



` A Progression
from
Photography to
Digital Imaging
and the Internet'

ALAN LODGE

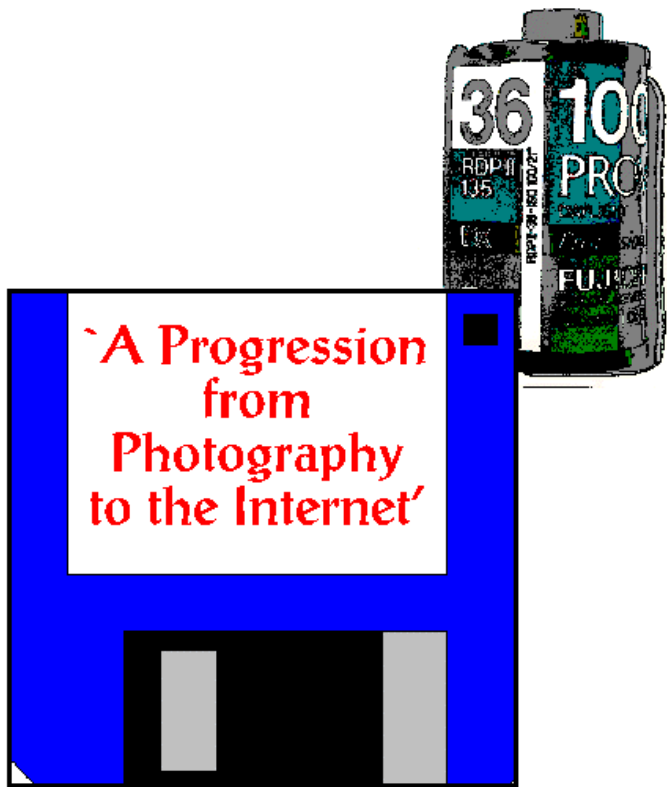
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***“Unrestrained communication...
being one of the most precious
rights of man,
every citizen may speak,
write and publish freely”***

Thomas Paine (1737 - 1809)

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1. Introduction

For this assignment, I have chosen to discuss the changes in the field of photography that have improved the craft. Photography means `drawing with light'. In general terms, it can best be described as a *`lens based'* media.

With the advent of the scanner, a device that can make a digital representation of an existing photograph, an important convergence of technologies occurred. The camera and the computer allowed for the manipulation, storage and transmission of images as never before.

In some instances, the camera (as we have come to know it) is already obsolete. The invention of the digital camera now makes it possible to record an event, store the image and transfer to a computer without standard light sensitive material being involved at all. This is `digital imaging'. As with any new technologies poses many threats and opportunities for the future.

After a little background, I will discuss some of my own involvement here.

2. Photography - 150 years of developments

2.1. *Beginnings*

The Camera Obscura was a first amongst the many inventions of equipment that made photography possible. However, it only worked while the sun shone outside and no record could be kept.

The earliest permanent photographic images were produced by a Frenchman, Joseph Nièpce. Between 1825 -7, he developed the Heliograph, a pewter plate coated with light sensitive asphalt dissolved in oil of lavender. The exposure took many hours and the final image wasn't very good.

However, by 1839, co-worker of Nièpce, Jouis Jacques Mandé Daguerre had refined the process and developed the daguerreotype¹.

Very much greater sensitivity had been achieved, reducing the required exposure to minutes. Thus, the first portraits were possible. By 1841, with further improvements having been made, portraits were being taken in France, England and the United States. In only another three or four years daguerreotypes were taken in studios almost everywhere in the western world. To the people of the time, the process must have appeared fantastic, perhaps akin to the invention of video today.

It is worth referring to the very beginnings, since developments when made at this time (150 years ago) were suprisingly, just as explosive in their distribution, as digital progress has been today.

¹ At the same time, in this country, William Henry Fox Talbot developed the `mousetrap' camera. and the `calotype' process, the earliest means of obtaining a positive image from a negative one. Hence reproduction becomes possible.

2.2. 1977 - 1997

I had first been introduced to photography in the mid 1960's by my science master at school. I had been taught how to make black and white prints, but I think that the novelty wore off!

However, in 1977, I bought the first of a succession of 35mm Single Lens Reflex Cameras.

Primarily made by half a dozen Japanese manufacturers and a couple of German ones, they were considered to be a definite improvement on the earlier 35mm `viewfinder / rangefinder` cameras. With the SLR, a variety of lenses could be used. This



Figure 2-1 Nikon 35mm Single Lens Reflex camera. Same model as I use.

allowed for the magnification of a scene, to change the field of view and perspective. This feature introduced a great number of creative possibilities. Further the cameras of this size are quite portable. Film too had come quite a long way since the pewter and glass plates.

Improvements in film technology today have been concerned with colour saturation and its speed of sensitivity to light. Further, increased resolution resulted in higher definition in prints. Modern film of 35mm size resolves the same as an image shot onto "5 x 4" materials that were available twenty years ago.

My interest in photography had been influenced by the `social documentary` photographers of the last fifty years. I was involved in welfare and social work at Britain's `pop` and `free` festivals and the `squattling movement`. Further, I have had much involvement with what the press described as `New Age Travellers`. Some think that there had been much mis-information and prejudice applied to these groups of people, and that it had been politically motivated.

In the steps of these earlier photographers, I had set about making a record of people that, I think, show a more positive side of their

lifestyles². With the 'hands on' approach that occupied me previously, it was only possible to help people with their problems, that were immediately in front of you. By engaging in our own 'propaganda', with the object of generating our own 'media', it was possible to shout about our case, where the main-stream media had still ignored us.

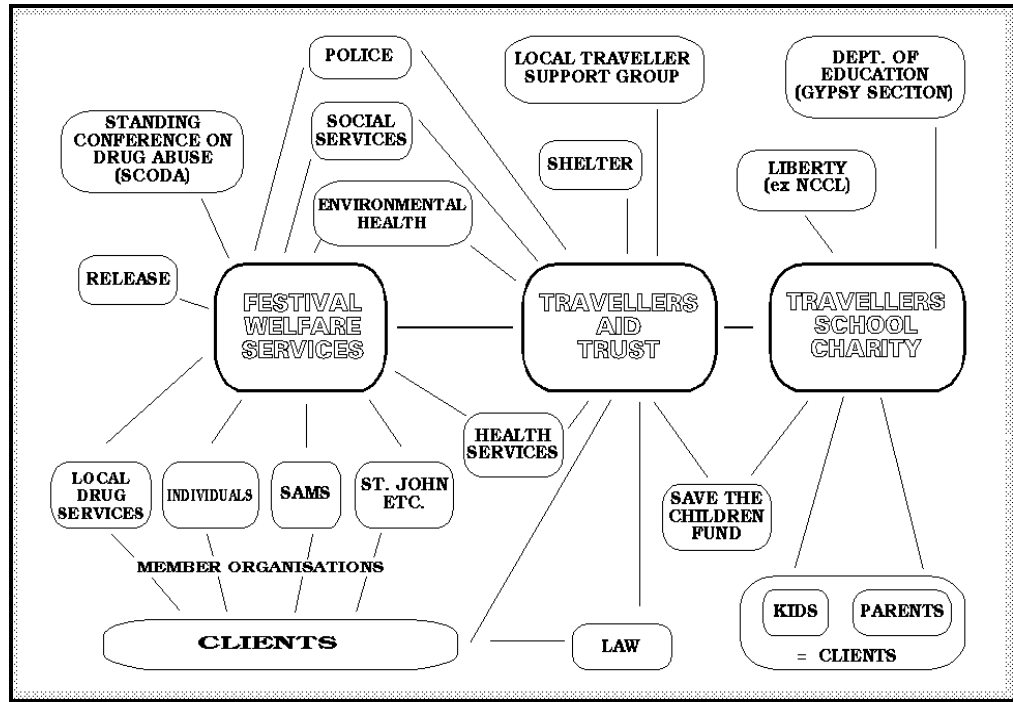


Figure 2-2 'Flow diagram' describing my involvement in these issues.

By trying to make the public aware of an issue, you can (perhaps!) influence public opinion that can be translated into political action. Well, I'm still working at that one! But there are many examples in history where change has been bought about by showing 'how it is'.

I had started, and worked with, a number of 'free sheets', newsletters and magazines discussing the issues at hand. Production very much based on 'kitchen table' technologies, with glue, photocopies and paste-up.

My interests grew, and I sought coaching in a variety of technical methods. My 'basic' kit by this time consisted of two camera bodies (loaded with colour transparency material and B+W). a selection of lenses and a powerful flashgun.

² Please see my self-published book: 'Stonehenge - Solstice Ritual' and such magazines as Festival Eye, Squall, and information leaflets about the 1994 Criminal Justice Act

To prove it possible to myself, and wishing to think that not everything had to be all `high tech`, I had taken photographs of a small encampment in the Welsh mountains. I processed the film after dark in a tent. Then, on drying the film a respectful distance from a fire, had made prints. I washed these in a pool in a mountain stream and hang them to dry on a clothes line. Although the materials have vastly improved, it gives an idea of how the photographers of earlier times had managed. Out there `on the frontier`. How they were still able to express their meaning without the modern refinements.

From 1990 - 93, I read for a BA(Hons) degree in Photography at Nottingham Trent University. I think I was considered an oddity within the department (in the kindest sort of way!). It was an `art-based` course and I was surrounded by artists, albeit photographers. When viewing work, I would frequently ask "yes, but what's it for?". Apparently, if it's art, it's supposed to `stand alone` and `be`. I however was looking for means of expression where a knowledge of art principles might help with the efficient means of communication. To express "what you mean".

I can think of examples of photographers that I was introduced to there. From the work of Dorothy Lange³, who photographed the `Dustbowl poor` in the Great Depression of 1930's America. In straight viewing, but contrived photography in support of government `New Deal` welfare policies, to the `photomontages` produced by John Heartfield. Working at a similar time in Germany, he produced `multi-media` work based on photographs mixed with text that were highly critical and ridiculing of the Nazi Party. History shows that both, by their very different means, were able to contribute to change.

It was in the last year of the degree that I was Introduced to `digital imaging` for the first time . Through Adobe `Photoshop`⁴ on an Apple Macintosh computer. I think I was excited to the same extent as with the teacher introducing me to black and white printing years earlier. To realise some of the possibilities.

The principles that I've just expressed can now be tried tested and edited with the tweak of mouse button. My interest in the

³ Dorothy Lange worked for the `Farm Security Administration` (FSA) a US government organisation concerned to promote assistance to thousands of rural worker under President Roosevelt's New Deal.

⁴ Photoshop is software package which, after scanning, can be used to manipulate an image.

computers then, is that I realise that they can be a tool to both show 'straight' and derived photography next to text within a DTP package, or in 'web publication' on the Internet. Alternatively, by an ability to cut and paste images, test and reject ideas quickly, they provide for cheaper means of experimentation. Alternative to cutting up lots of perfectly good photographs!

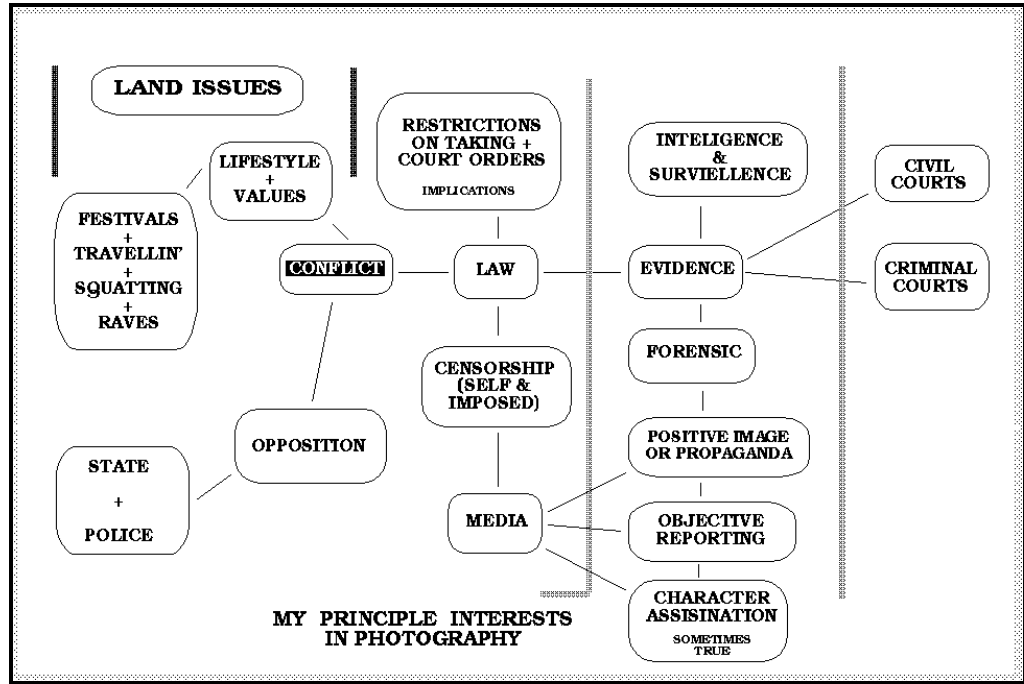


Figure 2-3 'flow diagram' describing my interest in the photographic process over the last twenty years. Each employing a different blend of old and new technology.

3. Digital Developments

A scanner primarily consist of a light source and a recording unit. The recording unit is based on `CCD` technology. Theories about the Charged Coupled Device had been proposed as early as 1948. However, in practice, the technology had to wait until the development of the solid-state semiconductor. In 1972 Bell Systems in the US had produced a working design.

The earlier prototypes were, of course, relatively large. It was with such `Chips` continued miniaturisation, that a range of products were spawned.

3.1. *Scanners*

The `*Flatbed*` scanner is now a common feature of all design offices and some photographers. With mass production, the unit cost of this equipment has fallen to a few hundred pounds. However, for professional and printing use, a `*drum*` scanner would be required.

The `flatbeds` rely on a `linear array` of CCD receptors that because of their configuration for movement, mean that they have a lower maximum resolution than the `drum`. This device spins the artwork in front of a stationary array of CCD's. Colour reproduction is achieved by the `chips` being arranged in groups of three, each sensitive to red, green or blue light.

In recent years, I have taken much of my photography onto colour transparency material. Technically, this material is preferred because of colour `depth` (saturation). It is of course necessary to use for projection.

However, it has been (and continues to be), a problem to get my work scanned in this form. These scanners tend to be much higher

priced. They have to resolve to much high dpi (dot per inch) over an area of on 24mm X 36mm. This can imply resolutions between 4000 - 5000 dpi.

However, the major advantages of using a `*film*` scanner are:

1. No optical loss through enlarging.
2. Input is direct without need to make prints.
3. process speed.
4. Minimal darkroom facilities needed
5. Can work with both negative and positive materials.

Other developments are now afoot that might help me by-pass my need for a scanner.

3.2. *Digital Cameras*

Still based on CCD technologies, the `*digital camera*` has become possible with yet smaller chips. The driving force behind this progress was primarily the development of the video camera. Because the viewer is `*distracted*` by movement, definition becomes less obvious. This is, of course, also true of `*movie film*` .

Kodak and Nikon have both developed `*digital backs*` for conventional 35mm SLR cameras. Thus, the conventional controls of the camera such as - lens type and focus, aperture and shutter speed are all used in exactly the same way. Instead of the photo-sensitive film, the light is focused on a `*block array*` of CCD chips.

The definition produced by such cameras, when first developed, did not comper with the photographic equivalence.

Although still expensive, the latest digital camera from Kodak has impressive specification. Developed and released to the market in 1996, their sales brochure states:

“The EOS.DCS1 delivers 6 million pixels and an 18Mb file for each colour image. This gives the

quality required to produce full-page, 150-line offset printed images or 16" x 20" prints."

Looking at what has happened to the production costs of other devices, this type of camera may well be affordable to the average professional within the next couple of years.

As well as being able to photograph a 'live' scene, I might also be able to copy flat artwork, a negative or a transparency directly. Hence without the need of a scanner, I could use a digital camera to 'digitize' a conventional photograph.

3.3. Pictures And Modems

Different types of 'graphic file format' have been developed to store a 'digitized' image. Common standards have been set and include .PCX, .BMP, and .TIF. 'Compression technology' has been more usefully applied to the 'Tagged Image File Format'. This format is versatile, in that it can be imported into many layout packages.

Scanning resolution (dpi)	file size for colour	monochrome
35mm transparency		
500	1.1Mb	0.4Mb
1000	4.5Mb	1.5Mb
2000	18Mb	6Mb
5X4 transparency		
300	5.16Mb	1.72Mb
600	20.6Mb	6.9Mb
1200	82.5Mb	27.5Mb
10x8 inch print		
150	5.3Mb	1.7Mb
300	21.3Mb	7.3Mb
600	85.5Mb	28.1Mb

Figure 3-1 A comparison of the file sizes that result from the scanning of photographic originals.⁵

'uncompressed' file sizes

However, it can be seen from the table in figure 3-1 that the file sizes generated are quite large.

In addition to manipulation and `paper uses`, a principle advantage of digitizing an image is for its transmission. These file sizes are enormous for such purposes and hence the development of .JPG format. This new standard established by the `Joint Photographic Group` allows for significant adjustment of the data compression. Thus pictures can now be transmitted in seconds, rather than hours.

Developments in some modern camera designs now allow the recording of information associated with a particular exposure. (i.e.: time, date, location, subject and exposure inf. etc). Figure 3-2 shows a `data link` between a Nikon 35mm camera and a personal organiser.

The personal organiser can be linked to a PC (sometimes by Infra-



Figure 3-2 Nikon 35mm camera with datalink. text and graphic database⁶

red link) on returning to base and data stored on the hard drive,. Alternatively, data can sent by mobile phone and modem. When coupled with the other aspects of my filing systems, it is obvious that the resulting set-up would have powerful `cross-referencing` capabilities, for the monitoring of picture use in my DTP and Internet applications.

It is with such advances, in the picture taking, file storage size, speed and means of transmission, that the photo- journalist job has changed beyond all recognition. A photograph can be taken,

⁵ Davies, A., Electronic Imaging for Photographers . 1996: Focal Press

⁶ The Nikon F90X camera has provision for a `data Link` facility to a Sharp Electronic Organiser. Info can then be `translated` for use in word processor or spreadsheet packages.

indexed and transmitted back to the picture desk in a matter of minutes from anywhere in the world.

I am trying to take advantage of some of these development in creating my own Internet `web site`. Its' content largely deals with matters with which I have been involved and on which I report or express an opinion. Further, by creating a `gallery` section, a

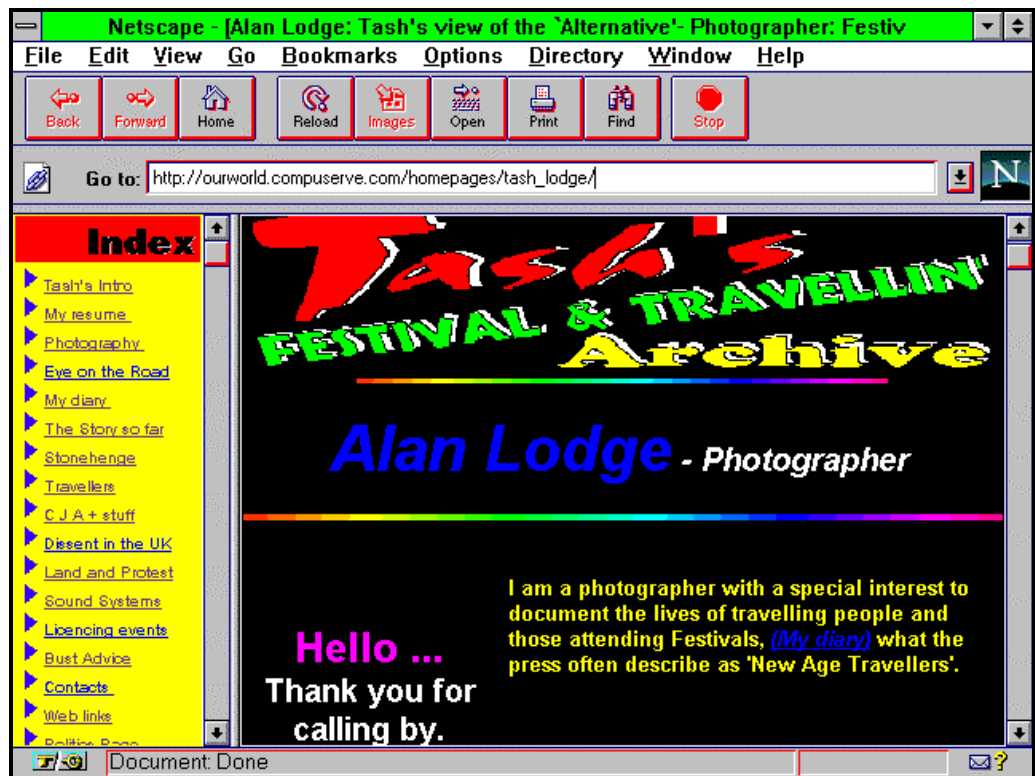


Figure 3-3 The title page from my `website`

viewer is able to get an immediate idea of what sort of photography I can offer, on demand.

<http://www.gn.apc.org/tash/>

My web-site had been reviewed in the British Journal of Digital Imaging⁷ (18 September 1996). A professional photographers magazine and new publication, being only its forth issue.

⁷ Golden, R., British Journal of Digital Imaging - 18 Sept 1996. (issn 1364-8373)

4. Conclusion

I hope to have shown in this report an, engagement with advances in photo-technologies as they have been appropriate to me. I hope in time that with the further `convergence` of what cameras and computers do, I might be able to take a still photograph (transparency) and digitize it. Manipulate the image in Photoshop, and also perhaps use a DTP package to do a `formal` or `art` layout with text and graphics. Print the output through a `slide writer`⁸ to make a finished 35mm colour transparency. Finally to program the computer to control a set of projectors. Thus I would be able to make an `audio-visual` presentation as I had previously scripted with sound clips on que. All photography thus completed without the use of darkroom.

The political implications of manipulating news and evidence photographs are the same as they have always been:

“The possibilities of photography as surveillance and the ability of photographs to manipulate `the truth` were brutally played out in the Paris Commune (1871).

Photographs originally taken for and by the Communards as historic records and in celebration of their short-lived `revolution` over the oppressive Second Empire soon found a lucrative market in the anti-Communard press. After the authorities finally crushed the uprising, these same photographs were used to help draw up the execution list. It was also in this conflict(1870s) that doctored `documentary` images came of age. Eugene Appert’s composite montages purported to show executions carried out by the Communards but Appert had pre-constructed the scenes and cunningly pasted into the image faces of those arrested after the authorities victory. In a short but important few months the myths about the objectivity of the documentary image and its use as a controlling force had all been laid bare”⁹

⁸ Slide writer is a device that prints the output of a photo or graphics file as a projectable colour transparency.

⁹ Julian Rodriguez British Journal of Photography 17 April 1996

5. Personal Summary

Date	Developments & Technical Involvement
1967	Made first black and white prints.
1977	First 35mm Single Lens Reflex Camera.
1983	Produced `free sheet`. Involved `kitchen table technology`, paste-up, photocopy etc.
1986	Self-Published `Solstice Ritual`. A photographic work. `Off-set` lithographic process.
1990	First exposure to a word processor.
1990	Photography degree at NTU. Wide variety of camera & studio technologies.
1992	Introduced to version 1 of Adobe `Photoshop` image manipulation software.
1994	Connected to the Internet, through Service Provider for e-mail communications
1995	Wrote first version of my `Web-pages`. Couple of pages providing a `net-presence` for my photographic library.
1996	Direct modem connection between two computers for file transfers. Text and graphics.
1996	Web pages now have a `frames` design. Allowing for easier navigation of pages. Significant picture content. Now possible by .JPG compression reducing file size.
1997	Regular transmission of photographs by electronic means. Scanning digitisation of many hundreds of photographs for storage and transmission purposes.

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7. References

LODGE, A., 1987 Stonehenge - Solstice Ritual
Caersws, Mid Wales: Alan Lodge Photographics

LODGE, A., 1993 Positive Images, Public Order & Restrictions
Dissertation
Nottingham: Nottingham Trent University

LEMAGNY, J. & ROUILLÉ, A., eds. 1986. A History of Photography
Cambridge: Cambridge University Press

DAVIES, A. & FENNESSY, P., 1996. Electronic Imaging for Photographers
Oxford: Focal Press

SULLIVAN, M.S., 1995 Make your Scanner a great design & production tool
Cincinnati, Ohio, USA: North light Books

NEELY, M., 1996. Business Guide to the Internet
Harrogate: Net.Works

NIKON. 1997. Nikon Photographic Equipment
<URL:
<http://www.nikonusa.com/products/photography/photography.html>>
[Accessed 10 October 1997].

KODAK 1997. Consumer Imaging: FAQ
<URL: <http://www.kodak.com/catHome/faqs/faqs.html>>
[Accessed 12 October 1997].

OLYMPUS DIGITAL 1997. Digital Products Information
<http://www.olympusdigital.co.uk>
[Accessed 12 October 1997].

MICROSOFT WORD 6 REFS:

MARAN, R., 1994. Word 6 For Windows - Simplified
Forest City, California: IDG Books Worldwide Inc.

NELSON, S., 1994. Microsoft Word 6 for Windows - a field guide
Washington: Microsoft Press

Instructional video:

1995 Microsoft Word 6 for Windows 6.0 Secrets & Timesavers
Brecon, Wales: Burgess Video Group