



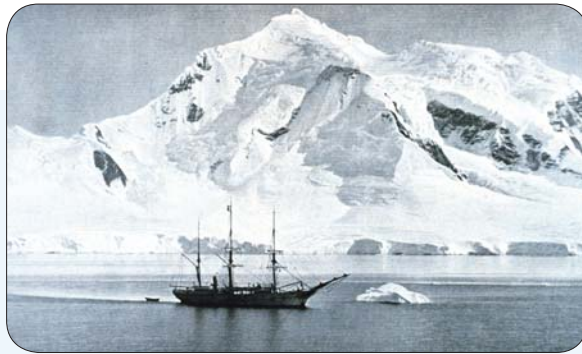
HISTORY

LANGUAGES

GEOGRAPHY

SCIENCES

BELGIANS IN ANTARCTICA THROUGH THE CENTURIES



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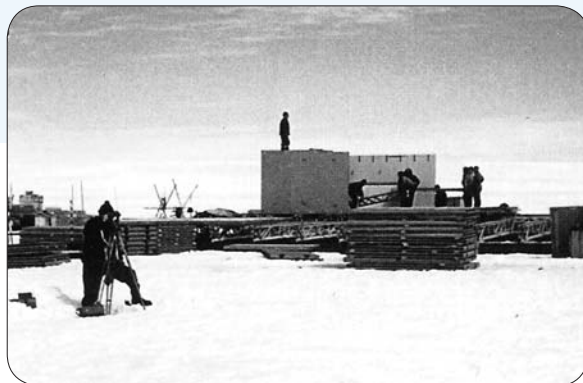


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THEORETICAL NOTE

1) THE DISCOVERY OF ANTARCTICA

Figure 1:
J. Cook



When America was discovered in the late 15th century, much of the rest of the world was still shrouded in mystery. The huge distances involved in exploration meant that the frozen continent of Antarctica and the South Pole would remain only in peoples' imagination until the end of the 18th century.

It was in the 1770s that the English explorer James Cook started changing all that. With his three expeditions (1768-71, 1772-75 & 1776-79) aboard the *Endeavour*, the *Resolution* and the *Discovery*, he became the first person to cross what we now call the Antarctic Circle. Although Cook circumnavigated the entire continent, he never actually set foot himself on Antarctica, or Terra Australis, as he called it.

Figure 2:
J. Weddell



Forty years after Cook's expeditions, Russian navigator F. F. Bellingshausen (after whom the Bellingshausen Sea is named) crossed the Antarctic Circle with the *Mirny* and the *Vostok*. The crew of this expedition were the first to discern the tip of a mountain in Antarctica, proving that the South Pole was more than just frozen water. Antarctica was in fact a continent.

It soon became known that the area was teeming with seals, and numerous sealing ships set sail in search of the valuable fur that these animals could provide hunters. By 1821 fifty or so ships had sailed the treacherous waters of the Southern Ocean in the direction of Antarctica, making them the first real explorers of the "Great Southern Land".

Figure 3:
C. Larsen



In 1823, James Weddell, the most famous seal hunter of them all, arrived at the most southerly point reached until then. Weddell had travelled 400 km further south than Cook had ventured during his search for the mythical Terra Australis. Both the Weddell Sea and the Weddell seal (*Leptonychotes weddellii*) were named after him.

In 1839-40, James Clark Ross attempted a new route with his two ships, the *Erebus* and the *Terror*. This new route led him to discover a new sea, which is also named after him. He also discovered an active volcano, Mount Erebus, whose peak soars to almost 4,000 metres, and an ice shelf, now named the Ross Ice Shelf. There is still a British oceanic research ship operating that also bears his name.

Over the next fifty years, interest in the South Pole declined as numbers of sea mammals to hunt dwindled and paraffin re-placed the animal fat that had previously been used as fuel for lamps. However at the end of the 19th century during the time of the first International Polar Year, a number of explorers set out on several new expeditions.

Figure 4:
A. de Gerlache



In 1892-94, the Norwegian explorer Carl Larsen and his ship the *Jason* landed on Seymour Island off the Antarctic Peninsula. Here he discovered fossilised remains that indicated that the poles were warmer in the past. Unfortunately, the extreme weather conditions forced him to turn back prematurely. The Larsen Ice Shelf, which broke up in a spectacular fashion in 2002, was named after him.

In conjunction with Frederick Cook and Roald Amundsen, Hasselt-born Adrien Victor Joseph de Gerlache de Gomery led the very first **scientific** expedition – and not to mention the very first **international** expedition – to Antarctica aboard the *Belgica* in 1897-1899 (see below).

Figure 5:
R.F. Scott



Robert Scott and his crew, which included Ernest Shackleton and Edward Wilson, spent two winters in the sea ice aboard the *Discovery*. During their expedition, they made an excursion with a team of dogs and a sledge in an attempt to set a new record for the most southerly point ever reached, succeeding in their goal in 1902.

During the same period, the Swedish geologist Otto Nordenskjöld set out on an expedition aboard his ship, the *Antarctic*. Nordenskjöld and five others were put ashore on an island with dogs and sledges for the winter to conduct research on the Earth's magnetic fields and take samples for other scientific research, however, the sea ice stubbornly refused to break up during the spring, which meant that the ship could not pick the men up from the island. After a whole series of adventures, the five men and three other crew members who had also arrived a few months earlier were picked up by an Argentinean ship. The *Antarctic* had become trapped in the ice, its hull was breached, and eventually sank beneath the waves.

Figure 6:
R. Amundsen
© NOAA



On 14th December 1911, the Norwegian Roald Amundsen succeeded in reaching the South Pole on sledges hauled by dogs. The expedition led by his British rival, Robert Scott, repeated this feat a month later, on 18th January 1912. The British expedition did not reach the South Pole first because they were hauling heavier sledges than the Norwegians, they had no dogs, and they had been taking samples. In a way this showed that the Norwegians were much more experienced than their British counterparts, and their lack of experience proved to be fatal for the members of the British expedition, all of whom died on their return journey.

During the period from 1902 to 1909, Sir Ernest Shackleton successfully took part in a number of expeditions to the far south. However he wasn't as successful in 1914 during his attempt to reach the Antarctic coast aboard his ship the *Endurance* and from there to cross the entire continent on a trek of 3,300 km. Their ship was trapped in the ice and sank in the Weddell Sea in the winter of 1915 before they could even land. It took a whole month for the ice to damage and sink the ship, so the crew had plenty of time to unload all of the equipment. Once off the ship, they decided not to sit tight with their belongings, but instead set out to look for help. After the three months of trekking across the sea ice (first on foot and then in their cutters navigating their way through the melting ice) they were nothing short of euphoric when they finally sighted Elephant Island. Unfortunately, it was a desert island, so they were again faced with a tough decision: They could either wait to be rescued or set sail in their cutters for the nearest inhabited island some 1480 km away. They went for the latter option. Knowing that the cutters were 6 metres long and that they were facing some of the wildest seas in the world, the adventure ahead of them was no light undertaking. Fifteen days after setting out from Elephant Island, the crew reached South Georgia. All 15 members of the crew were saved. To commemorate their phenomenal feat of seafaring, a cross was erected on the island for Shackleton and his men.

Figure 7:
E. Shackleton
© NOAA



The International Geophysical Year 1957-58 ushered in a new era in polar exploration. Gaston de Gerlache followed in his father's footsteps by leading the second Belgian Antarctic expedition 60 years after his father's. It was during this expedition that the King Baudouin base was established. Various Belgian expeditions have ensued (see below).

Figure 8:
G. de Gerlache
© www.hetlaatstecontinent.be



The end of the 20th century saw polar adventurers triumph in their endeavours on a number of occasions:

- 1989 – The American Will Steiger and Frenchman Jean-Louis Etienne covered a distance of 6,440 km from west to east in conjunction with an international team.
- 1994 – Norwegian Liv Anesen became the first woman to reach the South Pole, doing so alone and on skis.
- 1997-'98 – Belgians Alain Hubert and Dixie Dansercoer crossed Antarctica from north to south, covering a distance of 3,924km.
- And many more.

2) BELGIANS IN ANTARCTICA

The Belgica expedition

"Exploring the territory of Antarctica is the greatest challenge of geographic exploration never yet fully achieved...and must be completed by the end of this century." This statement, made at the 6th International



Figure 9: The Belgica at the Mt. William - © NOAA

Geographical Congress in London in 1895, was the starting gun for Belgian naval officer Adrien de Gerlache to take the lead in organising an expedition that would later go on to carve out a place in history.

In 1896, Adrien de Gerlache purchased the *Patria*, built in 1884, and renamed it the *Belgica*. A year later, ownership was transferred to a group of investors, the "Société anonyme du Steamer *Belgica*". A suitable crew was recruited and the three-master was refurbished and fitted out for an expedition to Antarctica. Thick fog forced the planned departure for 24th June 1897 to be abandoned and the ship was not able to sail for Antwerp the following day, where it eventually departed for the frozen continent on 16th August 1897. Adrien de Gerlache led the expedition, accompanied by Roald Amundsen as an unpaid officer and the experienced American Frederick Cook as photographer and ship's doctor. Also part of the **international** crew was Georges Leconte (first mate) as well as numerous scientists and deckhands.

This expedition is special in that it was the first **scientific** expedition ever to set out for the South Pole. It was to be the first of many unprecedented 'firsts': Amundsen was the first person to ski on the Antarctic mainland; it was the first trek on the continent to use sledges; the first night spent in camp on the ice; the first full year of meteorological data taken; and the discovery of the only land animal that lives on the Antarctic mainland, the *Belgica* Antarctic midge.

The original aim of the expedition was to research the

Weddell Sea and from there to head for Victoria Land, where three men would be put ashore to spend the winter. The *Belgica* was then scheduled to sail back to Australia to be resupplied before returning after the winter to pick up the three men. Everything went smoothly at the beginning. During the first season of their voyage, the expedition explored the coastline, keeping themselves busy by taking readings of the water temperatures and measuring the depth of the water.

But there were dark clouds gathering on the horizon, both literally and metaphorically. On 22nd January 1898, a storm broke. One of the scuppers became blocked. Against better advice, the Norwegian sailor, August-Karl Wiencke, climbed over the railing to get a better view. He fell overboard, but managed to grab on to a log line. In an attempt to rescue him, Leconte jumped into the rough seas, attached to the ship only by a rope. He succeeded in getting a hold on the Norwegian, but the two men were being tossed around in the turbulent ocean by the wild waves. Leconte eventually lost his grip on Wiencke, who was never to be seen again.

The ship continued on its voyage, reaching the Antarctic Peninsula at the beginning of February 1898. There they discovered a new strait that were later named the Gerlache Strait. On the various occasions that the



Figure 10: The Belgica trapped in the ice on the 19th of November 1898 © NOAA

scientists went ashore, the whole area was charted for the first time, with different features being given 'Belgian' names, such as Brabant Island and Anvers Island. Great attention was paid to cataloguing the flora and fauna and measurements of the Earth's magnetism were also taken. Apart from the death of Wiencke, everything went according to plan.

On 18th February, de Gerlache found a way through to the south, something that had never been done before. The temptation to discover new lands was immense, but against the wishes of the scientists, de Gerlache decided to continue his course – straight into newer, even darker clouds.



As the days passed, the temperature fell, which resulted in the *Belgica* eventually becoming icebound near Peter I Island. However the naval officer in de Gerlache did not see this as a cause for alarm and the *Belgica* became the first ever to overwinter in the Antarctic, spending 13 months adrift in the Bellingshausen Sea.

But it was far from fun. During the austral winter, there was an outbreak of scurvy on the ship, giving the crew swollen limbs, bleeding gums, irregular and weak pulse and headaches. On top of these serious health problems, the crew was also battling problems of morale due to the round-the-clock darkness. *"All it took was an uninterrupted night lasting 1600 hours to make old men of us,"* wrote Leconte. The polar night soon claimed its first victim. Emile Danco died on 6th June 1898 of a heart condition. To prevent anyone else from dying, Dr. Cook forced everyone to eat uncooked penguin and seal meat. It was their salvation.

In January 1899 during the Antarctic summer, they came up with plans to blast their way free from the ice using explosives or by sawing through the ice. But it was in vain. Any opening they created immediately froze solid again. The ship was finally liberated from its icy prison when the channel thawed naturally. To protect the hull from the sharp edges of the ice, Cook created a protective layer of penguin skins.

Two years and two months after it set sail from Antwerp, the *Belgica* was welcomed home amid great celebrations in the autumn 1899. Belgium had established itself as a member of the distinctive club of Antarctic nations.

The King Baudouin base

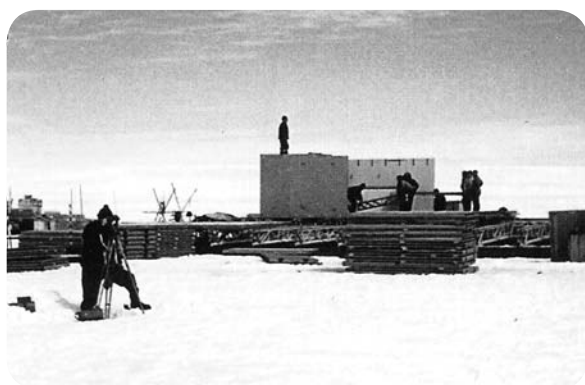


Figure 11: The Construction of the King Baudouin Base
© G. de Gerlache

It was another 60 years before the Belgians were to return to Antarctica. As part of the International Geophysical Year 1957-58, during which a whole range of geophysical observations programmes were undertaken by 12 countries in Antarctica, Adrien de

Gerlache's son, Gaston, led the first expedition of the second series of Belgian Antarctic expeditions. This time around, there was no *Belgica*, but instead a Soviet ice-breaker, the *Poerhav*, and the seal-hunting ship, the *Polarsirkel*. Both ships carried tracked vehicles, a helicopter and other equipment. They reached Queen Maud Land on December 26th, 1957. This was also the date on which construction

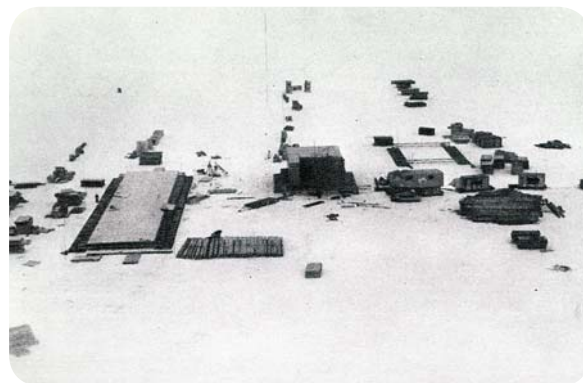


Figure 12: The 3 main buildings of the King Baudouin Base
© G. de Gerlache

began on Belgium's first scientific research base in the Antarctic, named after the reigning monarch of the time, King Baudouin. The base was located at 70°26' south latitude and 24°19' eastern longitude (see attachment 2). Once the members of the expedition had settled into their new 'home', it was time for the more serious scientific work to begin. The Southern Lights were observed, and research was conducted on the ionospheric layers of the atmosphere, the Earth's magnetic fields and even the composition of the snow and ice. Scientific outings onto the ice were also organised, enabling the hitherto more or less unknown inland of the Antarctic to become less of a terra incognita. This first all-Belgian winter expedition to Antarctica, under the guidance of G. de Gerlache reached its conclusion at the port of Ostend on 2nd April 1959.

A few months later, a second Belgian expedition funded by the non-profit organisation, the National Centre for Polar Research (NCPO) and under the guidance of F. Bastin, was organised to head to the King Baudouin base. Tony Van Autenboer, this intrepid geologist present was to stay in Antarctica uninterrupted until 1961. In reality, he spent most of the summer months in a tent out in the mountains he was researching rather than at the base itself.

During the third and final expedition to the base, led by Air Force Major Guido Derom, a new mountain range was discovered, the Queen Fabiola Mountains. Various expeditions were also organised under the names IRIS I and II.

Unfortunately due to a lack of funds, the NCPO was unable to maintain the research station, and so the King Baudouin base was closed on 31st January 1961.



However Gaston de Gerlache and his supporters continued to lobby the Belgian Government to continue with the programme. The government finally gave in to the lobbying, but laid down a condition that cooperative links had to be created between Belgium and other European countries. In 1963, the Committee for the Management of Belgo-Dutch Antarctica Ex-peditions was set up, ushering in an era of expeditions organised between the two countries. The first of these arrived on the frozen continent on 21st January 1964. During the previous three years, the King Baudouin base had become totally snowed in, so a second base just 100 or so metres from the original had to be built. Scientific research got underway again. A second and third Belgo-Dutch South Pole expedition took place in 1964-66 and 1965-67, after which budgetary and safety considerations forced the King Baudouin base to close its doors for good.



Figure 13: The inside of the King Baudouin Base, after it was snowed under
© Jean-Jacques Derwael

There were another three successive summer expeditions for the Belgians from 1968 to 1970, this time in collaboration with South Africa. But a plane crash during the third of these expeditions, which destroyed both aircraft and equipment, put an end to Belgium's interest in the great southern continent for a while.

In 1972-1973 Bernard de Gerlache took part in an American expedition, however Belgium did not undertake any further trips as a nation. In 1984, the youngest member of the third generation of de Gerlache explorers, François, braved the extreme winter conditions on Brabant Island, discovered by his grandfather during his expedition in 1897-1899.

Antarctic Treaty

A highly significant milestone in Antarctica's history came with the signing of the Antarctic Treaty in Washington, D.C. on 1st December 1959 by twelve countries, of which Belgium was one. (The others were Argentina, Australia, Chile, France, Japan,

New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom and the United States). The Treaty did not come into effect until 23rd June 1961. It confers an international and peaceful status on all bases located in the southern hemisphere below 60° south latitude.

45 countries have since signed the Treaty, which was further reinforced by the addition of the 'Protocol on Environmental Protection to the Antarctic Treaty' (Madrid, 1991), which among other requirements, bans all dogs on the frozen continent, as well as two separate conventions about the Conservation of Antarctic Seals (London 1972), and the Conservation of Antarctic Marine Life (Canberra 1980). It states in article 2 of the Madrid Protocol that *"the Contracting Parties undertake to ensure the overall preservation of the environment on Antarctica and the ecosystems related to and dependent thereof. They agree, through this protocol, to declare Antarctica as a natural park, dedicated to peace and science."* The Antarctic Treaty is not legally binding, but its signing meant for the first time that the international intent to protect the Antarctic had been put down on paper. In this way the Treaty could be seen as a forerunner to the Kyoto Protocol.

Belgian Adventurers



Figure 14: A. Hubert - © IPF

After the last Belgian scientific expeditions packed their bags and left in the 1970s, the way was opened for a new breed of Antarctic explorer: the adventurers. In recent years, many expeditions have been organised by a whole range of individuals, including Americans, Australians and, of course, Belgians.

- 1995: R. Van Snick, M. Fromont, P. De Reymaecker, H. Detienne and I. Bekaert climbed Mount Vinson.
- 1997-1998: A. Hubert and D. Dansercoer crossed the entire Antarctic continent, covering 3924 km in 99 days. The aim of this trek was for the two Belgians to celebrate the centenary of Belgium's first involvement with Antarctica. However, their journey was not all plain sailing – literally. Their sledges



were too light and soon failed. New sledges had to be brought in, which put an end to their aim of making the trek unassisted. They were also relying on wind power, using their powerkites to achieve higher speeds than ever before across the ice. The wind, though, was often too powerful – so much so that on one occasion, Dixie's kite pulled him into the air, depositing him unconscious on the ground. Yet this did not stop them from continuing their expedition, taking snow samples and examining the ice layer every 150 km. On 3rd January 1998, they reached the geographic South Pole, where they took a break for 34 hours. Finally, after numerous setbacks with the weather, the wind turned in their favour, enabling them to cover a staggering 271 km in 24 hours. They finally reached their destination on 10th February (see attachment 3).

- 1999-2000: Dixie Dansercoer and companions also climbed Mount Vinson.
- 2000-2001: The Wall expedition, whose members included Alain Hubert, climbed Mount Holtanna.

The Princesse Elisabeth Station

In 2004, the Belgian government gave the International Polar Foundation the green light to build a new scientific base in Antarctica as part of the International Polar Year 2007-08. The move means that Belgium will again have a presence on the frozen continent 110 years after the *Belgica* expedition. On 19th May 2006, the Belgian government announced it was allocating 3 million EUR to the Federal Science Policy for the management and research programme at the station for 2008-2009. The station itself will be constructed during the austral summer 2007-08 and is designed to operate totally on sustainable energy. Two of the main aims of the research at the station will be to study climate change and the effect that the Antarctic continent has on the world's climate worldwide. More information about the Princess Elisabeth Station can be found in the IPF's Educational Dossiers.



Figure 15: The Princess Elisabeth Station - © IPF

EDUCATIONAL NOTE

1) NOTE FOR THE TEACHER

Sixty years after the King Baudouin base, the construction of the Princess Elisabeth Station sees the dawning of a new age for Belgium in Antarctica. This topical point can be brought up during the lessons. Before delving deeper into all of its technical and scientific aspects, this dossier is designed to give the pupils a general overview of the history of Belgium's involvement in discovering Antarctica. The other educational dossiers give details of the various BELARE (Belgian Antarctic Research Expeditions) expeditions conducted in preparation for the construction of the new base, its interior and exterior, the various technologies used and the range of scientific and educational projects that will be carried out once the base is up and running.

This enables the topic to be spread across a number of different areas: history, science and technical education. It will also encourage teachers and pupils to work together in a group to get to the bottom of the project as clearly as possible and gain a full picture of what the station is now and will be in the future.

2) FINAL ATTAINMENT LEVELS

The historical frame of reference used as a tool for structuring historical information has been supplemented and expanded. It now covers part of the history of Antarctica, from prehistoric times to the present day, dwelling on the major phases in the history of polar exploration by Belgians from 1897 to today. We also look at the global dimension of the discovery of Antarctica, establishing the link with the issue of our climate, which has a major effect on the development of all societies. This can be grouped under the heading of humans and the environment.

Other focuses include the way in which Belgians have given meaning to their social reality.

The pupils also learn how to search for targeted information about the past and the present based on clearly defined assignments using a variety of distinct learning materials, such as the Internet (Web-lab), audiovisual information (videos), text sources (books), etc. This enables them to make an appropriate selection from a variety of sources. The pupils also learn to use the criteria provided to indicate whether something comes from a historical source or is historiographic material (i.e. based on the interpretation of events by the historians themselves, rather than just reporting facts), using the correct method of mentioning references.

Historical reporting is also touched on in the form of the verbal or written presentation of the pupils' individual assignments or group work, which includes their own critical notes.

The pupils are able to gain an appreciation for the creative way in which Belgian society has approached the challenge of exploring Antarctica in the past. They can place our role as a player in European and world affairs in context and also take an interest in current and historical areas of tension between individuals and the community.

3) SUGGESTED ACTIVITIES (ALSO SEE THE WORK SHEETS FOR PUPILS)

A "Web-lab" (1 hour or more)

Objective: The pupils learn how to search for targeted information and incorporate it into a historical report.

They use lists of questions prepared in advance to surf the Net and obtain the answers together. To prevent them from wandering too far from the topic, you can hand out a list of preselected relevant websites. They need to present the result in the form of a finished report.

Group work (2 to 3 hours or more)

Objective: Each small group of pupils researches a phase from the history of Belgians in the Antarctic and presents its findings to the other pupils - for example each group establishing a section of a timeline. Once all of the presentations have been made, it should be possible to use this timeline to trace Belgium's input into the discovery and exploration of Antarctica.



The teacher can provide a general introduction as part of the first lesson, using an animation¹. The class is then divided up into 3 groups. Each group is allocated a phase of Belgium's history in the Antarctic: the *Belgica* expedition, the King Baudouin base and the Belgian adventurers. They can then begin to search for information using a Web-lab. They can also look in various books and divide the tasks up between themselves. The teacher can also provide the groups with tips on how to proceed:

- The route taken by the *Belgica* expedition can be used;
See attachment 1: The route of the *Belgica*
 - Former members of the Belgian Antarctic Expeditions can be approached: Tony Van Autenboer, Jean-Jacques Derwael, Hugo Declerck...
 - A short clip from a documentary by Alain Hubert and/or Dixie Dansercoer can be shown, or a short extract from a book read out in class:
- * "Magic Ice", from adventure and polar science to climate change (EN) (DVD) by A. Hubert (available from the IPF)
 - * "The teeth of the wind: across Antarctica in a hundred days" (book) by A. Hubert, D. Dansercoer and M. Brent
 - * "Chaos on the ice: the impossible crossing of the Arctic Ocean" (book) by A. Hubert, D. Dansercoer and M. Brent, et al, with the accompanying DVD (available from the IPF)
 - * "Crusade in Goretex pants" (article) by Francine Burlet, published in Elders and elsewhere, 2007, n° 107, pp. 84-91.
 - * Film "Shackleton"

During the second and third lessons (a few weeks later – the pupils need enough time to go through all the information), the groups can present their phase in 20-minute talks in which they trace their part of the timeline on the blackboard. At the end of the lesson, you as a teacher can give a short summary using the timeline produced by the pupils.

Presentation of a book and/or a film (2 to 3 hours or more)

Objective: Each group has to give a 10-minute presentation about a book it has read or a film it has seen based on the topic of 'Antarctica through the centuries'. As part of their talk, the various groups have to place their character/expedition/story/etc. in the context of the general history of the exploration of Antarctica.

¹

http://educapoles.org/index.php?fun_zone/multimedia_animations/antarctic_exploration/&s=7&rs=13&uid=97&lg=en&pg=2

ATTACHMENTS

Attachment 1: The route of the Belgica



Attachment 2: The location of the King Baudouin base



Attachment 3: The route taken by Alain Hubert & Dixie Dansercoer



SOURCES

Websites

- <http://www.educapoles.org> – Educapoles (FR and EN and also soon in NL), the educational website for the International Polar Foundation, provides learning activities about the poles and climate change. The site also has an animation about Antarctic exploration and an educational animation entitled 'Polar Science' that provides a summary of polar exploration.
- http://www.belspo.be/belspo/BePoles/index_nl.stm# – The Belgian Polar Platform is a website produced by and for scientists working in the area of Belgian polar research, as well as for policymakers and the general public.
- <http://www.framheim.com/Amundsen/Belgica/Belgica.html> – Framheim was created to investigate the phenomenon of polar exploration (EN).
- <http://www.hetlaatstecontinent.be/> – Dutch-language information website about Antarctica.
- <http://www.70south.com/information> – The N° 1 source of Antarctic articles (FR, EN and D).
- <http://www.noaa.gov/>

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- **!! Antarctica and Belgium**, Michel Brent, Editions Labor, 1997. !! (highly recommended)

