

PART 1 WHAT IS HELIOGRAPHY?

- The first photographic process — heliography — was invented around 1824 by Nicéphore Niépce. Images were obtained with bitumen of Judea spread on a silver plate after an exposure time of several days.
In 1829, Niépce associated Louis Jacques Mandé Daguerre to his research.
In 1832, they put the last touches, using a residue of lavender oil distillation, by means of a second process producing images in a one day exposure time.
- **What is** a black sticky substance which is obtained from tar or petrol and is used in making roads?
- An _____ of a photographic film for a relatively long period
- A _____ of something is a small amount that remains after most of it has gone.

WHAT IS IT



LAVENDER OIL DISTILLATION

WHY DID PHOTOGRAPHERS USE IT?



THE ANSWERS

- **What is** a black sticky substance which is obtained from tar or petrol and is used in making roads?
(bitumen)
- An **exposure** of a photographic film for a relatively long period
- A **residue** of something is a small amount that remains after most of it has gone.

AN EXPOSURE TIME / TIME EXPOSURE

an exposure of a photographic film for a relatively long period, usually a few seconds

- How to use the word “exposure “

1) the fact of experiencing sth or being affected by it

We know that prolonged exposure to vibration can weaken aircraft components.

2) **the fact of something bad that someone has done being made public**

*The exposure **of** the politician's love affair forced him to resign.*

3) *A single photograph on a piece of film*

There are 24 exposures on this film

PART 2 ONE OF THE EARLIEST PHOTOGRAPHIC PROCESSES

- In 1833, Niépce died, and Daguerre invented, in 1838, on his own the daguerreotype, the first process including a development stage. A silver plate coated with a very thin silver iodide layer was exposed in a camera obscura, then exposed to mercury vapors that induced the apparition of the invisible latent image that had been formed during the exposure to light. This development was in fact such an amplification of the effect of light that the exposure time was hardly more than 30 minutes. Fixing was done by immersing the plate in sea salted water.
- Find the definition to
- 1) the earliest photographic process
- 2) a darkened chamber in which images of outside objects are projected onto a flat surface
- 3) the invisible image produced by the action of light
- 4) is someone you see or think you see but who is not really there as a physical being

THE ANSWERS

- 1) **daguerreotype in British** (də'gɛrəʊˌtaɪp)
- 2) Camera obscura
- 3) Latent image
- 4) An apparition

WHAT IS IT?



SEA SALTED WATER

WHY DID PHOTOGRAPHERS USE IT?



PART 3 FILL IN THE GAPS WITH ONE WORD

- **Hippolyte Bayard**
- In July 1839 1) _____ Frenchman, Hippolyte Bayard, discovered the way to obtain positive images directly 2) _____ paper. A sheet of paper covered with silver chloride was blackened by light, 3) _____ exposed in a camera obscura after having been sensitized in silver iodide.
The exposure 4) _____ was from 30 minutes 5) _____ 2 hours.

THE ORIGINAL PART

- **Hippolyte Bayard**

- In July 1839, **another** Frenchman, Hippolyte Bayard, discovered the way to obtain positive images directly **on** paper. A sheet of paper covered with silver chloride was blackened by light, **then** exposed in a camera obscura after having been sensitized in silver iodide.

The exposure **time** was from 30 minutes **to** 2 hours.

PART 4 COMPLETE THE TEXT USING THE WORDS

- **William Henry Fox Talbot**

- Still in 1839 , the announcement of the daguerreotype invention incited an Englishman, William Henry Fox Talbot, to resume 1) _____ research, the beginning of which was in 1834. In 1841, he 2) _____ the calotype, the first negative-positive process that made it possible to 3) _____ the same image, by 4) _____ of an intermediate negative on a silver chloride paper made translucent with wax. As for the daguerreotype, the 5) _____ image was developed by a chemical 6) _____ , the developer: a solution of gallic acid and silver nitrate. A second sheet of paper also covered with silver chloride was then 7) _____ through the translucent negative, to give the final positive.

- A) agent b) multiply c) latent d) patented e) interrupted f) exposed f) g) means

THE ORIGINAL PART

- **William Henry Fox Talbot**
- Still in 1839 , the announcement of the daguerreotype invention incited an Englishman, William Henry Fox Talbot, to resume **interrupted** research, the beginning of which was in 1834. In 1841, he **patented** the calotype, the first negative-positive process that made it possible to **multiply** the same image, by **means** of an intermediate negative on a silver chloride paper made translucent with wax. As for the daguerreotype, the **latent** image was developed by a chemical **agent**, the developer: a solution of gallic acid and silver nitrate. A second sheet of paper also covered with silver chloride was then **exposed** through the translucent negative, to give the final positive.

WHAT IS IT?

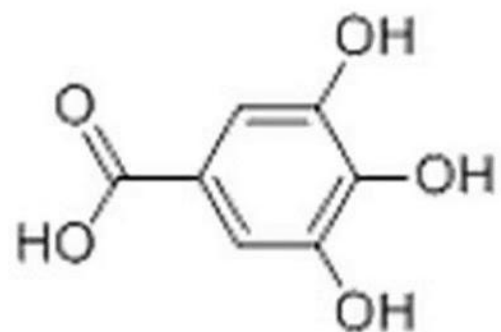


WAX

HOW DID PHOTOGRAPHS USE IT?

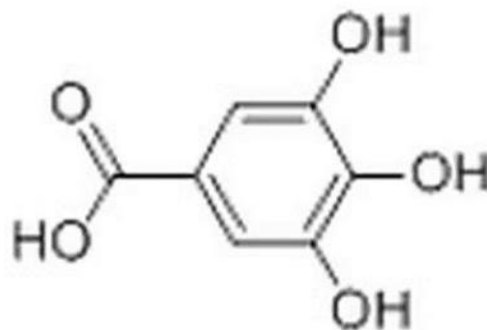


WHAT IS IT?



GALLIC ACID

HOW DID PHOTOGRAPHS USE IT?



A LIST OF WORDS TO SPEAK ABOUT THE FACTS

- To produce images
- To associate someone to research – to find a partner or a companion
- To immerse in sth
- To be coated with
- To be formed during the exposure to light
- To sensitize – to make someone/ something sensitive to sth
- To multiply the same image
- To give the final positive
- The announcement of an invention
- A development stage

PART 5 HOW DID JOHN HERSCHELL FIX IMAGES?

- **John Herschell**

- We owe to John Herschell the discovery, in 1839, of the way to fix images by dipping them in a sodium hyposulfite bath, which is still used today as the main component of photographic fix-baths. The main advantages of the calotype were the easiness with which one could manipulate the paper prints and the possibility of multi-printing. On the other hand, the sharpness, limited by the fibers in the negative paper, could not compete with the daguerreotype.

WHAT IS IT?



PHOTOGRAPHIC FIX-BATH



PART 6 FOCAL LENSES! HOW DID THEY ADVANCE THE PROCESS OF PHOTOGRAPHY ?

- **Hippolyte Fizeau**

- **Word formation**

- To reduce further the 1) _____ (EXPOSE) time , short focal lenses were created , letting more light in the camera , however keeping the 2) _____ (SHARP) on the whole image . In 1841 , the 3) _____ (PHYSICS) Fizeau replaced silver iodide by silver bromide, the 4) _____ (SENSE) of which to light was far superior . Time exposures of 5) _____ (BARE) a few seconds were needed to obtain a daguerreotype and so it became possible to do portraits.

THE ORIGINAL PART

- **Hippolyte Fizeau**
- To reduce further the exposure time , short focal lenses were created , letting more light in the camera , however keeping the sharpness on the whole image . In 1841 , the physicist Fizeau replaced silver iodide by silver bromide, the sensibility of which to light was far superior . Time exposures of barely a few seconds were needed to obtain a daguerreotype and so it became possible to do portraits.

PART 7 WHAT DID THEY USE INSTEAD OF PAPER ?

- **Abel Niépce de Saint-Victor**
- To improve the calotype negative transparency, Abel Niépce de Saint-Victor had the idea, in 1847, to replace paper with _____. So that the silver bromide adhered to _____, he mixed it with albumen (egg white). Even though a bit too contrasty, the images then became much sharper, forcing opticians to work on higher definition lenses.

THE ORIGINAL PART

- **Abel Niépce de Saint-Victor**
- To improve the calotype negative transparency, Abel Niépce de Saint-Victor had the idea, in 1847, to replace paper with **glass**. So that the silver bromide adhered to **glass**, he mixed it with albumen (egg white). Even though a bit too contrasty, the images then became much sharper, forcing opticians to work on higher definition lenses.

WHAT IS HIS JOB?



AN OPTICIAN - A PERSON WHO MAKES LENSES



PART 8

- **Scott Archer**
- In 1851, an Englishman named Scott Archer replaced albumen by collodion, the base of which is gun-cotton (cellulose nitrate). The black and white images obtained with this process reached a quality unknown until then. The only drawbacks were that the picture had to be taken while the collodion on the plate was still humid and the development had to happen immediately after the exposure.

HOW DID THEY MANAGE TO A QUALITY
UNKNOWN UNTIL THEN?



COLLODION



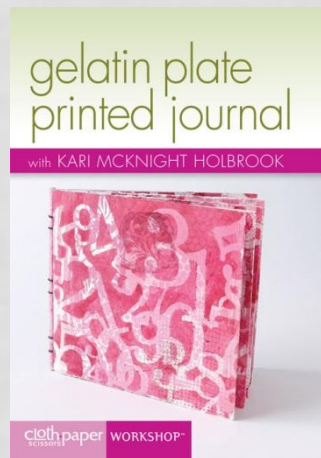
PART 9 A REAL MEASURING DEVICE! WHAT IS IT?

- **Richard Maddox and Charles Bennet**
- In 1871, another Englishman, Richard Meaddox, resolved this problem by replacing collodion by gelatin, a process perfected by Charles Bennet, who demonstrated that gelatinized plates acquired a high sensitivity when they were kept for a few days at 32° Celsius. Not only could the gelatino-bromide plates be stored before use, but their sensitivity was such that the exposure time could not exceed a fraction of a second.
- The story of the shutter started shortly before 1880, because the high sensitivity of these plates made it necessary to conceive mechanisms able to let light enter the camera for 1/100th and even 1/1000th of a second.
It became necessary to precisely evaluate light intensity, and the light meter then became a real measuring device.

WHAT ARE THEY?



GELATINIZED PLATES! WHAT IS SPECIAL ABOUT THEM?



PART 9

- **The reproduction of colors**

- Photography was still missing color reproduction. The first tries were due to Edmond Becquerel in 1848. In 1851, Niépce de St-Victor showed that a silver plate coated with a layer of pure silver chloride reproduced colors directly, but in an unstable manner.
- In 1869, Louis Ducos du Hauron, in Agen, made the first color photograph applying the principle demonstrated by Maxwell of light decomposition in three primary colors: red, yellow and blue. He made three photos of the same subject, each of them through a different filter: a red, a yellow, and a blue one. He obtained three positives that he dyed with the color corresponding to each filter. By superimposing in register the three images, he got the restitution of the colors.
- Write down the collocations with the word COLOUR

COLOUR REPRODUCTION

- To reproduce colours directly
- The first colour photograph
- Three primary colours
- to dye with the colour
- the colour corresponding to the filter
- The restitution of the colours
- To give color photography a new direction
- To obtain photos in direct colours

PART 10 HOLOGRAPHY

USE THE VERB IN THE CORRECT FORM

- The physicist Gabriel Lippman 1) _____ (to receive) the Nobel prize in 1906 for 2) _____ (to find) in 1891 a way to obtain photos in direct colors on one plate, by an interferential process prefiguring Holography. Too complicated, this invention 3) _____ (to remain) only a laboratory feat.
- The first monoplate color process practicable by amateurs 4) _____ (to create) in 1906. The autochrome plate invented by the Lumière brothers 5) _____ (to base) upon the principle of the trichromatic synthesis, realized on only one plate by 6) _____ (to join) to it a mosaic of microfilters in the primary colors realized with minuscule colored grains of potato starch.
- The discovery by R. Fisher around 1911 of the chromogene developer gave color photography a new direction. It 8) _____ (to notice) that some developers gave images with one color instead of black and white.

THE ORIGINAL PART

- The physicist Gabriel Lippman **received** the Nobel prize in 1906 for **having found** in 1891 a way to obtain photos in direct colors on one plate, by an interferential process prefiguring Holography. Too complicated, this invention **remained** only a laboratory feat.
- The first monoplate color process practicable by amateurs **was created** in 1906. The autochrome plate invented by the Lumière brothers **was based** upon the principle of the trichromatic synthesis, realized on only one plate by **joining** to it a mosaic of microfilters in the primary colors realized with minuscule colored grains of potato starch.
- The discovery by R. Fisher around 1911 of the chromogene developer gave color photography a new direction. It **had been noticed** that some developers gave images with one color instead of black and white.