

THE INFINITE LOOK

A History of Gazing Skyward

UNSW Library
Special Collections
& Exhibitions

**LARGE PRINT
DISPLAY GUIDE**

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INTRODUCTION

The Infinite Look: A History of Gazing Skyward examines humanity's long relationship with the cosmos through the tools built to study it and the layers of cultural heritage beneath it. The exhibition traces the development of astronomical instruments, from ancient stone observatories used to track lunar and solar pathways to the recently launched James Webb Space Telescope. It considers how each technological shift opens new ways of looking skyward, expanding our perception into deeper realms. *The Infinite Look* also includes many cultural traditions across time and place that interpret celestial bodies and constellations, revealing how people find orientation, knowledge, and meaning in the sky. Together, these scientific and cultural perspectives remind us that the night sky holds a living history of human observation and imagination.

Curated by UNSW Library and developed in collaboration with the School of Physics and School of Biological, Earth & Environmental Sciences (BEES), *The Infinite Look* draws

on UNSW research and materials from the University's cultural collections, including UNSW Archives, UNSW Art Collection, the Library's Special Collections, Faculty of Engineering's Surveying Instrument Museum, and mineral and rock samples from BEES. The contemporary art and immersive landscapes featured in the show invite reflection on the scientific advancements and rich traditions of cultural storytelling mapped onto the stars.

We acknowledge First Nations Elders past and present, celebrating their enduring connection to the stars. We recognise Sky Country as a vital extension of land and sea, a map of knowledge, spirituality, and science shaping the oldest living culture on Earth. UNSW Library stands on the unceded lands of the Bedegal and Gadigal peoples.

DISPLAY CASE: TITLE WALL

Aratus' Astronomical poem, 1834

By William Young Ottley (1771-1836)

Printed in London by Royal Society of Antiquaries.

Credit: UNSW Library Special Collections.
VQ 417.7/1

Johannis Hevelii machinae coelestis pars prior, 1673 (reprinted 1969)

By Johannes Hevelius (1611-1687)

Printed in Leipzig by Zentralantiquariat.

Credit: UNSW Library Special Collections.
VQ 520/132 /(1)

Stony-iron meteorite (Pallasite meteorite)

Origin: Molong, New South Wales.

Credit: UNSW School of Biological, Earth & Environmental Sciences. UNSWG0793.

Australite

Origin: South Australia.

Credit: UNSW School of Biological, Earth & Environmental Sciences. UNSWG0792

Chondrite

Origin: Hamilton, Queensland.

Credit: UNSW School of Biological, Earth & Environmental Sciences. UNSWG0576

Achondrite

Origin: Barratta Station, Deniliquin, New South Wales.

Credit: UNSW School of Biological, Earth & Environmental Sciences. UNSWG0852

Seasat Satellite, 1979

Hand-drawn sketch.

Credit: UNSW Archives. CN 1127/5/9/23.

Anissa Jones (born 1976, Burubirangal Dharug)

Dhungagil Wulugul Burrawa, 2026

digital illustration with Dharug language
recording

Courtesy of the Artist

*Dhiyi Dhungagil. Bangadya bula wagul babana
maguridya wulugul. Wiri maguridya wulugul.
Warungad nhaaldya maanmadya ngalawadya
darimi burrawa dhungagilwa.*

This is Orion's Belt. It was made by 3 brothers
who went fishing for kingfish. It was bad to fish
for kingfish. They were seen by the Old Ones and
were made to stay forever in the sky on Orion's
Belt.

SECTION 1: ANCIENT OBSERVATORIES

Astronomy is one of the oldest physical sciences.
For millennia, humans tracked the movements
of the stars, planets, Sun, and Moon. Without
modern telescopes, how did early astronomers
make measurements?

Before the 17th-century telescope, ancient
civilisations observed the sky with the naked eye.
Tracking celestial objects shaped agricultural,
religious, and navigational practices. Ancient
astronomers developed sophisticated
methods relying on repeated observations over
generations.

Stone structures, such as Stonehenge and Nabta
Playa in Africa, marked solstices or equinoxes.
Temples like the Torreón in Machu Picchu and
observatories like Uzbekistan's Ulugh Beg and
Radkan Tower in Iran were designed to capture
light or cast shadows on significant days. Smaller
instruments, such as sundials, astrolabes, and
armillary spheres, showed celestial positions
and are still found in museums today. These

methods prove that early civilisations achieved a profound understanding of the universe through patient observation and innovative architectural alignment.

Text by Dr Kate Jackson, School of Physics.

Image: Star from the Lizard Constellation
Photobombs Hubble Observation (detail).
7 December 2017.

Credit: NASA Goddard

1.01 Stonehenge

(top and bottom) William Stukeley,
*Stonehenge A temple restor'd to the British
druids*, 1740 (reproduction of engraving).

Credit: The Johns Hopkins University
Sheridan Libraries – Public Domain Mark

Stonehenge is a prehistoric temple
(3000–1600 BCE) built with massive stone
blocks on Salisbury Plain in England. Its
architecture, arranged in a circular pattern,
features precise solar alignments and marks
the midsummer sunrise and midwinter

sunset. It likely functioned as an ancient
calendar for tracking seasonal changes
and major lunar standstills, becoming
an essential tool for early farming and
ceremonial life.

1.02 Cheomseongdae Observatory (첨성대, Korean)

Contemporary photograph of
Cheomseongdae in Gyeongju, South Korea.

Credit: Adobe - Education License

Cheomseongdae Observatory, located
in Gyeongju, South Korea, is the oldest
surviving astronomical tower in Asia. Built
during the reign of Queen Seondeok (632–
647 CE), its name translates to “star-gazing
tower.” The tower is constructed with 362
stones, thought to symbolise the days of the
lunar year. Astronomers used it to monitor
celestial bodies, forecast the weather, and
track seasonal changes.

1.03 Beijing Ancient Observatory (北京古观象台, Chinese)

(top) John Thomson, “Peking Observatory” in *Illustrations of China and its people*, 1873 (reproduction of photograph).

Credit: Getty Research Institute – Public Domain Mark

(bottom) Jean Baptiste Bourguignon d’Anville, “Observatoire de Peking” in *Atlas général de la Chine, de la Tartarie chinoise, et du Tibet*, c.1790 (reproduction of engraving).

Credit: Library of Congress, Geography and Map Division – Public Domain Mark

Completed in 1442 during the Ming dynasty, the Beijing Ancient Observatory is one of the oldest observatories in the world. It features intricate bronze instruments, such as the armillary sphere and sextant, used to track celestial pathways. Using these tools, astronomers took precise measurements to determine the position and movement of stars and to maintain the imperial calendar.

1.04 Ulugh Beg Observatory (Ulug‘bek Rasadxonasi, Uzbek)

Contemporary photograph of Ulugh Beg Observatory in Samarkand, Uzbekistan.

Credit: Adobe - Education License

The Ulugh Beg Observatory, built in the 1420s in Samarkand, Uzbekistan, was named after the astronomer and mathematician Ulugh Beg. It housed a massive 40-meter sextant designed to make observations like the sun’s altitude at solar noon and the precise length of the solar year. Astronomers working at the observatory compiled the *Zij-i Sultānī* in 1438-1439, the most accurate star catalogue of its time, which corrected long-standing ancient errors.

1.05 Observatory of Taqī al-Dīn (Takiyüddin’in Rasathanesi, Turkish)

Astronomers at work in the observatory of Taqī al-Dīn in *Şehinşename* (fol. 57a), [Book of the King of Kings], 1404 (reproduction of miniature painting).

Credit: Wikimedia Commons, Istanbul University Library – Public Domain Mark

Founded in 1577 by the polymath Taqi ad-Din, the observatory in Constantinople (now Istanbul, Turkey) utilised advanced instruments, including a giant armillary sphere and a precision mechanical clock, to recalculate the positions and velocities of celestial bodies and modernise outdated astronomical tables. Although it was demolished in 1580, its legacy remains a pinnacle of Ottoman scientific and mathematical achievement.

1.06 Jantar Mantar Observatories

(जंतर मंतर, Hindi)

(top) Contemporary photograph of Jantar Mantar observatory, New Delhi, India.

(bottom) Contemporary photograph of Jantar Mantar observatory, Jaipur, Rajasthan, India.

Credit: Adobe - Education License

Jantar Mantar is a series of five observatories built between 1724 and 1734 by Maharaja Jai Singh II in west-central India. The observatory in Jaipur houses 19 massive stone instruments and features the world's largest stone sundial (Samrat Yantra), enabling high-precision naked-eye measurement of time, declination, and planetary paths even after the telescope's invention.

SECTION 2: TELESCOPES & SATELLITES

The telescope is one of the most impactful inventions in scientific history, although its inventor remains a mystery. Hans Lipperhey, a Dutch spectacle maker, is credited because he was the first to apply for a patent in 1608. Lipperhey's telescope consisted of a cardboard tube with a convex lens and a concave eyepiece. Although the patent was rejected, astronomers saw the telescope's potential.

In 1609, Thomas Harriot made the first telescopic drawings of the Moon. In 1610, Galileo Galilei, using a modified design, made famous observations of Jupiter's moons and the phases of Venus. Both discoveries questioned the widely accepted geocentric model, which placed Earth at the centre of the universe. A new era of modern astronomical instrumentation had begun.

Since Galileo, telescopes have undergone many advancements, including those that do not detect visible light. The CSIRO Parkes Radio Telescope

in NSW, for instance, detects radio sources in the Milky Way. Finally, to bypass the Earth's atmosphere, NASA developed space-based telescopes, most famously the Hubble and the James Webb Space Telescope.

Text by Dr Kate Jackson, School of Physics.

Image: Star from the Lizard Constellation Photobombs Hubble Observation (detail).
7 December 2017.

Credit: NASA Goddard

2.01 Refracting telescope

(top) Galileo's Object-Glass and telescopes (reproduction of photograph).

Credit: Mount Wilson Observatory
Photographs and Audiovisual Materials.

Courtesy of Observatories of the Carnegie Institution for Science Collection at the Huntington Library – Public Domain Mark

(bottom) Galileo with his telescope in the Piazza San Marco, Venice, 19th century (reproduction of wood engraving).

Credit: Wellcome Collection – Public Domain Mark

In 1609, Galileo Galilei enhanced the refracting telescope design (originally a 1608 Dutch invention) by utilising lenses to bend light and create a magnified image. This innovation enabled him to discover Jupiter's moons and lunar craters, revolutionising observational astronomy and providing concrete evidence for the Copernican sun-centred, or heliocentric, model.

2.02 Reflecting telescope

(top) Replica of Newton's first reflecting telescope made in 1668.

Credit: The Science Museum UK - CC BY 4.0

(bottom) Isaac Newton, sketch of a reflecting telescope and its components, 17th century (reproduction of illustration).

Credit: Library of Congress – Public Domain Mark

The reflecting telescope, invented by Isaac Newton in 1668, uses mirrors instead of lenses to focus light. Newton's improvement on the refracting telescope eliminates chromatic aberration, a distortion where lenses fail to focus all colours at the same point, causing blurry "rainbow" fringes around objects. Reflectors provide clearer, high-contrast views of deep-space objects like distant galaxies.

2.03 Radio telescope

Deep Space Station 43 (DSS-43), a 70-meter radio antenna located at the Canberra Deep Space Communication Complex.

Credit: NASA

In 1932, Karl G. Jansky detected invisible radio signals from the Milky Way's centre using a rotating antenna. He published his discovery in 1933, birthing the field of radio astronomy. This breakthrough enabled

scientists to “hear” the universe and detect hidden phenomena like pulsars and quasars that remain invisible to traditional optical telescopes.

2.04 Hubble Space Telescope

Hubble Space Telescope is grappled by Discovery’s Remote Manipulator System (RMS). 24 April 1990.

Credit: JSC and NASA

Positioned above Earth’s distorting atmosphere, the Hubble Space Telescope was launched via the space shuttle Discovery on 24 April 1990. It is a space-based reflecting telescope that captures ultra-sharp visible and ultraviolet light. It has transformed scientists’ understanding of the universe by enabling them to date it at around 13.8 billion years old. It also revealed supermassive black holes that anchor nearly every major galaxy.

(suspended)

Model of Hubble Space Telescope

Credit: NASA.

Fabricated by UNSW Design Futures Lab

2.05 James Webb Space Telescope

(top) Artist’s concept of James Webb Space Telescope. 2017.

Credit: NASA, ESA, CSA, Northrop Grumman

(bottom) Last view of the James Webb Space Telescope following the launch. 25 December 2021.

Credit: Image: NASA, ESA

The James Webb Space Telescope, launched on 25 December 2021, is the largest infrared observatory ever built. It utilises gold-coated mirrors to observe the universe and detect faint infrared light (heat) from the universe’s earliest stars and galaxies. Infrared space telescopes like the James Webb allow scientists to see distant galaxies that were previously obscured by cosmic dust.

2.06 UNSW Telescopes & Observatories

(left to right, top to bottom) Prof. Warrick Couch with a Celestron-14 telescope. 2001. 08/212/864.

An equatorially mounted telescope at the Civil Engineering Students Survey Camp. 1966. CN945/18/43.

UNSW's southernmost laboratory - the Automated Astrophysical Site-testing Observatory (AASTO), South Pole, Antarctica. January 1997. Photograph by Max Boccas. 07/181/17.

John Panettieri with gamma ray telescope. 3 April 1987. Photograph by John Thomas / Audio Visual Centre - University College, ADFA. CN1127/1/2/37.

Students work on a radio telescope on the roof of the Old Main Building as part of their 3rd year physics project. 17 July 1992. 00A31/C1/D3.

Students with a telescope on Library Lawn during O-Week. March 1983. Photograph

by Kevin Doig / Public Affairs Unit. CN1127/9/6/19.

Gamma Ray Telescope, University College, ADFA. 3 April 1987. Photograph by John Thomas / Audio Visual Centre - University College, ADFA. CN1127/1/2/37.

The Automated Patrol Telescope. 1985. S623.

School of Physics - Laboratory - Equipment. c. early 1990s. 00A31/C2/D2.

The Baker-Nunn Camera at Orroral Valley. c.1985. Photograph by J.F.W. Storey. S623.

Credit: UNSW Archives

From the campus Library Lawn to the South Pole, UNSW researchers and students use a diverse range of instruments to explore the cosmos. These devices, including optical, radio, and gamma-ray telescopes, allow for photographing stars, monitoring celestial patrols, and conducting thermal infrared surveys to study how stars form within distant, murky gas clouds.

DISPLAY CASE

Fluorite (CaF₂)

Origin: China.

Credit: UNSW School of Biological, Earth & Environmental Sciences. UNSWG0471

Fluorite is a crystal used to create high-performance telescope lenses. Unlike standard glass, it has low dispersion, meaning it doesn't scatter light into a rainbow, keeping the colours tightly focused for a sharper image. Fluorite lenses create incredibly sharp, high-resolution images of space.

Karl G. Jansky and his rotating directional radio antenna, the world's first radio telescope. c. early 1930s

Credit: NRAO/AUI - CC BY 3.0

Observatory for 36cm Telescope at Mudgee NSW for School of Physics UNSW, August 1977

Hand drawn blueprint.

Credit: UNSW Archives. CN96A30

Model of James Webb Space Telescope

Credit: NASA, ESA, CSA. Fabricated by UNSW Design Futures Lab

"Hubble reveals galactic clashes"

Uniken, no. 5, 1992, pages 1-2.

Credit: UNSW Archives. S328

"Optics Notes" c.1950s

Notes by Constatine Tenukest (1906-1990), amateur astronomer and officer in charge of Precision Optics Laboratory, UNSW School of Physics.

Credit: UNSW Archives. CN1190/2

"Optics Notes" c.1960s

Notes by Constatine Tenukest (1906-1990), amateur astronomer and officer in charge of Precision Optics Laboratory, UNSW School of Physics.

Credit: UNSW Archives. CN1190/1

Constantine Tenukest, February 1956

Officer in charge of Precision Optics Laboratory, UNSW School of Physics.

Credit: UNSW Archives. CN1190/3

SECTION 3: MARS

How did life begin on Earth, and could it also have started on Mars? In the Pilbara of Western Australia, 3.48-billion-year-old rocks preserve ancient stromatolites - layered structures built by microbial mats - which are our earliest, most convincing evidence of life on our planet. At a similar time, Mars also had water, the right chemical elements, and a substantial atmosphere, making it potentially habitable. Today, Mars is cold and dry, its lakes and rivers long gone, its atmosphere stripped away by the solar wind. Yet the rocks hold clues to Mars's past. These clues could help us better understand how life arose on Earth and could contribute to one of our most profound questions: Are we alone in the universe?

Students can engage with the Martian surface and its geological evidence through guided virtual reality excursions. This recording was developed using the UNSW Immersive Learning Technologies Authoring tool, specifically designed to transform complex planetary data into an accessible educational experience.

Text by Professor Carol Oliver, School of Biological, Earth and Environmental Sciences.

Image: Landscape with red layers of Jasper in the vicinity of the little village of Marble Bar, Western Australia (detail).

Credit: Adobe - Education License

3.01 Screening List

Recording of Mars Virtual Reality Field Trip experience, 2026
single-channel video

Credit: UNSW Immersive Technologies, PVC Education

Curiosity Mars rover panorama, 7 February 2025
single-channel video, 1:31 minute

Credit: NASA/JPL-Caltech/MSSS

This view captured by the Mars rover Curiosity looks back across Gale Crater from Mount Sharp through a colour-adjusted lens that mimics how the Martian landscape would appear to the human eye on Earth.

3.02 What does Mars smell like?

What might the Red Planet smell like? Given its iron-rich desert surface, scientists suggest that Mars may have a metallic, coppery scent of rusty dust and sulphur. This display captures the distinct, acrid aroma of oxidised iron. We invite you to sniff the display to experience what the Martian atmosphere might smell like.

3.03 Mars Perseverance Rover, 3D Model

Credit: NASA/JPL-Caltech

A 3.5-billion-year-old rock from Western Australia's Pilbara region is currently on Mars. Carried by NASA's Perseverance rover, it serves as a known reference point for fine-tuning the rover's lasers. By testing instruments against the rock sample, scientists can accurately identify Martian minerals in their search for life.

DISPLAY CASE

Stromatolite

Origin: Pilbara, Western Australia.

Credit: UNSW School of Biological, Earth & Environmental Sciences

Western Australia's Pilbara contains some of the world's oldest fossils, known as stromatolites. These ancient structures were built by tiny microbes billions of years ago. Because the Martian landscape is so similar to the Pilbara, scientists study these Australian rocks to learn exactly what signs of life to look for on Mars.

Iron meteorite (Octahedrite meteorite)

Origin: Youndegin, Western Australia.

Credit: UNSW School of Biological, Earth & Environmental Sciences. UNSWG0791.

Iron Ore (Jaspillite, proto-banded iron formation)

Origin: Pilbara, Western Australia.

Credit: UNSW School of Biological, Earth & Environmental Sciences

Iron Ore (banded iron formation)

Origin: Pilbara, Western Australia.

Credit: UNSW School of Biological, Earth & Environmental Sciences

Gypsum

Origin: unknown.

Credit: UNSW School of Biological, Earth & Environmental Sciences

Finding gypsum on Mars indicates that liquid water once flowed there. This rock contains water molecules and typically forms when minerals dissolve in water and then crystallise. Its presence suggests a habitable past environment in which underground water moved through rock fractures, leaving this mineral behind as a lasting record.

“School of Rock”

UNSW Magazine, no. 2, 2017, pages 24-25.

Credit: UNSW Archives. S328.

Perseverance’s First Full-Colour Look at Mars, 19 February 2021

Credit: NASA/JPL-Caltech

Perseverance Rover’s First Image from Mars, 18 February 2021

Credit: NASA/JPL-Caltech

Notes, “Site 1 Conical Stromatolite”, 2020

Handwritten notes and drawings depicting layered rocks in which stromatolites are found in the Pilbara, Western Australia. This was done for the Pilbara Virtual Field Trip.

Credit: Clare Fletcher, UNSW School of Biological, Earth & Environmental Sciences.

Fieldwork notes, Pilbara Western Australia, 2021

Hand drawn map illustrating possible camera placements to prevent vandalism of stromatolite fossil sites in the Pilbara, Western Australia.

Cameras were not implemented at these sites.

Credit: Clare Fletcher, UNSW School of Biological, Earth & Environmental Sciences.

Mars Desert Research Station (MDRS)

The Mars Desert Research Station (MDRS) is the largest and longest running simulated Mars surface research facility. Built in the early 2000s and located in Utah, it hosts small research crews that carry out scientific studies in a Mars like environment. The station includes a two story habitat, greenhouse, engineering pod, science building, and observatories. In 2024, UNSW student Clare Fletcher spent two months at the MDRS for their PhD research on exogeoconservation. Their handwritten notebooks capture their daily studies as well as the problem solving required in the Mars analogue environment. These records offer insight into practices that will shape the future of human space habitation and research.

SECTION 4: STAR MAPPING & ASTRO-NAVIGATION

Navigating by the stars was common for early mariners. While some kept the shoreline in sight, like the Minoans and Phoenicians of the Mediterranean, others, like the Polynesians, depended upon a deep understanding of the movements of the Sun, Moon, and constellations. In the Southern Hemisphere, the Southern Cross is one of the most recognisable navigation constellations.

Celestial navigation advanced significantly with the development of instruments to help determine location. Used widely from the 6th century, a planispheric astrolabe measured time and celestial positions. The sextant, invented in the 1700s, accurately measures the angle between night sky objects and the horizon. Navigational accuracy remained limited until the first reliable maritime chronometer was invented in the 1700s. Such instruments became obsolete in the 1990s when the Global Positioning System (GPS) became operational.

Alongside instrumentation, star mapping has improved. The European Space Agency's Gaia spacecraft, retired in 2025, created a three-dimensional map of the Milky Way.

Text by Dr Kate Jackson, School of Physics.

Image: Southern hemisphere constellations (detail).

Credit: Adobe - Education License

4.01 Glen Mackie (Kei Kalak) (born 1975, Language: Kala Lagaw, Torres Strait)

Zenadh Kes Mai (Torres Strait Pearling Story), 2016

vinylcut relief print, mica powder, edition 6/35

Purchased 2023

UNSW Art Collection (PR2023/1285)

A pioneer of the Torres Strait Islander print movement, Glen Mackie (Kei Kalak) blends familial storytelling and artmaking traditions with his distinctive patterned style. Within the silhouette of a pearling diver's helmet,

Mackie depicts cultural histories tied to the ocean, including a mourner with a Christian cross, a drummer with dancers, and a navigational constellation. Mackie created this work by carving detailed designs into vinyl blocks, before stamping them onto paper.

4.02 Unknown artist, from Marshall Islands

Navigation chart, known as rebbelib, 19th century (reproduction of object made of cane (?), fibre, shells).

Credit: © The Trustees of the British Museum - CC BY-NC-SA 4.0

Used to map the complex shallow reefs and strong tidal currents of the Marshall Islands coral atolls, Micronesian navigators commit intricate charts, called a rebbelib, to memory before voyaging on their seafaring canoes. This ocean/land-based tool is used in conjunction with memorised star maps, song, and bird flight patterns to determine location and direction.

4.03 Margaret Bryan (1759–1836)

“The Southern Celestial Hemisphere” (Plate V) in *A compendious system of astronomy in a course of familiar lectures*, 1797 (reproduction of copper plate engraving).

Credit: UNSW Library Special Collections.
KQ 520/24

Margaret Bryan was a pioneering British educator dedicated to teaching women astronomy and physics. In 1797, she published a collection of her lectures under the title *A Compendious System of Astronomy*. She challenged the gender boundaries of the Enlightenment era by offering young women the opportunity to pursue a scientific education.

4.04 Dunhuang Star Chart

c.649-684 (reproduction of manuscript).

Credit: © The Trustees of the British Museum
- CC BY-NC-SA 4.0

This star chart, found in Dunhuang, China, is one of the world’s oldest and most

comprehensive atlases, mapping 1,345 stars across the night sky. It organises stars into unique groups called asterisms, which are groupings that appear in recognisable shapes or patterns similar to constellations.

4.05 (on floor) Richard Cushee (1696–1733)

“The Solar System or the Orbits of the Planets according to their mean distances from the Sun” in *The description and use of the globes and the orrery* by Joseph Harris, 1740 (reproduction of engraving).

Credit: UNSW Library Special Collections.
K 522.78/2

Richard Cushee was an English globemaker who produced terrestrial and celestial globes. In this illustration, a Copernican solar system is pictured. Also known as the heliocentric model (sun-centred), this proposed structure was published by Polish astronomer Nicolaus Copernicus in 1543 and replaced the geocentric (Earth-centred) model that was previously the dominate theory in European astronomy.

DISPLAY CASE

Nautical sextant, manufactured circa 1857

Radius 220mm, Arc 310mm.

Credit: UNSW Surveying Instrument Museum.
97/0105

A nautical sextant is specially designed for navigational and astronomical purposes, allowing horizontal and vertical angles to be measured. It is used in marine navigation for measuring vertical angles to stars, and, occasionally, for measuring angles between terrestrial targets. The structure of the sextant is based on the theorem that a ray reflected by two mirrors is deflected by twice the angle enclosed by the mirrors.

Planisphere chart, manufactured 1954

Credit: UNSW Surveying Instrument Museum.
97/0114

A planisphere is an instrument for astronomical navigation, using the stars as reference points. It consists of the base, the star chart and the altitude-azimuth grid. The star chart is the larger of the two circular disks, and is marked with a few

prominent stars, constellations, and a date scale. The chart is designed to correspond with the orientation of the night sky, with the time given against the appropriate date. This instrument is essentially a map of the southern sky compiled from the 1951 *Star Almanac for Surveyor's*.

Artificial mercury horizon

Credit: UNSW Surveying Instrument Museum.
10/0157

This artificial horizon uses a pool of mercury in a wooden tray to create a level, reflective surface for measuring celestial altitudes when the natural horizon is obscured. To determine a star's height, the observer measures the angle between the object and its reflection with a sextant and then divides that value by two. The instrument comprises a shallow wooden tray and a dedicated bottle for storing mercury. To use it, the tray is placed on a level surface or stand and filled with the liquid metal. This setup provides the stable, reflective base necessary for precise celestial navigation.

***The theodelitus and topographical instrument
of Leonard Digges of University College, Oxford,
1571 (reprinted 1927)***

By Thomas Digges (1546-1595)

Printed in Oxford by J. Johnson, printer to the
University of Oxford.

Credit: UNSW Library Special Collections. K 522.3/1

“Navigation Award”

Uniken, no. 3, 1978, page 1.

Credit: UNSW Archives. S328

SECTION 5: WAVELENGTHS

Visible light, radio, microwaves, infrared, x-rays, gamma rays, and ultraviolet are part of the electromagnetic spectrum, spanning from low-energy radio waves to high-energy gamma rays. The wavelength of visible light is 4000-7000Å (Angstroms).

Celestial objects, including our Sun, emit radiation at all wavelengths across the entire spectrum. Specialised instruments on ground- or space-based telescopes observe specific parts of the spectrum; observing the Sun at different wavelengths reveals information about its surface and atmosphere.

NASA’s space-based Solar Dynamics Observatory (SDO) has three main instruments: the Atmospheric Imaging Assembly (AIA), the Extreme Ultraviolet Variability Experiment (EVE), and the Helioseismic and Magnetic Imager (HMI). These measure wavelength bands, extreme ultraviolet radiation, and magnetic fields.

The Sun's magnetic activity is particularly important for life on Earth. Sunspots are areas of high magnetic activity associated with loops in the Sun's magnetic field. When these loops break, a solar flare or coronal mass ejection (CME) may occur, possibly disrupting telecommunications and producing aurorae.

Text by Dr Kate Jackson, School of Physics.

Image: Slithering Prominence (detail).
11 December 2017.

Credit: JPL. NASA/GSFC/Solar Dynamics Observatory.

5.01 NASA's Solar Dynamics Observatory (SDO) Wavelength Graphics

Credit: NASA/SDO/Goddard Space Flight Center

The Sun's atmosphere hides details that are invisible to the naked eye. NASA's SDO captures these using ten specific wavelengths, each a unique "fingerprint" of solar activity and temperature. These

scientific images are assigned distinct colours to help us differentiate complex data.

Layer the transparencies on the light box to merge these hidden atmospheric levels. By combining different wavelengths, you can create a more detailed and nuanced image of our Sun.

5.02 Sound recording Sounds of the Sun, one mode, 1:30 mins.

**Sounds of the Sun, three modes,
1:30 mins.**

**Sounds of the Sun, all low-degree modes,
1:30 mins.**

Solar sounds generated from 40 days of the Solar and Heliospheric Observatory's (SOHO) Michelson Doppler Imager (MDI) data.

Credit: A. Kosovichev, Stanford Experimental Physics Lab

Just as space images are translated from raw data into colours we can see, data from galaxies, stars, and the Sun can be shifted into audible frequencies, allowing us to hear the energetic activity of the universe. Data from SOHO, sonified by the Stanford Experimental Physics Lab, captures the Sun's natural vibrations and provides scientists with a concrete representation of its dynamic movements. These sounds originated with doppler velocity data. This was processed to remove the spacecraft motion effects, instrument tuning, and spurious points. The data was filtered at about 3 mHz and scaled up to a factor of 42,000 to bring it into the audible range of human hearing (kHz).

Solar Radio Emissions, 44 seconds.

Recorded by the Radio and Plasma Wave (PRW) instrument on the European Space Agency-led Solar Orbiter Spacecraft.
Sonification by Katerina Pesini.

Credit: © ESA/NASA/Solar Orbiter

Up to several times a day, the sun blasts bursts of energetic electrons into space, which emit radio waves as they collide with other charged particles. These bursts are picked up by the Radio and Plasma Waves (RPW) instrument on the ESA-led Solar Orbiter spacecraft. In this sonification, the radio waves are converted into sound, with lower frequency radio waves corresponding to lower frequency sound waves. Whenever a radio burst occurs, there is a 'pyoong' sound that gets lower in tone before fading out completely.

SECTION 6:

ASTROPHOTOGRAPHY

The history of astrophotography has evolved from manual sketches to digital precision. Following the invention of the telescope in the early 1600s, astronomers used it to observe the night sky and record their findings through ink drawings. Artists reproduced these by hand as engravings, which remained the primary method of disseminating this information for the next two hundred years.

The mid-19th century saw the advent of photography. The moon's detailed surface revealed the potential of this new medium. Early lunar photographs were captured on silver-coated plates, which required long exposure times. By the late 1800s, the invention of tracking telescopes enabled cameras to counteract Earth's rotation, eliminating blur and producing much sharper details on glass negatives.

By the early 1900s, large-scale observatory projects compiled thousands of these negatives into lunar atlases. Today, imaging has moved beyond the traditional lens. Modern spacecraft

now combine high-resolution digital cameras with laser measurements to create 3D topographic models, rendering the Moon's surface with precision and accuracy.

Text by UNSW Library.

Image: A Nearby Stellar Cradle (detail).
7 November 2012.

Credit: JPL. X-ray: NASA/CXC/SAO/J.Drake et al.,
Optical: Univ. of Hertfordshire/INT/IPHAS, Infrared:
NASA/JPL-Caltech

6.01 Claude Mellan (1598–1688)

The Moon in its First Quarter, 1637
(reproduction of engraving).

Credit: The Met - Public Domain Mark

Based on 1636 sketches, French artist Claude Mellan's engravings show the Moon's phases with scientific detail. Mellan used a telescope to record his observations, bridging art and space imaging. To make these prints, he carved lines into a metal plate, inked it, and pressed it onto paper.

6.02 John W. Draper (1811–1882)

Untitled (lunar daguerreotype), 26 March 1840 (reproduction of daguerreotype).

Credit: Wikimedia Commons - Public Domain Mark

In 1840, English scientist John W. Draper created the first photographic images of the Moon. His photograph, a daguerreotype, used light to record details onto silver-coated copper plates. He exposed a plate for 45 minutes to capture a permanent record of the Moon, thus beginning the era of modern astrophotography.

6.03 Paul Henry (1848–1905) & Prosper Henry (1849–1903)

Lunar Photograph, South Pole, 1890 (reproduction of albumen silver print from glass negative).

Credit: The Met - Public Domain Mark

In 1885, French astronomers Paul and Prosper Henry photographed the Moon using a tracking telescope to offset the

Earth's rotation. This long exposure produced a glass negative, which was printed onto albumen paper coated with egg white and silver nitrate to create a sharp, detailed astronomical image.

6.04 Charles Le Morvan (1865–1933)

Carte photographique de la lune, 1904 (reproduction of photogravure).

Credit: National Gallery of Art (Washington DC) – Public Domain Mark

Around the turn of the 20th century, Maurice Loewy and Pierre Puiseux photographed the Moon using the Paris Observatory's specialised telescope. Assistant Charles Le Morvan helped manage the 6,000 glass negatives to produce a precise lunar atlas. To create the final photogravure prints, they etched photographic images onto copper plates, which were inked and pressed onto paper.

6.05 NASA's Lunar Reconnaissance Orbiter Camera

Full Moon. 7 Dec 2017 (reproduction of digital visualisation).

Credit: NASA Goddard

Since 2009, NASA's Lunar Reconnaissance Orbiter has mapped the Moon's surface from space. By combining Lunar Reconnaissance Orbiter Camera (LROC) images with laser measurements of the distance between the spacecraft and the lunar ground, this digital visualisation uses global elevation maps to render the Moon's rugged topography with high-fidelity detail and accurate relief.

SECTION 7: DARK SKIES

Ancient astronomers studied the naturally dark night sky, and the details they saw were pivotal to knowledge systems built over many generations. The Milky Way, with its countless stars, dark gas clouds, and distant galaxies, is no longer visible to most of us due to pollution. Light pollution is excessive artificial light from buildings and streetlights. It threatens scientific and cultural practices and has devastating effects on ecosystems that depend on natural light rhythms for sleep, navigation, and hunting.

Beyond light pollution, a new threat is emerging. Thousands of global telecommunication satellites in low-Earth orbit disrupt astronomical observations; they are radio emitters, exist in large numbers, and are bright because they reflect the Sun's light.

Organisations like the International Dark-Sky Association and Australasian Dark-Sky Alliance are committed to protecting dark sky places. The Warrumbungle National Park in NSW is Australia's

first Dark Sky Park and the first in the Southern Hemisphere.

Text by Dr Kate Jackson, School of Physics.

Image: Surprise cloud around vast star (detail).
14 October 2013.

Credit: ESO/VPHAS+ Survey/N. Wright - CC BY 4.0

7.01 Satellites and Space Debris in Earth Orbit

February 2024.

Credit: NASA's Scientific Visualization Studio.
Visualizer: Kel Elkins (USRA)

Engineers: Jessica Ende; Charles Fisher (OMITRON). Producer: Christina Mitchell

This visualisation shows 56 NASA-supported satellites (blue), 9,300 active satellites (green), and 31,000 trackable objects (orange) in Earth's orbit. These objects create bright, moving streaks in photographs. They also increase the overall brightness of the night sky, making distant stars and deep-space objects much harder to observe.

7.02 Bortle scale

Credit: ESO/P. Horálek, M. Wallner -
CC BY 4.0

The Bortle scale is a nine-level system used to measure the brightness of the night sky and the observability of celestial objects in a specific location. This illustration demonstrates the impact of light pollution from an inner-city sky location (far left) to suburban sky, rural sky, and a dark sky site (far right).

7.03 Moonset in Warrumbungle National Park

5 September 2019.

Credit: Wikimedia Commons, Poidabro -
CC BY-SA 4.0

Located in Coonabarabran, NSW, Warrumbungle National Park is Australia's first internationally certified Dark Sky Park (2016). This area is geographically ideal to view clear, starry nights and maintains an exceptional nocturnal environment by limiting pollution from man-made light

sources. This darkness creates an optimal setting for stargazing and supports the ecological conditions that many plants and animals depend on to thrive.

7.04 Siding Spring Observatory

Aerial view of Siding Spring Observatory for the opening of the Automated Patrol Telescope. 7 June 1989.

Siding Spring Observatory - Anglo-Australian Telescope. c. early 1990s.

Credit: UNSW Archives. 98A1/09

Illustration: The Automated Patrol Telescope by J. Cochrane, UNSW.

Credit: UNSW Archives. S623/2/APT/008

Positioned beside Warrumbungle National Park in NSW, Siding Spring Observatory is an important site for astronomical research. Since opening in 1964, the Australian National University has operated the area, hosting telescopes from various institutions undertaking a wide range of space exploration and investigation reliant

on a night sky free from light pollution. At this observatory, UNSW is currently running the Robotic Optical Transient Search Experiment (ROSTE) using a robotic telescope to detect massive deep-space explosions called gamma-ray bursts.

SECTION 8: THE MOON

For centuries, the Moon has acted as both a clock and a sacred symbol for people around the world. Because its cycles are so steady, it helps cultures measure time, predict the best seasons for harvesting, and set the dates for major religious holidays like Lunar New Year, Ramadan, Easter, and Hindu festivals like Diwali.

Many traditions also see the Moon as a living deity with its own story. The Romans honoured Luna as a goddess riding a chariot across the night sky, while in Hindu belief, the god Chandra guides the tides and the human mind. In China, the goddess Chang'e is celebrated during the Mid-Autumn Festival, where families share mooncakes in her honour. While the rituals may differ, the Moon remains a living part of global identity that continues to unite people across every continent and culture.

Text by UNSW Library.

Image: Colour and elevation map of the Moon (detail). 2019.

Credit: NASA's Scientific Visualization Studio.
Visualiser: Ernie Wright (USRA). Scientist: Noah Petro (NASA/GSFC).

8.01 **Abdullah M.I. Syed (born 1975, Pakistan)**

Flagging II from *Celestial Tapestry* series, 2005

embroidery on hand-loomed tapestry
In assistance with a textile weaver from Bogra town, Bangladesh, edition of 2

Courtesy of the Artist and Gallery
Sally Dan-Cuthbert, Sydney

Many national flags draw inspiration from astronomy, incorporating celestial bodies like the sun, moon, and stars to reflect identity and history. Created during my 2005 Britto Workshop in Bangladesh, this handloomed tapestry features an embroidered hybrid symbol uniting the flags of Pakistan, India, and Bangladesh.

Flagging II is deeply woven with the colonial histories of Pakistan, India, and Bangladesh and stitched from their shared South Asian

identity. The design integrates India's Ashoka chakra, Pakistan's crescent, and Bangladesh's red sun like perfect puzzle pieces, suggesting that geographical divisions are illusions.

8.02 Timothy Cook (born 1958, Tiwi)

Kulama, 2015

natural ochres on paper

Purchased 2020

UNSW Art Collection (P2020/1181)

A leading Tiwi artist, Timothy Cook often uses natural ochres from Country to depict celestial stories. This painting centres on Kulama, an annual Tiwi celebration linked to the cosmos. The three days of festivities begin when a ring forms around Japarra (the Moon) late in the wet season, signalling that the kulama, a wild yam, is ready to harvest and eat. Kulama is also an initiation ceremony welcoming young men into adulthood.

8.03 Unknown artist, after Tang Yin (1470–1524)

The Moon Goddess Chang E, 1368–1644 (Ming dynasty), (reproduction of painted scroll).

Credit: The Met - Public Domain Mark

8.04 Unknown artist, from Udaipur, Rajasthan, India

"Chandra, The Moon God" in *Shakunavali [Book of Dreams and Omens]*, c.1710-1720 (reproduction of watercolour painting).

Credit: LACMA - Public Domain Mark

8.05 Muhammad ibn Badr al-Din Jajarmi (active 1340s)

"Illustrated Persian poem about the Moon entering the houses of the twelve zodiac signs" in *Mu'nis al-ahrar fi daqa'iq al-ash'ar [The Free Man's Companion to the Subtleties of Poems]* of Jajarmi, 1341 (reproduction of watercolour painting).

Credit: The Met - Public Domain Mark

8.06 Unknown artist, from Ferrara, Italy

Luna (from the Tarocchi, series A: Firmaments of the Universe, #41), before 1467 (reproduction of engraving).

Credit: The Cleveland Museum of Art. Dudley P. Allen Fund 1924.432.41 - Public Domain Mark

8.07 Abdullah M.I. Syed (born 1975, Pakistan)

Qamar (Full moon) from *Divine Aura and Structure* series, 2026

clay (porcelain), wood, mirror, and Perspex

Courtesy of the Artist and Gallery
Sally Dan-Cuthbert, Sydney

Qamar (Full moon) draws on the 'moon reflecting in water' metaphor to explore the divine beauty and purity in Islamic cultures. The crescent moon (hilal) marks the start of the Islamic calendar month, while the full moon (badar) deeply influences art and poetry.

The use of the crocheted taqiyah cap, a rounded skull cap worn by Muslim men, to create a full moon is to poetically connect and balance the masculine and feminine energies of our thoughts, actions, and emotions. When cast in ceramics and placed onto a reflective surface, the physical semi-circle and its reflection unite to create the full circle of a moon (badar).

SECTION 9: THE PLEIADES

The Pleiades is a star cluster that includes several blue giants visible to the naked eye. In Greek mythology, these stars sit on the shoulder of Taurus, the bull Zeus transformed into to carry Europa across the sea. It is known by many names: Subaru (Japan), Makali'i (Hawai'i), and Matariki (Aotearoa), and the appearance of the star cluster governs agricultural and maritime cycles.

Greek mythology depicts the Pleiades as sisters fleeing a hunter, while Hindu tradition honours them as the Kritikas who raised the god Kartikeya, also known as Arumugan. For the Māori in Aotearoa/New Zealand, the cluster rising in the winter sky marks Matariki, the New Year, a time to honour ancestors and celebrate the harvest. Māori describe this celestial movement through proverbs, or whakataukī: *Ka puta Matariki, ka rere Whānui, ko te tohu o te tau* [Matariki appears, Whānui flees, the sign of the New Year].

Text by UNSW Library.

Image: Pink Pleiades (detail). 16 April 2007.

Credit: NASA/JPL-Caltech

9.01 Unknown artist, found near Nebra, Germany

Nebra Sky Disk, c.1600 BCE (Early Bronze Age) (reproduction of bronze artifact).

Credit: Wikimedia Commons – Public Domain Mark

9.02 Unknown artist, from England

“Pleiades. Seven medallions enclosed in large one. Middle, Electra with red hair. Around it heads of other six, with head cloths” in *MS. Bodl. 614*, c. middle 12th century (reproduction of manuscript illustration).

Credit: © Bodlean Libraries, University of Oxford - CC BY-NC 4.0

9.03 Unknown artist, from Aachen, Germany

“Pleiades” in *Phaenomena / Aratus*, c. 813-840 (reproduction of manuscript illustration).

Credit: Leiden University Libraries - Public Domain Mark

9.04 Unknown artist, from India

Kartikeya, also called Murugan, Hindu god of war, surrounded by a circle of peacock feathers, accompanied by his wives Valli and Devasena, c.1800-1899 (reproduction of gouache painting).

Credit: Wellcome Collection - Public Domain Mark

9.05 Sidney Hall (c.1788–1831)

“Taurus” in *A familiar treatise on astronomy: Urania’s Mirror* by Jehoshaphat Aspin, 1825 (reproduction of engraving).

Credit: University of Oklahoma Libraries - Public Domain Mark

9.06 ‘Abd al-Raḥmān ibn ‘Umar al-Ṣūfī (903–986)

“Ṣūrat al-Thawr [Taurus]” in *Ṣuwar al-kawākib*, 1607 (reproduction of manuscript illustration).

Credit: Princeton University Library - Public Domain Mark

9.07 Unknown artist, from Thanjavur, Tamil Nadu, India

Arumurugan, or six-headed Murugan, in pratyaliḍha, c.1830 (reproduction of watercolour painting).

Credit: © The Trustees of the British Museum - CC BY-NC-SA 4.0

9.08 Anissa Jones (born 1976, Burubirangal Dharug)

Mulumulung, 2026

digital illustration with Dharug language recording

Courtesy of the Artist

*Mulumulung yanma Burra Ngurrawa.
Nanu wulbangadyi wiri mala. Nanu
bayilyidya guni wiri mala, walidya birrung
duwabilidya.*

The seven sisters walk across Sky Country.
They were chased by a bad man. They
fought him with their digging sticks and
turned into stars to hide from him.

**9.09 Sylvia Kanytjupai Ken (born 1965,
Pitjantatjara)**

Seven Sisters, 2019
acrylic on linen

Purchased 2019
UNSW Art Collection (P2019/1138)

A leading Pitjantjatjara artist, Sylvia
Kanytjupai Ken is celebrated for her vibrant
depictions of the Seven Sisters creation
story, an important narrative for her family.
Her expansive canvases chart the sisters'
journey through intricate circular motifs.
The story follows them as they travel
across the earth and sky to escape the

unwanted attention of a magical man.
In the night sky, the sisters appear as the
Pleiades constellation, fleeing from the
man who is represented in the nearby Orion
constellation, forever in their pursuit.

SECTION 10: MILKY WAY

The Milky Way is a spiral galaxy of stars and gas, with Sagittarius marking the direction of its dense centre. In Greek mythology, this region is depicted as a centaur archer, while Chinese legend describes the galaxy as a “Silver River” created to separate the star-crossed lovers Zhinü (the star Vega) and Niulang (the star Altair).

Beyond bright star patterns, many cultures identify dark constellations within the galaxy, caused by cosmic dust clouds that obscure light from reaching our eyes. The Inca found silhouettes of llamas and foxes in these shadows, which they called Yana Phuyu. Many First Nations peoples of Australia recognise the Great Celestial Emu in the cosmic dust clouds of the Milky Way. For the Wiradjuri peoples, the position of this celestial bird, Gugurmin, serves as a seasonal calendar indicating the ideal time to harvest emu eggs. By shifting focus from starlight to shadow, we reveal a celestial map where the voids are not empty but filled with meaning.

Text by UNSW Library.

Image: Hubble’s Slice of Sagittarius (detail).
7 December 2017.

Credit: NASA Goddard

10.01 Barnaby Norris

Emu in the Sky, 2007
photograph

Credit: Barnaby Norris - Wikimedia
Commons, CC BY-SA 4.0

The “Emu in the Sky,” or the Great Celestial Emu, as it is also known, is shaped by Milky Way dust clouds. In autumn, it appears in alignment with ancient emu rock engravings at Ku-ring-gai Chase National Park. Sydney’s light pollution now obscures this view, requiring trips out of the city to dark sky reserves like Siding Spring to see constellations. This loss threatens cultural astronomy, as the vital connection between celestial cycles and terrestrial sites becomes increasingly difficult to observe.

10.02 Anissa Jones (born 1976, Burubirangal Dharug)

Mariyung, 2026

digital illustration with Dharug language recording

Courtesy of the Artist

Dhiyi malung mariyunga yudibanya burrawa. Nanu nhaaladya Dharug Ngurrawa bayaladyi guwiyadyi ngurragu.

This is the Dark Emu who guides us in the sky. They see Dharug Ngurra and tell us when to care for Country.

10.03 Sidney Hall (c.1788–1831)

“Sagittarius” in *A familiar treatise on astronomy: Urania’s Mirror* by Jehoshaphat Aspin, 1825 (reproduction of engraving).

Credit: University of Oklahoma Libraries - Public Domain Mark

10.04 Unknown artist, from Isfahan, Iran

Kitāb-i ‘Ajā’ib-i makhhlūqāt, 1921

(reproduction of manuscript illustration).

Credit: Princeton University Library - Public Domain Mark

10.05 ‘Abd al-Raḥmān ibn ‘Umar al-Ṣūfī (903–986)

Kitab suwar al-kawakib al-thabita [Book of the Images of the Fixed Stars] of al-Sufi, late 15th century (reproduction of manuscript illustration).

Credit: The Met - Public Domain Mark

10.06 Guo Xu (1456–1532)

The Creation of the Milky Way, 1503 (reproduction of ink painting).

Credit: Wikimedia Commons - Public Domain Mark

10.07 ‘Abd al-Ḥasan ibn Aḥmad ibn ‘Alī ibn al-Ḥasan al-Iṣfāhānī (active 14th–15th centuries)

“al-Qaws [Sagittarius]” in *Kitab al-bulhan [Book of Wonders]*, c.1390 (reproduction of manuscript illustration).

Credit: © Bodleian Libraries, University of Oxford - CC BY-NC 4.0

10.08 ‘Abd al-Raḥmān ibn ‘Umar al-Ṣūfī (903–986)

“Ṣūrat al-Rāmī [Sagittarius]” in *Ṣuwar al-kawākib*, 1607 (reproduction of manuscript illustration).

Credit: Princeton University Library - Public Domain Mark

SECTION 11: SOUTHERN CROSS / POLARIS

Fixed stars provide stable reference points for celestial navigation across both hemispheres. In the Southern Hemisphere, the navigational marker is the Southern Cross (Crux), a cluster of four bright stars that form a distinct cross shape. The star cluster is located within the constellation Centaurus, which represents the wise centaur Chiron in Greek mythology.

In the north, Polaris, also called the North Star or Pole Star, serves as the fixed navigational point. Known historically as the Stella Maris or Lodestar, it sits at the tip of Ursa Minor, representing the transformed bear Arcas in Greek lore or the devoted prince Dhruva, who was blessed to become a permanent, unmoving celestial body in Hindu mythology. In the vast, ever-shifting night sky, these fixed stars are important celestial anchors across cultures, guiding both navigation and tradition.

Text by UNSW Library.

Image: The Southern Cross (detail).
3 December 2009.

Credit: ESO/Y. Beletsky - CC BY 4.0

11.01 Segar Passi (born 1942, Language: Meriam Mir, Torres Strait)

Mer from Dauar, 2016
acrylic on canvas

Gift of students and staff in the School of
Civil and Environmental Engineering, and
Nura Gili in 2016, 2025

UNSW Art Collection (P2025/1432)

Segar Passi, a Meriam Elder and respected
artist, is known for detailed paintings of life
on the Meriam cluster of islands: Mer, Dauar,
and Waier. This painting depicts two people
on a beach on Dauar looking across the
ocean toward Mer. Turtle tracks cross the
sand, the Moon reflects on the water, and
Crux (the Southern Cross) appears above. In
Torres Strait Islander astronomy, Crux forms
the left hand of Tagai holding a spear. This
constellation of a man standing in a canoe is

an important signifier of seasonal changes
and is used as a navigational marker.

11.02 Alexander Mair (c.1562–1617)

“Ursa Minor” in *Uranometria* by Johannes
Bayer, 1661 (reproduction of copper plate
engraving).

Credit: University of Oklahoma Libraries -
Public Domain Mark

**11.03 ‘Abd al-Raḥmān ibn ‘Umar al-Ṣūfī
(903–986)**

“Ṣūrat al-Dubb al-aṣḡhar [Ursa minor]” in
Ṣuwar al-kawākib, 1607 (reproduction of
manuscript illustration).

Credit: Princeton University Library - Public
Domain Mark

11.04 Sidney Hall (c.1788–1831)

“Draco and Ursa” in *A familiar treatise on
astronomy: Urania’s Mirror* by Jehoshaphat
Aspin, 1825 (reproduction of engraving).

Credit: University of Oklahoma Libraries -
Public Domain Mark

11.05 Alexander Mair (c.1562–1617)

“Centaurus” in *Uranometria* by Johannes Bayer, 1661 (reproduction of copper plate engraving).

Credit: University of Oklahoma Libraries - Public Domain Mark

11.06 Studio of Abanindranath Tagore (1871–1951)

“Dhruva” in *Myths of the Hindus & Buddhists* by Sister Nivedita, 1914 (reproduction of watercolour painting).

Credit: University of Toronto Library - Public Domain Mark

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