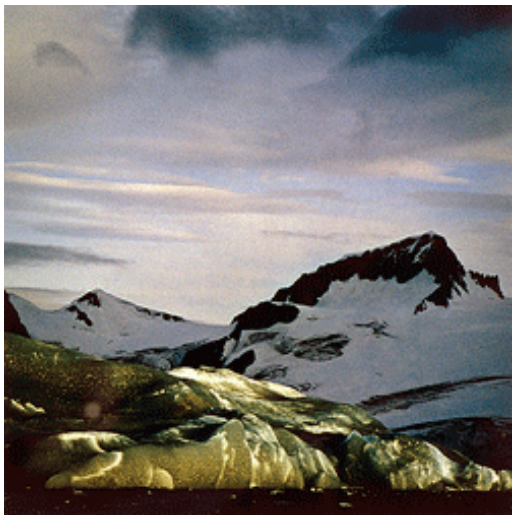
Antarctica

University of Wyoming Art Museum, 2007
Educational Packet developed for grades K-12

Purpose of this packet:

To provide K-12 teachers with background information on the exhibition and to suggest age appropriate applications for exploring the concepts, meaning, and artistic intent of the work exhibited, before, during, and after the museum visit.

Special note on this exhibit:
This particular exhibit is dense and rich with interdisciplinary connections and issues of the greatest importance to the earth and its inhabitants, This curricular unit introduces much that can be studied in greater detail: the geography of the polar regions, the history of Antarctica and polar exploration, the politics that govern this area. Teachers are encouraged to use this exhibit of Antarctica – as portrayed by artists – as a jumping off point for more in depth study.



Eliot Furness Porter (American, 1901-1990), *Green Iceberg, Livingston Island, Antarctica,* 1976, dye transfer print, 8-5/16 x 8-1/8 inches, gift of Mr. and Mrs. Melvin Wolf, University of Wyoming Art Museum Collection, 1984.195.47

Curricular Unit Topic:

The interpretation of the remote landscape and the experience of the South Polar Region through the eyes of the artist and the pen of the writer.

The Focus of this educational packet and curricular unit is to *observe, question, explore, create and reflect.*

Observe:

Students will observe art work interpreting the artists' experiences in Antarctica; the photographs of six artists; the work of one sound artist; and the written work of one writer who will read from his work in conjunction with the exhibition. Students will notice the different perceptions over time from these artists' photographs (Stuart Klipper, Neelon Crawford, Joan Meyers, Jody Forster, Eliot Porter, and Herbert Ponting), and will listen to the sounds of Antarctica from the sound artist Douglas Quin, and will hear the words of the writer Christopher Cokinos at a special event reading.

Question:

Students will have an opportunity to observe, read about, write about, and sketch the art works in the galleries. They will have an opportunity to listen and discuss the Antarctica exhibition with some of the artists and the museum educators. Then, they will start to question the works and the concepts behind the work. They will question the photographic and artistic techniques of the artists. And, they will question their own responses to the artists' work in the exhibition. Further, the students may want to know more about Antarctica, its history of formation and exploration, climate, geology, wildlife, animals, plants, environmental effects and scientific experimentation.

Explore:

Students will be encouraged to research any or all aspects of the southern Polar Regions and the art created by the artists in this exhibit who have depicted Antarctica in diverse ways through various media.

Create:

Students will be given time to practice sketching and drawing, and creating their own art work in response to Antarctica or in response to a place they find culturally, geographically, and physically interesting or enriching.

Reflect:

Students will evaluate their final art products with other students from their classes and with teachers and museum educators. They will be given feedback on the art work and the concepts behind the making of the art work. After this process, each student will then write an essay about their process of making art and the concepts behind the work.

Introduction

In this museum visit students will view photographs of six artists/photographers, they will hear a sound recording from Antarctica and they will have the opportunity to hear a writer/poet read about Antarctica at a special event. These photographs cover the past 100 years depicting the exploration and discovery of the Polar Regions. Students will be invited to experience this 50th anniversary celebration of the Antarctic Artists and Writers Program and to participate in the global activities recognizing the 100th anniversary of the discovery and exploration of the Polar Regions.

Background

Since the first expeditions to Antarctica in the 1820s, this remote and rugged continent has aroused the curiosity of adventurers, scientists, and artists. *Anarctica* presents the images and sounds of seven artists who have ventured to this region at the bottom of the southern hemisphere. The earliest work on view was created by the British photographer Herbert Ponting (1870-1935). Ponting was the official "camera artist" on Captain Robert Scott's ill-fated expedition to Antarctica from 1910 to 1913. He spent fourteen months at Cape Evans, creating both still and film images. His book *The Great White South* (1921) included 164 images from the expedition. Ponting left Antarctica in February 1912, deciding not to spend another winter there. Scott remained with several other crew members. They perished on their return from the South Pole where they arrived one month after a Norwegian expedition led by Roald Amundsen in the so-called "Race to the Pole".

Fifty years ago, the National Science Foundation in the U.S. inaugurated the *Antarctic Artist and Writer Program* to enable research, writing, and image-making that would both increase an understanding of and document Antarctica. In 1975, Eliot Porter (American, 1901–1990) participated in the program; his work resulted in an exhibition and a publication *Antarctica* (E.P. Dutton, 1978).

In the decade between 1989 and 1999, photographer Stuart Klipper traveled to Antarctica on four different occasions. Wyoming artist Neelon Crawford made five trips; in 1989, Klipper and Crawford went together. While most artists spend time during the Antarctic summer, Crawford spent a full year, using the lights of the ships he traveled on to illuminate icebergs and land forms so he could photograph them during the darkness of winter. Images in this exhibition are from

Neelon Crawford, *Antarctic Glaciers #1*, 1989, Photogravures, 16 x 20 inches, lent by the artist

his first trip. His photographs were translated into photogravure prints for a portfolio on Antarctica. The images by Klipper were selected from his Iceberg series. A prolific artist who has photographed around the world, Antarctica for Klipper is an experience all its own: Antarctica is " . . . a place that is so far apart from the mainstream of human experience, not just beyond the embrace of culture and history, but even the evolution of our species on the planet. Such a vantage point allows one to cast one's eyes back at everything else – that's the sort of clarity I'm getting at." (Camera Works, *Southern Exposure: Antarctica*, Frank Van Riper).

Known for his keen eye and his finely crafted landscape images of the American Southwest and the Himalayas, Jody Forster went to Antarctica in 1992 and 1995. For three months he sailed along the Antarctic Peninsula in vessel ships, photographing the Antarctic landscape. In 2002, Joan Myers made her first visit to Antarctica. Her work resulted in a touring exhibition and publication through the Smithsonian Institution, *Wondrous Cold*.

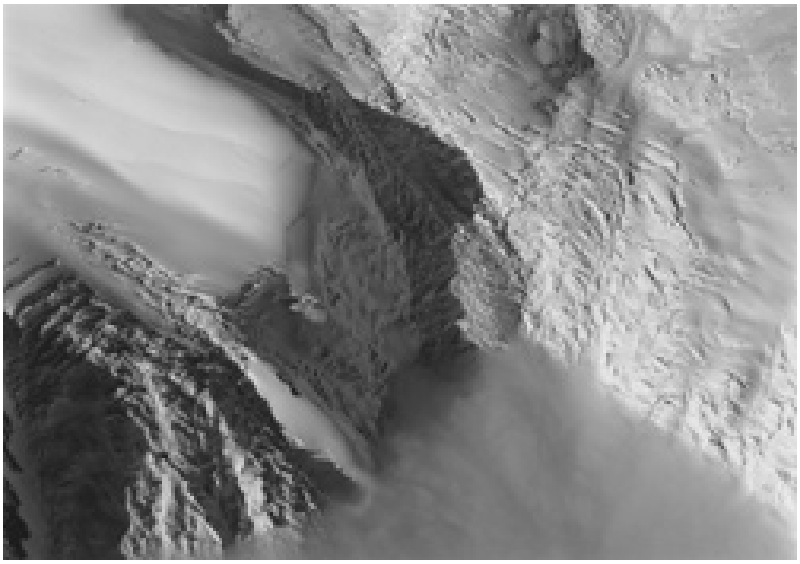
For this exhibit, the subject is the Antarctic landscape. It is a far from comprehensive collection of images representing these artists' work in that remote and harsh region of the world. To bring in an experiential component, Douglas Quin has created *Antarctic Soundscape*, a carefully sequenced series of sounds he recorded in Antarctica that was inspired by the images and artists in *Antarctica.*

Of technical interest is the variety of media that may be seen in this exhibition, each having their own working process and interpretation of the landscape. Ponting's

images include the early photographic process of carbon prints. Porter's images are dye-transfer prints which he perfected for landscape photography. Forster's prints are silver gelatin, common to the 20th century. Klipper works in Type C prints for his color images, yielding a soft and mysterious print quality. Myers images are printed digitally using the Piezotone system of archival pigment inks.

Antarctica celebrates the *International Polar Year*, which has been organized by the International Council for the Sciences and the World Meteorological Organization to bring attention to and offer unprecedented access to present-day information on Polar Regions, and the 50th anniversary of the National Science Foundation's *Antarctic Artist and Writer Program.* We thank our anonymous donor for supporting this project. We are also very grateful to our other funding sources: the FMC Corporation, Exxon Mobile, the National Advisory Board of the UW Art Museum, the Wyoming Arts Council, Wyoming Legislature, and the National Endowment for the Arts.

References:
Royal Geographical Society, Collection Focus – Herbert Ponting (1870-1935), *The Great White South*, http://images.rgs.org/herbertponting.aspx
Antarctic Artists and Writers Program – Past Participants, http://www.nsf.gov/od/opp/aawr.jsp
http://www.washingtonpost.com/wp-srv/photo/essays/vanRiper/010720.htm



Jody Forster, *Socks Glacier*, not dated, silver gelatin print, 23-1/2 x 16-5/8 inches, lent by the artist

"*Why does Antarctica matter? Why go there? Why have men and women risked life and limb in such a hostile environment? Why do we still spend money for research there? This photographic project, with its resulting exhibitions, will suggest answers to these questions by linking the past years of exploration visible in historic huts with the ongoing research at McMurdo, field stations, and the South Pole, as seen in the structures that cling to the Antarctic ice and in the faces and stances of those who work here.*"

–Joan Meyers, artist and photographer.

About the Polar Regions

From space, the earth is a blue ball capped with white at the poles, but few pause to wonder why the poles are cold enough to maintain permanent ice fields while the tropics are always hot. The energy generated by the sun is capable of heating the whole planet to 14 degrees C (57 degrees F), and the sun is 150 million kilometers (93 million miles) away—so why should it heat one part of the earth more than another?

The main reason is that the earth is spherical, with the equator pointing directly at the sun but the poles tilting away so that sunlight strikes the surface at an oblique angle. At 30 degrees north or south of the equator (roughly the latitude of Sydney) this cuts the amount of sunlight received to about 86 percent of that falling on the equator. At 60 degrees (about the latitude of Oslo or the South Sandwich Islands) the intensity of sunlight is reduced to 50 percent, and by 80 degrees (about the latitude of the northern coast of Greenland or the edge of the Ross Ice Shelf, in the Antarctic) it has fallen to 17.4 percent. From the poles the sun is lower in the sky and its rays less warming. If the earth were not tilted the poles themselves would receive no sunlight at all, and the sun would travel around the horizon, never rising above it.

Two other factors contribute to depriving the poles of the sun's warmth. First, the greater angle means that the sun's rays must penetrate more of the earth's atmosphere before reaching the surface. More importantly, of the solar radiation that does reach the earth's surface, the ice and snow that cover the poles reflect back at least 85 percent of it into the atmosphere. Each 24 hours the earth rotates through 360 degrees, so that alternate heating and cooling moderate the impact of the energy emanating from the sun; if it were not so, the side facing the sun would be too hot to sustain life, and the area in shadow too cold. The poles

form the axis of this rotation, so they move very little, whereas points on the equator move at 1,670 kilometers per hour (1,037 mph) to complete a rotation in 24 hours.

The earth also travels around the sun. If the poles were perpendicular to the sun's rays, the whole earth would have 12 hours of daylight and 12 hours of darkness every day; there would be no seasons - and no easily definable year. The patterns of night and day and the seasons come about because the earth's axis of rotation inclines somewhat from the perpendicular, so that for half the year the North Pole leans toward the sun and experiences summer, while for the other half it is the South Pole that is inclined toward the sun. At the two solstices - June and December - the earth is at the point in its orbit where the North Pole or the South Pole, respectively, is most inclined toward the sun. At these times one pole is bathed in 24 hour daylight and gets more sunlight than anywhere else on earth.

Midway between the solstices are the September and March equinoxes, when radiation from the sun falls vertically at the equator. The name suggests that everywhere on earth has equal hours of light and darkness on that day. However, sunrise and sunset are judged not from the angle of the sun but from the appearance of its first and last rays, so different locations experience equal hours of light and darkness several days on either side of the true equinox. The equinoxes also mark the point where the poles graduate from six months of sunshine to six months of darkness, and vice versa. The earth does not orbit the sun in a perfect circle: when the South Pole is leaning toward the sun, the earth is about three percent closer to the sun. Nevertheless, Antarctica is much colder than the Arctic, mainly because of the dominant effect of its high polar ice sheet, but also because it is a landmass that blocks the moderating influence of the ocean.

--excerpted from *Antartica the blue continent*
by David McGonigal and Dr. Lynn Woodworth

The Cold Facts about Antarctica

Scientific and Geographical Facts

- Antarctica is in parts drier than the Sahara. On the coasts the mean annual temp is around -17 C, and much lower inland.
- Highest point: Vinson massif, 4,897 meters
- Lowest point: Bentley Sub-glacial Trench (-2,555 meters)
- Economy: Fishing and Tourism (mostly cruise ships and some yachts)
- Mt. Erebus: an active volcano rising 3,794 metres above Antarctica's McMurdo Sound
- Continental Antarctica covers 10% of the entire earth's LAND surface
- 5.4 million square miles - the size of the U.S. and Mexico combined - during the austral winter, sea ice at least doubles the size of the continent.
- Environment: gains its uniqueness due to its cleanliness, and is "free from local industrial and urban pollution (though even here heavy metal and pesticide residues from afar have been discovered"
- "Ninety-nine percent of Antarctica is covered by a permanent ice sheet, which averages over a mile in thickness and in some places almost three miles thick. Ninety percent of the world's ice and 70 percent of the world's fresh water is locked in this ice pack. Antarctica's surrounding Southern Ocean ecosystem is the largest and most fertile in the world. It comprises 13.9 million square miles, equivalent to 10 percent of the world's oceans, and extends from the Antarctic continent to the Antarctic Convergence, that boundary where northward-moving, cold Antarctic water meets southward-flowing, warm sub-Antarctic water from the Atlantic, Pacific, and Indian oceans. The Antarctic circumpolar current - The West Wind Drift - transports more water than any other system in the world's oceans."
  –excerpted from *Antarctica,*
  by Barney Brewster, for Friends of the Earth

History: Formation of the Continent

Around 200 million years ago, Antarctica was joined with Australia, Africa, South America, India and New Zealand in the supercontinent Gondwana. Ten million years later, Gondwana began the enormously slow process of breaking into the pieces we recognize today, and the continents, subcontinent and islands began moving into their present positions. By about 70 million years ago, the continents were becoming widely separated and what is now known as the Drake Passage opened. After making its final detachment form the Australian continent, about 40 million years ago, Antarctica settled into its present polar position and began to cool dramatically.

German naturalist Alexander von Humboldt, noticing how the shapes of the continents bordering the Atlantic fit together (1800), was the first to suggest that they might once have been joined. In 1851, British botanist Joseph Hooker wrote to Charles Darwin about similarities he had noticed among plants in New Zealand, Tasmania, Iles Kerguelen and the Falklands Islands. At about the same time, French geologist Antonio Snider-Pellegrini, noticing identical fossil remains in both Europe and North America, theorized that the continents must once have been joined. He too fit two pieces of the supercontinent puzzle together, proposing the childishly simple idea that Africa's west coast once abutted South America's east coast.

Joan Myers, *Razerback Seal Camp, Antarctica*, 2002, Cone Piezotone Museum Black Ink, 14-1/2 x 22 inches, courtesy Joan Myers and Andrew Smith Gallery

IN 1885 Austrian Eduard Suess was the first to propose that there had been a southern supercontinent. Suess gave it the name Gondwana derived from the historic region in central India occupied by the Gond people where fossil strata similar to that of other widely removed continents was found—thus supporting the supercontinent theory. In 1908 American Frank Taylor suggested that mountain ranges had been formed in ancient times by the collision of drifting continents.

German Alfred Wegener came up with the first fully articulated theory of continental drift in 1912, which envisioned a supercontinent he called Pangaea ('all lands'). For his hypothesis, Wegener quickly received much scorn from the world scientific community, mostly because no one could conceive the thought of continents being able to move.

Later scientists - mainly working in the Southern Hemisphere - followed Wegener's work, and in 1937 South African geologist Alexander Du Toit refined the idea of Pangaea to include two continents - Gondwana to the south, and another called Laurasia to the north. Australian geologist S Warren Carey found evidence that the fit between the continents was even better along the offshore continental shelves, but he believed this was explained by an expanding-earth model, in which the planet's diameter was slowly increasing.

Exploration of the sea floor in the 1950s and '60s provided new data and new ideas, leading to the theory of plate tectonics. Geologist HH Hess postulated that the sea floors are spreading away from the mid-ocean ridges, thus providing the mechanism to drift the continental land masses as Wegener's theory and geologic data had suggested.

Among the fossil evidence found in Antarctica that clearly supports the supercontinent theory is a deciduous conifer (Glossopteris), a fern (Dicroidium) and a terrestrial reptile (Lystrosaurus). All of these species lived on Gondwana and their fossil remains have been found in rocks of the same age in such widely separated locales as India, South America, Australia, Africa, and Antarctica. Because *Glossopteris*' seeds and *Dicroidium's* spores could not have been blown, and *Lystrosaurus* could not have swum across the oceans that separate these continents, their fossilized remains offer certain proof that the continents were all once united.

–excerpted from *Antartica*
by Jeff Rubin for Lonely Planet Books

History of Exploration

"Glittering white, shining blue, raven black, in the light of the sun the land looks like a fairy tale. Pinnacle after pinnacle, peak after peak - crevassed, wild as any land on our globe, it lies, unseen and untrodden." So wrote Roald Amundsen after discovering Antarctica's Queen Maud Range in 1911. Every visitor to Antarctica falls under the spell of the continent at the bottom of the world - a region of endless ice, strange and endearing creatures, and no indigenous inhabitants. Antarctica makes visitors feel like privileged strangers, as they would if landed on the moon.'

The history of explorers seeking the South Pole is one of undeniable endurance, courage, strength, and heart. Here is the story of Roald Amundsen, the Norwegian explorer, and his team who were the first explorers to reach the South Pole in 1911, barely in front of the Englishman Robert Falcon Scott and his team.

Amundsen

Norwegian Roald Engelbrecht Gravning Amundsen (1872-1928) was already a veteran explorer by the time he sailed in 1910 from Christiana (modern-day Oslo) on his way to what only he and a few others knew was the Antarctic. Amundsen had been with the first group to winter south of the Antarctic Circle, the Belgica expedition, and in 1903 -1906 had accomplished the first navigation of the Northwest Passage, a goal sought by mariners for centuries. He spent three winters in the Arctic, learning from the native Eskimos much about polar clothing, travel and dog-handling that would later prove invaluable.

The Arctic had always been Amundsen's first interest, and he had long dreamed of reaching the North Pole. Indeed, he was well into planning an expedition where he would freeze his ship into the ice and drift with the current across the Pole when news reached him that American Robert E. Peary claimed to have reached 90 degrees N on April 6, 1909. Amundsen quickly - and secretly - turned his ambitions 180 degrees. *Fram*, Amundsen's aptly named ship (it means 'Forward'), which had been used by Norwegian explorer Fridtjof Nansen on his unsuccessful attempt to reach the North Pole, sailed from Norway on June 6, 1911. Fram had a diesel engine, allowing quick start-up (as opposed to a coal-fired steam engine), as well as a rounded hull so that it would rise up out of pressing ice floes rather than being nipped as a standard hull would. In order not to let his rival Robert Scott know of his plans, Amundsen kept quiet about his intentions - revealing them to just three members of the expedition - until he reached Madeira. There he told his stunned men, and soon after, sent his infamous telegram to Scott in Melbourne: 'Beg leave to inform you *Fram* proceeding Antarctic Amundsen.'

Amundsen did not share Shackleton's fear of a dangerously calving Ross Ice Shelf. Instead, he established his base, Framheim, right on the shelf at the Bay of Whales, where Scott had previously made Antarctica's first balloon flight. There, in a small prefab wooden hut, nine men spent the winter. Outside, some of the 15 identical tents served as store sheds - and some as doghouses for the expedition's 97 North Greenland dogs. From Framheim, Amundsen had the advantage of starting 100km closer to the Pole, but he also had to pioneer a route up to the polar plateau from the Ross Ice Shelf. Scott, following Shackleton's lead, could take the charted course up the Beardmore Glacier.

Setting out from Framheim on October 19, 1911, after making one false start too early in the season, Amundsen and his four companions had four sledges, each pulled by 13 Greenland dogs. Dogs and skis made the difference for them. As Norwegians, they were well trained in the use of skis, and during his years in the Arctic, Amundsen had developed excellent dog-driving skills. He also planned meticulously, took three or four backups of every critical item, and laid 10 extremely well-marked depots as far as 82 degrees S, which together contained 3400 kg of stores and food.

The five men - Amundsen, Olav Bjaaland, Helmer Hanssen, Sverre Hassel and Oscar Wisting - reached the South Pole on December 14, 1911, camping for three days at what they called *Polheim*. Amundsen claimed the polar plateau for Norway, calling it King Haakon VII Land, and wrote a note to Scott in the dark green tent he left behind. Then, they turned for home.

'On January 25, at 4 am,' Amundsen laconically recorded in his diary, 'we reached our good little house again, with two sledges and 11 dogs; men and animals all hale and hearty.' Despite his near-flawless success, there were those who felt Amundsen's achievement was tainted by several factors. In some ways, he had made the polar journey look too easy. There was also the view taken by some that Amundsen's surprise assault on the Pole had forestalled Scott, as though the British explorer had the 'right' to reach the Pole first (although, Amundsen, in fact, preceded him to the Antarctic).

Herbert Ponting, Midnight in the Antarctic Summer, 1911, carbon print, 21 x 29 inches, lent by Andrew Smith/Claire Lozier, Santa Fe

Finally, the tragic drama of Scott's expedition was much more the stuff of legend than was Amundsen's cool triumph of technical skill. (In the 1910-1913 British Antarctic expedition, Captain Robert Falcon Scott and four of his companions died on their return journey from the South Pole.)

Government and Politics

No country holds indisputable title over any part of Antarctica, and since there are no indigenous people, it has no native government. During the years of its discovery, parts of Antarctica were being 'claimed' in the name of various queens, kings, emperors, potentates, dictators and presidents. Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom all claim territory in Antarctica. As long as very little was going on in Antarctica, no one cared too much about these sovereignty claims. It is also important to note that many world powers—the US and Russia, for example—have made no formal territorial claims on Antarctica. But they have carefully preserved their right to do so in the future.

Scientists and diplomats wrote an incredible and unprecedented document, the Antarctic Treaty, which was signed in 1959 and which has governed the continent since 1961. Although some countries, such as Malaysia, have complained that the Antarctic Treaty member nations constitute an elite 'club' and should be replaced by a United Nations –ruled Antarctica, in fact Treaty members represent about 80% of the world's population. Also, the Treaty is open to any UN member state that wishes to accede to it. Any such state performing significant scientific research in Antarctica can become a 'consultative party,' or full voting member.
–excerpted from *Antarctica*
by Jeff Rubin for Lonely Planet Books

Treaties and conventions governing Antartica include:

- The Antarctic Treaty System, 1959

"The Antarctic Treaty was signed in 1959 (and went into force two years later) amid a rampant feeling of worldwide goodwill generated by the International Geophysical Year. Today more than 75 percent of the earth's population is represented in the Antarctic Treaty System, which continues to protect a continent devoted to science and our own species' best instincts. In great part, the entire system is built on an internal compromise that allowed seven claimant nations (as well as the United States and the Soviet Union, which asserts the basis for such claims) to avoid pressing their territorial instincts to the maximum."

"The treaty has maintained its status as a modern-day Magna Carta by closing real or apparent gaps in its original version. Whales are now protected under the adjunct International Whaling Convention, and the Antarctic Treaty parties have implemented separate conventions regarding the conservation of Antarctic seals and of marine living resources (krill and fish)."

- Convention for the Conservation of Antarctic Seals, 1972
- Convention on the Conservation of Antarctic Marine Living Resources, 1980
- Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA)
- Marine Living Resources Convention, which regulates the exploitation of the Southern Ocean resources.

Artists

Photographers

Stuart Klipper

Stuart Klipper was born in New York City in 1941 and resided in the Bronx until the early 1960s. He graduated from the University of Michigan in 1962 and migrated to Minneapolis, Minnesota in 1970 where he currently resides. Klipper began photographing in wide panoramic format in 1978 with his purchase of a Linhof Technorama camera from a mountaineer. Through his extensive travels, he has managed to photograph in each of the fifty states. He has exhibited extensively and is included in the collections of major museums in the United States and elsewhere. Stuart Klipper has also received multiple grants, fellowships and awards and was a selected participant in the National Science Foundation's Antarctic Program, and was a recipient of the United States Navy Antarctic Service Medal. He is a fine art photographer, who has, among many other subjects, done a lot of work in Antarctica and has been a part of the Antarctic Artists and Writers program of the National Science Foundation. His wide photographs of the Antarctic landscape have been displayed in the Museum of Modern Art in Manhattan, New York. <http://en.wikipedia.org/wiki/Stuart_Klipper

Neelon Crawford

Neelon Crawford was born in 1946, attended Antioch College and first made a reputation as an experimental film maker. In the 1970s he also worked in the film industry as a sound recording technician. For the last 30 years, his emphasis has been with still photography though he continues to pursue activities in various media. In the mid 1980s Neelon Crawford began producing some of his black and white photographs as editions of photogravures. (A photogravure is essentially a photographic etching). He has produced "Antarctica" with images from his first of five trips to Antarctica. He is the son of fine arts photographer Peggy Crawford and his father was a photographer/artist from Canada, Ralston Crawford. He makes his home in Ft. Washakie, Wyoming. <http://www.shirley_jonesgallery.com/exhibit12.html

Jody Forster

Albuquerque based photographer Jody Forster has achieved an impressive reputation as one of the finest landscape photographers working in the southwest. Forster's dedication to the art and craft of photography is matched by his activities as an adventurer and outdoorsman. He was born in Chicago in 1948. Following a commission in the Armed Forces he began to devote himself to photography, attending Ansel Adams' Yosemite workshop and studying with Oliver Gagliani. Forster sometimes returns to a place ten to twenty times to secure the right photograph. In the darkroom he spends hours trying to recreate the energy and breadth of the landscapes. His prints contain a rich vocabulary of values ranging from strong black and white contrasts to subtle grey tones that describe the way natural forms interact with on another. In 1992 Forster was chosen by the National Science Foundation's Antarctic Program as Artist-in-Residence. He spent three months photographing Antarctica's vast landscape of crystalline shapes sculpted by the elements. Unstable weather made this Forster's most difficult photographic endeavor. Forster sailed more than one thousand miles along the Antarctic peninsula in the NSF research vessels. Among the many spectacular photographs he made on the trip is the dramatic Lallemand Fjord where snowcapped mountains rise 6000 feet above glassy waters. Forster's photographs made on this trip so impressed the National Science Foundation that he was invited back to Antarctica in 1995.
< http://www.andrewsmithglallery.com/exhibitions/jodyforster/jfinfo.htm

Joan Meyers

Joan Myers was born in 1944 in Des Moines, Iowa, and had an early interest in the sciences and mathematics. At Stanford University, her concentration on Renaissance and baroque music performance led to a B.A. in 1966 and a M.A. in musicology in 1967. In the early 1970s Ms. Myers turned to photography. Today she utilizes various digital methods, as well as the platinum palladium process and continues her exploration of hand applied color. She teaches workshops throughout the country. In 2002, the National Science Foundation

Joan Myers, *Elephant Island, South Shetland Islands*, 2001, Cone Piezotone Museum Black Ink, 12 x 34 inches, courtesy of the artist

awarded Joan Myers an Antarctic Artists and Writer's Grant to photograph at McMurdo Station, surrounding field stations, historic huts, and the South Pole during the 2002-2003 austral summer. She has been taking photographs for more than 30 years, exploring the relationships between people and the land. Her highly acclaimed work has been the focus of five books. Myers maintains her studio and residence near Santa Fe, New Mexico, www.joanmeyers.com

Eliot Porter (1901-1990)

An amateur photographer since childhood, Porter earned degrees in chemical engineering and medicine, and worked as a biochemical researcher at Harvard University. In 1938, Alfred Stieglitz showed Porter's work in his New York City gallery. The exhibit's success prompted Porter to leave Harvard and pursue photography full time. In the 1940s, he began working in color with Eastman Kodak's new dye transfer process; a technique Porter would use his entire career. Porter's reputation increased following the publication of his 1962 book, *In Wildness is the Preservation of the World*. Published by the Sierra Club, the book featured Porter's color nature studies of the New England woods and quotes by Henry David Thoreau. A best-seller, several editions of the book have been printed. Porter traveled extensively to photograph ecologically important and culturally significant places. He has published books of photographs from Antarctica, Galapagos Islands, East Africa, Iceland, and many others.

Herbert George Ponting (1870-1935)

Ponting was a professional photographer. He is best known as the expedition photographer and cinematographer for Robert Falcon Scott's Terra Nova Expedition to the Ross Sea and South Pole (1910-1913). In this role, he captured some of the most enduring images of the Heroic Age of Antarctic Exploration. Ponting was born in Salisbury, in the south of England, in 1870. He was early attracted to stories of the American West, working in mining and buying a fruit ranch in California in the 1890s. After the ranch failed, Ponting took up free-lance photography relatively late in life, in 1900. His flair for journalism and ability to shape his photographic illustrations into a narrative led to his being signed as expedition photographer aboard the *Terra Nova*. As a member of the "shore party", in early 1911, Ponting helped set up the Terra Novas Expedition's Antarctic winter camp at Camp Evans, Ross Island. The camp included a tiny photographic darkroom. Although the expedition came more than 20 years after the invention of photographic film, Ponting preferred high-quality images taken on glass plates. Ponting was one of the first men to use a portable movie camera in Antarctica. The primitive device, called a cinematograph, could take short video sequences. Ponting also brought some autochrome plates to Antarctica and took some of the first known color still photographs there. During the 1911 winter, Ponting took many flash photographs of Scott and the other members of the expedition in their Cape Evans hut. Ponting's field work began to come to an end. He boarded the Terra Nova in February 1912 to return to civilization, arrange his inventory of more than 1,700 photographic plates, and shape a narrative of the expedition. The catastrophic end of "Scott's Last Expedition" affected Ponting's later life and career. Ponting died in London in 1935.

<http://en.wikipedia.org/wiki/Herbert_Ponting

Douglas Quin

Quin, a renowned musician, composer, naturalist, and "sound artist," is a former teacher whose decade-long interest in bio-acoustics - the pursuit and acquisition of uncontaminated natural sounds, often requiring 200 hours of field recording for a yield of fifteen minutes of usable sound - have led him from the Brazilian rain forests to the plains of the Serengeti to the tundra of the Alaskan Arctic and to Antarctica. An art and theater instructor at Georgetown Prep School in Rockville, Md., until August of 1995, Quin relocated to Sonoma County, where he now works with fellow bio-acoustics pioneer Bernie Krause, the man whose recordings helped lure Humphrey the Humpback Whale from the San Francisco Bay.

<http://www.metroactive.com/papers/sonoma/10.10.96/quin-9641.html

Christopher Cokinos

Cokinos is the author of the critically acclaimed *Hope is a Thing with Feathers: A Personal Chronicle of Vanished Birds* (2001). He is the winner of a Whiting Writer's Award, the Sigurd Olson Nature Writing Award, the Glasgow Prize for an Emerging Writer in Nonfiction and an Antarctic Visiting Artist and Writer Fellowship from the National Science Foundation. Cokinos traveled to the Antarctic with the Case Western Reserve University meteor hunting team. He is an Assistant Professor of English at Utah State University, where he also is Editor of *Isotope: A Journal of Literary Nature and Science Writing.*

<http://www.natashakern.com/clinets_list.htm

Artist statements:

I don't do portraits or social commentary. What interests me is living – the way human beings affect the landscape in which they live. My job is to see clearly.

–Joan Meyers

Antarctica has never been inhabited. It remains an alien outpost, overcast and harsh, colonized by a few hundred scientists who find themselves perched on the surface of a world mostly unphotographed. It is the most mysterious and intriguing setting I've ever encountered.

–excerpt from Wondrous Cold: An Antarctic Journey by Joan Meyers

This time has changed me. I have seen part of the planet that few have seen and I have had the time to walk and photograph and feel our world without its veneer of human activity. Antarctica cannot be tamed. It has never been inhabited by native people and can only be the site of a station like McMurdo because of the enormous support of fuel and supplies. Here at McMurdo, you can pick up rocks that are chunks from the Earth's mantle. You can see meteorites that are as old as our planet. Your connection to the prehistoric planet is ever-present and often frightening. You are always aware that you are at the mercy of forces you don't understand and certainly can't control. I have done many things that I was afraid to do. I have done much that I didn't really want to do because it was uncomfortable, dangerous, and uncertain. For me, that has given me a core strength that previously I had counted on from others.

It is too soon to judge the images I have taken here. I have thousands of photographs from the last three months. Not one is as powerful as the experience itself. It's always like that. Hopefully, some will be strong enough to convey a sense of this extraordinary place to those who cannot get here or who have been here and hold a piece of it in their heart forever.

–Joan Meyers,
Antarctica #15: Jan 12-18
<http://www.joanmeyers.com/Journal.htm.

I feel so thrilled to have been invited by the National Science Foundation to be a part of this process. It's a very enlightened, and I think important, component to the overall work in Antarctica. In some ways, this program brings together two disciplines that have been divided from Leonardo da Vinci on. This is a way for people, through art, to understand science.

–Douglas Quin, sound artist 1996
<http://.www.metroactive.com/papers/sonoma/10.10.96/quin-9641.html

Antarctica's most significant influences will reach far beyond the important scientific discoveries made here. Our admiration of Antarctica's awesome, pristine geography, which has taken on mythical proportions as a symbol of an untouched virgin world, is more a product of our imagination than the place. As we probe Antarctica deeper and more aggressively with our modern tools, ecological idealism and capitalistic pragmatism must temper each other. Antarctica is central to our understanding of both the physical systems of our planet and the psychological forces struggling to direct our future path. The United States Antarctic Program is the experiment. McMurdo and the other austral bases are research laboratories for studying the requirements of sustainable populations with minimized footprints. Ultimately, Antarctica will prove to be most important for its unique ability to provide us an alternative perspective from which to examine our collective behavior and priorities.

As artist, I place the highest value on the search for, and subsequent expression of, my observations. I work first, for myself, distilling what I have found into the most robust images I am able. Then, if I believe form and substance have been well captured, to complete the communication I pass the results on to others for their consideration. The risks involved with working on my own terms are offset by the eliminations of indebtedness to any employer. On this, my fourth journey to Antarctica, through the dark winter, I know without doubt that my world view has been profoundly changed. Antarctica has become the dominant center of my nearly three decades of work on seven continents.

–Neelon Crawford, 1993
<http://quest.arc.nasa.gov/antarctica/tg/electronic.html

Essential Questions

- Why does Antarctica matter?
- Why go there?
- Why have men and women risked life and limb in such a hostile environment?
- Why have explorers raced to claim the South Pole for their country?
- Why have nations agreed to the Antarctic Treaty?
- Why do we spend money for research there?
- How do humans affect landscape?
- How does landscape affect humans?
- How does the visual landscape affect our ideas of what art is?
- How does a close physical relationship with the land influence our ideas of art, in this case, a cold harsh relationship?
- How do the colors of sky and land affect us?
- How does light affect us and how we choose to live each day?
- How does darkness affect us and how we choose to live each day?
- Why do tourists flock to Antarctica? What are they attracted to?
- What can scientists learn from Antarctica and the south polar regions?
- Can Antarctica help mankind to understand their world better?
- Does the close viewing and observing of the photos make you want to find out more about the south polar regions?
- Do you want to go to Antarctica after studying the photographs?
- What do the photographs make you feel? think?
- Does the exhibit make you want to photograph a place you find fascinating or a place you love?

Art Questions to consider

- What do you see in these photographs? Make a list of what you see.
- What looks new in the photographs?
- What looks old in the photographs?
- What words would use to describe these photographs?
- What is appealing to you about the photographs? Consider things like composition, contrast, forms (linear, rectangular, triangular, and circular) colors, texture, lines, perspective, light and shadow, and symbols.
- What is missing from the photos?
- What patterns do you find in the photographs? Repetitions?
- Are the photos in focus or out of focus?
- From what angles are the photos shot? Close-up? At a distance? From above or below? Askew?
- How are these images made and altered?
- What makes these photographs works of art?

Pre-visit Activities

In order to prepare students for their museum visit and extend learning possibilities, we suggest that teachers and students consider the following activities:

- Students will read and research about the Antarctic Region and areas in articles, books, on the internet, or in newspapers.
- Students will read and research about various photographic techniques.
- Students will read and research about the techniques and philosophies of one or more of the photographers, a sound artist and a writer.
- Students will choose specific aspects of Antarctica to research, such as;

Environment

- polar landscape
- formation of Antarctica
- evolution of Antarctica
- Polar Front
- Antarctic Ice Sheet
- ice shelves and glaciers
- icebergs
- the frozen seas
- global warming
- Antarctic ozone hole
- Lights in the sky

Antarctic Region

- Antarctic Peninsula
- Ross Sea Region
- East Antarctica
- Sub-Antarctic Islands

Antarctic Wildlife

- ecology
- mammals
- birds

Antarctic Exploration

- Early explorers
- Heroic age
- Modern explorers

Prerequisite skills/knowledge

Museum staff will work with teachers to ensure that all projects are age and skills appropriate. At the very minimum:

- Students should have some familiarity with sketching and drawing objects.
- Students should know how to operate a simple camera.
- It would be helpful if students read some history of the formation of Antarctica and about the exploration of the South Polar regions.
- Students can look up the vocabulary words below:

Vocabulary to know

You will be able to find these definitions on the internet: Free dictionary, Encarta, and others.

- photogravure
- type c print
- silver gelatin print
- Cone Piezotone Museum Black Ink
- Light green/blue carbon print
- Carbon print
- Dye transfer print

Museum activities

Part 1 – Time frame: 45 minutes

- Students will closely observe the photographs in the Antarctic exhibit.
- Students will be given a worksheet so they can respond in writing or drawing to the work they see by recording their observations and their own thoughts about the work.
- Students will discuss what they see with museum educators.
- They will explore the history and evolution of the South Polar regions, and the relationships with mankind, which have changed both mankind and Antarctica.
- They will explore the perspectives from which the photographers worked.
- Students will answer questions on a museum worksheet.
- Students will develop questions on a museum worksheet.
- Students will engage in discussions about their observations and their answers, questions, and sketches with one another and with the teachers and artists.

Part 2 – Time frame: 45 minutes

The following projects may be considered individually, or combined, or museum staff will work with teachers to develop specific projects which support ongoing classroom work.

- Students will explore the idea of environment, place, landscape and the power of nature by sketching and drawing, photographing, and painting places outdoors that make them feel part of the whole of nature, like, the clouds, natural forms, sun, and earth.
- Students will create a drawing, pastel, painting, photo print or sculpture with an environment and/or landscape in mind.
- Students will explore techniques in the making of a photograph, a drawing, painting, pastel, or sculpture.

Post-visit activities

We have found that students achieve maximum benefit from a museum visit when time is scheduled for post-visit activities. Here are some suggestions:

- Students discuss or write about their museum experiences, reviewing what they have learned, what has special meaning for them, and how they will use new information and skills.
- Students could explore any aspect of the south Polar Regions further. They could do a major research paper on the icebergs, the ice shelf, Adelie penguins or Emperor penguins, the Weddel seals, whales, birds, the Polar Front, climate changes and the ozone effect, early explorers, and modern explorers and scientists, conservation of Antarctica, or any other area of interest connected to Antarctica.
- Students could write an essay using the cold, wild, uninhabitable environment of Antarctica as metaphor for places in their lives they want to go but can't for one reason or another. They might want to explore the idea of how it could be attainable or possible to do something they think they can't for whatever reasons. For instance, they might not have good grades overall and would like to go to a prestigious school. How could that become a reality?
- Students continue to research the work and photographic techniques of a specific photographer, such as: Herbert Ponting, Eliot Porter, Stuart Klipper, Joan Meyers, Jody Forster or Neelon Crawford.
- Students might want to research McMurdo and the people who live and work on the station.

Suggested use in the curriculum

The study of Antartica and the south Polar Regions and its historical, cultural, artistic, biological, environmental, geological aspects will tie to multiple curricular areas, including; the study of geography, the arts, math, science, conservation, history, English, reading and writing, debate, anthropology, and philosophy. Museum staff will work with teachers to address specific Wyoming Teaching Standards and to align museum projects and studies with ongoing classroom curricular units.

Some recommended resources

The resources on Antarctica are endless and go on for pages. We suggest you Google a specific area or aspect you are interested in or look for specific articles and books in your nearest public or school library or through Amazon.com. Some of the resources you might find helpful include:

Amundsen, Roald. The South Pole. 1912.

Brewster, Barney. Antarctica. San Francisco: Friends of the Earth Books, 1982.

Campbell, David G. The Crystal Desert, Summers in Antarctica. New York: Houghton Mifflin, 2002.

Cherry-Garrard, Apsley. The Worst Journey in the World. 1922.

Dodds, Klauss. Geopolitics in Antarctica. New York: Wiley & Sons, 1997.

Green, Bill. Water, Ice and Stone. 1995.

May, John. The Greenpeace Book of Antarctica: A new view of the seventh continent. New York: Doubleday, 1989.

Meyers, Joan. Wondrous cold. An Antarctic Journey. Washington D. C.: Smithsonian Institution, 2006.

McGonigal, David, and Dr. Lynn woodworth. Antarctica, the blue continent. London: Frances Lincoln Ltd., 2002.

Naveen, Ron, Colin Monteath, Tui De Roy, Mark Jones. Wild Ice: Antarctic Journeys. Smithsonian Institution, 1990.

Pyne, Stephen J. The Ice: A Journey to Antarctica. 1986

Rubin, Jeff. Antarctica. London: Lonely Planet Books, 2005.

Scott, Captain Robert F. Scott's Last Expedition. 1913.

Shackleton, Ernest. South. 1919.

Smith, Roff. Life on the Ice. 2002.

Internet Resources

70 South (http://70south.com)

CARA Education and Outreach: Cold Facts about Antarctica (http://astro.uchicago.edu/cara/outreach/coldfacts.html)

(http://quest.arc.nasa.gov/antarctica/tg/electronic.html)

History of Antarctica
(http://en.wikipedia.org/wiki/History_of_Antarctica)

Materials to be supplied to each student

Materials for selected Shelton Studio projects are provided by the art museum.

Assessments and documentation of museum tour and studio experiences

In order to ensure that our museum tour program is meeting the needs of teachers and students, we ask that participants complete evaluation surveys. Surveys will be distributed to teachers and students, but they are also available on-line as a *pdf* file to be downloaded, or they may be requested via e-mail (wbredehoft@uwyo.edu).

1. Students will self-assess using a quick survey that asks them to consider their response to the gallery discussions and research, and their studio experience.
2. Teachers will assess the overall visit by completing a quick survey that asks for their observation and assessment of students' experiences, as well as assessment of the overall process of the museum visit.
3. Museum staff and artists/teachers will record their observations and assessments.
4. When studio time permits, we will ask students to briefly discuss their art work completed in the Shelton Studio visit.

Museum staff may take photographs of students and teachers to document the learning taking place and the work produced during a museum visit. These are available upon written request to teachers who would like to use them as art of teaching and student portfolios.