

Medium, Materiality & Magic

Photography at the National Gallery of Ireland
Schools Resource Pack \

Brian Cregan

nationalgallery.ie/schools

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GALLERY *of*
IRELAND



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Introduction

Photographs are a significant addition to the Gallery's collection. This schools resource has been designed as both an introduction to photography and an in-depth exploration of key works in the Gallery's photography collection. Primary and post-primary teachers can use it as a starting point for tailored lesson plans, and all activities are adaptable for different ages and abilities. Looking and responding questions enable students to develop visual literacy and critical thinking skills. Each photograph is accompanied by suggested activities that allow for creative practical exploration of the work and encourage students to further develop their understanding of different types of photography. The resource also includes a glossary of terms (in bold) and a checklist of photography skills that will help with some of the practical activities. Links to more in-depth resources and videos will facilitate further engagement with the subject.

Introduction to the Gallery’s Photography Collection

Until recently, the National Gallery of Ireland's holdings of photography comprised a small group of **daguerreotypes** and a selection of modern and contemporary portraits. The Gallery is now actively building this aspect of the collection and has, in the last year, added over one hundred photographs spanning the nineteenth to the twenty-first century. The broad theme is Ireland-related photography by Irish and international photographers. The collection includes both vintage and modern **prints**: **daguerreotypes**, **albumen prints**, platinum and silver **gelatin prints**, and includes the only known photograph of Daniel O’Connell (1775-1847).

Curriculum Links

Primary

Visual Arts \ Looking & Responding \ Potential to work across all six strands of the Visual Arts Curriculum
Cross-curricular links with **History, Geography, Science, Language & Literacy, SESE, SPHE.**

Junior Cycle

Visual Art

Critical and visual language \ 1.1, 1.2, 1.3
Visual culture and appreciation \ 1.7, 1.8, 1.9
Art elements and design principles \ 1.10
Media \ 1.13

Senior Cycle

Leaving Certificate

Art \ History and Appreciation of Art \ Irish Art

Cross-curricular links with **History, Geography, Physics and Chemistry**

Leaving Certificate Applied

English and Communication, Arts Education

About the Author

Brian Cregan is a visual artist/educator with a background in photography and filmmaking. His work explores our relationship to landscape, natural history and the built environment. He also runs regular photography/art workshops and residencies with children and young people.

A Brief History of Photography



Camera Obscura

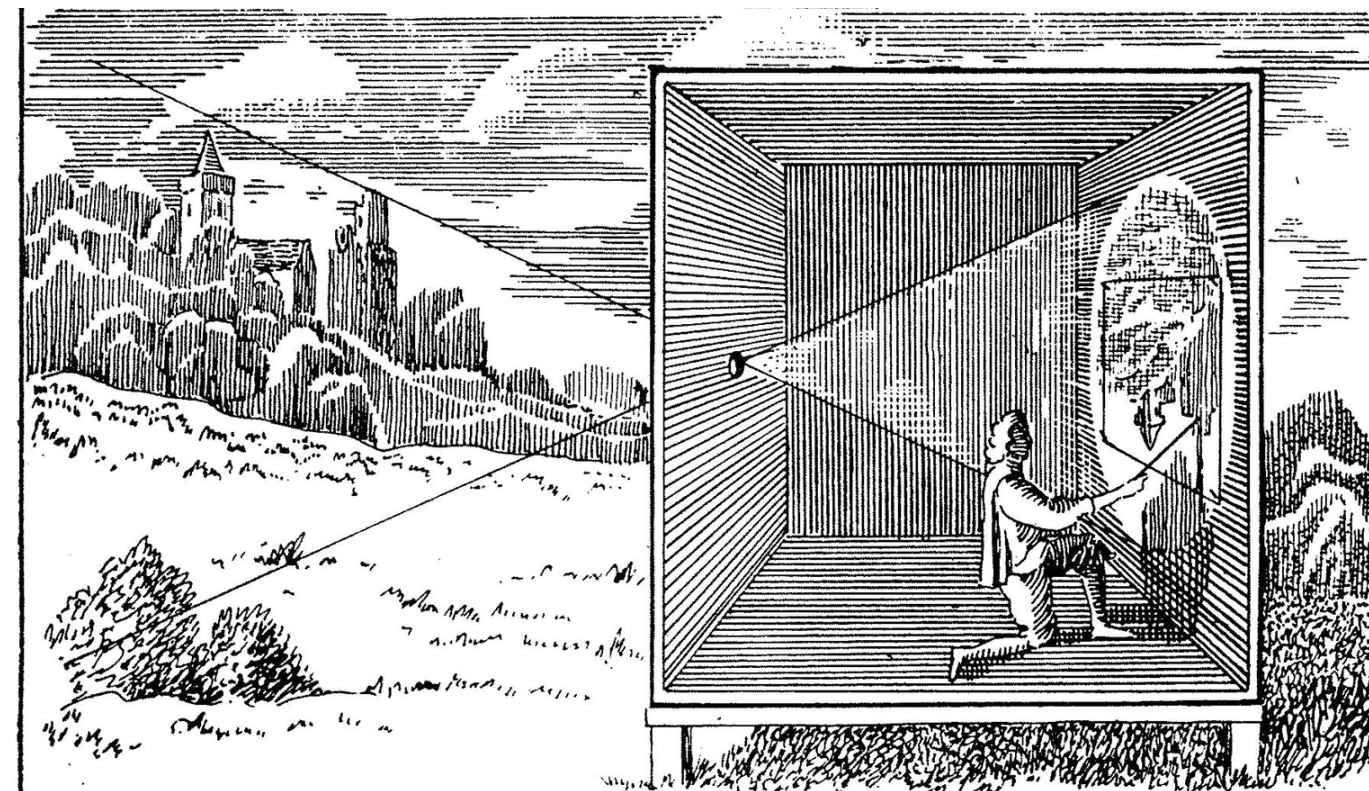


Fig. 1: Early camera obscura

Several discoveries by artists and scientists in the nineteenth century gave rise to the birth of photography. The use of the '**camera obscura**' (meaning 'dark room') was a big part of the story. They work when a small hole is made in a light-tight room or box. An image of the outside world shoots through the hole as a beam of light onto the back wall of the room or box, and is made upside-down and back-to-front (Fig.1).

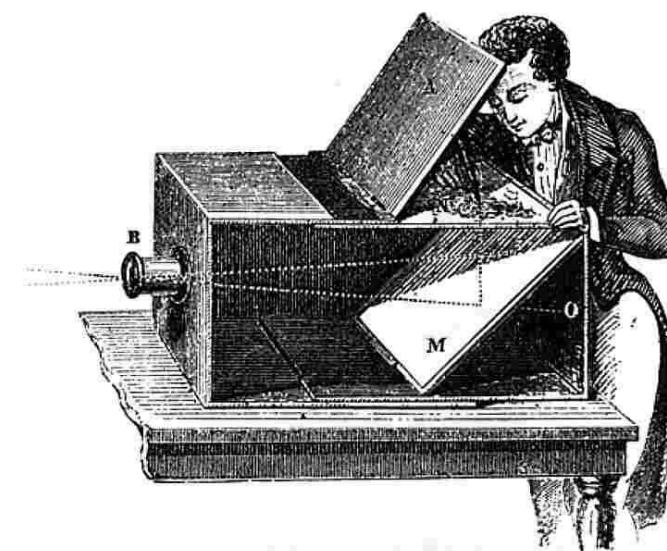


Fig. 2: 18th-century camera obscura

Room-sized **camera obscuras**, used by scientists and astronomers, were scaled down during the Renaissance period and became portable. This enabled artists to use them to make drawings and paintings. Artists such as the Dutch master Johannes Vermeer (1632-1675) and Italian painter Canaletto (1697-1768) were thought to have ones similar to the one in (Fig.2). Leonardo da Vinci (1452-1519) also described how the **camera obscura** worked in his writings in 1502.

Research

Look at the work of Vermeer and Canaletto in the Gallery's collection. How are three-dimensional scenes created in these paintings?

Links

\ **The Camera Obscura at the Photographer's Gallery, London:**

<https://www.youtube.com/watch?v=Z9ObaPEVS68>

\ **Vermeer and the Camera Obscura:** https://www.youtube.com/watch?v=ISG4x_8xwo4

\ **Making a Room Sized Camera Obscura:** <https://www.youtube.com/watch?v=gvozpu0Q9RTU>

Early Photography

The first photograph still in existence was taken in France in 1826 or 1827 by chemist Joseph Nicéphore Niépce (1765-1833). He used a **camera obscura** and a light-sensitive plate coated in bitumen of Judea, a tar-like substance (Fig.3). The material hardened from the light projected onto it, and formed an image. It depicts a view from an upstairs window at his estate, known as *View from the Window at Le Gras*.

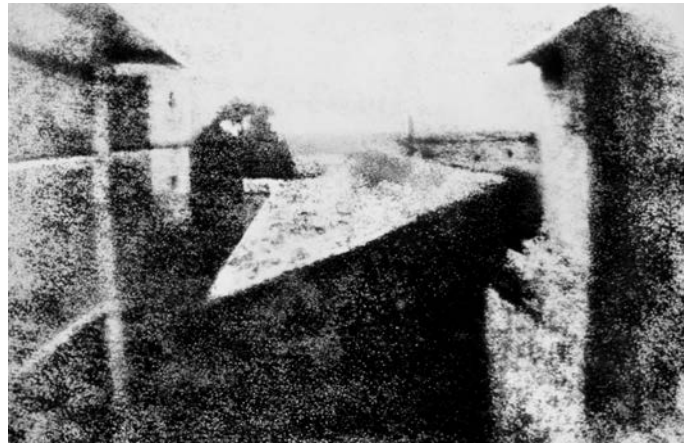


Fig. 3: View from the Window at Le Gras, Joseph Nicéphore Niépce

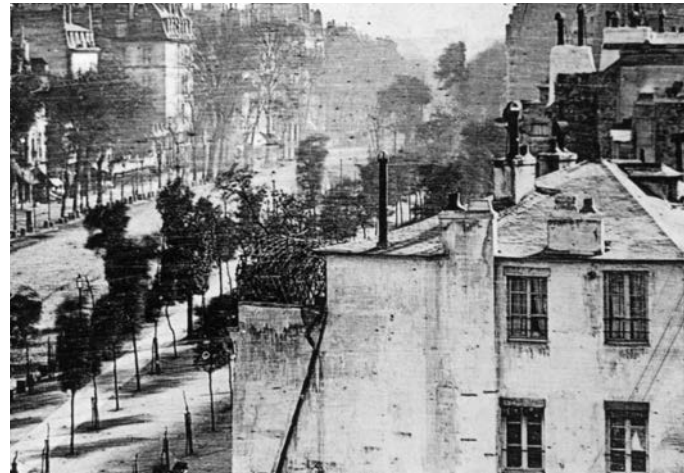


Fig. 4: Boulevard du Temple, Louis Daguerre

Later, Niépce went on to work with Louis Daguerre (1787-1851), a Paris-based showman and one of the inventors of the diorama, a picture-viewing device. In 1839, he announced the invention of the **daguerreotype**. These were created by polishing a sheet of silver-plated copper to a mirror finish and treating it with iodine vapour to make it light-sensitive. It was then exposed in a **camera obscura**. The plate was then **developed** with mercury vapour. **Daguerreotypes** (Fig. 4) have a high level of detail and a lifelike quality that made them very popular for portraits. They are unique and are often mounted, surrounded by velvet, in specially made glass and metal cases, like precious jewels.

Links

\\ **How was it made? The Daguerreotype:** <https://www.youtube.com/watch?v=DAPgdo5H7ZY>



Fig. 5: William Henry Fox Talbot, 1853

In 1839, an English inventor named William Henry Fox Talbot (1800-1877) announced a similar invention. Instead of using a metal plate, Fox Talbot used writing paper coated in silver compounds that darkened down to form a **negative** image when exposed. It was then **fixed** in an alkaline halide chemical solution to stabilise it and was then dried. This **negative** could be placed on top of another sheet of paper coated with the solution, then fixed in a glass frame and placed in the sunlight to form a **positive** image (meaning many copies of the original could be reproduced). This was the invention of the negative-positive process" and was perfected by Fox Talbot in 1841 as the **calotype** process (Fig. 5).

During his early experiments, Fox Talbot created **photograms** using light-sensitive paper and found objects, without a **camera**. Later a friend of Fox Talbot's, Sir John Herschel (1792-1871), helped him to **fix** the **prints** to make the image permanent and light-proof, using a chemical called sodium thiosulphate. Both processes were quickly adopted and their popularity spread rapidly all over the world, leading to the first photographers. The first commercial portrait photography studio in Ireland opened at the Rotunda building in Dublin in 1841.

Herschel created the **cyanotype** process in 1842, using iron salts instead of silver to make **photograms** and contact **prints** from **negatives**. This used Prussian blue, an image-forming pigment more usually used in painting. It offered a cheaper alternative to the silver process but was not suitable for use in the **camera**. Anna Atkins (1799-1871) was an early pioneer in photography and created what is regarded as the first photography book in 1843, *British Algae: Cyanotype Impressions* (1843-53) (Fig. 6).

Links

\\ **Making a Calotype:** <https://www.youtube.com/watch?v=5jCWQTNWgyM>



Fig. 6: Algae Cyanotype, Anna Atkins

Evolution

Photography evolved rapidly with many scientists and inventors making their own improvements. In 1900, George Eastman launched the Brownie **camera** that was small, easy to hold and inexpensive. It became the first mass-produced **camera** and was widely available. Instead of using a plate, it had **roll film** that could be sent back to Kodak with the **camera** for processing. The slogan "You press the button—we do the rest" became well-known. This was the **camera** used by many of our ancestors who coined the term 'snapshot', meaning a candid photograph taken quickly.

The first experimental digital photographs were taken in the 1950s, but it wasn't until the 1990s that digital cameras became widely available. In these cameras, the film was replaced by a digital sensor made up of millions of tiny light-sensitive photosites. When the light hits them they receive a small electrical charge that is converted to a picture you can see on the screen.

Purpose of Photography

With so many photographs in our lives now, it's not surprising that we take them for granted sometimes. Each year we upload billions of them, many only viewed for a moment before disappearing into cyberspace. We see photographs online, in books and magazines, and at home in family albums or framed as treasured possessions. Photography has developed rapidly since it was invented, with many new uses for the medium being adopted. Photographs are used in social media, medicine, advertising and for scientific purposes.

Can you think of other ways that photographs are used?

Looking at collections of photographs in museums and galleries can offer us an opportunity to slow down and consider individual photographs and their significance. We can reflect on the reasons why a photograph was taken in the first place and what its purpose was.

Do you think that where we look at a photograph influences how we think about it? When we see a photograph online does it feel different to viewing it in a gallery?

Art Photography

Pictorialism was an approach to photography in the nineteenth century that resulted in photographs that looked almost like paintings, with soft focus and a hazy dreamlike aesthetic. Pictorialists borrowed elements from classical subjects, landscape painting and the graphic arts in its expressive form. Much work was done with lighting and props to achieve the desired effects. Later in the **darkroom**, the **negative** or **print** was manipulated. It was much like how we use filters today on our phones. What once took hours of painstaking work can now be done in an instant! We continue to see this influence especially in the world of fashion, advertising and fine art photography, where digital manipulation is common.

Can you think of other places where digital effects are used on still and moving images?

Science & Journalism

Photography's ability to record an accurate image soon made it popular as a method of portraiture, for scientific purposes and to record historic events and places. Photographs were also used as evidence in campaigns for social justice and reform. In the early days, **cameras** could only record something that stayed still for several minutes. Over the years **exposure** times decreased, allowing the **camera** to freeze a moment in time. We can describe these types of photographs as being 'straight' or 'documentary' and representing reality more closely. In the 1920s, the invention of the portable Leica **camera** gave photographers even more freedom to explore the world. Events could be recorded quickly and shared as photo stories through newspapers and magazines like *Picture Post* and *Life* to mass audiences. It also offered them a chance to experiment and explore the world from new points of view, freed from the hassle of the tripod and single plate. These **cameras** used **roll film** with 36 photographs on each one that could be changed quickly. The photographs produced were ideally in sharp focus with lots of details giving a good version of reality. The development of modern photojournalism and its goal to capture world events can be seen here.

Photography's relationship to reality has been debated ever since it was invented. Think about the filters you use after you take a photograph. How does it change the photograph and what you think of it?

Compare & Contrast

- \ Research the work of Pictorialist photographers Henry Peach Robinson, Julia Margaret Cameron and Oscar Rejlander and compare them to photographs by Dorothea Lange, Lewis Hine, Helen Levitt, Steve McCurry and Henri Cartier-Bresson.
- \ Compare the subjects of their photographs. Is there a difference between them?
- \ Compare the technique that is used. Use of light, shadow, colour, focus etc.
- \ Can you see how painting might have influenced the style of some of the photographs? Give five examples.
- \ Pick a photograph by one of the photographers and write a paragraph about why you like it.

8.

Photographs in Depth





Daniel O'Connell

Alexander Doussin Dubreuil / Daniel O'Connell / Purchased, Miss Ray, 1905
/ Collection: National Gallery of Ireland

About the Photograph

Who is the artist? Alexander Doussin Dubreuil

Where is the artist from? Ireland

When did the artist live? We don't know the exact dates, but he worked in the 1840s

What is this photograph called?
Daniel O'Connell

What is the subject of the photograph?

Daniel O'Connell (1775-1847) campaigned for the rights of Catholics in Britain and Ireland who were discriminated against at the time. Fearing a threat to British rule in Ireland he was imprisoned for arranging a series of large meetings that aimed to repeal the Act of Union of 1801 which joined Britain and Ireland to create the United Kingdom of Great Britain and Ireland. This portrait was taken in prison. He is shown wearing his famous 'Repeal Cap', a green velvet cap embroidered with golden shamrocks. It forms a part of a group of six portraits of O'Connell and the other Repeal Martyrs.

How was the photograph made?

It is a close-up of O'Connell made using a heavy wooden plate **camera** on a tripod. He would have sat still for several minutes, as it used to take a long time to take a photograph! The photographer came from his studio at the Rotunda to the Richmond Bridewell Prison to take it, probably travelling by horse and carriage.

Daguerreotypes are often known as a 'mirror with a memory'! If you tilt a daguerrotype you can see it change from a **positive** to a **negative** image. The edges of the **daguerreotype** have tarnished, and the scratched surface indicates that it was improperly 'cleaned' at some stage.

Look & Respond

- \ What is the subject of the photograph?
- \ What is the photographer's point of view?
- \ What kind of mood is there in the photograph?
- \ When do you think the photograph was taken? What makes you think that?
- \ What is the person wearing?
- \ What colours can you see in this photograph?
- \ This person seems to be looking away from the viewer. Why do you think this is?
- \ Would you describe the photograph as being in focus or out of focus?
- \ Does the photograph remind you of any other artworks?
- \ Do you like this photograph? Why/why not?
- \ How does the photograph make you feel?

Research

- \ Find out more about Daniel O'Connell and his work to repeal the Act of Union (1801).
- \ Compare this portrait of O'Connell to ones made by other artists during his lifetime. What are the differences?

Create

- \ Daniel O'Connell wore his repeal cap while being photographed in prison. Think of a famous character from history and dress up as them using props, costumes and make-up. Work in pairs and take turns taking portraits of each other.
- \ Think about the type of mood you want to create and use lighting to help achieve this. Where will the subject be positioned in relation to the light? Where will you take your photo (inside or outside)? What kind of background will you use? Make a sketch to help you plan it.

About the Photograph

Who is the artist? Julia Margaret Cameron

Where is the artist from? Britain (born in India)

When did the artist live? 1815–1879

What is this photograph called?

After the manner of Perugino (Mary Ryan). This means that the photograph was inspired by the work of Italian Renaissance painter Perugino.

What is the subject of the photograph?

Mary Ryan was a young girl who was struggling to make ends meet. Julia Margaret Cameron met her in London and took her in and reared Mary alongside her own daughters. She became a servant and one of Cameron's most famous models. Later, Henry Cotton, a wealthy MP and civil servant, fell in love with Ryan when he saw her photograph. They later married and she became Lady Cotton, with Cameron as the wedding photographer! The artist was inspired by classical painting, the Bible and literature. She used models and props often in groups to create allegories. An allegory is a picture or photograph that tells a story, often using symbols or metaphors.

How was the photograph made?

Julia Margaret Cameron was one of the most important portrait photographers of the nineteenth century. She moved in the artistic circles of the day and photographed many important Victorian writers, politicians and scientists, including Charles Darwin. Her technique of using soft focus created controversy at the time and she also embraced imperfections like dust and fingerprints. She used a large wooden **camera** moving close to her subject and framing them tightly. The **albumen print** was the most popular process of the nineteenth century until the **silver gelatin** print became popular. Silver nitrate was painted onto paper combined with egg white and salt to give a smooth, glossy, light-sensitive surface. After it was dried in a **darkroom**, a **negative** was placed on top and then brought outside and exposed to the sun. When it was finished exposing, it was **fixed** in the **darkroom**.

Look & Respond

- \ What is the subject of the photograph?
- \ What is the photographer's point of view?
- \ What kind of mood is there in the photograph?
- \ When do you think the photograph was taken? What makes you think that?
- \ What is the person wearing?
- \ This person seems to be looking away from the viewer. Why do you think this is?
- \ Does the photograph remind you of anyone in particular?
- \ Would you describe the photograph as being in focus or out of focus?
- \ Can you see anything in the background?
- \ What colours can you see in the photograph?
- \ What kind of artistic choices did the photographer make in terms of composition and lighting?
- \ Does the photograph remind you of any other artworks?
- \ Do you like this photograph? Why/why not?
- \ How does the photograph make you feel?

Research

- \ Look at other pioneering female photographers in the nineteenth century: Anna Atkins & Lady Clementina Hawarden.

Create

- \ Work in pairs to create a photographic portrait of each other. Look at the work of other Renaissance painters like Perugino and create a portrait inspired by the portrait of Mary Ryan by JMC. Make a sketch in advance to help with the planning. How will you frame your subject? What kind of expression or pose will they use when being photographed? Chat together to come up with ideas. Take lots of shots then make a selection of your favourites to show to the class.
- \ Will the type of **camera** you use affect your decisions? Where will you take your photo? Will you consider using a tripod? What difference will this make?



After the Manner of Perugino (Mary Ryan)

Julia Margaret Cameron / After the Manner of Perugino (Mary Ryan) / Purchased, 2018
/ Collection: National Gallery of Ireland

About the Photograph

Who is the artist? Edward Quinn

Where is the artist from? Dublin, Ireland

When did the artist live? 1920-1997

What is this photograph called?

Three Boys, Dublin

What is the subject of the photograph?

Three boys cross a bridge in Dublin during a busy day in the city centre.

When was this made? 1963

What is it made of? Vintage gelatin silver print

What size is it? 21.3 x 26.3 cm

How was the photograph made?

The photographer used a small, light 35mm **camera** with 36 shots of black and white film on each roll. This allowed him to work quickly and take a series of photographs of a scene that could be edited later on. Each roll was **developed** in a **darkroom** and the **negatives** used to make enlargements.

Quinn liked to work candidly with his subjects, although he was very tall! He lived in France and took photographs for magazines like *Paris Match* that featured many celebrities and movie stars of the time, including Picasso. He became friendly with many of them and they gave him access to their professional and private lives.

Look & Respond

- \ What is the subject of the photograph?
- \ What is the photographer's point of view?
- \ What kind of mood is there in the photograph?
- \ When do you think the photograph was taken? What makes you think that?
- \ What is your eye drawn to in the photograph?
- \ What are the children doing in the photograph?
- \ Where was the photograph taken? Investigate!
- \ What kind of style or genre is this photograph?
- \ Would you describe the photograph as being in focus or out of focus?
- \ Can you see anything in the background?
- \ What kind of artistic choices did the photographer make in terms of composition and lighting?
- \ Does the photograph remind you of any other artworks?
- \ Do you like this photograph? Why/why not?
- \ How does the photograph make you feel?

Research

- \ Look at old issues of *Life* magazine and see how photo stories were created: <https://time.com/3456085/w-eugene-smiths-landmark-photo-essay-country-doctor/>

Create

- \ Create your own photo story using the **Checklist** to help you develop your **camera** skills. Look at examples in W. Eugene Smith's classic story *Diary of a Country Doctor* above. Try different vantage points. Take between 20-30 shots and then make a final selection of five. Ideas for photo stories could be: a visit to the art room; your favourite place; a local event; a mystery; the five senses; a surprise; or a walk in the park.



Three Boys, Dublin

Edward Quinn / Three Boys, Dublin / Photo Edward Quinn, © edwardquinn.com
/ Collection: National Gallery of Ireland

About the Photograph

Who is the artist? Pentti Sammallahti

Where is the artist from? Finland

When was the artist born? 1950

What is this photograph called?

Co. Kerry, Ireland

When was this made? 1978

What is it made of? Gelatin silver print

What size is it? 24 x 30 cm

What type of photograph is this?

Landscape

What is the subject of the photograph?

The Irish landscape is a popular theme for local and international photographers and artists. Many of them have been drawn to wild and isolated places, especially along the western and southern coastlines. This photograph takes advantage of the dramatic scenery and position of the animals in the landscape.

How was the photograph made?

The artist was inspired by his grandmother who was also a photographer and he began taking photographs aged 11. He uses a range of **cameras** that hold black and white **negative** film. These produce large **negatives** (6x6cm or 6x7cm) that make good enlargements in the **darkroom**. He used a high vantage point and wide angle **lens** to make this landscape photograph. The artist is a master printer and spends many hours in the **darkroom** working on a finished **gelatin silver print**. He has described himself as a wanderer who likes silence, the cold, the sea, and the people and animals of far-off places.

Look & Respond

- \ What is the subject of the photograph?
- \ What is the photographer's point of view?
- \ What kind of mood is there in the photograph?
- \ When do you think the photograph was taken? What makes you think that?
- \ Would you describe the photograph as being in focus or out of focus?
- \ Describe the background, middle ground and foreground of the photograph.
- \ What tones and colours can you see in the photograph?
- \ What kind of artistic choices did the photographer make in terms of composition and lighting?
- \ Describe how shape, line and pattern is used in the photograph.
- \ Can you find out where in Kerry the photograph was taken? What does the landscape look like there today?
- \ Does the photograph remind you of any other artworks?
- \ Do you like this photograph? Why/why not?
- \ How does the photograph make you feel?

Research

- \ Look at landscape painting in the National Gallery of Ireland collection: <http://onlinecollection.nationalgallery.ie/search/Landscape/objects/list?page=1>.
- \ Why was landscape a good subject for the early photographers?

Create

- \ Make a landscape photograph using a pinhole **camera** and **develop** your photographs in a traditional red light **darkroom**. See this link for instructions: <https://briancreganphotography.com/How-to-a-makehole-camera-Camera-Obscura>
- \ Think about a different title for the photograph. Use your imagination and creativity to write a short story, poem or descriptive paragraph about it.



Co. Kerry, Ireland

Pentti Sammallahti / Co. Kerry, Ireland/ Purchased, 2019
/ Collection: National Gallery of Ireland



Tarantula

Dragana Jurisic / Tarantula / Purchased, 2017
/ Collection: National Gallery of Ireland

About the Photograph

Who is the artist? Dragana Jurisic

Where is the artist from? Croatia
(former Yugoslavia)

When was the artist born? 1975

What is this photograph called?
Tarantula

What is the subject of the photograph?

The work was created in response to the exhibition *Vermeer and the Masters of Genre Painting: Inspiration and Rivalry* at the Gallery and was inspired by the work of dramatist Henrik Ibsen. The photograph attempts to animate Vermeer's still, painted women through an Italian folk dance, the *Tarantella*. Traditionally, this dance formed part of the cure for a mental condition associated with the bite of the tarantula spider.

When was this made? 2017

What is it made of? Archival pigment print

What size is it? 75.8 x 63.8 cm

What type of photograph is this?
Self Portrait

How was the photograph made?

The photograph was made with a digital **camera** and then printed using the inkjet process using pigment inks. The artist said: "Photography literally means writing with light. The **camera** is a device capable of slicing time into a fraction of a second. Painting natural light, which is in a constant state of flux, requires great sensitivity and skill. This is where Vermeer's genius lies. Though he may have used a **camera obscura**, which would have been helpful with perspectives and objects in his paintings, it does not capture the light as it changes over the course of a day. I tried to demonstrate this by tracking the natural light in my studio, creating a kind of moving image within a still image"

Look & Respond

- \ What is the subject of the photograph?
- \ What is the artist's point of view?
- \ What kind of mood is there in the photograph?
- \ Where is the artist looking ?
- \ Would you describe the photograph as being in focus or out of focus?
- \ Can you see anything in the background?
- \ What colours can you see in the photograph?
- \ Where was the work made?
- \ How was the work made?
- \ What kind of artistic choices did the photographer make in terms of composition and lighting?
- \ Does the photograph remind you of any other artworks?
- \ Do you like this photograph? Why/why not?
- \ How does the photograph make you feel?

Research

- \ Research photography in Ireland at these places: National Gallery of Ireland, National Photographic Archive, Gallery of Photography, The Library Project, Source Magazine and Belfast Exposed. What kind of photographs are exhibited in each?
- \ Visit a photography exhibition and write a review of it. Many of these places arrange tours for schools. If you can't visit as a class write about an online exhibition.

Create

- \ Make a **camera obscura** in school or at home by blacking out a room so that it is completely dark. Then make a small hole at the window and attach a **lens**. A +1 dioptr **lens**, from a pair of reading glasses, will work well projected onto a white sheet or translucent shower curtain at 100cm away from the window. You can experiment with different convex **lenses** to see which work best. This video will help you plan the project. <https://www.youtube.com/watch?v=gvozpu0Q9RTU>

Glossary, Hints & Tips



Glossary: Basic Terms

Aperture: A small hole behind the lens that controls the light getting into the camera.

Camera: A light-tight box holding some kind of light sensitive material (film or digital sensor). At the front is a lens that directs light onto the back to form an image. A shutter opens and closes to let the light in. You can sometimes hear a clicking sound when this happens!

Camera obscura: Means darkened room. Occurs naturally when a small hole is made in a room or box. An image of the outside world is projected through the hole onto the opposite wall, inverted and back to front. A lens or a pinhole can be made to achieve the effect.

Darkroom: A blacked-out space with no windows, illuminated by red lights so that daylight sensitive paper/film can be handled, processed or printed without risk of contamination.

Develop: A special chemical called developer is needed to reveal the hidden image on a print. This is done in a photography darkroom with a red light.

Exposure: When you press the shutter on a camera, light travels through the lens and hits the film or sensor.

Fix: When the photograph has been developed it is fixed with a special chemical so it will not fade away. It is then washed in water to remove all the chemicals.

Lens: A piece of glass at the front of the camera that focuses the light rays so they hit the film or sensor.

Negative: An image formed from light-sensitive silver salts, usually on a strip or sheet of transparent plastic film or paper, in which the lightest areas of the photographed subject appear darkest and the darkest areas appear lightest.

Photograph: A picture formed by the action of light onto light sensitive film, paper or electronic sensor, and subsequently fixed or relayed to a digital screen.

Photogram: An image produced without a camera or lens by placing an opaque, translucent or transparent object on a piece of photographic paper and then exposing it to daylight. It is then fixed in chemicals or water. The images can be very detailed and beautiful. The areas that are blocked are white and the ones that are exposed are dark. This gives us a negative image. Some of the earliest photography experiments were photograms.

Pixels: Tiny red, blue and green squares that make up a digital image.

Positive: A type of print made when light is shone through a negative onto photographic paper. The negative image reverses to become positive.

Print: An image on paper that can be made in the darkroom or using a computer connected to a digital printer.

Glossary: Medium & Materials

Albumen print: The albumen print was the most popular process of the nineteenth century until the silver gelatin print was developed. Instead of the silver nitrate being embedded in a layer of gelatin, it is painted onto paper combined with egg white and salt to give a smooth glossy light-sensitive surface. After it is dried in a darkroom, it is brought outside and exposed to the sun. When finished exposing, it's fixed in the darkroom with a chemical called sodium thiosulfate.

Chromogenic print: Full-colour print that can be produced from a color negative, a slide, or a digital image. Made combining layers of silver halide with 3 dye layers – cyan, magenta and yellow – together form a full colour image.

Calotype (Talbotype): Process invented by Fox Talbot in 1841 with paper coated in silver compounds and then placed in a camera obscura and exposed to light. The latent (hidden) image barely visible is then developed in gallo-nitrate of silver, and stabilised in a potassium bromide or sodium thiosulfate.

Cyanotype: An iron-based photographic printing process invented by Sir John Herschel in 1842. It gives blue tones instead of black and white. It was used extensively to copy architectural and engineering drawings.

Daguerreotype: These were created by polishing a sheet of silver-plated copper to a mirror finish and treating it with iodine vapour to make it light sensitive. It was then exposed in a camera obscura. The plate was then developed with mercury vapour and fixed with sodium thiosulphate. They were usually mounted and placed under glass to protect them from scratching.

Roll film: A thin strip of plastic coated in light sensitive silver-based chemicals rolled up in a can. It is placed in a camera and wound forward with a lever. They usually contain 36 photographs.

Gelatin silver print: These were the most common type of print up until the invention of digital photography. They are made in a traditional red light darkroom by projecting light through a negative image to form a positive latent image. The light-sensitive silver salts are contained in a layer of gelatin and darken when light hits them. The print is developed using chemicals in the darkroom and dried. This process replaced albumen prints in the 1890s.

Pigment print: These are made with inkjet printers that spray tiny drops of ink or pigment onto the page. Arrays of these dots form the photographic image. Pigment lasts longer than traditional ink.

Wet collodion process: A glass plate (approximately 12 x 10 inches) coated with photosensitive chemicals in a darkroom and exposed in the camera when still damp. The glass negative was then returned to the darkroom to be developed, washed and varnished. Prints were made by placing the negative directly on to sensitised photographic paper and exposing it to sunlight.

Photography Checklist

Use these tips to help you take better photographs, have fun and experiment!

Framing: When you look through the camera or on the screen you see a rectangular image. You decide what to leave in and what to cut out. Choose carefully!

Composition (Arrangement): Think about how to arrange all the different parts of the picture in your frame. What is the subject? What is in the background and foreground?

Close up: When you hold the camera close and fill the frame with your subject. Example: portrait of someone's face.

Medium shot: Move back a little bit. Example: portrait, head and shoulders.

Wide shot: Moving further away. Example: head-to-toe portrait.

Background: What's in the background? Are there any distracting objects or random people in it?

Point of view: Try using a low angle (worm's-eye view) or high angle (bird's-eye view) and see what effect it has. With portraits, try shooting from the side to create a profile shot. Work with your model in partnership to get the best shot!

Lighting: You need light to take a photograph! Different kinds of light create various effects. Try using sunlight, torchlight and flash, and compare the results.

360 degrees : Move around your subject in a circle and try taking shots from different viewpoints.

Focus (this is the part of the photograph that is clear and sharp): Use both your hands on the camera (or device) to take a photograph and keep your feet steady on the ground. Often you press gently on the camera shutter to lock focus before taking the photograph. Staying steady will help stop your shots becoming blurry (unless you want a blurred effect!).

ISO (Sensitivity): Switch to a higher ISO number if you are shooting in low light. You will lose some image quality but the shutter will get faster allowing you to avoid camera shake. For example, 100 ISO is good for a sunny day and 1600 ISO is good for indoors.

Resolution (this is the number of megapixels, the higher the better): Check your camera is set to the highest resolution so you can make prints if you want to.

Review: Play back your photographs and zoom in to check that it's in focus. Reshoot if it's not!

Manual: Always read the camera manual as each one is different. Similarly get to know the settings on an iPad if you are using one of these. There are always hidden tips worth knowing.