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Kodaks at the North Pole - *page 31*

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Kodaks at the North Pole

An account of Robert E. Peary's photography during his expeditions to Greenland and the North Pole during the years 1886 - 1909

by Jos Erdkamp

ON APRIL 6 1909, Captain Robert E Peary, his assistant Matthew Henson and four Inuit were the first people to reach the North Pole. Peary's dream from his youth had come true. Since the years of his boyhood he had been interested in the stories of the early explorers. He once wrote: *"...my thoughts turn to those first few views which have turned themselves into the eye of Columbus, Cortez, Livingstone ... Balboa, De Soto, and all the host of travellers and explorers."* Unfortunately Columbus, Cortez and all the rest had no cameras.

Robert Peary

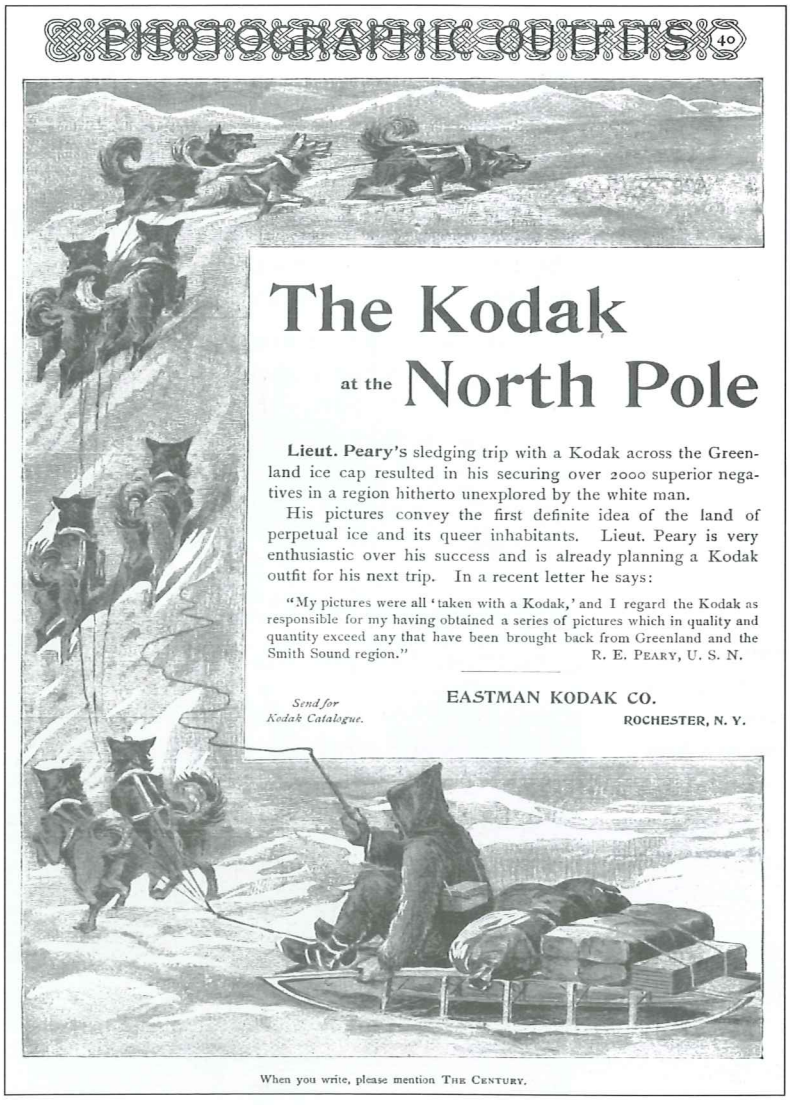
On May 6 1856 Robert Edwin Peary was born in Cresson, Pennsylvania. He grew up in Maine and studied Civil Engineering at Bowdoin College. In 1881 he joined the Navy. His first expedition he made in 1884 to Nicaragua, where he had to survey a canal route.

In 1888 he married Josephine Diebitsch, who accompanied him on some of his journeys. In fact, their first child was born in Greenland in 1893. In 1911 the U.S. Congress officially recognised Peary's achievements, and in March of that year he was granted the rank of Rear Admiral. After his return from the pole, he became interested in airplanes, particularly their use in exploration and the military.

In 1917, he was found to be suffering from anaemia, an incurable disease in those days. He died on February 20, 1920 and was buried in Arlington National Cemetery.

Peary's Objectives

Peary's dream was to be the first one to see a land that was never seen before, and after some gestation it fixed on the Arctic regions. At the end of the 19th century the North and South Pole were amongst the few remaining regions that were not yet fully explored. During the 1880s Peary decided to reach the North Pole. The rest of his life was dedicated to one goal: 90 degrees North.



Peary's programme of expeditions extended over nearly a quarter of a century:

- **1886:** *Short reconnaissance trip on the ice cap of Greenland*
- **1891-1892:** *1200 mile sledge trip across the*

Top: Peary aboard ship. Photo - NARA

Above: Kodak advertisement in "The Century" based on Peary's adventures

Greenland ice cap from the west coast to the north-east coast

- 1893-1895: *the same sledge trip*
- 1896: *securing of two meteorites*
- 1897: *securing of one large meteorite*
- 1898-1902: *some trials to travel over the ice of the Polar Sea*
- 1905-1906: *unsuccessful attempt to reach the North Pole*
- 1908-1909: *the Pole at last*

To realise his plans Peary needed the help of others. He did not have the money that would have made him financially independent. His employer, the Navy, was also of no use to his plans. Peary was a Navy engineer, but his interest in the Arctic was of a personal kind and had nothing to do with his work. To get the necessary political, scientific and financial support Peary aimed at two groups - the scientific world and the general public.

The Need for Photography

If he could prove the scientific value of his Arctic expeditions by doing research, this would have a positive influence on the support that the scientific and political world would give him. Peary used photography in his many fields of research - photography had been an accepted aid in research for some time.

Peary also aimed for a wider audience by giving lectures and publishing accounts of his adventures. At the end of the 19th century photography was indispensable when doing this. His photographs therefore tend to fall into two groups - the scientific pictures and the photographs for the masses. I will give examples of both groups, and explain their use.

Experience of previous expeditions

Long after 1850 it remained extremely difficult to take photographs during expeditions. The photographic equipment was big and heavy and the process of taking a picture was cumbersome. As well as camera, glass plates and a tripod one had to carry a darkroom, usually in the form of a tent, and a lot of chemicals. To take a photograph one first had to coat a glass plate, sensitise it by immersion in a bath. Then it had to be exposed when still moist, and then developed, fixed and rinsed in water. After all this one had to take care to bring the glass plate home without breaking it.

The introduction of the dry plate process made expedition photography a lot easier. The equipment was less bulky and the process much simpler. The glass plates were sensitised before the expedition started and developing could wait until one was home again. This meant that it was not necessary to carry a tent and all the chemicals.

The next big step to make photography easier was made during the 1880's, when a usable rollfilm process was invented. For the explorer the major drawbacks of glass plates had been their weight and the risk of breakage. Rollfilms did not have these drawbacks and were ideal material for use on expeditions.

Technical requirements for photography

Travelling in the Arctic involves special difficulties, which are the major determinant of equipment choice. Examples from Peary's reports will make this clear.

Sledge trips over the ice of frozen or partially frozen sounds were hampered because of a very rough surface of the ice, which consisted of piles of ice floes or unsafe areas. Icebergs that broke loose from glaciers drifted through the seas and sounds, causing the breaking of the ice surface and piling up of the ice floes. The open water behind the icebergs froze again and the piles of ice floes froze together. This resulted in a surface that was very difficult to cross.

Furthermore there were open leads of water, stretching out for miles in both directions. If it was not possible to cross this open water on a big ice floe one had to wait until the open water was frozen again. Several times Peary and his men had to cross the thin ice on snowshoes, shuffling carefully over the undulating surface of the new ice.

Travelling on the mainland of Greenland or Ellesmere Island had its own charm. During the periods of thaw it was hard to travel over the surface of the snow and it was much harder to pull the sledges. Sometimes the men and dogs had to travel through deep slush.

To reach the ice cap, which covered the whole inner part of Greenland, Peary had to cross the coastal area of glaciers and steep slopes. On the ice cap the wind is

Below: Crossing a lead using an ice floe as a ferry. Photo - NARA

always blowing, and a blanket of drifting snow particles covers the surface. If the wind is blowing harder the blanket, which is usually knee high, becomes thicker and thicker until the drifting snow covers everything and penetrates even the smallest opening. Snow huts which were not built very well disappeared quickly in the fierce storm. The eroding power of the wind, which always comes from the same direction, causes sharp edges in the surface of the snow and ice. These are called sastrugis and they made travelling with a sledge very difficult.

These descriptions are based on Peary's reports, and they indicate that many difficulties were involved with travelling in the Arctic. Often the gliders of the sledges broke to pieces on the rough surface, or the sledge was thrown on its side by obstacles like a sastrugi. Also on occasion the men had to carry the sledges over large heaps of ice floes, or they had to abandon the sledges and carry the strictly necessary equipment and food on their backs.

Technical solutions

Such travelling conditions create certain requirements of the photographic equipment. First everything should be strong and unbreakable, and second the equipment should be as light as possible.

As well as the conditions of the surface, the provisioning of the travelling party was an important factor. Peary planned his expeditions very well and he had a theory about the provisioning. He explains his theory as follows

"Everything should be just as light as it can possible be made, for the number of miles a party can travel depends on the amount of food it can carry, and every pound deducted from the weight of equipment means an extra pound added to the food-supply. The fundamental conditions of the supreme polar sledge-journeys should be fully comprehended.

"On leaving land to force a way across the surface of the north polar ocean, or leaving headquarters to drive to the centre of the Antarctic continent, not an ounce of food or supplies or equipment can be obtained on the way. Everything to use or eat on the journey must be carried on the sledges. The load that can be carried upon the sledges is a certain fixed amount, depending upon the character and amount of the tractive power. In my work it was fixed at five hundred pounds for a team of eight dogs.

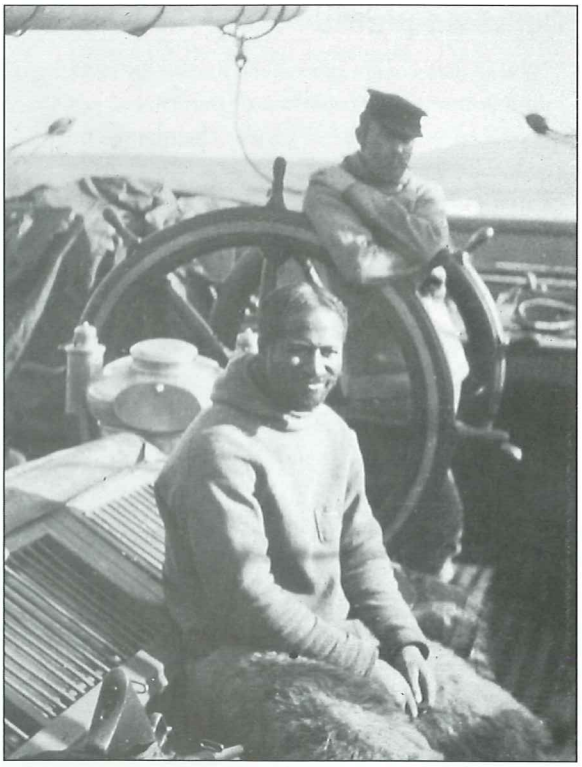
"That load is made up of two parts, the 'constant' weights of cooking-outfit, rifle, instruments, etc., and the 'variables' comprising supplies which are constantly decreasing as consumed by men and dogs. For every pound of 'constant' weight that can be saved by elimination or refinement a pound of pemmican can be substituted, and this is a day's, or, in an emergency, two days', ration for a man or a dog. A saving of nine pounds in the 'constants' represents a full day's rations for a driver and his eight dogs, and this transformed into distance may mean anywhere from ten to forty miles." (15/241,242)

As early as 1893 Peary explained this briefly in his booklet *The Kodak at the North Pole* (1). In the booklet Peary also said that the photographic equipment should be simple and reliable. Repairing cameras caused delays and was dangerous in temperatures far below freezing point. Furthermore the camera should be compact - if necessary the explorer should be able to carry it in his backpack. In 1893 Peary also required that the camera could make usable photographs even if the photographer knew next to nothing about photography.

One last requirement, which is not mentioned in any of the literature I have seen, can be concluded from the cameras Peary selected. Apart from two cameras, all the cameras I know of made 4 x 5 inch negatives or bigger. Nowhere this is explained, but probably the choice of this minimum size had to do with the required quality of the photographs.

Summarising, Peary required of his cameras that they were: strong, light, simple to use, reliable, compact, capable of good results when used by non-experts and with a minimum negative size of 4 x 5 inches

In the light of Peary's specifications it is interesting to have a look at the cameras he selected.



Left: Matthew Henson and Robert Peary ca 1901.
Photo - NARA

Peary's cameras

Peary had to answer one fundamental question - what kind of negative was he going to use. While preparing his first expedition of 1891-1892 there were three choices - glass plates, celluloid plates and rollfilm.

Glass plates

Glass plates were traditional, widely available and relatively cheap, and had certainly been used by other Arctic and Antarctic expeditions. However, they also

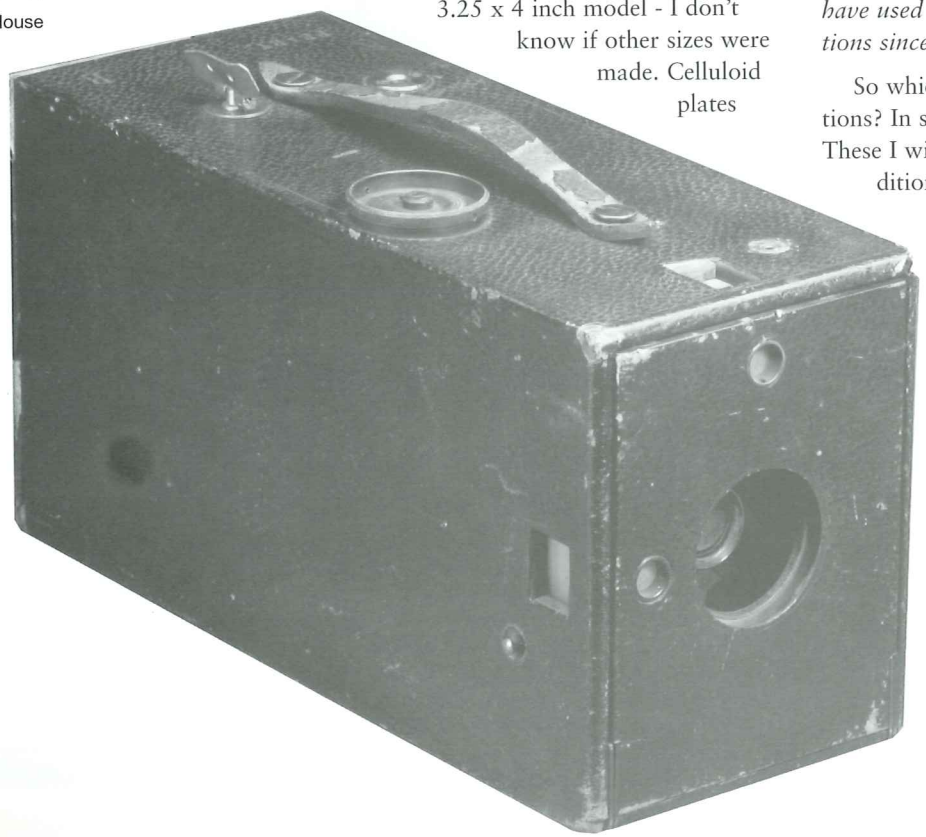
had some distinct drawbacks. First they are fragile. Anthony Fiala, photographer of the Ziegler Polar expedition of 1903-1905, had some experience with this in later years. He wrote: *"On the first expedition I took a number of glass plates, but was unfortunate enough to break some of my best negatives, so when I went into the field again I took nothing but films."* (16/141)

The second disadvantage of glass plates is their weight. Based on Peary's provisioning theory I calculated how many kilograms of glass plates Peary should have taken to Greenland during his first expedition. If he had taken glass plates, instead of the 2300 negatives on roll films, he would have had to carry about 216 pounds of glass. Allowing for the weight of the roll films, I put the difference between roll films and glass plates at 200 pounds, or food for 22 days - between 220 and 880 miles!

A third disadvantage of glass plates is ease of use, or rather lack of it. Focussing the camera and composing the image had to be done on a ground glass with the camera on a tripod. The plates had to be put in dark slides, and after the exposure one had to put a new plate in the dark slide. This could not be done in daylight.

Celluloid plates

These plates were put on the market in 1888 by John Carbutt. They consisted of thin sheets, which were sliced off a celluloid block. The plates were about 0.25 mm thick and they weighed approximately 15 times less than glass plates. Among others celluloid plates could be used in a box camera named the Genie Hand Camera. This camera had a changing magazine for 12 glass plates or 24 celluloid plates. (17/139-147) McKeown only lists a 3.25 x 4 inch model - I don't know if other sizes were made. Celluloid plates could also be used in any ordinary plate camera, the celluloid plates being put in dark slides like ordinary glass plates.



Below: One of Peary's own No. 4 Kodaks. Note Peary's name stamped on the top. Photo - International Museum of Photography / George Eastman House

The advantages of celluloid plates are clear. They weighed much less than glass and were unbreakable. Also they did not take up as much volume as glass plates. However, if celluloid plates were used in the Genie Hand Camera, the negatives would be too small. It was possible to buy larger sheets, but then one had to use a conventional glass plate camera. For Peary these were to difficult and laborious to use.

Roll films

Eastman Kodak roll films were the third possibility. In 1884 Eastman had introduced the so called American Stripping Film. This film consisted of a paper base and emulsion that could be stripped off. In 1888 the first successful Kodak box camera was introduced for this film. Then in 1889 a transparent celluloid roll film became available. The Kodak was so special because it was a system, consisting of a specially designed camera and roll film, which was easy to use; no special knowledge was required.

During the period that Peary was preparing his 1891-1892 expedition there were only a few Kodak models on the market, but soon more models became available, from Kodak and from other manufacturers. It is easy to understand why Peary choose the Kodak system for his expeditions. It had all the necessary requirements of design, operation and size. Within a few years there appeared more and more roll film cameras from other manufacturers, but Peary would continue to use Kodaks on all his expeditions. In a 1910 booklet he declared *"Being satisfied since my first expedition in 1891 that the Eastman cameras and films were best suited for this class of work, I have used both exclusively in all of my Arctic expeditions since ..."* (18/3) (19/32)

So which cameras did Peary choose for his expeditions? In some cases I know which cameras he used. These I will discuss below along with the other expeditions, giving some details about Peary's photography.

1886

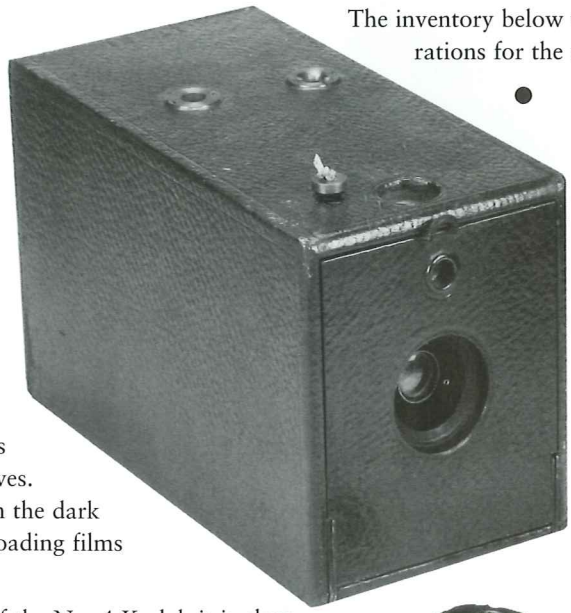
It is not clear to me whether Peary took photographs during this short exploring trip. One of his remarks suggests that he didn't take a camera. In 1893 he said *"My photographic equipment I considered one of the most important. A previous experience in the Arctic regions [the 1886 trip] had shown me ... that mere pen and ink descriptions failed utterly to convey an idea of the splendour and grandeur of the most savage, the most fascinating portion of the earth's surface."*(1) All the photographs I have seen of this short trip were made in a studio. (2/1-40) A description of photographs in the National Archives

and Records Administration suggests on the other hand that Peary did take photographs, amongst others of Disco Bay and the inland expedition itself. (National Archives 401-XPA-1886-10A and 401-XPA-1886-14)

1891-1892

During this first major expedition Peary used three examples of the No. 4 Kodak. (1) This model was one of the roll film box cameras of the first series of Kodaks. The original 1888 Kodak was the first of the series, followed by the improved No. 1 and the cameras for larger negatives, the Nos. 2, 3 and 4.

The No. 4 Kodak measures 12.7 x 16.2 x 32.4 cm, weights 2 kilograms and produces pictures of 4 x 5 inch (~10 x 13 cm). The camera has only a few adjustments, of which the most important is the small wheel on top to set the focus. Furthermore one can choose between a few apertures, but normally only the largest aperture was used. Also the tension of the shutter spring could be adjusted, but this also was not changed often. It was important that the shutter could be opened permanently to make flashlight photographs. This was not easy to do, but in the improved model of 1892 the mechanism was changed slightly to make it easier.



The were no more settings on the No. 4 Kodak. All one had to do was set the distance, pull a cord to cock the shutter, point the camera with the help of one of the two reflecting finders, and press the button to make the photograph. Then one had to wind a key to transport the film. The camera could be loaded with films for 48, 100 or 250 negatives. Loading had to be done in the dark or in red light - daylight loading films were not yet invented.

From the description of the No. 4 Kodak it is clear that the camera met all Peary's requirements. Roll film was unbreakable and light. The camera was strong, reliable, easy to operate, and produced good results with minimal photographic knowledge of the user. For a camera of 1890 the No. 4 Kodak was quite compact and light.

Out of the three No. 4 Kodaks, Peary took two with him on the sledge trip over the Greenland ice cap. He says *"My photographic outfit consisted of two No. 4 Kodaks made expressly for me by the Eastman Kodak Co., and two rolls of film, one hundred negatives each."* (2/280)

During the last part of the journey the sledge was abandoned and the travellers only carried the necessities with them. Peary tells us what he and Astrüp took *"Our equipment and supplies for four days, with instruments, rifle, camera ..., made a load of about forty pounds each for Astrüp and myself."* (2/331) From this I conclude that he only took one camera. Considering the circumstances this seems reasonable.

After the expedition one of the three cameras was displayed, together with some photographs, in the Kodak pavilion at the Columbian Exposition. This same camera has survived and is now in the collection of the International Museum of Photography / George Eastman House in Rochester. The cosmetic condition of the camera is not very good, but this was already so during the 1893 exposition. (1) Furthermore everything on the camera seems to be standard Kodak - no alterations of the shutter. Peary's remark *"made expressly for me"* I cannot explain.

The serial number of the camera is 8283. On top of the box is the name "Peary" and the letter "B" stamped into the leather. This character could have been put there to be able to identify each of the three identical cameras. It was necessary to keep notes in a booklet about the number of photographs that were taken because the camera had no exposure counter, and it was necessary to make notes about the subject.

1893-1895

The inventory below was published during the preparations for the second expedition.

- *One No. 4 Kodak with aluminium shutter, gold plated springs and a capacity of 250 photographs. With this camera 4 rolls of 250 negatives each.*
- *Two No. 4 Kodaks, which had been used on the first expedition, plus spare shutters.*
- *One No. 2 Kodak, plus spare shutter, and 2 rolls of film, 250 exposures each.*
- *One No. 5 Folding Kodak with aluminium shutter and two sets of lenses, one wide angle and one long focus. 5 rolls of film with this camera, each 100 exposures. (1)*

Left: No. 2 Kodak.
Photo - Bob White

I already have described the No. 4 Kodak cameras. The No. 2 Kodak was one of the box cameras from the first series of Kodaks, like the No. 4. The No. 2 Kodak is a bit smaller, it measures 11.5 x 12.7 x 23 cm, and weighs about 1.25 kilograms. It produces circular pictures of 9 cm diameter on film for 60, 100, 150 and 200 exposures.

Peary apparently used spools of 250 exposures, which is not standard. Maybe the Eastman Kodak Co. altered Peary's No. 2 Kodak, so he could make 250 negatives on one film. According to Peary's own words he took the No. 2 Kodak because it was faster

to work compared with the No. 4. The camera had a fixed focus lens, and thus one could make a photograph very quickly. Peary used the camera to take snaps of birds and other animals, who were likely to fly or run away during the time one needed to set the distance on the camera. (1)

The No. 5 Folding Kodak is one of the first series of Eastman roll film bellows cameras. Besides the No. 5, which made pictures of ~13 x 18 cm (5 x 7 inches), there were the No. 4 Folding Kodak for 10 x 13 cm pictures and the No. 6 Folding Kodak Improved for 16 x 21 cm photographs. The size of a closed No. 5 Folding Kodak is about 19 x 23 x 26 cm and its weight is ~5 kilograms.

The Folding Kodaks were more versatile than the box Kodaks, and they were intended for the more serious photographer. The cameras differed from traditional bellows cameras as they were designed as real roll film cameras. The roll holder mechanism was an integral part of the camera and is not, like with traditional cameras, an accessory which merely is interchangeable with plate holders. When closed the camera resembles a leather bag. One side can be swung down and becomes the bed over which the lens can be pulled out.

Right: No. 5 Folding Kodak. Photo - Jos Erdkamp

In 1893 an improved model of the No. 5 Folding Kodak was put on the market. The new model was capable of making stereo photographs. I do not know whether Peary had an improved model or not.

Compared with the first expedition Peary had changed his photographic equipment. Maybe we can draw some conclusions from this regarding his experiences during the first expedition. First it looks as if the standard shutters could not stand the Arctic climate. The gold plated springs in the shutter point to corrosion of the original ones. Also the spare shutters make me think that the original ones were not fully reliable. The aluminium shutters reduced the weight of the cameras very slightly, but I don't know if this change had another purpose as well. According to the plans Peary wanted to take the modified No. 4 Kodak on his new trip over the Greenland ice cap. (1)

The possibility of making more exposures on one film is also an improvement. Changing films would have been laborious and a cause of delay. The first roll films were not yet daylight loading and so they could not be changed in normal light.

Why Peary took the relatively heavy and bulky No. 5 Folding Kodak with him is not explained in the literature. Probably it was desirable to make larger sized photographs. If 4 x 5 inch would have been sufficient, he could have taken the lighter and smaller No. 4 Folding Kodak.

One passage in his book tells us that Peary used the No. 5 to make geological photographs *"... I take my folding Kodak and scale the southern face of Mt. Bartlett for a round of views ...".* (7/396) Maybe the larger negatives were necessary to produce fine detail in the pictures.

For his second expedition Peary was better equipped for taking the photographs he wanted to have. The No. 4 Kodaks were improved and also both a simpler and a more elaborate camera were added to the outfit. This way Peary was better equipped to make photographs of several subjects under varying conditions.

1896

During this summer voyage, which was meant to retrieve some huge meteorites, photographs were taken, but I don't know with which camera.

Peary wanted to exhibit the meteorites in an educational display, in which the original surroundings and the way the Inuit used the meteorites, would be illustrated. To be able to make the display as close to the original as possible, photographs were taken of the meteorites in situ. (7/616)

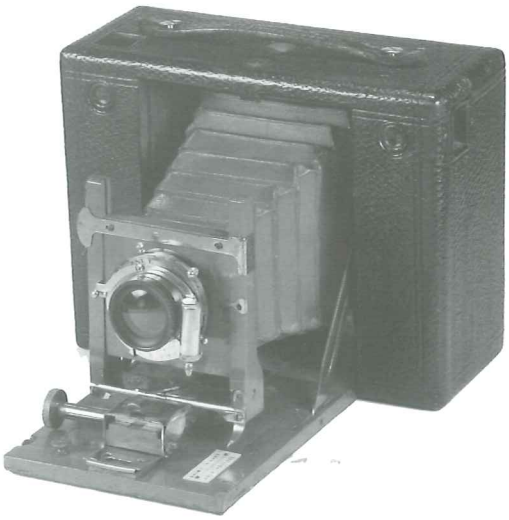
1897

The goal of this summer voyage was to save the biggest known meteorite. No details about the photography are known, but from the illustrations in Peary's book we know that a photographic report of the saving of the heavy (over 30 tonne!) meteorite was made. (7)

1898-1902

I only have seen a brief report of this expedition. The only remark about photography is made when Peary gives up his attempt to reach the North Pole. On the spot where he turned back some photographs were made. (22/344)

A series of stereo photographs exists which could have been made during this expedition. In his book, Darrah is not very clear when he says that the series is from 1899. This could mean that the photographs were taken in 1899, or that the series was published in 1899. However, Peary told us he exclusively used Kodak cameras during all his expeditions. So there are only two possible cameras he could have used to take the stereo photographs. Before 1900 only the No. 5 Folding Kodak Improved and the No. 6



Far left: No. 4 Cartridge Kodak.
Photo - Bob White

Left: No. 4 Folding Pocket Kodak.
Photo - Bob White

Folding Kodak Improved were suitable for taking stereo photos. During the 1893-1895 expedition Peary also used a No. 5. I think it is plausible he used this camera also for stereo photography.

1905-1906

During this expedition Peary at least used one No. 4 Cartridge Kodak. (14/129). This bellows camera was introduced in 1897, and took 4 x 5 inch photos on rollfilms, which for the first time could be loaded in daylight. The weight of the camera is about 1.4 kilograms, while its size in closed condition is ~8 x 16 x 20 cm. As well as the No. 4 there were the smaller No. 3 and the bigger No. 5 Cartridge Kodak. Unfortunately I don't know if and which other cameras were used by Peary on this expedition. Therefore I don't know whether he changed his equipment compared with the previous expedition or not. I can only say that with the No. 4 Cartridge Kodak he chose, for those days, a light and small hand camera. It appears that the 4 x 5 inch negative size was still considered necessary, because Peary did not take the still lighter and smaller No. 3 Cartridge Kodak on his trip over the frozen Polar sea. This we know from the size of the negatives which were made on the farthest point he reached, and which are the exact size of the picture of a No. 4 Cartridge Kodak. (14/129)

At least one No. 4 Cartridge Kodak from Peary's expedition survives, and is now permanently on display in the Explorers Hall of the National Geographic Society in Washington.

Photos that were taken during this expedition included Inuit, animals (11/450) (22/181, 205) and geological forms. (22/231) Also he took pictures at the most northern spot of North America, Cape Columbia (22/183) and during his surveying trip along the north coast of Grant Land. (22/205, 206) Other photographs were made by Dr. Wolf, one of the members of the expedition, of the Roosevelt on December 12 1905, which is in the dead of the polar night. The photographs were taken with the light of the full moon, and the exposure time was 3 hours. (22/84, 90)

1908-1909

Peary used several No. 4 Folding Pocket Kodaks on this last expedition, (15/264) and Matthew Henson, his assistant, used a No. 1A Folding Pocket Kodak. The picture size of this camera is 2.5 x 4.25 inch. Possibly the camera was Henson's private property and was used only for his personal purposes. We can tell that the photographs Henson made at the North Pole were made with this camera, again because of the negative size.

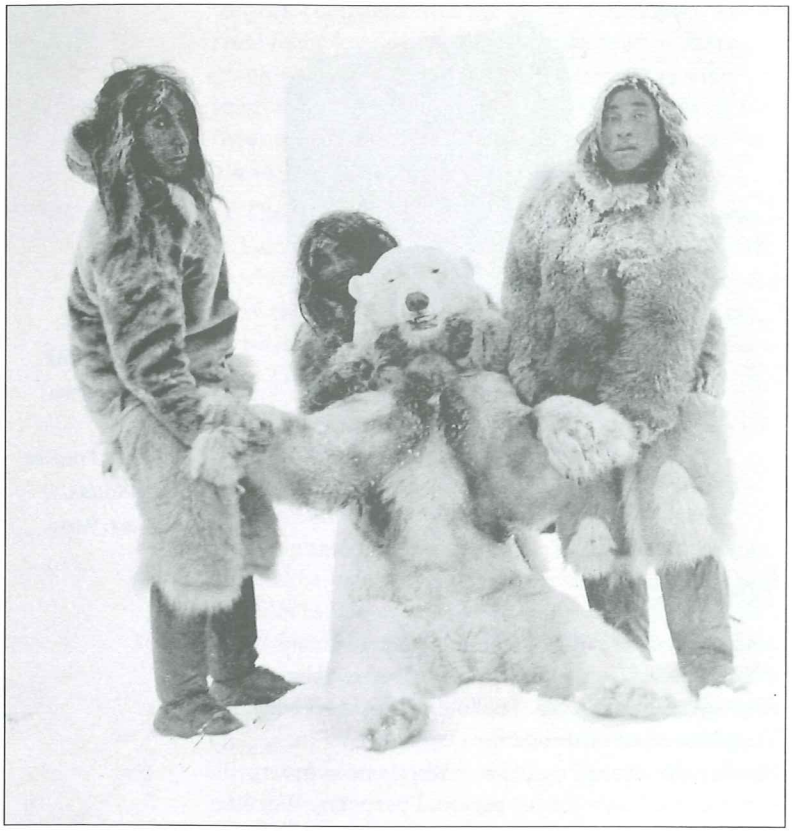
Henson's camera is now in the possession of the Soper Library of the Morgan State University in Baltimore and is part of the Matthew A. Henson collection. (23) The serial number of the camera is 107469, which places its date of manufacture between October 1907 and March 1909. According to the number it should be a model C.

Peary's official expedition camera, the No. 4 Folding Pocket Kodak, was put on the market in 1907. Again the camera took 4 x 5 inch size pictures on daylight loading rollfilms. The closed size of the folding camera is 6 x 15 x 24 cm and its weight is 1.2 kilograms.

Below: No. 1a Folding Pocket Kodak.
Photo - John Marriage

Compared with the No. 4 Cartridge Kodak of the previous expedition, the No. 4 Folding Pocket Kodak is an improvement. The new camera offered the same possibilities, but was a bit lighter and a lot smaller. Picture size remained 4 x 5 inch, even though there were lots of smaller cameras in the Folding Pocket Kodak series and even a bigger one.

In Peary's book "Secrets of Polar travel" we can take a glimpse at how things were carried during the sledge trip to the Pole *"The camera, thermometer, notebooks,*



Above: Inuit with polar bear.
Photo - NARA

field glasses, and Winchester carbine were carried in canvas pockets by the upstanders of the sledge, and arranged in such a way that any one of them could be obtained instantly for use without having to unlash any portion of the load." (15/266)

On this expedition again Peary took pictures of animals, such as a reindeer (9/124) and polar bear (9/127). Together with assistant and photographer George Borup, he took flashlight photographs of the Inuit. This happened during the polar night in a snow hut that was especially built for this purpose. (9/147) There also were some photographs in moonlight, with exposure times varying between 10 minutes and 3 hours. (9/147)

On April 6, 1909 Peary, Henson and four Inuit reached the North Pole. Peary took some astronomical observations, made a trip in the area and also took a number of photographs. (24/908) (10/271) (9/246)

The experience of Arctic photography

Sometimes Peary describes the taking of a photograph in his published books. In a first interesting account Peary describes how he took panoramic views, consisting of several photographs. *"... About six o'clock in the morning, we reached Academy Bay, and starting across it for the point at the opposite side ... we reached, a short distance out in the Bay, a little gneissose island. ... and then climbed to the summit of the island, where I set up my transit, and took a complete round of angles and a continuous series of photographic views."* (2/264)

Peary was to take this kind of photograph on other occasions as well, such as when he stood on Navy Cliff, the most northern point he reached during his 1891-1892 expedition. *"... I opened the box containing my transit, and set it firmly among the rocks to make my observations for position. The interims between these observations ... gave time for a round of photographic views and notes upon our surroundings ..."*. (2/348)

Worth mentioning are the pictures of the animals of the Arctic. Quite often one can see the impressive musk oxen in their defensive circle. From Peary's remarks we know that it was important to take photographs of the animals, before they were shot or butchered. We can find an example of this in the report of the 1908-1909 expedition. Peary writes that two of his hunters stood waiting besides a deer which they had killed. He had told them not to touch it before photographs were taken of the animal. Only after the pictures were made did the hunters start to skin it. (9/124) The same happened to an unfortunate polar bear. (9/127)

Even when he had to travel under the most difficult and dangerous circumstances and even had to abandon their sledges and food supply, Peary always took a camera with him. Amongst other occasions this happened in 1892, when Peary and his only companion reached the north coast of Greenland after a 600 mile sledge trip over the snow cap. The coastal area consists of bare rocks and steep slopes, which made it impossible to take the sledge further. Equipment, a rifle, camera, instruments and food for four days, with a weight of about 20 kilograms for each person, was carried on their backs. That every pound was a burden becomes clear when we read the description of the trip both men had to make.

"Starting out from Moraine Camp, we had to walk and slip about four hundred feet down the landward slope of the ice, which stretched away for upward of a mile before its floor rested on terra firma. We found the travelling even more difficult than it had been the day before, partly because we were heavy-laden, and also because the sun had still further softened the snow. Azure-blue streams rushed through the semi-liquid slush, as we made our way towards the land, till we came to the crest of the immediate edge of the ice. Down this we slipped and scrambled as best as we could, tripping and tangling in the traces of our dogs. ... Close to the land ... there was now a rushing river which we were obliged to ford. ... The rushing water, mid-thigh deep, the slippery ice in the bottom of the stream, and the antics of our dogs ... made the crossing of the stream precarious. We succeeded, however, in getting over without a thorough wetting, and scrambled up on the rocks." (2/331,332)

The reports of Peary's first two expeditions, both to Greenland, contain most information on his scientific work regarding to photography. In the books about his later expeditions he only rarely tells us anything about his photography. From these few remarks we know that he was still taking photographs of Inuit, animals and landscapes. Even during the 1908-

1909 expedition, when everything was concentrated on the trip to the North Pole, Peary took pictures of the Inuit using flashlights. (9/147)

Research results of his photography

In the 1893 booklet "The Kodak at the North Pole" Peary mentions the following subjects which he photographed during his 1891-1892 expedition - landscapes, geological forms, birds and their nests, animals (such as Polar bears, walruses and seals), icebergs, clouds, several kind of glaciers, flowers, settlements and members of the most northerly Inuit tribe. (1) I will describe the Inuit photographs in some detail because they contributed much to the recognition of the scientific value of Peary's expedition.

At the end of the 19th century the use of photography in anthropological research was still in its infancy. Sometimes the photographs that were taken were of no use to science, partly because they were not taken by a standard method and thus could not be compared with other photographs. Frederick Starr, professor of anthropology at the University of Chicago, emphasised the importance of a systematic method of taking photographs. Among others there should be made portraits of the front and profile in 4 x 5 inch size, and photographs of groups performing certain activities. (6/44)

From the first, Peary paid much attention to photographing the locals. Peary himself identified the collection of information about the Inuit as one of the aims of his expeditions. He worked according to a systematic and scientific method. *"As soon as my Inuit friends began to come to us, we set about taking measurements and photographs of them. Dr. Cook, who had special charge of the ethnological researches, made anthropometric measurements during the winter, of seventy-five individuals, and I took a complete series of photographs of the same persons, comprising portraits, and front, side, and rear elevations in the nude, of each subject."* (2/174)

During the winter of 1891-1892 these pictures were taken in the living room of the expedition's building. *"On one side of the stove, near the partition separating Mrs. Peary's apartment from the main room (Mrs. Peary was a member of the expedition), I stationed myself to handle the camera. On the other side was Matt manipulating the flash-light. Dr. Cook would pose the subject at the other end of the room, and near at hand was a table at which he recorded his anthropological measurements."* (2/175) During part of the 1893-1895 expedition they had a dedicated studio, but by the winter of 1894-1895 the room had become the home of an Inuit family. (7/315)

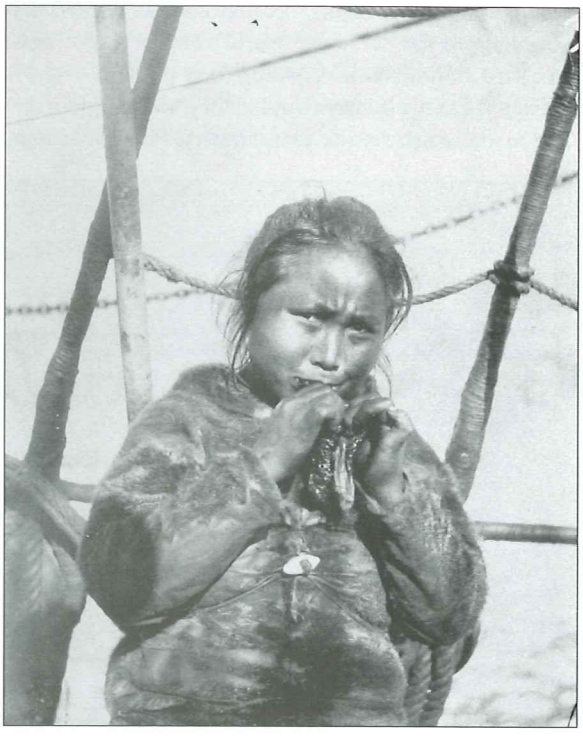
Photographs were made and measures taken of every new guest who arrived at the headquarters. The flashlight was an especially popular topic among the natives. Immediately when the new guests arrived the other Inuit told them what was going to happen to them, and after the photographs were taken the victim would always describe his experience to a large audience. (2/175)

During the period of the summer when there was enough light available, the Inuit were photographed outside the building. Sometimes they had to pose in the snow naked or only with a loin-cloth. Besides the formal studies of the Inuit, Peary took photographs of activities, like tug-of-war or lifting heavy stones. Especially during the 1893-1895 expedition he took many supplementary photographs of the natives in special poses. (7/361) During his expeditions Peary took photographs of the whole tribe, consisting of several hundred people, according to the scientific method described above.

As well as taking their portraits Peary also documented their various types of houses. One example are the Northumberland Island igloos. In August 1891 their measurements were taken and drawings and photographs were made. (2/109) This work was continued during the 1893-1895 expedition. (7/432)

The press praised Peary's Greenland photographs for their scientific value. The magazine "Photography" of December 29, 1892 says *"... It is certain that the pictorial results of no previous Arctic expedition compare with those Peary has achieved. Scientific men who have seen his ethnological pictures says no earlier explorer ever obtained so fine a series of any native tribe in any part of the world. ... Ethnologists will be particularly pleased with Peary's large series of photographs of nude subjects. Such pictures, if well taken, are invaluable in the scientific study of new peoples. It is certain that Peary has met with extraordinary success with these photographs."* (5/828,829)

"Anthony's Photographic Bulletin" of 24 *December 1892 says "The scientific value of photography was demonstrated in the late Peary expedition*



Left: An Inuit.
Photo - NARA

Above: The Eskimo women travelled on the ship with the crew and made clothes for all the expedition members. Here they are getting paid with gifts after the expedition.
Photo - Library of Congress

to Greenland. ... the various types of natives, both naked and clothed, were taken, which will prove very valuable from an ethnological point of view." (4/740)

Publicity results of his photography

During the first expedition of 1891-1892, as well as the ethnographic material, Peary took photographs of glaciers, fjords, mountains, mountain ranges and coastlines. Altogether he took 2300 photographs of which more than 2000 proved to be successful. (1/3, 4/740, 5/828). Justly the magazine "Photography" said *"Greenland may now be known pictorially as it never was before."* (5/829)

Peary took all the Inuit photographs by order of F.W. Putnam, and he received payment for this. In his contract with Putnam, dated June 2, 1891, is stated that Peary would receive $2000 for the collection of data and artefacts and the taking of photographs. (8) Next to money the Inuit photographs earned him recognition and publicity, because Putnam needed the photographs for use at the World's Fair of 1893. This so called Columbian Exposition took place in Chicago. Every country could exhibit the progress it had made in art, science and industry. Putnam was in charge of the anthropological section and Peary's photographs were used in the American section of the Anthropological Building. (6/27)

Below: A Musk ox.
Photo - NARA

Peary also needed public support to finance his expeditions. To Peary it was clear that he could make money if he could draw the attention of a wide audience. To do this Peary used many techniques in which photography played an important part, including lectures, stereo photographs, books, articles and at least one exhibition.

After his short 1886 trip to Greenland the Brooklyn Institute sponsored a lecture for Peary. On the occasion of this lecture Peary said *"It has made me feel as if I might yet make myself known and felt outside of my present narrow routine circle."* (10/102) And - *"Last week I took my sledge and fur costume to the photographer and had three new slides made; another slide that I am having made is of Maigaard, and several of the slides that you saw I am having coloured. Altogether by the time that my slides are ready for the lecture they will be doubled in interest and completeness compared with what they were when I lectured in Brooklyn."* (10/102,103)

Peary had learned an important lesson - if he wanted to lecture he needed a lot of interesting photographs. Between all his expeditions he plunged into the lectures to make money which could be used to finance the next trip. Over the years he became well known and was able to earn considerable sums. Particularly after 1909, when he had reached the North Pole, he earned a lot of money with his lectures. For example he received $7,500 for a lecture for the New York Civic Forum. Other lectures often brought him $1,000. (10/298)

His lectures were a complete show. He himself and Matthew Henson, his assistant on every expedition, appeared in their Arctic dress. On the stage were also some huskies, who stayed there during the whole lecture. In July 1907 the National Geographic Magazine wrote *"... The Commander's lecture was illustrated with excellent stereopticon views, which gave the audience a true idea of actual conditions in the far north. Great hummocks of jagged ice, precipitous pressure ridges and obstacles that would seem insurmountable, stood constantly in the way of progress. ... The stereopticon views with which the lecture was illustrated were remarkably good, and were a great factor in making the story clear in elucidating the situation about the Pole. Pictures of the Eskimos were especially interesting, showing women with animation in their faces - a quality that seems to be absolutely lacking in the average pictures of these people. Laughing babies, dressed exactly as are their fathers and mothers, were shown, and one remarkable type of feminine beauty ... . Pictures of the animals which found in the Arctic regions showed strange looking musk-oxen, a huge polar bear, large white Arctic hare, and some beautiful specimens of the snow-white Arctic deer."* (11/448,450)

As well as the normal photographs that he wanted to use in lectures, Peary also made stereo photo-

graphs. One series was published by Underwood and was numbered 4681 to 4700. It is not clear to me whether the pictures were taken in 1899, or that the series was published in 1899. (12/147)

A third means of communication which Peary used was the 1893 Columbian Exposition. I have already described the exhibit of Inuit photographs in the Anthropological Building. A second exhibit which used Peary's pictures was in the pavilion of the Eastman Kodak Company. Unfortunately we do not know which pictures were exhibited. The booklet only says that there were some enlarged photographs made during the sledge trip over the eternal snow cap of Greenland. One of the cameras he had taken with him on the trip was also on display in the Kodak pavilion.(1) For the Eastman Kodak Company this was a fine opportunity to promote their products.

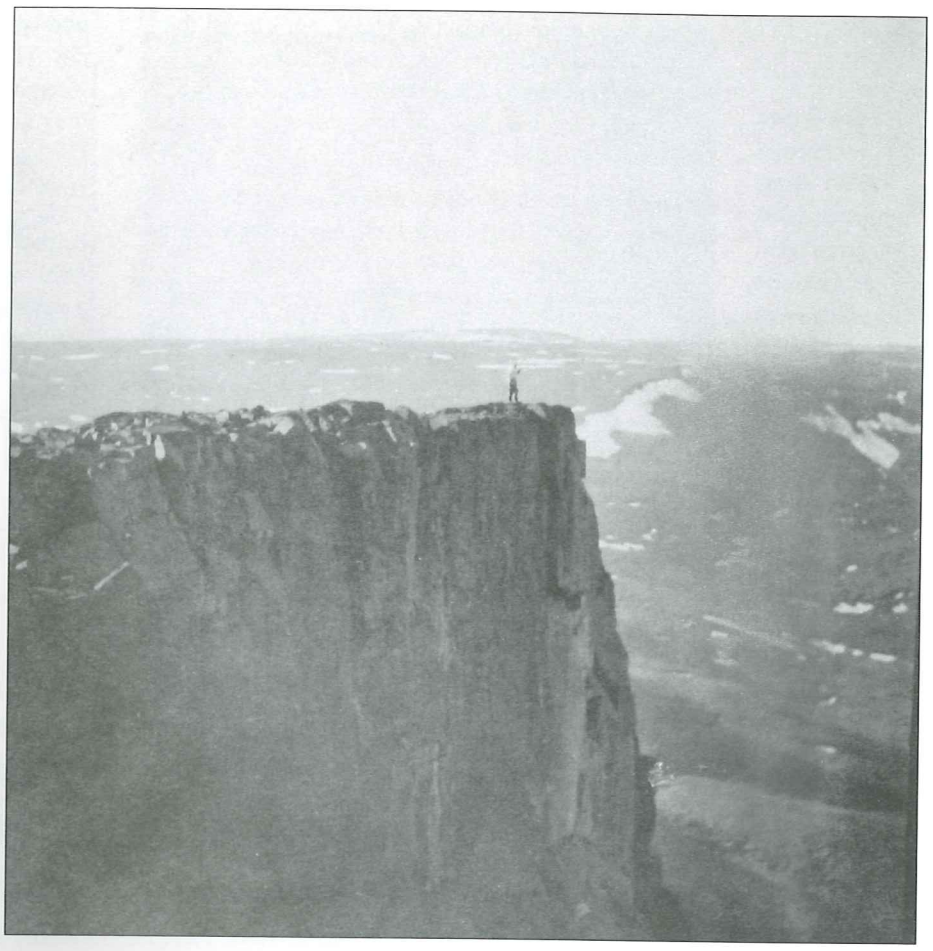
One of the most effective methods to reach large numbers of people was the publication of books and articles. Through the 19th century the adventures of explorers had fascinated people. In the days of Livingstone and Stanley books and magazines were illustrated with engravings. During the 1890's more and more photographs were printed in publications. This stimulated the reading of, among other things, travel stories. The example of the National Geographic Magazine, which was first published in 1888, illustrates this very well. During the 1890's the Magazine changed policy and started to use many photographs (often using Peary's photographs), which resulted in an enormous growth in its circulation.

The money that could be earned from the publication of expedition reports was, certainly in later years, quite considerable. Once Peary was famous the publishers tried to get contracts for the publication of books and articles. As examples I can mention the $15,000 which Frederick Stokes paid as an advance for a travel story and the $40,000 which "Hampton's Magazine" promised for a series of articles. (10/298)

Did Peary reach the Pole?

As early as 1893 Peary identified one of his reasons to take photographs - *"I also appreciated the value of having impartial, unimpeachable records of places and objects with which to answer criticisms."* (1)

In recent years this has become a topic again, because there is a new discussion whether Peary really reached the North Pole on his final expedition or not. Supporters of the fraud theory say that Peary did not reach the Pole and that he faked his diaries and notes and the calculations of his position. To prove their theory they use pseudo-arguments, which are based on nothing more than apparent anomalies. If not taken out of their context these anomalies are quite easy to explain and no real arguments remain. To make an end to this unfair smear campaign a group of experts in the field of navigation investigated the case in 1989. In their report they come out with proof that Peary did reach the North Pole in 1909. For one component of this proof the photographs that Peary had made at the North Pole were put through photogrammetric analysis. This means that with help of the shadows in the photographs a band of possible locations of the photographer is calculated. (13/52,53) There is not a single photograph which has any sign that the photograph could not have been made around 90 degrees North, and all the photos that were tested were definitely made in a small area around the North Pole. (14/133-142)



Above: A huge Greenland cliff
Photo - NARA

Conclusions

Peary's first big expedition to Greenland of 1891-1892 took place at the same time as rollfilm photography was spreading across the world. The rollfilm process that was developed by the Eastman Kodak Company helped Peary to realise his boyhood dream.

Even though the list of cameras which Peary used on his expeditions is not complete, we can draw some conclusions from it. From the constantly changing camera choice it appears that Peary was always looking for smaller and lighter cameras. If necessary special cameras were used, like the fast working No. 2 Kodak and the bigger sized No. 5 Folding Kodak.

Peary's preference for 4 x 5 inch negatives is striking. Certainly after the turn of the century enough cameras for smaller sized negatives were available,