be customised in a few moments before your lecture to suit the projection situation. It is well worth doing, but practise this at home first, with the projector manual in your hand!

2 Screens

If you are investing in a new projector, please also examine your existing screen, and perhaps consider changing it for one with a new, up-to-date surface. The difference it will make will almost certainly be worth the cost. An old screen will probably have become soiled and will inevitably have curled up at the edges and actually be not quite flat. A new, clean, bright screen, big enough for any possible future higher quality projection, would be advisable.

An extra point to be aware of is that a screen at the end of a hall is often up on a stage. There are often small draughts in this area and screens sometimes move around in these conditions. It is easy to weigh down or tie back the bottom of the screen to obviate this problem.



fig 1.



fig 2.

3 Digital photographs

Format

Digital projectors show pictures only in the horizontal *landscape* format, not in the vertical *portrait* format. You should therefore take photographs in landscape format whenever possible. Vertical picture images have to be either cropped, which will eliminate parts of the top or bottom of the frame, or else resized (see Appendices D and E). For lecturing purposes it is far easier simply to take horizontal pictures whenever possible. Editors of newsletters and magazines often prefer an upright *portrait* format. If having your photographs in print is also in your mind, take **two** photographs of each subject, one landscape and one portrait. You will then have two strings to your bow, and not need to change the height/width ratio formats.

Size/resolution of digital photographs

At the moment, standard projectors use an *input format* for their pictures which is 1024 pixels wide by 768 pixels high. They use a pixel density of 72 dpi (72 dots per inch) and this is colloquially called the *XGA resolution*. Many photographers may be surprised at this apparently low pixel density, but in practice an excellent projected picture will result. Because nearly all cameras will take pictures at around this image size, it is perhaps tempting to think of using this as the standard for your photography. But there are other factors which make it inadvisable.

It is always better to take photographs at the highest reasonable quality of which your camera is capable. Image quality includes colour saturation, and the best, subtle colours are only captured at a high pixel density. If you are going to print your photographs on paper they will always need that high quality to be satisfactory. Another reason for taking high-resolution photographs is that digital images can be cropped to place the subject in a different position to enhance the impact of the final picture. Although you may not want to do this at the beginning, it is very frustrating to decide at a later date to improve a picture, and then find the original isn't of sufficiently high quality to be able to do so. You will always end up with a better image by making a high quality picture smaller than by taking the picture at a minimal quality in the first place. The cost of storing larger size images in a computer drive is now quite low. (See Appendix H for further information on cameras.)

Size of photographs for projection

Professional projectors, used in business and at major national conference centres, now use higher pixel density images. These standards are beginning to filter down to our amateur market. There are several new formats and the one we might be concerned with is called the SXGA+ resolution format: it is 1400 pixels wide by 1050 pixels high, and will probably become the standard higher quality projection format in future. Already some camera clubs are starting to buy these new machines. Fortunately these projectors

Next return to the top *menu* bar, go to *Select > Deselect* and you have completed a highlighted picture.

To use this type of highlighting to the very best effect you should use the three picture sequence as described in part 10 for title *slides*. You would show the highlighted image you have prepared between two untouched pictures. There should be in a *dissolve* succession, with a pause on the highlighted picture to clarify the plant or plants involved. Of course your title can be added to this highlighted image too. If you use the 'grey out' method described above, then you will very likely have an ideal partly grey background for any text you might wish to add. Figs 12, 13 and 14 illustrate this technique.

Appendix I Camera requirements: a brief explanation

This appendix is not concerned with photography itself, but it is worthwhile making a few comments on the picture quality required for projection.

Many people have commented that digital photographs are not as good as 35mm film camera pictures. This is both true and not true. Film cameras produce an image which is usually 36mm by 24mm (864 sq mm). Popular, small, compact digital cameras often have a sensor which is around 12mm by 14mm, which is 168 sq mm. Small sensors are rarely over 250sq mm. You will see that there will almost certainly be far less sensor surface and therefore less information can be recorded than with a film camera.

Manufacturers have found that squeezing more and more pixels into that small sensor size will sell more cameras, and that lots of pixels have a supposed 'wow' factor. Camera salespeople will nearly always emphasise the total pixels to indicate high quality. New technology does indeed mean that a ten-megapixel camera is almost certainly better than a six-megapixel camera, but there is still a major disparity compared to film cameras when the sensor is so small.

Current digital single lens reflex (SLR) cameras are more expensive, having sensors of around 24mm by 16 mm (384 sq mm). With the latest high megapixel density they are capable of recording a quality equal to and often rather better than film. The lenses of these larger SLR digital cameras are also vastly superior compared with compact cameras: they have more lens elements and these produce a professional optical quality. The internal SLR camera computing systems are also far better at reproducing images. Another factor is that they have much larger *buffer* memories in their computer hardware, which means that they start to *save* a picture almost instantly after the exposure release button is pressed. There is no waiting for the image to be downloaded onto the main recording card. A number of *full frame*, much more expensive, 36mm by 24mm sensor size cameras are now coming on to the market, and these are without question superior to film of equivalent size in almost all respects.



Open your selected image in Photoshop, making sure that under the *Window menu* the *tools palette* is open.

On the *tools palette* find the *lasso tool* (not the alternative *polygonal* or *magnetic tool* variations). Click on this *icon* and the mouse cursor will turn into a miniature lasso.

Using the heel of the lasso, carefully draw a circuit line around the subject you wish to highlight, keeping the left mouse button depressed. When you have completed the shape you want and have joined up with the start of your circuit, release the mouse button and it will stay a selected area. If the selection you have made is not to your liking, go to the top *menu bar* and click on *deselect* and try again; or click on the *history* tab at the top right of your screen, which will list the action(s) you've taken, and any action you'd like to *undo* you can *drag and drop* into the *recycle* dustbin in the tab immediately below. You may need several attempts to get this perfect.



You can also soften the selection edge, by putting in a number such as 40 into the *feather* box, which is in the *options toolbar* just above your picture. Experiment with different numbers to obtain the effect you prefer.

Next go into the *select menu* on the top *menu bar* and choose *inverse*.

This will select the part of the image which you want the audience to ignore. You now have many options to change the texture of this area.



I suggest as a start that you use the following simple method:

On the top *menu bar* choose *enhance*, and then select *brightness/contrast*.

A *control box* will then appear. Tick the small *preview* box and then adjust just the *contrast* slider control. Slide it to the left, and your selected area will then 'grey out' and gradually lose colour saturation. Move the slider around until you have obtained the effect you are seeking. Press *OK*.

A good alternative is to go into *filter* on the top *menu bar*:

Filter > Noise > Add noise will bring up a *control box*, and you can create a 'fuzziness' in the background of your picture. A combination of a little of both these effects is usually effective.



Figs 12, 13 & 14

are fully compatible with our present lower pixel density images. In other words, if you show images of the present 1024 X 768 standard through the SXGA+ projectors they will project perfectly, but at the lower projection resolution which we are used to now. The answer is probably to modify your digital images to the current lower pixel density for the moment, but **DON'T** throw away your original master images. If required in the future, you could easily make an alternative new set of pictures to the new larger pixel size and ratio. (Major conference centres now use projectors that can use even higher pixel density image standards projecting on to very large screens, but that is outside our remit here.)

Taking best quality digital photographs

Many lecturers use photographs taken with unsupported cameras and the resulting pictures are reasonable when looked at on a small computer screen. However, when projected and viewed from the back of a hall, these images are usually rather poor and blurred. Because most speakers don't look critically at their own projected pictures from a seven to ten metre distance they can be oblivious to the problem and even think that their pictures are of exhibition quality. Audiences are also conditioned to viewing images that are less than perfect and accept them, until they see the difference!

Serious lecturers should use first class, single lens reflex cameras and also use some form of support for their cameras. Tripods, monopods or even just a chair back are absolutely essential to good picture quality. A cable shutter release and some knowledge of colour space, white balance and image capture formats are essential to produce first class images. Very small, handheld digital cameras are just not good enough quality for top class presentations, though they may well be fine for other uses.

It is worth mentioning here that pictures used for reproduction or high quality printing should be taken with the *colour space* set to *Adobe RGB* if your camera has this feature. The alternative *sRGB colour space* will record with a slightly reduced palette of colours, and this constriction may be important in recording the most accurate colours in flower photography. (*sRGB* originated for making pictures for websites where a smaller colour range is usually quite sufficient.)

The better digital cameras can be adjusted so that the exposure and colour saturation result in a photograph which can be superior to film. Even hard-to-replicate, delicate blue flowers can now be recorded with a fully truthful colour if the white balance camera controls are used properly.

Picture quality can be set in all cameras. If you are an experienced photographer and have the necessary provision in your camera, then you may well be using *RAW image capture* which gives the very best quality image. *TIFF* recorded images are also of the highest quality. These two camera settings will make images which are not subject to any compression by the mini computer chip in the camera. *JPEG* images will be fine for our

use, especially if the highest quality JPEG is set in the camera. All JPEG images are, however, compressed when saved in the camera's memory system, and again in the computer. (Compression makes the digital *file* smaller by evening out colour variations – there may well be no discernable difference in a picture taken at the highest JPEG setting, but all JPEG images are compressed to some degree and therefore have less information and result in a lower quality image.) The most basic JPEG picture will be even more compressed so that there is even less information in the picture – the image picture *file* is much smaller, hence many more pictures can be stored in the camera memory card, but at the cost of quality.

This will probably not be a factor in most of our garden photography, but it is worth bearing in mind that the fewer adjustments-*save*-adjustments-*save* sequences that there are, the better the final picture will be. Professional photographers usually use TIFF images to work on in a computer. They can be opened and closed any number of times without any loss of quality and they then convert finally to JPEG.

4 Setting up for a lecture

Most speakers will use a short 2m cable to connect their laptop to the projector. This usually connects to the monitor (or VGA) port on the computer and the *RGB in* port on the projector. The cable is commonly called an RGB signal cable. Occasionally it is necessary to toggle one of the function keys on the top row of the keyboard to operate the connection. This may well be the F7 key (possibly plus the Fn key too), but can vary according to the laptop make, so you may have to read the instruction book.

However, some lecturers now like to have their laptop not adjacent to the projector, which is likely to be in the middle of the hall, but instead on a small table in the front of the hall near the screen. Then they can speak facing the audience and are able to glance down and see the laptop screen too, with the great advantage of being able to view the picture being projected without constantly turning round to check on the big screen. To achieve this layout requires a longer cable to link the projector in the middle of the room to the laptop adjacent to the lecturer and screen. Some halls are already wired for this, but alternatively a 10m-length cable can be used in a small to medium hall. A low voltage is used in these cables and in longer lengths this inevitably results in a volt/power drop. Occasionally this can cause a problem when the laptop and projector, although each is working properly separately, simply will not work in tandem. This is because the laptop voltage output is not quite enough to operate the projector. Many of the latest projectors can accept a memory stick or card directly into the projector itself so this extra cabling may not be necessary. However the speaker may then not have the benefit of direct viewing on his or her laptop screen, or have the possibility of showing any other image during that presentation.

The solution is first of all to have your laptop battery fully charged well before the

Remember that you are working with thumbnail reproductions of the proper pictures, not the masters. Apart from the renumbering you are not altering anything else about the images. Any resizing or other alterations must be carried out separately.

Appendix G Adding text to picture images and making text picture images

First create your text in Microsoft Word, then *highlight* it and *copy* it into the clipboard memory using the normal Control+C command.

Next open up and create a blank image in Photoshop. This could be perhaps white, or better still a pale grey, as detailed in appendix B. With the *tools palette* open select the *type tool icon* from that toolbox. The mouse cursor will then change to a *type tool* and you can move it to an appropriate place on your new blank image and choose the best position for the text to start. Next left-click your mouse to fix the cursor on the screen, use the Word command for *paste*, Control+V, and the text will be *pasted* into your image. If the text is not the right size, you can change it directly in Photoshop by highlighting it and changing it in the *options toolbar*.

To consolidate this you have to go into *Layer* on the top menu bar and select *Merge Layers* this will bind the text onto the plain background .

H Highlighting parts of pictures

Highlighting a particular area of a projected image can be an important communication between the lecturer and audience. This is particularly so when an image is shown which contains parts which could be confusing for some members of the audience. A typical example would be a mixed herbaceous border and the discussion of different plants, one or several at a time.

Highlighting is most commonly used for this purpose *inversely*. That is to say, the subject area you are concentrating attention on is not highlighted itself, but is selected from the background and is then kept intact. It is the background part which is then separately selected and is digitally manipulated so that, for instance, it is desaturated of colour. The coloured subject area will then stand out significantly from this background and the audience will not be muddled by the surroundings.

Using Photoshop it is easy to draw a simple line around the selected part of an image with the *lasso tool*. This will designate an area, and is usually enough for this purpose. Other more sophisticated methods are available in the programme but they require a greater knowledge of the software.

Again I suggest that you try this out first on a discarded image to familiarise yourself with the procedure. These are the steps:

Go back to the top menu bar and select *File > Save all*. The new images will then be saved over the originals and the numbers will have lost their 'stars'.

Finally close the programme and check back to your original image file that they have all been all been changed to the new dimensions.

Appendix F: Thumbnails and contact prints

Using the standard Windows Explorer programme, which is on every PC, you can open a folder of pictures as *thumbnails*. Remember that this should be a duplicated folder not the original.

To do this open your selected folder, click on the *view menu* and select *thumbnails*. This will then bring up all the images as small postage-stamp-size thumbnail pictures. By clicking on any image and holding down your mouse button you can drag and move the thumbnail around the screen using the mouse with the left button pressed down. You can then reposition it between any other images. Gradually you can recompose the whole picture sequence, and delete single or multiple pictures if you wish. Additional pictures from other files can also be *dragged and dropped* into this working folder.

When you have re-ordered the pictures like this, you must remember to *rename* or rather renumber every single picture (see Section 8), otherwise when you close down the folder your computer will 'forget' the new sequence. This happens because you have only been moving around a screen copy of the pictures, and not the real pictures themselves. The real pictures themselves are not locked into permanent position until they have been properly renumbered. Once they have been renumbered you can save the folder and the new arrangement will be consolidated.

Printing out the thumbnails

If you wish you can now print out these re-ordered and renumbered pictures.

Photoshop will allow you to print out your images in various sizes and on alternative size printing papers. To do this, prepare your images in a single folder – this is your *source* file.

Then go to *File> Automate > Contact Sheet 11*

Beneath the *source directory* a dialogue box will appear. Click on the *choose* button, select your source folder and click *OK* again.

Next choose the document (i.e. paper) size you are going to print out on. This could well perhaps be 8x10 paper at say 72 pixels/inch, RGB colour.

Finally you can select the number of images you want printed on that page by choosing the number of columns and rows to make up the number. A helpful guide is given on the right of this dialogue box, where a graphic window display shows the picture layout. This changes as you change the values of rows and columns, so that you get a good idea of the result. When you are satisfied, click *OK*. The page of thumbnails will appear, ready to print.

presentation, and then to connect up the laptop to the charger again before plugging it into the projector. It cannot be overemphasised that the laptop must be connected to its transformer/charger, and be actively in charging mode during the show. For ultimate security, a lecturer should really provide his or her own longer cable which has been checked with the laptop being used. To avoid any possibility of a mismatch, the laptop, cable and projector must be checked when they are all connected up, before each presentation.

If you are buying a new laptop, if at all possible you should test it with your cable and projector before purchase. Otherwise, ensure that it can be exchanged for another model if it is not compatible with your projection equipment.

All cables should be carefully coiled, and stored in a bag or box, and not thrown in a jumble into the back of a car! The multiple wires and connections in these cables are actually quite delicate, and any twisting of the cables may damage them.

5 Converting film-slide photographs to digital photograph files (Slide reproduction)

Now we come to another topic altogether. A large collection of beautiful film-slides is probably the greatest disincentive to making the change to digital projection. We all have our favourite film-slide pictures and some are unrepeatable, especially those taken on travels abroad. There is frequently a conflict between being able to use these old favourites and buying a new digital camera with the promise of achieving modern and exciting images. Indeed, continuing to use these older, film-based slides may well actually prevent an adventurous foray into improved sequences, showing fresh plants and illustrating new thoughts and ideas on current progress and recent horticultural developments.

However, your older film-slides can be transferred to a digital format. Many flat-bed standard office-type scanners now have gadgets which will accept a film-slide and scan it into a computer; these will certainly produce an image which is of a fair standard when viewed on a computer screen, but it will rarely be good enough for a projected image in a hall.

Dedicated scanners for film-slide conversion can cost from £100 upwards and will produce better images. For around £500 upwards an excellent high-grade instrument can be bought. Some camera clubs are now buying them to share between members. However the actual transfer sequence can be a time consuming exercise. Old film-slides are frequently dusty and must be cleaned with a very fine brush or blower. If they have been mounted between plastic or glass, then ideally the film itself should be removed for cleaning before the scanning (then possibly be replaced afterwards as a back up!).



If you have only a relatively few film-slides to be transferred to digital images, probably the best option is to consider a 'slide to digital' bureau. A local photographic printing shop may do this, or alternatively put 'slide to digital' into Google to find a host of sources. Although you can get a film-slide transferred for around 30p, a better quality higher resolution transfer will probably cost nearer to £1. These transferred digital images will be very reasonable for most projection and lecturing. Editors of horticultural magazines and professional photographers, for example in the fashion industry, can spend £12 or more per image for faultless, larger format, digital picture *files* from a superior copying device known as a drum scanner. This is usually not necessary for use in a digital projector.

Another option is a film-slide-copying adaptor which fits in front of a digital camera with a close up lens. Photographs are taken using either natural daylight or flash. If you have a first class SLR camera (see Appendix I) and close up lens then the resultant images can be very reasonable, but the colour balance will nearly always need to be adjusted using a software programme on your computer.

However transferred pictures like this are rarely perfect, and they often need some fine-tuning of colour to blend in with the rest of the sequence. In the past we have accepted some pictures which have been imperfect because film images, especially film-slide pictures, cannot easily be adjusted, and we have simply had to accept some which are less than ideal. Modern digital photographs, taken with a first class camera and lens, are now more faithful than film to the truth of the original subject. Exposure and colour saturation can be of the very highest quality, and of course you can check the quality of your photographs immediately. The old film-slide images may now on reflection appear too light, or too dark, or perhaps have imperfect colour rendering. Indeed they have often faded or deteriorated with time. We have all seen slide projections of tired and washed out film-slides. Modern software can very often largely correct many defects in these transferred pictures and superior images can be produced. Also digital images never fade.

If you go through your original film-slide collection carefully you will probably find that, apart from photographs of foreign travel, you may need to have only a relatively few transferred to digital images. After all, your new picture images are much more apposite to your current thoughts about your subject, and they may well have overtaken much of your historical collection.

6 Adjusting digital photographs

Many photographs, from a scanner or other reproduction system, or direct from a digital camera, can be improved by some simple enhancement. By this I do not mean digital manipulation to alter the integral sense of the image – I am talking about minor adjustments, perhaps of colour or contrast, or minor blurring of the background, to

In the *image size* area, tick the *convert file type* and select *JPEG*. Tick *convert* box, and put in Width: 1024 , Height: 768 and resolution 72 dpi. Leave file renaming unless you are an experienced computer user. In *output options* navigate to your new empty destination folder, and click *OK*. Now click on the main (top RHS) *OK* and the images will be rapidly resized to the correct pixel density and size for presentation; they will appear in your new destination folder.

Microsoft Office Picture Manager, which may well be in your machine, is also suitable for this procedure, and details are in Appendix E. A number of other free programmes will do the job, and I would again recommend Irfan View as an admirable working programme which will carry out batch conversions too. The *help* files in both programmes (look up *resize*) will help you carry out these conversions.

There is a dedicated small programme available from Microsoft from their online software downloads under the *PowerToys* set of free *add-ons*. It adds a *resize* extra part to the menu options. Once downloaded into your computer it will work on a single picture or group of images in a folder. The working method is to right-click your mouse on the image or image file. The word *resize* will appear in the selection box menu. Select this option and a simple resizing sequence can be followed. (This is not available for the Vista operating system)

Appendix E Resizing the image with Microsoft Office Picture Manager

(This programme is found in the Microsoft Office suite under Microsoft Office Tools and is on most PCs – so it's free and needs no downloading.)

Make up your folder of all the images you wish to use in your presentation, again make sure all the images are JPEG and in *landscape format*. Copy and rename the copy, save it and then use this duplicate to use as your working source folder. The master original folder is therefore untouched.

Open Microsoft Office Picture Manager

Then *File > Add picture shortcuts* – this opens selection box – and navigate to your copy working file as above and click add. All the file pictures will be added to the main window.

Under *Edit menu > select all* and all images will be highlighted.

Then in the *toolbar* click *> Edit Pictures*, the *Edit Pictures menu* will appear in a window to the right of your selected images.

Then in near the bottom of this new right hand window *> Change Picture Size > Resize*. Now select *> predetermined width and height > Select Document (large)* and tick the small arrow just to the right. (This will bring up the standard you require of 1024 X 768 pixels, and is confirmed in the size summary setting at the bottom of the window)

Click *OK* at the bottom of the window and all pictures will then be resized and the image numbers will be starred.



Move this to part of the image and, pressing the left mouse button, drag the new cursor obliquely across the image.

A new highlighted rectangle will appear. This is your possible *crop* selection. The cursor will change to a series of different small arrows if you pass it around the newly selected picture.

By left-clicking the mouse and dragging these arrows at the *control boxes* at the corners of the image or in the middle of the sides you can extend or contract the image. (You can rotate it, too, by dragging the curved arrows which appear near the corners; the image will rotate around the small mark in the centre of the picture. You can move the centre by dragging the mark with the mouse, then clicking on any tool in the toolbox to fix it in place.)

Press your *escape* button to revert back to the original image, or *enter* or *return* to make the crop. This needs some experiment to become familiar with the sequence, but is not difficult to master.

If you have made this *crop* and you don't like it you can at this stage go into *edit* on the top menu bar and select *undo crop*, and you will then go back to your original image for another attempt.

Your picture is now cropped and resized, all ready for projection.

Appendix D: Resizing the Image

You need to ensure that every image you are going to use to the 1024x 768 pixel density and ratio. If they are not already in this format, it is quite possible to apply the *crop* tool (as in Appendix C) to every image in your sequence to resize the picture, by applying the *crop* not to a section of the image, but by *cropping* right to the outside of the image, which could well be to the whole of the frame.

Resizing a large number of images can be done in bulk. Remember that all the pictures must already be in the *landscape format*, and once again don't forget to perform this on a duplicated *folder* of your selected image *files*, just in case you don't get it right the first time!

First of all create a *folder* of all the pictures you are going to resize. This will be your 'source' file. To avoid confusion here I would suggest not placing your resized images back into this same *folder* after processing. Create a second empty 'destination' *folder*, perhaps on your desktop to receive these pictures.

This is the method in Photoshop:

Go to *File > Automate > Batch*

The *batch conversion* window will open up:

Click on the *source* box and navigate to your source folder, then click *OK*.

improve the overall picture. This can often be similar to a botanical artist subtly improving their view of a plant by excluding or blurring extraneous foliage and enhancing the sharpness and possibly colouring of their chosen main feature.

If you are going to do this, then it is imperative that the folder containing the master set of images you have made for the presentation is copied and duplicated at least once, and preferably twice, before you start on any of this work. Using one of these duplicated folders, any and all the adjustments are then made with safety, so that if by any mischance a wrong button is pressed (despite extreme care it happens to us all, frequently) you can always go back to your master folder or that spare duplicate folder and retrieve the situation.

Always rename the latest version of a *folder* or a *file* as you are working on it, so that you don't get into a muddle with possible multiple versions. Keep a log of all the adjustments you make.

Keeping to a horticultural context, minor blurring of backgrounds and removal of offensive twigs and foliage may possibly be a contentious issue. In the end it is a personal decision as to whether to adjust or not. My personal opinion is that minor adjustments are acceptable if they improve the reality and quality of the image. You may feel that in exceptional cases it is reasonable to state explicitly that changes have been made. It is clearly wrong to mislead or falsify, for example to pass off a garden plant as one taken in the wild, or to change the colour or form of the image to turn one cultivar into another.

One of the chief aims of an illustrated lecture is to augment and clarify the spoken word by means of photographs, and vice versa. In order to do this the pictures should be as pin sharp as possible, and with adequate colour saturation. Thin, washed out pictures, will never be seen well at a distance. It is so easy to look at pictures on your computer screen and think they are beautifully sharp and of exhibition winning quality, but when they are projected and seen from a distance they are often blurred and really rather poor. This problem is magnified when several images are placed together on one *slide*. It is a small technical achievement to make up a *slide* having, for instance, a bud, flower and seed head all side by side – it can be admired on the monitor at home, but at a distance the individual quality may well not be good enough.

Many picture image-processing programmes such as Photostory (a free download from Microsoft) or Picasa3 (a free download from Google) can carry out many corrections. The best programmes, with more advanced features, are the well-known Photoshop Elements, or Paint shop Pro, which have to be paid for. The larger programme, Photoshop itself, is a more elaborate programme for professional, or very dedicated amateur, use.

All these programmes can crop or resize the image for the exact measurements required by the projector (1024 X 768 at 72 dpi). In fact most projectors, in conjunction with their



controlling laptop, will accept any image size and then immediately readjust the size 'on the fly'. This can often work satisfactorily with one or two images, but it is one of the more common reasons for a problem in a digital projection sequence. Correction of the size should be done properly before assembling the images for the lecture. This is because multiple size readjustments one after the other can lead to a build up of memory deficit in the laptop or projector. This can not only slow down the presentation but can even lead to a 'freeze'. (See Appendices C, D and E for some suggestions for cropping and resizing.)

At this stage all your images should also be converted to the JPEG format if they are not already. This is because digital projectors can only handle JPEG images. This can be done in a number of programmes, and can usually be done when resizing the images. (Photoshop may well be used, but it may not work if you have a new camera and a rather old version of Photoshop). Irfan View is a free download programme, useful all round, and has free conversion *plug-in extras* for almost all makes of cameras and their different types of RAW files. Some of the latest cameras need these new plug-in interpreters in order to be read by the computer software.

7 Making up the lecture

You should by now have selected the images you are going to use for the lecture and have put copies of them all into a picture *folder*. The *folder* should be carefully duplicated, and at least one copy kept as a back up, with a different name. Don't be afraid of copying images, and working on a duplicate – unlike film copying, each replication is an exact reproduction of the original. Neither is there any deterioration or loss of quality of any kind – changes only occur when adjustments are made on a picture in the JPEG format. Of course most of these multiple back-up *folders* and image *files* can be erased once you've completely prepared the lecture.

The duplicate picture *files* in the *folder* can be worked on further without risk of losing all the previous effort. This is what could be regarded as a semi-final selection of images – new pictures can be added and some can be removed as necessary, but in the main the lecture will not be radically changed. Now is the time to start to consolidate your choice and create the picture image sequence.

In the days of preparing for a film-slide presentation, it was common to collect all the film-slides together, then lay out the projected sequence, either singly or in piles, perhaps on a spare table or tray. When you start to prepare a digital presentation it may be quite difficult at first to plan a lecture on a computer screen. It will be necessary to convert your images to small *thumbnails*, perhaps as small as a couple of postage stamps, which can then be moved round the screen into your selected order. This is not so dissimilar to the solitaire card game found on most computers!

Once you have made one grey, and one black *slide*, they can be duplicated on your desktop using copy and paste, and then used for the purposes described here in any number of presentations.

If you want to make a coloured *slide* proceed as above, but this time tick the *colorize* box in the *Hue/Saturation* control box. Instead of moving only the *lightness* bottom slider, move the *hue* and *saturation* sliders around as well, experimenting to obtain the colour you wish to achieve.

Appendix C: Cropping the Image

Many flower and other pictures are very creative and imaginative in their original form. However it may well be that an even superior picture will result by selecting part of an image. This is called a *crop*. Typically cropping can be used to single out a particular flower or plant or perhaps to just eliminate an unwanted section of the picture. Photoshop has a *crop tool* which enables you to do this. **Always do this on a copy of your original, high quality image, so that you are cropping from the initial maximum pixel density, not from a picture you have already made smaller.** Once again of course carry this out on a duplicated image, not your master photograph.

Even more useful is that in Photoshop the tool can be set to *crop* to the 1024 X 768 ratio at 72 pixels per inch so that cropping and resizing can be carried out in one go. This will then make that particular single image cropped, resized and ready for projection. (I would suggest that you carry out a few trial *crops* on a spare image first of all to gain confidence.)

Open the image you are going to work on in Photoshop. To check you have the *options toolbar* and the *tools palette* open follow the details below: Select 'window' on main toolbar, and on the drop down menu select 'show tools' and also select 'show options'. Click on each item, they could be already displayed, depending on how you last used Photoshop. If not, by clicking on these items in the *Windows menu* you can show them if they are not visible.

You can move the *tools palette* (a box with *icons* representing *tools* which you can use to change your images – like a toolbox) to the side of the main picture screen and run your mouse cursor over each picture in the palette to find the use of each unit.

Click on the *crop tool*.

The *options bar* (at the top of the screen) will then display the *crop tool* with four windows adjacent.

Enter: Width: 1024px Height: 768px and Resolution: 72

Make sure that in the fourth box the resolution is set to 'pixels/inch', not 'pixels/cm'.

Now you will find that when you move your mouse cursor across your picture you have a *boxed/crossed* cursor instead of the usual arrow.



fine tune the size of the image. Click anywhere outside the picture to de-activate the *control boxes*.

Finally, you have to *merge* the two images together: click on the *layers* menu and then click on the *merge* command. You will then have a new, properly proportioned picture, with discreet left and right plain borders which should be very acceptable (See Figs 9, 10 and 11). Save your new combined image with a different name/number!

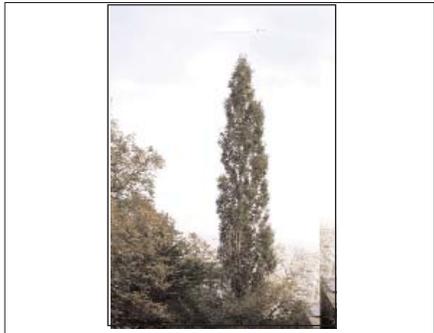
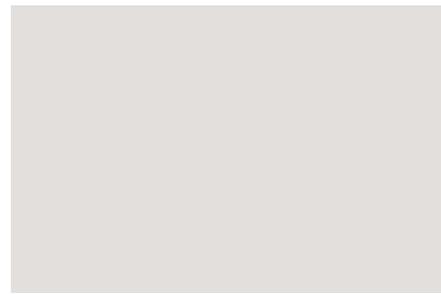
Appendix B Making a grey or black slide with Photoshop

Open Photoshop >*File*> *New*> then in the box which comes up you have to size up your new image. This should be Width 1024 pixels Height 768 pixels, and the resolution at 72 pixels/inch (not pixels/cm). If the right hand box is not showing 'pixels/inch', click on the downward arrow beside it to get the drop-down menu and click on 'pixels/inch' there. In the *Mode box* choose *RGB colour*, and in the *Contents box* choose white.

Press *OK*, and the new white picture you have made will come up onto the screen.

You can now colour this picture.

Go into the top *menu* bar and choose-



Figs 9, 10 & 11

Enhance>*Colour* >*Hue/Saturation*

(This may be *Image*>*Adjustments*>*Hue/ Saturation* in other Photoshop versions)

Up will come the *Hue/Saturation control box*. Make sure *Edit box* is set to *master*. Tick the *preview box*, but leave the *colorize box blank*

Move the bottom slider only – *Lightness* – and slide to the left. The white 'picture' you have made will then turn through shades of grey to black. Choose the shade you feel is the most appropriate and click *OK*.

You now have to save this image.

Go to *File*> *Save as* > and in the control box navigate to where you want to save this new image. Give it a name perhaps 'grey slide'. Make sure the format is *JPEG*. Click *OK*.

When the *JPEG options box* comes up put *Image Options* to *High* and leave the other options alone. This all creates your grey image file.

Some people prefer to carry out the first part of the selection process with actual prints that they can move around. This is where printed out *thumbnails* can be useful. Many programmes can be used to print out the *thumbnails* and they are often called *contacts* just like a page of contact film prints. If you print a *contacts* sheet, the *thumbnail* pictures can be cut up and stuck in order on to a large piece of card or paper. Blanks can be added to represent the pictures that you plan to add later. You can make up your whole lecture very much like a story-board used widely in the TV and film worlds. See Appendix F for more information on thumbnails and contact prints.

8 The presentation process/programme

The next stage is to think about how you are going to actually show your pictures. Which programme are you going to use? It is quite possible to give a whole lecture using the software you are already using to select and view your pictures.

In *Windows Explorer* you can double click the images in the *thumbnail view* to bring up a single enlarged view of each picture. Click the *start slide show* icon beneath and the pictures will show as a full-screen slideshow. If you move your mouse cursor, a *control panel* will open on the top right of the screen. You can then control the show – forwards, back, hold or leave it on an automatic slow-play sequence.

Several other programmes such as *Microsoft Office Picture Manager* (usually part of *Microsoft Works*) or *Irfan View*, also have a slide show facility. Any of these may well be fine for home viewing or checking your images, but are not reliable enough for a presentation to an audience.

In order to create a more permanent and professional presentation, perhaps with added details, here are some suggestions.

You must consolidate the order that the *slides* are shown by changing all the existing picture numbers and/or names to a new numbering system. Pictures which have been sorted for instance in *Windows Explorer*, will not retain that image order if the *folder* is closed down and reopened again. On reopening the *folder* it will usually be automatically *refreshed* and the original order reinstated. The answer is to consolidate your revised order by renumbering the images into a new sequence.

You may already have renumbered the pictures to make contact prints, but there are more important reasons to do so. When your pictures are projected there must be no possibility of any muddle over the projection order. If you have pictures from several sources, such as from a scanner, a camera, pictures from another camera, or pictures taken at different times or on different cards on the same camera, then the existing numbering is likely to be a hotchpotch of different letters and digits. When the final projection takes place, the laptop and projector work best if they select the pictures one after the other from a sequenced *file*. They won't have to jump from one place to another to pick out the next selection.



Renumbering may appear rather tedious but is essential for any longer presentation. To make a new numbering sequence you need to use the *rename* option for each image. You do this by selecting each picture in turn, with your mouse, right clicking the image, to obtain the right click *menu*, and then selecting *rename*. The *name box* is then highlighted and you can type in your new picture number. An even quicker method on most computers is to select the picture and then just press the *F2* button, if you have one on your keyboard. The existing picture title will be highlighted, and you can immediately type in a new image number.

Beware – computers don't count like people!

I suggest that you start your numbering system at the number 001, then the first three *slides* will now be 001, 002, and 003. The reason for this is that computers work on a binary system and so they can behave in what seems to mere humans a bizarre way with numbers in sequences. They can select a picture numbered 1, and then they may next select not 2 but the picture numbered 10 to be the next, and then perhaps 11 to follow on. A disaster! By starting the sequence at 001 you can avoid this problem.

Another suggestion is that if you give several lectures you can also add a letter prefix to each picture number, so that the series becomes a001, a002 and then a003. You can call all the pictures in your first lecture a001... etc., then when you set up a second lecture you can number your pictures starting b001... etc. If all your lectures start with a different prefix, then when running through or adjusting a lecture by copying or moving pictures from one *folder* to another you will know at once which lecture you are in, and you're far less likely to get into a muddle. Lectures are frequently updated and changed as new pictures are available, and versions may be made for different audiences and different time constraints. This simple method can prevent many 'lost' pictures and consequent frustration.

Once your picture *files* have been renumbered, your lecture can still be adapted and changed if you wish. You can eliminate a picture by deleting it and the picture sequence will just jump to the next image as though nothing had happened. For example, if you delete the 31st picture in the sequence you will delete image a031, and the picture sequence will then run ...a030, a032, a033... etc. Similarly, if you want to add a picture after say a124 then this can be numbered with a suffix, for instance a124a, and by dropping this into the *file* it will automatically appear between a124 and a125 and the sequence will be ...a124, a124a, a125... etc. If you want to add three *slides*, then they could well be a124a, then a124b, and finally a124c. When adding extra pictures you will almost certainly need to close down your image *files* and the *folder* of *files* for a couple of seconds. When they are reopened the new images will be automatically installed in their proper sequence. You can also change the position of *slides*, renumbering each *slide* with its new number position. On my computer it is necessary to enter the *view* menu and change from *thumbnails* to *list* or *details* and then close the *file*. When the *folder* is next reopened and viewed as *thumbnails* again this resequencing is incorporated – it doesn't seem to work when keeping to the thumbnail view.

Of course if you have made umpteen numbering changes in a *folder* it could well be much

Tick the *Constrain Proportions*

Leave the *Document size* box alone, except to change the *Pixel Resolution* to 72 pixels per inch if there is another amount in there.

Now the important part:

In the main upper box (*Pixel Dimensions*) type in the **Height** first of all to 768 pixels. As you do this the units for the *Width* will automatically change to the correct width value, which keeps the aspect ratio correct – it is commonly around 570 pixels. Press the *OK* button. You will now have a resized image which will fit into the correct projection format, and also has the correct pixel density. (If the image is too big for the screen, click on the *magnifying glass tool* and right-click over the image and use the drop down menu to adjust the size of the screen image.)

However a small warning here, this picture will probably be fine for most projection programmes and will usually correctly be centred for display. Depending on the viewing software used later, there is still a possibility that this image will not be properly positioned, but will be placed to the side of the screen not the centre.

In order to obviate any possibility of this happening, your new picture should ideally be merged with a pre-made background. This is in the master landscape format, and then there is no chance of any hiccup. In any case, if the picture is projected as it is, it is likely that there will be a white space each side of it when it is projected. The sudden impact of these white margins is not really conducive to a very smooth presentation. The creation of a picture which has perhaps grey or black margins is a more professional method if you have the time.

To create this *merged* image, first of all make a grey or black *slide* in Photoshop, as detailed in Appendix B below. With this grey *slide* up on the monitor, open up your new converted picture, and make sure each image has the same *percentage magnification*. The *magnification percentage* is on the small *menu* bar above every image on the Photoshop screen, and may be in a small box on the lower left of the picture, depending on the software version. With your cursor on the picture you wish to change, press the keyboard *Control+plus* or *Control+minus* to make the pictures equal in size and small enough to be approximately side by side.

Click on the *rectangular marquee tool* to select the whole picture, by clicking the tool on to a corner of the image and sweeping it diagonally across to the other side.

Then find and use the *move* tool (move your cursor over the *tool icons* and their functions will be shown in text, click on an *icon* to turn your cursor into that *tool*) then click again, this time on your picture image, and keeping your left mouse button down carry this resized picture image over the new grey or black blank *slide*. Centre its position, and release your mouse button to *drop* the picture over the blank *slide*. The picture will be surrounded by a fine dotted line with six *control boxes* which can be used as necessary to



Appendices – please note.

To avoid the confusion of detailing the use of multiple software packages, the details of software adjustments in the appendices below are all described using the photographic editing software called Photoshop Elements. This is a moderately priced, excellent programme used worldwide. There are a number of other editing programmes on the market such as PaintShop Pro, and PhotoPlus. These programmes have similar tools to adjust images and these work in a similar way to Photoshop Elements. Adobe Photoshop CS4 is the big brother to Elements, and is the major professional editing programme.

Used here, the name Photoshop means Photoshop Elements throughout. Several versions of this programme have been issued over the years, and consequently the exact keystroke sequence or other details below may not absolutely coincide with your version or the latest upgraded edition. These will be very minor changes and if clarification is needed you can look up the *help file*. (Top right *menu* on the Photoshop toolbar) You should always have the *options toolbar*, and the *tools palette* open in Photoshop. Check this in your programme manual, *help* from the *menu* bar, or the notes in appendix C.

Appendix A: Portrait to landscape conversion

The standard projection format to use is 1024 pixels across and 768 pixels vertical. If you are showing a picture of an upright object, such as a tree, and only have a vertical format picture, then some adjustments need to be made. This is because the height/width ratio is wrong, and indeed probably reversed. What happens if you try to show it without any adjustment will vary depending on the programme you're using. Sometimes this portrait shaped is resized to a height of 768 vertical pixels, all correctly. But occasionally the resulting image is squeezed to the left side of the screen, which looks odd. The worst scenario is that the top and bottom of the image is simply chopped off! Just reshaping your vertically taken *portrait format* to the *landscape format* you need could even result in a grossly distorted fat picture!

By far the best solution is to properly resize your picture to the required projection dimensions. Beware, though, that you will be ending up with a smaller size picture with fewer pixels, and the image quality may be reduced. Changing to *landscape format* is very easily carried out in Photoshop.

Remember of course to use a duplicated image to do this, **not** your master picture.

This is the procedure for a single picture:

Use *File>Open* to open up your portrait aspect picture

Choose *Image >Resize>Image size*

The *Image Size* conversion box will appear.

At the bottom tick the *Resample* box and set it to *Bicubic*.

better to save your amended *folder*, renumbering the whole sequence perhaps using a new letter prefix. If you have an idea in advance that you may well be going to change a part or parts of your lecture, you can always leave a gap of a few spaces in your numbering at regular intervals or just at any critical places, so that further pictures can be dropped in. This may allow some leeway and help avoid having to do a total renumbering.

9 More picture preparation

Computers allow us to do so much more than just project one picture after the other, and here are some hints to enhance that straight show of pictures and to make the presentation much more professional.

My first suggestion is to make an all black *slide* (image) to be shown at the beginning and end of your lecture – it will be the first and last picture projected in your actual lecture sequence. This means that the projector can be set up and switched on well before the start of the lecture. You can use a separate chosen image, probably not in your lecture sequence at all, to focus and set up the projector with the screen, and make the *keystone corrections* (section 1). Then you find your master lecture sequence folder and double click on it to open it up. The black first slide will start your lecture. The screen will turn black, and all the equipment can be left running. Probably few of the audience will be aware of it, but it does mean that at the appropriate point, when the lights are dimmed and the picture sequence starts, there is no need to move to the projector to switch it on and focus the first *slide*. You just press the button to show the next picture, the one which actually starts your story sequence.

I would also suggest that at the end of a lecture you have as the next to last *slide* a neutral coloured blank *slide*, say light grey. This is because nearly always someone has to get up from the audience and stumble in the dark to switch on the hall lights, and some illumination is useful. Then at the end use another black *slide* for the final projected image so that the chairman won't be giving you that great vote of thanks with a projector glaring into his or her face! Black and grey pictures can easily be made in any of the image processing programmes mentioned here. (See Appendix B for information on doing this in Photoshop.)

Another advantage is that a final black *slide* makes it appear that the projector has switched off. It makes it less likely that someone will switch it off without warning, before the power down sequence has been implemented. Though do watch out again for someone helpfully pulling out the electric plug!

When the picture sequence is finally selected, the next thing is to duplicate the image *folder* and keep a copy, perhaps on an external hard drive or memory stick, so that all your hard work is doubly saved.

When you give your lecture you should always have your lecture presentation final *folder* on your hard drive, in your laptop itself, and not played from a CD. This avoids the



computer constantly accessing the CD during the lecture, another possible source of error. Start by making the *Keystone corrections* (section 1). Then find your master lecture sequence folder and double click on it to open it up. The black first slide will start your lecture. The screen will turn black, and all the equipment can be left running.

10 Plant name titles and other title slides

Some lecturers hand out lists of plant names, and this can be invaluable when many rare and unusual plants are in the story. During the lecture, though, some members of the audience may very well fail to pick up the name spoken by the lecturer and reading the actual name on the picture itself is a marvellous aid for the audience and, indeed, maybe to the speaker!

Always think of the audience near the back of the hall when making adding titles to your *slides*. Unless the hall has raked seats, which is rather unusual, or the screen is at a high level, the title should be at the top of the picture, not the bottom, so that it can be clearly seen (not through a sea of heads). It is not at all difficult to add names to a picture using the *type* tool in Photoshop Elements.

I suggest you might try a little sophistication here, using a three picture sequence, which can lift the presentation to a different level. To add a title this way, first make two duplicate copies of the picture you are going to work on and rename the three identical pictures with suffixes a, b and c. Images a and c will be unchanged, while b will carry the title. You will then be able to show the three pictures one after the other in an abc sequence, pausing for a short time on picture b so that everyone can read the name. The audience will have no idea at all that three pictures were used, but will see one picture, with the title magically superimposed for a few moments. The advantage of doing this is that the lettering, although at the top of the image, can sometimes obliterate or interfere with the actual content of the picture and using three images allows the full picture to be viewed again on the third image. A *fade* or *dissolve* between the three pictures is the ideal way to show them (see section 14).

To make a titled *slide*, select picture b and open it in Photoshop or a similar programme, select the *type* tool from the *toolbox* (*toolbox* description is in Appendix C) and carefully type in the plant name on top of the picture. Starting near the top left corner is probably the best place. Use a black lettering colour if the background is light, or a white lettering colour if the background is dark. (If the text doesn't show up readily against all of a busy background, you may prefer to set it against its own coloured *label*.) A sans serif typeface like Arial is probably seen best from the back of the hall, rather than the serif font of Times Roman. Some experimentation is usually needed to get the lettering the right size, so that it is large enough to be easily read but does not dominate the whole picture. Arial italic is a bit different from the *Plant Finder* lettering, so if that offends you go back to Times Roman! Always use a larger rather than a smaller size of type so that it can easily

If you are using PowerPoint then you can go back into the programme and retrieve a single image. In any case having this all projected to the audience whilst you are searching for the particular picture is not good practice. Remember you can nearly always turn off the projected image via the laptop VGA port by pressing the Function FN7 key (as in part 4 above) when you are carrying out the search. This does not turn off the projector, just the signal to it.

A better idea still is to put a copy of your master file on the laptop as a spare image source. When you need to find that hidden picture, just double click on this file to open up the images inside as thumbnails. Find the picture you are seeking and with a right click select *Open with Microsoft Office Picture Manager (or Windows Photo Gallery)* and your selected image will open full screen. It will have some surrounding text but this is not too objectionable. Remember you can again turn off the VGA port when doing this.

Practice this first, of course.

16 The lecture – finally...

You now have a well-planned, carefully assembled, illustrated digital lecture all ready to run. You have practised it a number of times, and hopefully memorised much of what you want to say as you show each image of the sequence. Unnecessary pictures have been discarded, and the timing has been honed to an exact length. At this stage, an additional aid can be to view the images again in their thumbnail form and to print them out as a contact sheet. You can use it to run through your lecture at any convenient time and place, without having to turn on your computer or laptop. A well-rehearsed lecture, spoken without constant referral to notes, always has maximum impact.

Laptop, projector and cables are all prepared. The laptop battery is fully charged and the lecture *folder* is on your *hard drive* and readily accessible from the *desktop*. You might even have a spare copy of the lecture *folder* on a *memory stick* in your pocket.

The last item you might treat yourself to is a cordless presenter remote control, which will cost around £40. It is a handheld unit which sends a radio pulse to your laptop when you press a button. The pulse is picked up by a small plug-in unit on the USB port of your laptop and turns the images over, forwards or back, without you having to lean over and press your laptop buttons to change every picture. Many of these units contain a laser pointer, and the more sophisticated ones even have a timer incorporated which can be set to give a small vibration in your hand after say fifty minutes – a great hint that you have to wrap up and shortly bring your lecture to a close!



14 Dedicated projection programmes

If you have followed the suggestions above, it is quite possible to show your *slides* using Windows Explorer, or perhaps Microsoft Office Picture Manager, or Irfan View. However if you use a dedicated presentation programme you can create a superior show.

By far the most well known programme is PowerPoint. If you have Microsoft Office installed in your computer, then you could well have PowerPoint. This comprehensive programme allows you to sort your images, put the presentation together, and then use it to show the pictures. It is not a simple programme for a beginner, but the basics to set up and project a straightforward picture lecture can easily be learnt. It is not in the remit of this article to go into the full details of its use. There are many articles and books available, and the full programme can be used to project video, print out notes for the audience and a host of other facilities if needed. However, you can bypass all the complicated preliminary parts of the programme, and just load your pre-prepared *folder* into PowerPoint and then use the final presentation part of the software to project the sequence. (See Appendix K.)

A presentation programme also enables features such as a *fade in* and *fade out* to be made between successive images. The resultant *merging* in and out of successive pictures creates a very professional effect. (*Fades* are called *dissolves* in some presentation programmes.) This not only makes the viewing easier for the audience, but the subtle merge out from one *slide* and then in of a new image will give a speaker a visual hint as a reminder of the content of the next image. This can aid the speaker's flow and hence can improve the overall delivery. We are so used to seeing sophisticated presentations on television that audiences are used to special effects, but don't be tempted to use *starbursts* or *wipes* between images in any serious lecture – they can be very distracting.

Don't forget that if you have PowerPoint installed on one computer, then you can compose your lecture on that computer, save the lecture and load it into a free small programme called PowerPoint Viewer on, for instance, your laptop. This means that a fully prepared presentation can be given on a secondary computer without having to buy a full version of PowerPoint for that machine. (See also Appendix K.)

If you don't have PowerPoint on your machine, then may I recommend a small presentation programme called Pictures to Exe (Also more details in Appendix K.)

15 Projecting single images in that 'question and answer' session!

At the end of a formal lecture questions may be asked about a certain picture which may well be buried somewhere in the middle of the sequence. It is a good idea to be prepared for this eventuality, especially in an important presentation.

If you use PowerPoint Viewer or Pictures to Exe, then you will not be able to readily jump to a selected picture, and so this can mean flicking backwards or forwards through the images which can be very annoying to the audience.

be seen at the back of the hall. The ideal is to have the script as large as possible, but not so that it's broken into too many lines or masks too much of the picture. When the name has been written, the image and text may have to be *merged* in the programme to consolidate the script with the picture. Don't do anything else to the image apart from the lettering. Then save it without altering the picture name and it will replace the original picture. See examples of text addition figs 3 and 4. (*Merging* is detailed in section 12)



fig. 3



fig. 4

11 Maps and other illustrations

Travel lectures benefit from maps, and occasionally other graphics are needed to illustrate a lecture. Occasionally images from the internet may need to be used in a lecture sequence – they should be downloaded and saved as JPEG images.

A word of warning here: many of these web images are of a low picture quality (low pixel density). They appear fine when viewed on a part of your computer screen but may well look poor when projected full size. Often web images are low quality to prevent illegal copying of a copyright picture and there is no way of improving such pictures, and quite rightly so! A good example of this is that the thumbnail images from most botanical online libraries or from nursery catalogues are rarely suitable for projection. If such a picture is the only one available, then you have to compromise between using a very small image and enlarging it to full screen size when it would probably be grainy and blurred (often called *pixellated* because it shows the pixels much enlarged). Just a small amount of enlargement is probably the best, which requires some experiments to get it right.

Maps are a different matter, and can be scanned or photographed to make digital images from hard copy (usually images on paper). Strictly speaking, images from books are usually under copyright and scanning is illegal. A single image used for educational purposes in a lecture is unlikely to raise any eyebrows, but it is the responsibility of anyone doing this to be aware of the legality.

Google maps have revolutionised using map images for presentations. They are copyright-



free, can be scaled, and are ideal to illustrate travel and plant photography trips. Routes on maps can be treated just like title *slides* (see section 10 above), with the original map used for orientation and then a second image made on the first with a route or places drawn or highlighted. Successive images can be made with the route and places drawn in and superimposed on the original image. This really aids the clarity of the presentation. *Photoshop* is ideal for this type of image superimposition. Again more details in Appendix K on using *Google map* in presentations.

Other images and diagrams can be made with a simple drawing programme. The end result should be a JPEG image, to make it easier to *import* into the final projection sequence. The small programme called *Paint* found in all Windows PCs is ideal because the images made in it can be directly saved in JPEG format.

12 Lists and text

The written word can easily be incorporated and used in any picture sequence. In the past, adding lists and scripts often required quite complicated, specially made film-slides. This has all changed. Text can be scanned in or, better still, made especially for projection as a dedicated image in many of the image programmes mentioned here. Do note that a page of script created in *Microsoft Word* cannot just be saved as a JPEG image and used directly as a projection picture. However it can be *cut* and *pasted* into either a *Power Point* image or a *Photoshop* image and used that way. There is also a separate *send to* command in *Word* so that script can be directly exported from that programme, and used in a *Power Point* image. See Appendix G for details on adding text and making text images.

As with maps, another method to incorporate text and other images is to scan them. The scans can be saved directly as JPEG pictures, but beware that they may not be of the highest quality.

In reality though, most lecturers will wish to avoid lengthy lists on the screen. The basic script facility in *Power Point* and in *Photoshop* may well be quite sufficient to create the simple lists which should appear in an average lecture. Remember you are not going to pack in too much text: the audience at the back of the hall must be able to read it easily. There is, however, one golden rule which a good lecturer will never break – though it happens time after time: it is to avoid reading out from the screen a list which the audience is quite capable of reading themselves – it demeans their intelligence and can be very irritating to a knowledgeable audience. By all means use the lists as a guide to making other comments, but steer clear of using too many of the actual words on the screen.

An aid to speaking about the subject matter on a list you have projected, rather than reading it off the screen is to mark each item with a *bullet*. *Bullets* are small circles or other marks which distinguish the different components of the list. To make their use effective, it is necessary to duplicate the text list and make several identical images of that

list, the number of duplicate images matching the number of items on the actual list: for instance, if there are four items on a list then the image would be duplicated four times. Each image in turn is then brought up in a programme such as *Photoshop* and one of the items on the list is marked with a coloured circle or a symbol marking a different item on each *slide*. Projecting the four *slides* appropriately will enable the audience to see all the four items, but the item you are talking about at that particularly time will be ‘bulleted’ so there is no confusion about where in the list the speaker has arrived at. (See figs 5, 6, 7 and 8.)

Highlighting text is another useful method and an alternative to bullets in a list. This can also be done easily in *Photoshop* simply by highlighting a word or words, then using the *colour picker box* towards the right hand end of the *options toolbar*, choose a new text colour for that selection. Press *OK*, and the text colour will change.

Putting bullets on a scanned JPEG image has to be performed in *Photoshop*.

13 Highlighting on picture images

Just as a marker pen can be used to highlight a portion of the printed page, and *Photoshop* and *PowerPoint* can be used to highlight sections of lists, portions of images can be highlighted in a very similar manner to accentuate parts of an image.

This is particularly useful when, for instance, a lush, well-planted herbaceous border is shown as the primary image, and a particular plant or group in that border is to be given special attention in the lecture.

In *Photoshop*, a simple way is to use the *pen tool* to draw a line around a designated plant. However a far more sophisticated method is to select the critical part of the picture, then to blur or change the colour, or perhaps *de-saturate* (change to black and white) the rest of the image. This means that the important selected part is in effect highlighted compared to the rest of the picture. (More on this in some detail in Appendix H.)



figs 5, 6, 7 & 8