

# Freeze Frame

historic polar images

## History of Photography

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# History of Photography in the Polar Regions

## Origins of Photography

The word **photograph** was first used by Sir John Herschel in 1839 - it originates from the Greek words meaning light and writing. The Freeze Frame collection covers many of the key developments in photography, charting not only polar exploration but also the emergence of photography. This information resource briefly outlines the scientific developments in photography before looking specifically at photography in the polar regions.

A number of scientific developments came together in the nineteenth century from which emerged the process of photography.

## Heliograph Technique

The first ever photograph (a view from an attic window) was taken in France in the 1820s by Nicéphore Niépce, using a method known as the heliograph technique. This used a pewter plate covered with a dispersion of silver salts in bitumen. The silver salts would react on exposure to light causing the bitumen to harden. This technique required an extremely long exposure time - up to eight hours for the image to be taken - and so could not be used for the snapshot photography which we are so familiar. Once the image had taken, any unhardened bitumen could be washed away and the plate polished to give a negative image of the subject. The plate was then coated with ink and pressed onto paper to give a positive ink print.

## Daguerreotypes

In 1829, Niépce joined forces with Louis Daguerre to further develop the technique. They inquired further into the use of silver salts in the photographic process. When Niépce died in 1833, Daguerre continued to work with silver and developed the photographic plate. He found that by exposing the silver to iodine vapour and then exposing it to light for between five and sixty minutes the silver would record an image. Placing the plate in a box filled with mercury fumes would then develop the image. Daguerre discovered that by immersing the plate in a salt solution the image would be fixed and made permanent. The key feature of the photographic plate was that it radically cut exposure times from the eight hours required by the heliograph technique to under an hour.

Daguerre named this photographic plate a Daguerreotype; the French government bought the patent so that the public could have access to the process.

The Daguerreotype process was an expensive one and it was not possible to reproduce the same image more than once. The only way to produce more than one copy of the same image was to have two or more cameras side by side as the photograph was taken. Whilst the daguerreotype was very popular during the nineteenth century, it is another form of photographic process (calotype) on which our modern day photographic methods are based.

## **Calotypes**

In the 1830s William Henry Fox Talbot developed a new method to compete with the Daguerreotype, which he named the calotype. This used a fine piece of paper which had been sensitised to light and was then exposed in a camera for about a minute. The image would be immediately developed and fixed and then printed. What differentiated the calotype process from its precursors was that the negatives could produce more than one photograph. However, quality was poor when compared to the daguerreotype. Fox Talbot spent the next nine years further improving the process to produce a better quality of negative. His main problem was that he used paper coated in silver chloride to produce the negatives; this meant that any imperfections in the paper would form part of the image. Glass plates as a form of negative had been experimented with, but there was a problem making the solution of silver stay on the glass.

## **Albumen Process**

In 1848, a cousin of Nicephore Niépce, Abel Niépce de Saint-Victor developed a process which would overcome Fox Talbot's problem and fix the silver solution to the glass plate. He discovered that by coating the glass plate with egg white (albumen), which had been sensitised to potassium iodide and washed with an acid solution of silver nitrate, the silver salts would be prevented from floating off during development. This process was called the albumen process and produced photographs which were high in quality and detail. However, as the process was very slow (taking between five and fifteen minutes exposure time) these photographs were mainly of landscapes.

## **Collodion or Wet Process**

Frederick Scott Archer developed the collodion process in 1851. This was much faster than previous techniques, further reducing exposure time to a couple of seconds. The process was a wet one; the coating, exposure and development of the photograph had to be done with a wet plate. As the plate had to be wet throughout the process and as the negatives could not be stored wet without losing sensitivity, the collodion technique meant that a lot of equipment was required; this obviously was problematic when out in the field. However, these photographs were far cheaper to produce than the previous processes and so made images more widely available.

## **Dry Process**

In 1871 Dr Richard Maddox further developed the photographic technique, using a gelatine bromide emulsion as a basis for a photographic plate. A glass plate would be coated with a gelatine solution that contained the light sensitive silver particles in suspension. This overcame Fox Talbot's issue of getting the solution to stay on the glass plate and also meant that a dry plate process was possible instead of the cumbersome wet process. The dry plate process required less equipment than the wet plate process and no longer needed to be undertaken whilst the plate was wet. Furthermore, using the dry process it was much quicker to develop negatives.

## **Development of film and box cameras**

George Eastman is responsible for bringing photography to the masses. Not only did he develop a dry gel on paper, which resembles today's familiar photographic film, he also invented the box camera in 1888. In 1900 the Eastman Kodak Brownie camera was launched, costing only \$1 (US). This was a camera which the ordinary public could use with little instruction. Numerous explorers, including Scott, would use Kodak cameras in the polar regions to take their own personal photographs.

## **Colour Photography**

Whilst the majority of images in the Freeze Frame collection are in black and white, the final expedition represented, the Transglobe Expedition (1979-82) used colour photography. Pioneers in photography found colour photography difficult to master, but had been experimenting since the very inception of photography. The first colour image was produced by James Maxwell in 1861, but entailed a very complex process which involved taking a black and white photograph three

times through a red, green and blue filter. A usable colour plate was developed in France in 1907 by August and Louis Lumière. This was a glass plate coated with dyed dots of potato starch, which acted as primary colour filters, coated with a thin film of emulsion which gave a positive colour transparency. This was called the Autochrome process.

It was not until the 1930s that we see further developments in colour film. In 1935, the Kodak Research Laboratory developed Kodachrome film and a year later Agfa developed Agfacolour.

## Polar Photography

The Freeze Frame collection spans over 130 years in photography, from its very inception. It is a record not just of polar exploration over this time but also of how photography changed during this period. Polar explorers instantly embraced photography; it was a way for them to bring the polar regions home in a way which would have an immediate and very striking impact on their audiences. These hostile environments may have been inhospitable and thousands of miles away from home, but the ordinary person could see them without even having to step outside, due to the developments in photography.

Photography allowed the general public to be involved in polar exploration. Many explorers in the **heroic age of exploration** relied on lecture tours to raise funds for their next expedition. Illustrated lectures were likely to increase the public interest and therefore allow for further exploration. **Shackleton** in particular spent many months touring after each of his expeditions so that he could raise money to fund the next.

The first images we have in the collection are of the **British Naval Northwest Passage Expedition 1845-48(?)**, led by **Franklin**. This expedition was to go missing without a trace and its fate is still yet to be established. Before the expedition left, Franklin and his senior officers had their portraits taken by Richard Beard; these were the first photographic portraits of polar explorers. Done using the daguerreotype technique, the men had to sit very still whilst the image was captured. Franklin, who had a very bad cold on the day of the sitting, was said to dislike his photograph. The expedition also took camera equipment to the Arctic, but very few Franklin relics have been found and we do not know the fate of the camera or if they took any images.

Our earliest images actually taken in the polar regions are from the British Arctic Expedition 1875-76. 121 exposures were taken and Captain Sir **George Strong Nares** was of the opinion that 107 of the negatives were 'good enough to print from and would form an excellent Photographic History of the Arctic Expedition' (Nares 1875-1877:15). Nares went on to include six of the images in his book about the expedition. After this expedition taking photographic equipment and regularly a professional photographer became commonplace.

The images in the collection are predominately black and white; some are the product of professional photographers whereas others were taken by expedition members to record their experiences.

## Difficulties

Taking photographs in the polar regions is plagued with problems due to the cold polar climate. Photo processing requires water to wash plates. In the polar regions as fresh water is frozen it has to be melted before it can be used. Taking photographs (especially during the heroic age) was a long and complicated process; factor into this the low temperatures and life as a photographer on a polar expedition becomes a difficult one. In addition, as a lot of camera equipment was complicated, it could be difficult to set it up wearing the thick mittens that such a climate requires. Many photographers developed **frostbite** on their fingers through exposure and contact with cold metals. As the photographer **Ponting** recorded:

***"Often, when my fingers touched metal they became frost-bitten. Such a frostbite feels exactly like a burn. Once, thoughtlessly, I held a camera screw for a moment in my lips, and took the skin off when I removed it. On another occasion, my tongue came into contact with the metal part of one of my cameras, whilst moistening my lips as I was focusing. It froze fast instantaneously; and to release myself I had to jerk it away, leaving the skin of the end of my tongue sticking to my camera, and my mouth bled so profusely that I had to gag it with a handkerchief"***

(1921: 171).

Photographers at times have also been forced to wait impatiently for the weather to change to allow for the possibility of photographs. The polar regions can be dark for long stretches, experience fogs and mists as well as blizzards and glaring sunshine, all of which make taking photographs difficult. As Ponting said:

***"I found the Antarctic a very disappointing region for photography. It was exasperating to find the weather so often thwart one when half-way to some goal - for a journey to a point even a few miles distant could not be undertaken lightly"*** (1921:192)

However, he was to take some very striking images.

Photographers in the polar regions had quickly to become familiar with their dangerous environment. When trying to get the perfect shot, many photographers encountered fierce wildlife or ice that was not thick enough to support their weight. They had to learn to balance their desire to capture the perfect image with safety concerns. Herbert Ponting was known for rigging up devices so that he could get the shots he desired. One photograph shows Ponting suspended over the side of ***Terra Nova***, balancing on three planks of wood whilst he records film with his cinematograph camera:

***"Spread-eagling myself on the end of these planks, I had a field view clear under the overhanging prow. As the ship bumped into floes, I hung on as best I could, and with one arm clung tightly to my precious camera lest it should break loose and fall into the sea, whilst with the other hand I turned the handle. But frequently I had to stop and grip the planks hard to avoid taking a unpremeditated header."*** (Ponting 1921:40)

Ponting was to have a number of near misses, as his camera fell through the ice, he was attacked by a killer whale and one of his colleagues was injured posing for a photograph.

Photographers also had to take greater care in how their photographic equipment was stored. Oil would carefully be removed from cameras, as the temperatures would get so low that any oil in the camera could freeze, breaking the camera in the process. There were also concerns about condensation forming in cameras, and so it was commonplace for photographers to leave their cameras outside the hut to prevent the formation of condensation in the warm hut. In addition, photographers had to be cautious not to blow on a lens to wipe away any smudges, in cold temperatures such a thin layer of water would instantly freeze and it would not be possible to use the camera until the front of the lens had been thawed out. They also had to be very careful with how their negatives were stored. Early photographers preferred glass plates to film as the first films became very brittle in such cold temperatures and were prone to snapping. However, they still had to be careful with glass plates. As it was necessary to take them into the expedition's hut to develop the image there was a risk that the plate would fracture going from the cold outside air to the warmer air of the hut. Often the process of taking plates inside a hut would be undertaken over a number of days as slowly bringing the plate inside through a number of small temperature increases reduced the chances of the plate breaking.

Like polar explorers, the polar photographer has to be up for a challenge and not give in at the first sign of difficulty. Whilst the climate of polar regions is not the most comfortable in which to take photographs, many photographers have experienced numerous difficulties and overcome them to bring us some of the most striking photographs.

## Well Known Polar Photographers

### Herbert Ponting

One of the most well known polar photographers (or 'camera artist' as he liked to be known) was Herbert Ponting. Ponting travelled the world taking photographs of different cultures and natural wonders. His only polar journey was to the Antarctic with Captain Robert Falcon **Scott**, as the official photographer on the **British Antarctic Expedition 1910-13**. Ponting's dedication to his art was unwavering. Whilst journeying south Ponting suffered terribly from seasickness, but this did not stop him, as Scott recorded in his diary:

***"Ponting cannot face meals but sticks to his work constantly being sick ... with a developing dish in one hand, and an ordinary basin in the other"***

However, Ponting never lost his enthusiasm, and as a result a new verb came into use - 'to pont' was coined when Ponting would ask the men to pose in uncomfortable positions in the cold for long periods of time to allow him to get the perfect shot. Due to the long exposure times most of Ponting's photographs would require the people in them to 'pont'. In total Ponting took 25,000 feet of film and 2000 negatives during the expedition, at times becoming so absorbed in his work that he did not notice what was going on around him. Whilst his photographic dedication may have irritated some of his fellow men, Ponting produced remarkable photographs depicting the Antarctic landscape and the life of the expedition. Today the photographs he produced are still some of the most well known images of the Antarctic.

In addition, an official photographer such as Ponting would play a vital role in an expedition's entertainments. Before his departure Ponting had prepared some of his photographs from previous travels as lantern slides. This enabled him to give illustrated lectures to the men on topics such as Japan; such lectures proved to be very popular. Scott recognised the importance of Ponting on the expedition:

***"Ponting would have been a great asset to our party, if only on account of his lectures, but his value as pictorial recorder of events becomes daily more apparent. No expedition has ever been illustrated so extensively, and the only difficulty will be to select from the countless subjects that have been recorded by his camera"***

After the tragic conclusion to the expedition Ponting spent the rest of his life delivering illustrated lectures and producing films about the expedition.

## **Frank Hurley**

Frank Hurley was another influential photographer of the heroic age. Hurley had already been on Mawson's 1911-14 Antarctic Expedition when he travelled with Shackleton on the Imperial Trans-Antarctic Expedition 1914-16 as the expedition's official photographer. During this voyage the expedition ship **Endurance** was crushed by the ice and sank. Hurley took some striking photographs of the ship's demise and the men's attempts to reach safety. Using magnesium flashes Hurley was able to take pictures of the ship crushed by the ice at night; this gives a wonderful contrast between the darkness of the night sky and the brightness of the ice. Hurley recorded the incident saying:

***"During the night take flashlight of the ship beset by pressure necessitating some 20 flashes, one behind each salient pressure hummock, no less than 10 flashes being required to satisfactorily illuminate the ship herself. Half blinded after the successive flashes, I lost my bearings amid the hummocks, bumping shins against the projecting ice points and stumbling onto deep snowdrifts &c. The negative when developed proved satisfactory and well repaid the cold endeavour"***

Like Ponting, Hurley often forgot to balance his own safety with his desire to get the perfect image. In his book about the expedition Hurley recorded a near miss:

***"In my keenness to secure records of these efforts and of the ship charging the ice, I had a narrow escape from being crushed to death. Putting my camera in a waterproof case, I stood on a floe immediately in the vessel's path"*** (Agonists of the South)

The images Hurley recorded were what made an unbelievable story believable, but such images were almost never seen as Hurley's negatives initially went down with the ship.

Hurley returned to the ship and was able to chisel through the ice into what had been his darkroom. He was able to rescue some of the zinc-lined galvanised tins in which he stored his negatives, most of which were still unharmed. In total he rescued over 500 negatives, however, as the men had to man-haul their belongings over the ice they had to leave behind anything that was not truly necessary. Hurley and Shackleton came to a compromise, allowing Hurley to take 150 negatives with him. These negatives were stored in cases which were soldered shut to protect them on their hazardous

journey to safety. The remaining 400 negatives were smashed, so Hurley could not be tempted to try and return for any. Hurley also had to get rid of his heavy photographic equipment, leaving him with only a Vest Pocket Kodak camera and three rolls of film. Using this camera he recorded the men's attempts to reach safety, however, in addition he also helped with the men's attempts at survival, designing and constructing a stove and bilge pump. The bilge pump was fitted to the modified whale boat **James Caird**, in which Shackleton and five others were finally able to sail to South Georgia, to raise the alarm and bring rescue.

Shortly after returning to safety Hurley was again to journey southwards, returning to South Georgia. It had been decided that there were not enough photographs of wildlife for a published account and so Hurley returned to the island to photograph the indigenous fauna. In addition he recorded film footage, which was added to footage recorded in Antarctica to make a film entitled 'In the Grip of the Polar Ice' which was a commercial success.

On his return Hurley became an official photographer of the First World War. Here the authenticity of his photographs started to be questioned. Hurley had never made any secret of the fact that some of his images were composites. He would often combine elements from separate images to produce the 'perfect' image. He did not regard photography as a real representation of the world and so did not believe there was any issue with altering his negatives. He often would insert elements to add to the drama of the image so that the image would tell the story he wanted. We know that some of the images from the Imperial Trans-Antarctic Expedition are composites.

## Learning Photography at the Poles

During the **heroic age** it was common for expeditions to have an official photographer, but some of the members of the expedition would take photographs as well. This was necessary, as often the photographer would not have the opportunity to go right out into the field as the men would. For example **Scott** and **Shackleton's** furthest south photographs would have been set up and taken by one of the small team who were marching southwards. Many of the men were also keen to learn how to take photographs; it was a relatively new science and a way of passing the time.

In **Ponting's** published account of his expedition with Scott, he recounts an interesting tale in which he taught Scott and some of the other men how to take photographs. As Ponting recorded in his 1921 book **The Great White South**, "Scott's zeal [to take photographs] outran his capacity."

***"He would come back as pleased as a boy, telling me quite excitedly he had got some splendid things, and together we would begin to develop his plates - six in a dish. When five minutes or more had elapsed and no sign of a latent image appeared on any of them, I knew something was wrong, and a conversation would follow, something in this wise:***

***'Are you quite sure you did everything correctly?'***

***'My dear fellow' (a great expression this of Scott's), 'I'm absolutely certain I did. I'm sure I made no mistake.'***

***'Did you put the plate in the holder?' 'Yes'***

***'Did you draw the slide?' 'Yes'***

***'Did you set the shutter?' 'Yes'***

***'Did you take the cap off the lens?' 'Yes'***

***Then he would rub his head, in that way he had, and admit:***

***'No! Good heavens! I forgot. I could have sworn I had forgotten nothing.'***

***The he would fill up his holders again, and be off once more." (1921:170)***

The images which form the Freeze Frame collection stretch from beautifully composed, perfectly captured striking images, to ones of geological specimens, to others which are out of focus or have a finger over the lens! This highlights the fact that not everybody is a natural photographer. Our images are made up of those taken by professional photographers and those by expedition members who wished to learn a new skill, or merely wanted to take their own photographs, as many of us do when we go somewhere new today.

## Further Reading

Jones, M. 2003. *The Last Great Quest*.

Lewis-Jones, H. 2008. *Face to Face: Polar Portraits*.

Ponting, H.G. 1921. *The Great White South*. Reprinted: Cooper Square Press 2001.

Riffenburg, B. & Cruwys, L. 1998. *The Photographs of H.G. Ponting*.

Royal Geographical Society. 2001. *South With Endurance: Shackleton's Antarctic Expedition 1914-1917 - The Photographs of Frank Hurley*.

Wamsley, D. & Barr, W. 1996. "Early Photographers of the Arctic" in *Polar Record* 32 (183): 295-316.

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