

# Digital Appendix 4 Costed Equipment List

## British Library Endangered Archives Programme Recommended Equipment<sup>2</sup>

### DSLR or Mirrorless Camera?

The cameras most suitable for digitisation in remote areas are Digital Single Lens Reflex (DSLR) models. They are available in both full frame and APS-C format, the latter equipped with a smaller sensor. The models we recommend most highly are robust and reliable, eminently suitable for EAP projects. In the past few years, mirrorless cameras with interchangeable lenses have advanced rapidly and are now outselling DSLRs. They employ a completely different design of viewfinder, electronic rather than optical. Both DSLR and mirrorless cameras are very suitable for projects based in institutions with a reliable electricity supply. If the camera is primarily to be used on a copy stand, either in tethered mode (controlled from a computer) or employing the tilting LCD screen for framing and viewing there are no serious disadvantages to the mirrorless design, as the battery consumption of mirrorless and DSLR models in this context will be similar. However, because mirrorless cameras use electronic viewfinders or LCD screens, their batteries drain much faster than a DSLR when being used with its optical viewfinder. Therefore, they will give significantly fewer exposures per battery charge. This could be a crucial negative factor for projects in locations with unreliable electricity supplies and reliant on battery power. Consequently, we recommend that you only consider purchasing a mirrorless camera, rather than a DSLR camera, if your project involves digitisation within an institution with reliable electricity. All models listed, DSLR or mirrorless, are capable of producing excellent image quality.

### Full-frame or APS-C?

Either full-frame or APS-C DSLR or mirrorless cameras are suitable for EAP projects. However, we generally recommend APS-C cameras, as they tend to be cheaper than the equivalent quality full-frame cameras. For example, the top of the line Nikon APS-C DSLR camera body, the D500 is currently £1,600 and is broadly equivalent in build quality, weather sealing and essential specification to the full-frame Nikon D850 at £2,700. The APS-C camera is more than capable of delivering the quality the Endangered Archives Programme requires.

It is important to realise that APS-C cameras have smaller sensors, and effectively magnify the focal length of the lens in use so you need to consider which lens is most suitable for copying. There is a standard focal length (55-60mm equivalent) macro lens available for both the Canon and Nikon APS-C cameras. There is a 60mm macro lens available for the Nikon full-frame cameras, however, there is no equivalent macro lens currently marketed for Canon full-frame cameras.

Some lenses are made specifically for APS-C DSLR cameras (the EF-S range for Canon, and the DX range for Nikon). These only work properly and give full coverage on APS-C cameras. However, lenses designed for full-frame DSLR cameras (the EF range for Canon, and the FX range for Nikon) will also work on APS-C DSLR cameras of the same brand.

<sup>2</sup> All prices are UK recommended retail prices as of November 2021. UK tax (VAT) at 20% is included in the price. Actual prices available locally will differ.

Similarly, lenses designed specifically for Nikon and Sony APS-C mirrorless cameras (the DX range of Nikkor Z lenses for Nikon Z cameras, the E series of lenses for Sony) will only work properly and give full coverage on APS-C cameras. However, lenses designed for Nikon and Sony full frame mirrorless cameras (the FX range of Nikkor Z lenses for Nikon, the FE lenses for Sony) will also work on APS-C mirrorless cameras of the same brand. However, the Canon EF-M lenses only work properly on Canon EOS M APS-C mirrorless cameras and the Canon RF lenses only work properly on Canon EOS R full frame mirrorless cameras.

## DSLR cameras

Both Canon and Nikon make several different APS-C DSLR camera bodies. The top of the range cameras (e.g. Canon EOS 90D and Nikon D500) are good choices. They would be ideal for larger sized projects requiring the digitisation of very large quantities of material or projects that involve moving from collection to collection, where their ruggedness may be an important factor.

Both Canon and Nikon also market several cheaper APS-C DSLR cameras that are perfectly suitable for EAP projects (e.g. Canon 850D and Nikon D7500). They are excellent in terms of image quality and overall specification but are slightly less robust, have lower build quality, and their weather sealing against dust and moisture is also of lower quality. Moreover, their shutters are less likely to last as long as the more expensive models though are still designed for over 100,000 exposures. Nevertheless, they are very good and well-constructed cameras. They would be ideal for smaller to medium-sized projects especially those located within a single archive. However, the very inexpensive cameras in the Canon and Nikon APS-C DSLR ranges are to be avoided: though excellent optically, their build quality and weather sealing make them unsuitable for projects in remote locations.

Canon and Nikon also make a number of different full-frame DSLR camera bodies. The top of the range professional cameras are extremely expensive and have numerous features that are not needed for digitisation projects. However, their semi-professional ranges (e.g. Canon EOS 5D Mark IV and Nikon D780/D850) are good choices. They would be ideal for larger sized projects requiring the digitisation of very large quantities of material or projects that involves moving from collection to collection, where their ruggedness may be an important factor.

## Mirrorless Cameras

Very similar comments can be made about mirrorless cameras. The top of the range professional full-frame mirrorless models are extremely expensive and have numerous features that are unnecessary for digitisation projects. Their semi-professional ranges, however, are recommended. Equally, there are many inexpensive cameras in the Canon, Nikon and Sony APS-C ranges that are unsuitable for projects in remote locations because their build quality is not rugged enough. Though we primarily recommend DSLRs, we have also listed a number of mirrorless camera and lens combinations that would be suitable. At the time of writing, there are issues concerning the availability of some camera models, so we have expanded the list of recommended equipment to maximise choice.

If you are expecting to make a bid for a large scale major project following a pilot project, it would be worth thinking strategically about your equipment purchases. Consider, for example, purchasing a cheaper APS-C camera body (or possibly a cheaper full-frame body) for the pilot project and then purchasing a more professional camera of the same make and format for the major project. The

cheaper camera could then operate as a back-up, which is a sensible policy for a major project, and any lens purchased for the pilot project would also, of course, fit both bodies.

Before purchasing any camera and lens combination you should try it out. You should also ideally have a very clear idea of the nature of the material being digitised, specifically its size and scale. The best lenses for copying are fixed focal length macro lenses. Good quality standard lenses (50mm on a full-frame camera) are often adequate for copying most simple documents and objects, but proper macro lenses much are better. Macro lenses or lenses with macro (close focussing) facilities are essential for copying very small objects. True Macro lenses are lenses that are constructed to focus much closer than normal lenses of similar focal length, but most importantly, their optics are specifically designed for close up photography. Some non-macro lenses that focus close may exhibit very noticeable distortion, causing straight lines to become curved, but macro lenses are optically configured to minimise this problem. Some of this distortion can be corrected in software like Adobe Lightroom.

Wide-angle to normal zoom lenses are much more flexible than fixed focal length lenses, but it is good professional practice to try to avoid using wide-angle settings whenever possible when copying: move the camera away from the object being copied rather than zooming out, only use wide-angle settings when you cannot move the camera further away.

## APS-C DSLR cameras

### A suggested Canon APS-C DSLR camera and lens kit

A kit comprised of a high quality Canon APS-C DSLR camera body, macro lens and a close-focussing wide-angle to standard zoom would make an excellent digital camera kit for documentation projects. The kit would also need UV protection filters for each lens, at least one spare camera battery and possibly a spare camera battery charger.

A Canon EOS 90D body.

### Canon EOS 90D (£1,250)

- \* Highly recommended.
- \* A very good APS-C camera, capable of producing excellent quality images.
- \* A midweight camera of good build quality.
- \* A camera suitable for a large amount of copying.

- \* Weather sealed against dust and moisture.
- \* Excellent LP-E6N battery compatible with the full frame Canon EOS 5D and 6D cameras
- \* Good battery life: 1300 exposures or more on a single battery charge
- \* Tilting LCD touch screen.

The Canon 90D is a camera with very good build quality and weather sealing, making it perfectly suitable for most EAP projects and a good choice for pilot projects. Its tilting LCD touch screen would help when used on a tripod or copy stand where the position or height of the camera can often make viewing a normal viewfinder or fixed LCD screen awkward. (This is not relevant if you are planning to use tethered shooting). This is not a full-frame camera but an APS-C camera so the effective focal length of all lenses will be multiplied by a factor of 1.6, when compared to a full-frame camera.

### Canon EOS 850D (£860)

- \* A good APS-C camera, capable of producing excellent quality images.
- \* A lighter weight camera than the 90D and therefore less robust and perhaps less suitable for tougher fieldwork conditions.
- \* A camera suitable for a large amount of copying.
- \* Not weather sealed against dust and moisture.
- \* The battery in the 850D is different from and not compatible with the 90D and only gives 800 exposures on a single charge.
- \* Tilting LCD touchscreen.

The Canon 850D is a camera with good overall build quality, making it perfectly suitable for most EAP projects and pilot projects. Its tilting LCD touch screen would help when used on a tripod or copy stand where the position or height of the camera can often make viewing a normal viewfinder or fixed LCD screen awkward. (This is not relevant if you are planning to use tethered shooting). This is not a full-frame camera but an APS-C camera so the effective focal length of all lenses will be multiplied by a factor of 1.6, when compared to a full-frame camera. Because of EOS 850's lack of weather sealing against dust and moisture, its lighter build quality and shorter battery life the more expensive Canon EOS 90D or similarly priced Nikon 7500 is generally a better choice for working in remote locations.

### Canon EF-S 35mm f2.8 Macro IS STM lens (£390)

A very sharp, fixed focal length, true macro lens, which is optically and mechanically designed specifically for focusing close up and is therefore ideal for copying. It will copy objects and documents at close distances with minimal distortion. Its focal length on an APS-C camera approximates to the "standard" macro-copying lens (the equivalent of a 56mm lens on a full-frame camera). This makes it ideal for photographing most documents and objects. Combined with a wide-angle to standard zoom, this will form an excellent and flexible copying kit. The lens is lighter and not as robust as the Canon L Series lenses and is not weather sealed so care should be used to guard against dust and moisture. This lens is designed specifically for Canon APS-C cameras and will not work on a full-frame camera. It should always be used with a UV protection filter.

N.B. This lens has an inbuilt light with an on/off switch, which should not be used as a light source for copying, but might aid focussing in low light

### Canon EF 17-40mm f/4 L USM lens (£780)

One of Canon's L Series lenses which have excellent build quality and weather sealing. It is heavier and bulkier than cheaper lenses but will better withstand the rigours of usage in remote locations. It focuses very close. The zoom range when on the 90D body (or other Canon APS-C bodies) is the equivalent of approximately 28-65mm on a full-frame camera. The lens is best used in the 28-40mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens can be used on both Canon APS-C and full-frame cameras, should the researcher wish to upgrade to a full-frame camera for a later EAP major project. It should always be used with a UV protection filter.

### Canon EF 24-70mm f/4 L lens (£890)

One of Canon's L Series lenses which have excellent build quality and weather sealing. It is heavier and bulkier than cheaper lenses but will better withstand the rigours of usage in remote locations. It focuses very close and also has a macro setting for extreme close up. The zoom range when on the 90D body (or other Canon APS-C bodies) is the equivalent of approximately 38.4-112mm on a full-frame camera. The lens is best used in the 28-40mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens can be used on both Canon APS-C and full-frame cameras, should the researcher wish to upgrade to a full-frame camera for a later EAP major project. It should always be used with a UV protection filter.

### A suggested Nikon APS-C DSLR camera and lens kit

A kit comprised of a high quality Nikon APS-C DSLR camera body, macro lens and a close-focussing wide-angle to standard zoom would make an excellent digital camera kit for documentation projects. The kit would also need UV protection filters for each lens, at least one spare camera battery and possibly a spare camera battery charger.

A Nikon D500 or Nikon D7500 body

### Nikon D500 (£1,600)

\* Highly recommended. An excellent APS-C camera, capable of producing images of excellent quality.

\* A rugged camera ideal for tougher fieldwork conditions.

\* A camera suitable for a very large amount of copying.

- \* Weather sealed against dust and moisture.

- \* Tilting LCD touch screen.

The Nikon D500 is a camera with excellent build quality, weather sealing and a reliable very long lasting shutter. This is not a full-frame camera but an APS-C camera so the effective focal length of all lenses will be multiplied by a factor of 1.5, when compared to a full-frame camera. Its tilting LCD screen would help when used on a tripod or copy stand where the position or height of the camera can often make viewing a normal viewfinder or fixed LCD screen awkward. (This is not relevant if planning to use tethered shooting). Interestingly this camera can save direct to TIFF files. Other cameras will require the user to convert RAW files into TIFF files.

## Nikon D7500 (£950)

- \* Highly recommended. A very good APS-C camera, capable of producing excellent quality images.

- \* A lighter weight camera of slightly lower build quality than the D500.

- \* A camera suitable for a large amount of copying.

- \* Weather sealed against dust and moisture.

- \* Tilting LCD touch screen.

The Nikon D7500 is a camera with very good build quality and weather sealing. It is significantly cheaper and marginally lighter than the Nikon D500. Its shutter is rated for fewer exposures than the D500 but would still be perfectly suitable for most EAP projects and a good choice for pilot projects or as a second camera for larger major projects. This is not a full-frame camera but an APS-C camera so the effective focal length of all lenses will be multiplied by a factor of 1.6, when compared to a full-frame camera.

## Nikkor 40mm f2.8 G AF-S DX Micro lens (£285)

A very sharp, fixed focal length, true macro lens, which is optically and mechanically designed specifically for focusing close up and is therefore ideal for copying. It will copy objects and documents at close distances with minimal distortion. Its focal length approximates to the “standard” macro copying lens (the equivalent of a 60mm lens on a full-frame camera). This makes it ideal for photographing most documents and objects. Combined with a wide-angle to tele zoom, this will form an ideal and flexible copying kit. This lens is designed specifically for Nikon APS-C cameras and will not work on a full-frame camera. It should always be used with a UV protection filter.

## Nikon 16-85 f3.5-5.6G VR ED AF-S DX lens (£630)

A Nikon lens with good build quality and weather sealing. It is heavier than cheaper Nikon zoom lenses but will better withstand the rigours of usage in remote locations. It focuses close. The zoom range when on the Nikon D 500 body (or other Nikon APS-C bodies) is the equivalent of approximately 24 – 127.5mm on a full-frame camera. The lens is best used in the 28-40mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens is designed specifically for Nikon APS-C cameras and will not work on a full-frame camera. It should always be used with a UV protection filter.

## Nikon 18-35 f3.5-4G AF-S ED lens (£700)

A well-constructed and very sharp Nikon lens with good build quality. It focuses quite close. The zoom range when on the Nikon D 500 body (or other Nikon APS-C bodies) is the equivalent of approximately 27 – 52.5mm on a full-frame camera. The lens is best used in the 28-35mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens is designed for Nikon full frame cameras and will also work well on APS-C cameras. It should always be used with a UV protection filter.

## Nikon AF-P DX 18-55 f3.5-5.6G VR (£209)

A lightweight and cheap Nikon zoom lens. It focuses very close and is very sharp though exhibits some distortion in the widest settings. The lens is best used in the 28-40 mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens is designed specifically for Nikon APS-C cameras and will not work on a full-frame camera. It should always be used with a UV protection filter.

## Full-frame DSLR cameras

### A suggested Canon full-frame DSLR camera and lens kit

A kit comprised of a high quality Canon full-frame DSLR camera body and a close-focussing wide-angle to standard zoom would make an excellent digital camera kit for documentation projects. The kit would also need UV protection filters for the lens, at least one spare camera battery and possibly a spare camera battery charger.

A Canon 5D Mark IV body or a Canon 6D Mark II body

### Canon EOS 5D Mark IV (£2,870)

\* Highly recommended. An excellent full-frame camera, capable of producing excellent quality images.

\* A rugged camera ideal for tougher fieldwork conditions.

- \* Fixed LED screen.
- \* A camera suitable for a very large amount of copying.
- \* Weather sealed against dust and moisture

The Canon EOS 5D Mark IV is a full-frame camera with excellent build quality, excellent weather sealing and a reliable long lasting shutter. It does not have a tilting LED screen, though this is not an issue if the researcher is planning to use tethered shooting

### Canon EOS 6D Mark II (£1,420)

- \* Highly recommended. A very good full-frame camera, capable of producing excellent quality images.
- \* A lighter weight camera of slightly lower build quality than the 5D and perhaps less suitable for tougher fieldwork conditions.
- \* A camera suitable for a large amount of copying.
- \* Weather sealed against dust and moisture
- \* Its tilting LCD screen may make this a better choice than the 5D for some projects.

The Canon 6D Mark II is a camera with very good build quality and weather sealing. It is significantly cheaper and lighter than the Canon 5D Mark IV. Its shutter is rated for fewer exposures compared to the 5D but would still be perfectly suitable for most EAP projects and a good choice for pilot projects or as a second camera for larger major projects. One significant advantage over the Canon 5D is the inclusion of a tilting LCD screen which would help when used on a tripod or copy stand where the position or height of the camera can often make viewing a normal viewfinder or fixed LCD screen awkward. (This is not relevant if you are planning to use tethered shooting).

### Canon EF 17-40mm f/4 L USM lens (£780)

One of Canon's L Series lenses which have excellent build quality and weather sealing. It is heavier and bulkier than cheaper lenses but will better withstand the rigours of usage in remote locations. It focuses very close. The lens is best used in the 35 – 40mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens can be used on both Canon APS-C and full-frame cameras, should the researcher wish to purchase a Canon APS-C camera for a pilot project and upgrade to a full-frame camera for a later EAP major project. It should always be used with a UV protection filter.

### Canon EF 24-70mm f/4 L lens (£890)

One of Canon's L Series lenses which have excellent build quality and weather sealing. It is heavier and bulkier than cheaper lenses but will better withstand the rigours of usage in remote locations. It focuses very close and also has a macro setting for extreme close up. The lens is best used in the 35-40mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens can be used on both Canon APS-C and full-frame cameras, should the researcher wish to purchase a Canon APS-C camera for a pilot project and



upgrade to a full-frame camera for a later EAP major project. It should always be used with a UV protection filter.

### A suggested Nikon full-frame DSLR camera and lens kit

A kit comprised of a high quality Nikon full-frame DSLR camera body, macro lens and a close-focussing wide-angle to standard zoom would make an excellent digital camera kit for documentation projects. The kit would also need UV protection filters for each lens, at least one spare camera battery and possibly a spare camera battery charger.

A Nikon D850 or Nikon D780 body

#### Nikon D850 (£2,550)

- \* Highly recommended. An excellent full-frame camera, capable of producing excellent quality images.
- \* Excellent Battery life
- \* A rugged camera ideal for tougher fieldwork conditions.
- \* Tilting LCD touchscreen.
- \* A camera suitable for a very large amount of copying.
- \* Weather sealed against dust and moisture.

The Nikon D850 is a full-frame camera with excellent build quality, weather sealing and a reliable long lasting shutter. Its tilting LCD touchscreen would help when used on a tripod or copy stand where the position or height of the camera can often make viewing a normal viewfinder or fixed LCD screen awkward. (This is not relevant if you are planning to use tethered shooting).

#### Nikon D780 (£2,200)

- \* Highly recommended. A very good camera, capable of producing excellent quality images.
- \* Excellent battery life, better than the D850 (c. 2260 v 1840 exposures per charge)

- \* A slightly lighter weight camera than the D850
- \* A camera suitable for a large amount of copying.
- \* Weather sealed against dust and moisture.
- \* Tilting LCD touchscreen.

The Nikon D780 is a camera with very good build quality and weather sealing. It is cheaper than the Nikon 850 and lighter. Its shutter is rated for fewer exposures than the 850 but would still be perfectly suitable for most EAP projects and a good choice for pilot projects or as a second camera for larger major projects. Its tilting LCD touchscreen would help when used on a tripod or copy stand where the position or height of the camera can often make viewing a normal viewfinder or fixed LCD screen awkward. (This is not relevant if you are planning to use tethered shooting).

### Nikon 60mm f2.8 G AF-S ED Micro Nikkor lens (£570)

A very sharp, fixed focal length, true macro lens, which is optically and mechanically designed specifically for focusing close up and is therefore ideal for copying. It will copy objects and documents at close distances with minimal distortion. Its focal length approximates to the “standard” macro copying lens. This makes it ideal for photographing most documents and objects. Combined with a wide-angle to standard zoom, this will form an ideal and flexible copying kit. It should always be used with a UV protection filter.

### Nikon 24-85mm f3.5-4.5 AF-S G ED VR Lens (£490)

A lightweight Nikon zoom lens. It focuses very close and is very sharp though exhibits some distortion in the wide-angle and telephoto settings. The lens is best used in the 40-60mm range for most copying with the wider angle settings restricted to more occasional use when subjects are too large to copy easily. This lens can be used on both Nikon APS-C and full-frame cameras, should the researcher wish to upgrade to a full-frame camera for a later EAP major project. It should always be used with a UV protection filter.

## Tripods

Benro GoPlus Travel FGP28A Aluminium Tripod (£150) *or*

Benro GoPlus Travel FGP28C Carbon Fibre Tripod (£340)

Plus

Manfrotto MH496-BH Compact Ball Head (£105) *or*

Manfrotto XPRO Head with 200PI plate (£143)

Benro market several similar looking tripods in their GoPlus Travel range constructed in either aluminium or carbon fibre. They are simple, well-designed and very portable tripods. Each allows the

centre column to be positioned horizontally, which makes it very useful for copying, though it needs counterbalancing to remain stable. (A hook attached to the bottom of the centre column facilitates this). Model FGP28C is the more expensive and is constructed from carbon fibre, which is lighter than metal and also more comfortable to handle in very cold weather. The equivalent aluminium model FGP28A is half the price, perfectly suitable for most projects and perhaps tougher. The Benro GoPlus Travel range come with a carry bag but no tripod head.

The Manfrotto 496RC2 Compact Ball head and Manfrotto XPro heads are strong enough to support most DSLR cameras with ease. They have a single locking lever, and a friction control and a quick release plate.

## Copy Stand

### Kaiser Copy Stand RS1 with Copy Arm RT1 (code K5511) (£634)

Kaiser market several modular systems of copy stands, each with various columns, baseboards, camera arms and accessories. They are well designed, very robust and reliable. The RS1 stand is not the most lightweight or portable stand in their catalogue but would be ideal for an institution-based project where portability is perhaps less important. The stand offers vibration-free camera mounting, hand crank operated height adjustment and is highly recommended. Lighter stands are more likely to be less rigid and suffer from vibration more. The RT1 copy arm can be extended to increase the distance between the camera and column, useful when photographing larger objects with a wide-angle lens. It can also be tilted to allow for copying vertical subjects. The column itself can also be swivelled around by 180 degrees to allow for copying of very large items, with the stand securely weighted on a table and the object being copied positioned at floor level or on a low table alongside. It is highly recommended.

Kaiser R2 series copy stands are smaller, lighter and more portable. The column of one model (the RS 2 CP) can be folded flat against the baseboard for transportation but cannot be swivelled around.

## Kaiser Lighting Kit

Kaiser also market continuous lighting kits for use with their copy stands, either with LED panels, high frequency (flicker-free) fluorescent tubes or tungsten lamps. LED lights do not heat up, fluorescent lights get warm but not hot to touch, but tungsten bulbs will get very hot. The recommended LED panels are smaller than the fluorescent lamps and should easily light documents up to A3 size on the baseboard of the copy stand, but cannot be used to light much larger documents. All these forms of lighting will need a mains supply. The lighting kits are designed to be clamped to the edge of the copy stand baseboard or alternatively can be clamped to the edge of a small table. The fluorescent lights have much larger heads, naturally light a much larger area and can be positioned on lighting stands or tripods when copying larger objects.

The tungsten lighting kits are the cheapest, get very hot and are only recommended when budgeting for a pilot project where the researchers are expecting to undertake a full major project at a later date.

### Kaiser LED RB 550 AS lighting kit (code K5551) £1374

A pair of powerful, heavy duty LED light banks on adjustable arms. They are cold to touch when in operation, with a colour temperature of 5600K that approximates daylight. Ideal for lighting small and medium size documents up to A3 size, positioned on the baseboard of the copy stand. These lights are brighter, more robust, more sophisticated and much more expensive than the RB 5070 lights below. Each light bank features detachable screens to soften the light and an illuminated digital display allowing for dimming the lights in controllable 1% steps from full to 10 % illumination. Highly recommended for larger, institution based projects copying large amounts of material up to A3 size.

### **Kaiser LED RB 5070DX2 (code K5550) (£664)**

A pair of small LED light banks on adjustable arms. They are cold to touch when in operation, with a colour temperature of 5600K, approximating daylight. They each include a dimmer control. Ideal for lighting small to medium size documents positioned on the baseboard of the copy stand. Highly recommended for smaller, institution based projects copying material up to A3 size.

### **Kaiser RB 5056 HF £1597 - £1815**

A pair of large lampheads each containing two 55 W compact fluorescent tubes on adjustable arms. These are warm to touch when in operation, with a daylight-balanced colour temperature of 5400K. Available in dimmable form (code K5657 @ £1815) or non-dimmable form (code K5656 @ £1596). The dimming is adjusted through a separate digital control box. Ideal for lighting larger documents. The lampheads can also be mounted on lighting stands or tripods. For large projects in very remote locations, it would be worth budgeting for a pair of spare fluorescent tubes of exactly the same size, make and voltage as the original tubes: in this case the Kaiser K3454. Highly recommended for larger, institution based projects copying large amounts of material

### **Kaiser RB 5004 HF £995 - £1493**

A slightly smaller pair of lampheads each containing two 36 W compact fluorescent tubes on adjustable arms. These are warm to touch when in operation, with a daylight-balanced colour temperature of 5400K. Available in dimmable form (code K5588 @ £1493) or non-dimmable form (code K5558 @ £995). Ideal for lighting most normal size documents. The lampheads can also be mounted on lighting stands or tripods. For large projects in very remote locations, it would be worth budgeting for a pair of spare fluorescent tubes of exactly the same size, make and voltage as the original tubes in this case Kaiser K5567.

## **Camera Bag**

### **Tenba Roadie Roller Bags**

Tenba makes a range of excellent quality, rugged and well-designed roller bags that will take a full photographic kit consisting of digital camera body and lenses, a laptop and charger and other accessories. Most will fit into aircraft cabin baggage but are also capable of travelling within the hold of aircraft when used with the full padding supplied. These bags are recommended for institution-based projects in which the researcher will not have to carry the bag too far. They are also excellent for storage of equipment within an archive or institution. Lockable zips and additional steel cable with padlock offer a level of security when travelling or when leaving equipment unattended.

## Tenba Roadie Roller 21 Bag (£320)

The Tenba Roadie Roller 21 Transit is large enough to house the photographic equipment for most projects including some lighting equipment.

## Tenba Roadie Roller 18 Bag (£280)

The Tenba Roadie Roller 18, which is smaller and slightly cheaper than the Roadie Roller 21, is large enough to house the photographic equipment for most projects. Highly recommended.

## Tenba Roadie Air Case Roller 21 (£360)

The Tenba 21 aircraft model is designed to be very tough, virtually “uncrushable” and can be safely transported within the aircraft hold. However, it is quite heavy at 4 kg.

## Tenba Shootout 24L Backpack (£210)

A rugged rucksack style camera bag ideal for projects that involve substantial travel from archive to archive, especially when the researcher may have to walk and roller bags are unsuitable. It is large enough to easily house the photographic equipment for most projects, including a full photographic kit consisting of digital camera body and lenses, a 15-inch laptop and charger and many other accessories. There is a larger pack available in the range as well as two smaller, slim profile packs that can house a photographic kit and tablet computer.

## External Hard Drive

### G-Technology G-Drive Mobile USB-C Hard Drive (2Tb) (£100)

A high quality USB-C drive, backwards compatible with USB 3 (USB cables included). It is powered through the USB cable so does not need a separate AC adaptor. This is a conventional spinning hard drive. Research projects digitising at altitudes higher than 10,000ft should budget for a G-Technology SSD drive or LaCie SSD drive.

## Scanner

### Epson Perfection V850 Pro Photo Scanner (£850-970)

A professional quality A4 scanner. It is bulkier and heavier than cheaper scanners on the market but is of a significantly higher quality. This bulk and weight is not a problem for institutional archive-based projects. The machine warms up and scans quickly. For projects scanning large numbers of negatives or transparencies, the spare set of negative/transparency holders included in the package will speed up the scanning process. As this is an A4 scanner, it will of course not scan material larger than A4 (216mm x 297 mm).

## Memory Cards

### SanDisk 64GB Extreme Pro 170MB/Sec SDXC Card (£35)

SanDisk Extreme Pro memory cards are the industry standard in both CF and SD format. They are described as waterproof, X-Ray proof and shock proof and are highly recommended. (Do not buy cheaper cards but also do not waste money on the much more expensive SanDisk Extreme Pro

300MB/s cards, as their extra speed is not necessary for documentation projects). Always buy memory cards through a reputable dealer as many counterfeit SanDisk cards are circulating. These cards are also available in 32GB, 128GB, 256GB and 512 GB

## Colour Chart

Danes-Picta Small Grey Scale and Colour Separation Chart (BST13)/Kodak (Q13) (£18-£21).

Excellent and relatively inexpensive charts: a colour separation chart and scale in one unit, a grey scale in a separate unit. These charts are delicate and rather easy to fold, scratch or lose in the field. It is recommended to take a spare and take great care with them both on location.

## Other items you will need for your camera

UV filters. A filter should be used on each lens at all times for protection.

Camera cleaning kit.

Spare lithium batteries. More than one spare camera battery is advisable if you are working in locations with very unreliable electricity supply. Avoid third party batteries and always purchase through a reputable dealer, as there are many counterfeit batteries in circulation, which could damage the camera.

Silica Gel Desiccant sachets if you are working in a particularly humid area.

## Computer hardware and software

EAP does not recommend particular brands but do consider the fact that EAP works on PC computers. All material you submit will need to be readable on a PC. Listed below are items you should consider for your project:

Laptop or desktop computer.

External (non-portable) hard drives such as the G-Technology 4TB G-DRIVE USB3 (£160)

Portable hard drives (see above).

A card reader such as the Delkin USB 3.0 Universal Card Reader (£25) or the Lexar Multi-Card 3-in-1 USB 3.1 Type-C Reader (£32).

USB cable extension.

Electrical extension cable.

USB Cable splitter hub.

MS Office (Word, Excel).

MS Access (this is a database management system and may be useful for the Archival Partner).

Image editing software such as Adobe Lightroom. Lightroom facilitates the batch processing, resizing and renaming of files as well as converting RAW files to TIFF format.

Software for backing up your images such as SyncBack SE.

Renaming software such as Rename Expert or Ant Renamer.

## Conservation equipment

A3 size black card.

Soft hair dusting brush from reputable conservation supplier. Bone folder.

Snake lead weights.

Plastazote foam LD45 (black 10-15mm thick) for placing around a camera lens as a larger sheet or for cutting into smaller pieces and used to raise one side of a book (refer to figures 29 and 30 in Remote Capture).

Plastazote foam LD45 (black 6mm thick) as a cover if using making the book cradle (discussed in Digital Appendix 1).

Acid-free archival storage boxes (they come in various sizes so make sure you know your collection before ordering them).

Perspex pointer for gently putting pressure on the edge of a page for digitisation. Nitrile gloves.  
Dust and mould masks.

Conservation suppliers based in the UK and who ship worldwide:

<https://www.preservationequipment.com> <http://www.conservation-by-design.com>

Do not forget to budget for the freight shipping costs for getting the equipment to the project site and the courier postage for sending the hard drives containing all your efforts back to the Endangered Archives Office.