ESSEX EGYPTOLOGY GROUP - REVIEW

"Harry Burton: Tutankhamun's Photographer" Ian Taylor

Review of November 2022 Meeting
by Margaret Lucy Patterson

At the beginning of November Dr Ian Taylor, who is a member of the Essex Egyptology Group, spoke to us about Harry Burton and his photographic skills. He began by setting the scene and introducing Harry Burton – he was an Egyptologist and photographer working in the first half of the 20th Century CE. Whilst he's pretty much unknown outside the field of Egyptology he took some of the most instantly recognisable photographs in modern culture. His photographs of Tutankhamun's tomb are well known, and are used extensively in publications (for instance "The Complete Tutankhamun" by Nicholas Reeves uses 100 of Burton's photographs). Taylor said that his talk was intended to be more about Burton's photography in general, and not so much about Tutankhamun's tomb. Although given that was a part of Burton's work, and given that this is the centenary of the discovery of Tutankhamun's tomb, he was, of course, going to discuss it!

Taylor gave us an overview of Burton's biography – he was born on 13th September 1879 in Stamford, Lincolnshire as the 4th child of 11. At 14 he was befriended by an art historian called Robert Henry Hobart Cust and it was this relationship that started him on the path to his photographic & Egyptological career. At the age of 17 he went to Italy with Cust (who specialised in the Italian Renaissance), and he learnt photography at this point with Cust's support. He quite quickly became a well respected photographer, whose clients included other art historians. Taylor told us that Burton himself dabbled a bit in the art world – sometime before 1910 he found a painting which had signs it was painted over another, so he bought this and restored it before selling it on.

During those years with Cust in Italy he met Theodore Davis, and when Cust returned to England in 1910 Davis employed Burton to come to Egypt. In 1914 Davis got Burton a job with Albert M. Lythgoe of the Metropolitan Museum of Art. Taylor said that this was a particularly significant year for Burton as it was also in 1914 that he got married to Minnie Catherine Duckett, on 15th July. Burton went on to work for the MMA from 1914 to his death in 1940, except for a brief spell in the military from 1916-1919. He was loaned to Carter to record Tutankhamun's tomb but he still worked for the MMA during that period, in his "spare time"! He was actually one of Carter's executors when Carter died, which meant he was there to find and identify 10 items in Carter's belongings that had been removed from the tomb illegitimately. He discretely arranged for them to be split between the Cairo Museum and the MMA (who subsequently returned them to Cairo). Burton died in 1940 from the complications of diabetes.

Taylor now moved on to discuss the technology that Burton used to make his photographs. Burton got all his cameras from London, from a manufacturer called James A. Sinclair Ltd. The model he used was a Sinclair Una, but this doesn't narrow it down

quite as much as it sounds like. There were several variants of the Una, and Burton preferred one of the ones with a “Tropical” finish which was more suitable for adverse conditions like the Egyptian desert. Burton also preferred 7x9 plates, rather than the Sinclair Una’s 4x5 plates (Taylor handed round some plates of the 7x9 size so we could get a feel for what they were like). All the variants could be modified to use the larger plate size, but this did have its drawbacks. The cameras of the time came in two sorts – “standard type” which were used on a stand (a tripod) and “hand type” which could be used either handheld or on a tripod. The Una cameras were generally hand type, but modifying them to take larger plates would take away the flexibility to use them handheld (because the plate container was so big). Taylor said he wasn’t able to identify precisely which variant Burton used, and it isn’t even clear if he always used the same one – it may’ve changed over the years.

This sort of camera is hard to use and requires a lot of physical intervention to get good photos, very far from our modern phone cameras where the software does magic to make the photos turn out right almost regardless of what you do. The basic design of the camera is that it is a square box with an accordion-like bellows leading to the lens at the front. At the back of the square box is the place you put the photographic plate to record the photograph. In essence it’s a pinhole camera with complications! The bellows allows the photographer to tweak the positioning of the lens – it can be moved up and down a bit, or side to side, as well as tilted (to remove parallax by lining it up as parallel to the surface being photographed). At the rear of the camera the plate holder could be twisted 90° to change the orientation of the photo from landscape to portrait and back. The plates themselves were loaded into the plate carrier in pairs, so you could do two exposures quite quickly because that just entailed taking the plate carrier out, flipping it round and reinserting it. It was also possible to change the lens depending on whether you wanted a wide angle shot or a telephoto one.

Taylor told us a story that Burton told later in life – apparently once when he was photographing an artifact with a 2 minute exposure it began to crumble mid-exposure! Thinking quickly Burton put the lens cap back over the camera, stopping the exposure, and was then able to develop the photo and thus there is a record of this object that no longer exists. As Taylor pointed out, this doesn’t just show that Burton thought quickly but it also tells us about his technique. Cameras of the type that Burton used could have lens that had internal shutters that opened and closed at the right time for the exposure you set them to. But Burton clearly didn’t always use this, at least for long exposures he might still do it by hand. He did however have a Zeiss lens with an internal shutter that he used for very short exposures.

Focusing a camera of this sort is done using a focus screen at the back of the camera, and the photographer covers himself with a hood so he can see the image clearly. During the focusing stage the photographer can also tweak the positioning of the camera – this is a bit harder than it sounds, because as Taylor said earlier these are in essence pinhole cameras. This means that the image displayed on the focus screen (and later the photographic plate) is rotated 180° as compared to reality. Not a problem for the photograph, but when you’re trying to set up the camera any movement you need to make is counter-intuitive – if it looks like the camera is too far to the left you need to move to the left to correct it. As well as focusing and positioning the camera the exposure could also be set at this point. This was done by manually by altering the aperture of the lens and letting more or less light through till it looked right on screen. All this assumes that the camera was in a position that allowed easy access to the focusing screen, but Taylor said that this wasn’t always the case for Burton because he was constrained by angles in tombs etc. In that case there were workarounds like a distance scale on the back of the apparatus that told you how to set up the camera for a given range.

So this is a very complicated process with many steps, a lot of which are a process of tweaking the camera until it “looks right”. It’s something that you need both knowledge and experience to get right. Taylor told us that someone he knows does plate

photography, and he gets about one decent photo on a normal day and if all the stars align and it goes extremely well that day he might get as many as 3! It's not easy.

Taylor now moved on to some of the other difficulties Burton would face while taking his photos, for instance lighting. The flash technology of the time involved magnesium flares, which generate a lot of smoke as part of the process – obviously this is not very good in an enclosed space like a tomb. So Burton relied on electric lights, or on reflecting sunlight into the tomb. Using multiple mirrors Burton was able to use daylight to photograph up to 100m into a tomb, and as an added benefit he would have the last mirror kept in motion which diffused the light about the area he was photographing. This avoided the high contrast between the lit parts and shadows in a photo that electric light generated.

Once the photo had been taken there were also several steps to get to an actual print. The light that entered the camera was allowed to hit a gelatin coated plate at the back, and it is this that the photo is produced from. First the plate must be developed which turns it into a negative. This negative is then used to print the photo on to paper. Burton always insisted that he be allowed to do the first part of this process (develop the image) before any items were moved in an excavation, so that he could tell if his photo had worked. So he would have a darkroom set up near the excavation he was working on. Developing an image is a multi-step process as well – there are three stages, first the plate is immersed in developer until the image is dark enough, then the plate is washed in water to remove the developer and finally the plate is immersed in fixer which stabilises the image and means the plate can now be stored long term. One added difficulty that Burton faced is that the temperature of this process must be controlled – if it gets too hot the gelatin on the plate might melt, ruining the photo. As anyone who's been into a tomb in Egypt will know, they are quite hot so this was a real worry for Burton!

Taylor told us that Burton could continue to tweak how photos would look during the development process. He tended to overexpose the photo when he was taking it, and then altered the development time to correct this – giving him more scope for adjustment than if he'd tried to get it perfectly right in camera. He could also alter the contrast of an image by rubbing some parts with extra developer to lighten the shadows and bring out more details in those darker parts of the photo.

Another significant difficulty with this sort of photographic technology is that the glass plates are very very fragile. Taylor said that some of the places where Burton set up his darkrooms have been re-excavated and in the process a *lot* of fragments of glass plates were found! Burton did also make colour slides sometimes using a process called Autochrome. These are even more difficult to make and store, and of all that he made only 33 survive of which only 22 are in good condition. Taylor returned to this in the Q&A session – the colour plates were 4 layers of gelatin, of which 3 were impregnated with vegetable dyes. The layers of gelatin don't seem to stick together well long term, and on many of Burton's plates the layers are peeling apart. The dyes also react with oxygen, changing the overall look of the images.

As well as still photos Burton also learnt how to take moving pictures because Lythgoe wanted movies of the excavations. Initially he used an Akeley camera, but this broke and had to be returned to the manufacturer for repair so sadly Lythgoe didn't get the sort of record he'd hoped for. Carter later got Burton a Sinclair movie camera, so there is some footage taken with that. But there was a more fundamental problem than just fragile cameras – lighting. Moving pictures required much more light than a still photo (where a single shot could be exposed for several minutes), and the light available just wasn't adequate. Burton did investigate how Hollywood lit their movies but quickly discovered this would not be a viable solution – they used very bright lights that also generated a lot of heat as a side effect. This heat would be enough to melt some of the objects and burn the excavators!

There are few images of Burton at work – he was normally the man behind the camera. Taylor did have a few to show us, including some group photos where Burton is posed with the other Egyptologists and some photos of Burton actually taking photos. One of the latter was of the camera set up high on a stand to photograph something halfway up a wall, which reminded me of Paolo Scremin's talk to the group in March 2020 which had the modern equivalent of that sort of set up. Other photos elucidated parts of Burton's technique, such as mounting his camera nose down on the stand so that he could photograph small objects from above.

Now that Taylor had explained who Harry Burton was and his photographic techniques, he moved on to show us examples of Burton's photographs from various different phases of his career. This is difficult to write up, as a large part of the point was looking at the photographs themselves, but I shall try and draw out some themes and interesting notes rather than provide an exhaustive recap of this part of the talk.

The first phase of his career was from 1910 to 1914 when he worked for Theodore Davis and was involved in photographing excavations at KV3, KV7, KV47, KV57 and Medinet Habu. He also photographed KV54 sometime after the original excavation had taken place. Burton wasn't always acknowledged as the photographer in the excavation reports, but the photos are normally recognisable. Taylor also noted an interesting little insight into Burton's character that we can get from the reports where he is mentioned: his name is given as Henry Burton, but this was not his real name – he wasn't Harry-short-for-Henry but just Harry. Was this a little piece of reverse snobbery, trying to make himself look a bit higher class than he actually was to fit in better?

We had our coffee break at this point, and after we resumed Taylor moved on to the second part of Burton's career – he worked for the Met Museum Theban Expedition (MMTE) from 1914 to 1940. He took a lot of photos in this time – about 7600 negatives, including 3345 of Theban monuments including 90 tombs, and 1400 of Tutankhamun's tomb. He began working in Italy photographing the objects in the Italian museums, and he did more museum photography over the years including around 600 photographs of objects in Cairo Museum. He was also seconded to other excavations – not just Carter's excavation of KV62 but also the Temple of Hibis at Kharga Oasis with Norman de Garis Davies, photographing KV17, TT55 with Robert Mond, as well as working at Lisht & Hierakonpolis. So during this 26 year period he was often working on multiple projects simultaneously.

One of the themes that Taylor drew out from all the photos he showed us of the various non-KV62 excavations was that Burton really paid attention to the lighting and how that affected the resulting photo. There were several photos of sarcophagi or reliefs where you could see that the light had been angled to make the hieroglyphs stand out sharply against the background. It was particularly impressive in the Tomb of Ramose, which has beautifully carved white limestone reliefs, which if you've ever been there you'll appreciate how hard they are to photograph well even with modern technology. But Burton managed to get the light just so and the details are nice & clear, and he also used his technique of selectively adding developer to brighten the darker areas.

Another theme was Burton's bravery – not all of these tombs were entirely safe. In fact that was sometimes what was prompting the desire to have Burton record the tomb, for instance in the Tomb of Seti I (KV17) part of the ceiling had collapsed so Burton was asked to document the rest of the tomb.

Taylor told us that another thing that Burton was particularly good at was shooting multiple photos across a large relief that overlapped and gave you a good view of the whole relief across the photos. These days there's a lot of computer assistance available to generate images of that sort and it's still fairly hard to get them all lined up just right so that the software can stitch them together without artifacts. But Burton managed to get

his photos lined up manually (removing parallax, overlapping the images enough etc) that if you feed scans into modern software it stitches them together perfectly with no trouble and no loss of detail.

Burton wasn't "just" a photographer, he also led some of these excavations and could be involved in the discoveries at a site. Taylor told us that Burton was responsible for finding the famous models in the Tomb of Meketre while he was overseeing the excavations there. He spotted the crack in the tomb floor that looked like it might lead to something interesting – none of the lights that he had available were strong enough to shine through the crack, so he contacted Winlock (who was ultimately in charge of this excavation) and asked him to come, bringing his electric torch. Winlock was sceptical at first and didn't believe this was anything more than a crack in the floor, but then when he shone his torch & looked through he could see a figurine across the room his light revealed. Burton photographed the whole excavation of the models, stopping work each time until he'd developed the photo and could check it had worked. He even photographed the models when they were disassembled for conservation.

As well as photographing things inside tombs or objects after removal from the tombs Burton also photographed outdoor scenes of workers excavating or transporting objects. Taylor pointed out the little details that show you whether these are staged or taken with very short exposures while the workers were actually working. These are things like clues from the posture of the subjects – there's a photo of men ostensibly carrying the Meketre models across the desert but you can see how one of them has his knee raised to brace the box he's holding. However in other photos you can see the dust generated by the excavation hanging in the air, frozen by the short shutter speed.

Taylor next moved on to the part of Burton's career that he's best known for – photographing the excavation of Tutankhamun's tomb. Back when Burton's first boss (Theodore Davis) had been retiring from excavations in Egypt he'd said that the Valley of the Kings was all played out, everything to find had been found already. But as we all now know Howard Carter was to prove him spectacularly wrong in November 1922. Carter quickly realised that he was going to need specialist help to record his excavation – he thought photography was the best way to approach the task but found his own skills were lacking. And so he asked to borrow Harry Burton.

Burton took a *lot* of photos during the 11 seasons of this excavation. Taylor told us that Christina Riggs has estimated how many photos Burton took per season, it ranges from a peak of about 750 during the very first season down to 50 or a 100 in the last seasons. Most of the first 7 years he took 400 or more. At this point Taylor reminded us of his friend who does this sort of photography and can get up 3 photos a day on a good day – Burton was taking significantly more than this, which demonstrates the level of skill he'd reached.

Taylor showed us some examples of the photos, again with an emphasis on talking us through features that tell us about Burton's technique – for instance examples of photographs in the tomb which are lit with electric light so have dense shadows & bleached out highlights. Or other examples of photographs lit by reflected sunlight, which have a much better balance but the decoration is still emphasised by the raking light. On one of those photos Taylor also pointed out where Burton's very clear photo of the sarcophagus showed a place where the carver had misspelt Tutankhamun's name in the cartouche.

Burton's photos exhaustively document the excavation. He started by photographing all the items *in situ* showing the layout of the tomb and its contents. Then he took a second set of photos with numbers next to each item. Then as items were removed Burton would photograph them once they had come out of the tomb. Taylor showed us a photograph of the cartouche box as an example of this. Burton also photographed the contents of the boxes, in much the same way in miniature as he was doing the whole tomb. First he

would photograph the items inside the box *in situ* then numbers (and letters) would be added and the box re-photographed. Then the first layer of items was removed and the next layer photographed without & with numbers. After this he'd photograph each of the items individually.

There were around 200 bits of jewellery in the tomb, but Howard Carter estimated that 60% of the original jewellery had been lots to tomb robbers. Burton photographed all of these, one necklace he famously photographed being worn by a young Egyptian boy who may be a member of the Abd el-Rassul family. The backdrop for this photograph was a sheet of fabric which was held up and shaken during a long exposure photograph so you couldn't see the creases! Taylor told us that in general Burton found a fabric backdrop didn't work well, because of the obvious creases, so he made himself a curved cardboard backdrop which worked much better.

As well as cataloguing the finds Burton also took photos of the workers. Taylor pointed out how the outdoor ones were made with short shutter speeds and show genuine moments of activity, but this wasn't possible for the indoor shots so they are all posed. This includes the famous photos of Carter & team unwrapping the mummy, where Burton had to set up a timber framework in the entrance of the tomb so that he could take photos from above.

One of the photos that Taylor showed us was the famous one of Tutankhamun's mask. He pointed out that Burton had an easier time photographing it than someone would today, and got a better photo. This is because when Burton took his shot the mask was coated with a thin layer of paraffin wax for conservation purposes. You can't really see that in the photo, but it has cut down on the amount of reflection from the gold of the mask making it much easier to expose properly.

Taylor concluded his talk by discussing Harry Burton's legacy. Sadly Burton is almost unknown outside Egyptology. It is beginning to change a little – there is now a blue plaque on the house where he was born in Stamford. But it only mentions his work photographing Tutankhamun's tomb, and as Taylor had just demonstrated there is a lot more to Burton's work than that one project. As Taylor said, Burton really deserves much wider recognition – his photos aren't just records, they're also works of art and were produced using great technical skill as well as artistic ability.

This was a really interesting talk, whilst I was aware there was more to Harry Burton than "just" his work on KV62 I had no idea of the extent of his involvement in early 20th Century Egyptological excavations. It was also interesting to learn about the technical challenges of photography with the sort of equipment he had available – some of those challenges remain (like lighting a relief to get the best view of the carvings) but others have thankfully been solved with new technology.

Related Links

Ian Taylor recommended some books (I've given amazon links but the older ones may be cheaper elsewhere!) and a website for further reading:

- "The Tomb of Pharaoh Seti I" Erik Hornung, photos by Harry Burton
- "Tomb of Tutankhamun: The Thrill of Discovery" Susan J. Allen, photos by Harry Burton, I own this and it has lovely large prints of Burton's photos
- "Photographing Tutankhamun: Archaeology, Ancient Egypt and the Archive"
- Harry Burton's photographs of KV62 on the Griffith Institute website – I've given a direct link to Burton's photos, but the whole site is fantastic resource. For instance for Tutankhamun related material there are also all of Howard Carter's object cards and Burton's wife's diary amongst other things.

I also found that the Met Museum has some of Burton's photos online:

- This page has 7 of Burton's non-KV62 photos, along with some explanatory text
- This page has inline links to some of Burton's photos, but I could only see them as small thumbnail pop-ups

My write ups of other talks with relevant subjects:

- Paolo Scremin talked in March 2020 about how he photographs tombs with modern equipment
- Marcel Maessen talked in May 2016 about the history of photography as it relates to Egypt and Egyptology