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Photographs from the 1874 German Transit of Venus Expedition to the Auckland Islands

A transit of Venus occurs when the celestial clockwork positions the planet Venus directly between the Sun and Earth, so that from Earth it is seen to creep across the solar disc as a small black spot. It was once thought that timing and recording the transit track would provide highly accurate estimates of the distance between the Sun and Earth, a measurement that was not only of immense scientific interest but also of great practical importance through the improvements to navigation it would enable.

Transits of Venus are very rare. James Cook's expedition to Tahiti to observe the transit in 1769 is well known as a seminal event in British antipodean expansion because afterwards he went on to map coastlines of New Zealand and Australia. The following transit, in December 1874, was the first to be recorded by photography. This article briefly introduces two albums in State Library Victoria's collection containing photographs acquired during a German expedition to observe this transit from the subantarctic Auckland Islands, 450 kilometres south of New Zealand. The photographs were produced by three photographers who hailed from Dresden: Hermann Krone,

The so-called universal instrument, used to determine time, latitude and longitude. From left: expedition leader Hugo Seeliger, mechanic Hermann Leyser and naval officer Rudolf Siegel look thoroughly fed up, perhaps because completing these observations kept the expedition at Terror Cove until the beginning of March 1875. Guido Wolfram, Album of photographs taken during the German Transit of Venus Expedition to the Auckland Islands and Egypt in 1874, includes views of Victoria, Australia, 1 album (62 photographic prints), albumen silver, album 32.8 × 29.1 × 4.5 cm, c. 1874 – c. 1875 (hereafter Wolfram album), H85.88/9





Expedition members pause from erecting the prefabricated dwelling house. From left: Johannes Krone; leader Hugo Seeliger, who sports a cane because he had cut his foot; Hermann Krone; mechanic Hermann Leyser; naval officer Willibard Becks. Wolfram album, H85.88/36 (detail)

aged 46 (see above); Dr Guido Wolfram, 24 (page 97); and Krone's eldest son, Johannes, 18 (above and page 99). All of the Krone and most of the Wolfram images are available online through the Library's website. Hermann Krone was by a decade the oldest expedition member and a well-known photographer. It is thanks to his extensive writings that the photographs can be interpreted.

The Krone album contains 42 albumen contact prints made from glass negative plates and are a selection from a larger suite of 64 made available for sale and detailed in a printed list bound with the album.¹ Other copies exist elsewhere. Hermann Krone sent the album to prominent Melbourne personality Sir Redmond Barry in 1879 in thanks for his hospitality and friendship when the expedition passed through Victoria's capital.

The Wolfram album contains 62 albumen prints; 46 were taken by Wolfram, while 15 are tourist views no doubt purchased in Melbourne and Egypt, and one shows the transit.² These prints are mounted on thick card and include some duplicates. Their presentation suggests they may have been intended as visual aids for public lectures, but who put the collection together and how and when it arrived at the Library are mysteries. Many of the Wolfram scenic images have descriptive printed labels, indicating that they too were intended for dissemination, but copies elsewhere are rare.



A view of the station as it neared completion, taken by the Krones. The two men in the foreground are the naval officers. The building with others clustered around it is the turret containing the photoheliograph, the special telescope for photographing the Sun. The dwelling house is behind the turret to the left. Hermann Krone, Album of photographs taken during the German Transit of Venus Expedition to the Auckland Islands in 1874–1875, 1 album (42 photographic prints), albumen silver, album 20.7 × 28.5 × 3.5 cm, 1874–75 (hereafter Krone album), H86.2/36

At the time, photographic plate sizes were not standardised. In the main, the albums derive from plates of two sizes: cabinet, or half-plate (c. 155 × 130 millimetres) and quarto, or full plate (c. 180 × 220 millimetres). However, the Krone album cabinet prints have been cropped much smaller, perhaps to hide poor lens throughput at the edge of the field of view. Albumen prints often fade and their highlights yellow. This has affected the Krone album prints more than those in the Wolfram album.

The German expedition left Europe by scheduled steamer services in late July 1874. The leader, Dr Hugo Seeliger, aged 24 (see pages 93 and 94), and two naval officers (pages 93–95 and 97) took the quick route via the Suez Canal and arrived in Melbourne on 23 August. They took delivery of a prefabricated wooden house (pages 94–96), bought supplies and hired a cook, steward and carpenter (page 97). The other five expedition members travelled around the Cape of Good Hope and arrived a month later with 80 crates of equipment.

After some difficulties, the *Alexandrine*, a French barque (a triple-masted sailing ship), was hired for the onward voyage to the Auckland archipelago. Relations with the crew were perhaps not completely easy, because the Franco-Prussian war had ended only three years previously. ‘Thanks to the irony of fate, we had to be dependent upon the craft of our old “arch enemy”’, sighed Krone.³



Distortion-free lenses facilitated the taking of panoramic views composed of several photographs. This panorama is a digital composite made from Wolfram's images of the station looking east towards the sea. Wolfram album, H85.88/35 (left), H85.88/23 (right)

It took almost a fortnight to cover the 2200 kilometres to the Auckland Islands. The ship encountered calms and two dreadful storms, in which half the chickens drowned, threatening the albumen supply – from their eggs – needed to prepare the photographic plates.

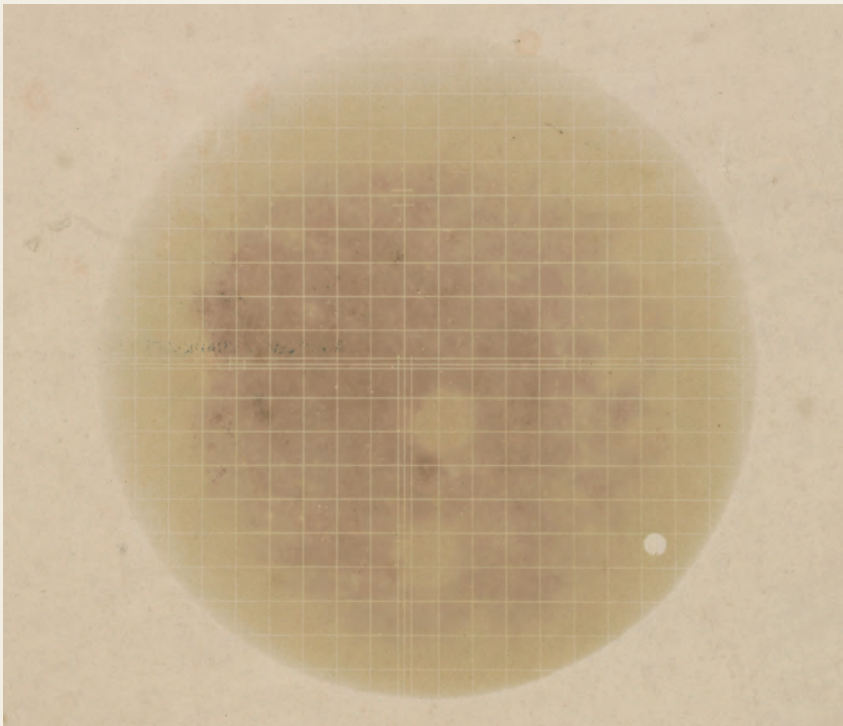
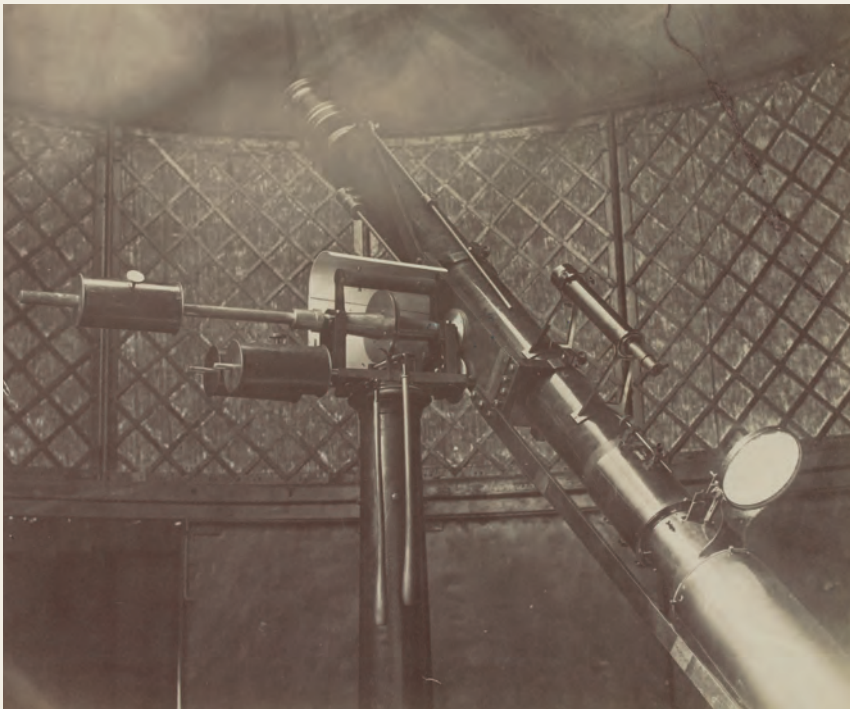
The *Alexandrine* anchored in Port Ross, an inlet in the north-eastern part of Auckland Island, the group's main island. A site in Terror Cove, on the north-west shore of Port Ross, was rapidly selected as the only practicable one for the station, given the impenetrable nature of the local bush. Clearing the site and erecting the dwelling house took immediate priority, and the expedition members worked with 'termite diligence', despite teeming rain and boggy soil.⁴ Even so, it was a fortnight before they were able to abandon their berths afloat and sleep ashore. The next priority was to erect observatory turrets, a photographic darkroom and other buildings, and to install the telescopes.

Two photographic procedures were available to the expedition. Wet plates were more sensitive but had to be exposed and developed within half an hour or so, before dried patches ruined the uniformity of their response. Dry plates could be prepared a few days before use and developed a few days afterwards, but they were less sensitive and were unsuitable for photographing people.

Images from the expedition cover a wide range of subjects, including views of the islands, astronomical instruments, the expedition's shelters and personnel and the *Alexandrine's* crew. Some individuals hold tools of their trade. Preparing for the transit on 9 December (local time) was, however, the main focus. The photographers could prepare about 50 dry plates per day, but a few days before the transit, tests on the Sun – during a rare break in the clouds – revealed that, when developed, the plates were mottled with black smudges. Hermann Krone realised this was due to iron in the water. 'A kingdom now



Top left A magnificent waterfall on the east side of Port Ross, though its exact location is unclear. Wolfram album, H85.88/47 **Top right** Guido Wolfram with rifle. Hunting was a consuming activity with the expedition. Wolfram album, H85.88/7 (detail) **Bottom left** The two naval officers, Captain-Lieutenant Willibard Becks (left) and Sub-Lieutenant Rudolf Siegel, with pet goat Richard. Wolfram album, H85.88/8 **Bottom right** The cook, holding some sort of vegetable; the steward; and the carpenter, with a set square. The bone and tooth necklace were presumably mascots. Wolfram album, H85.88/4



Top The photoheliograph telescope used to record the path of Venus across the Sun. Wolfram album, H85.88/28 **Bottom** The transit as seen from Terror Cove station. Venus appears as a bright spot in this negative copy of a photoheliograph plate, reversed and inverted compared to its appearance in the sky. Wolfram album, H85.88/62 (detail)



Left The basalt coast of Rose Island, with a rock pool, the tuff castle and a diminutive Johannes to give scale. Krone album, H86.2/21 **Right** The beach on Enderby Island, with Rose Island in the middle distance and Auckland Island beyond. The photographers' boat is beached near the shoreline. The large bones in the foreground are probably from sea lions. Krone album, H86.2/29

for pure water', he wrote later, but the supply from rain and distillation was insufficient.⁵ So he devised a new emulsion that required only one wash in pure water.

The weather continued dreadful, with torrents of rain on the morning of the event. 'And then came the miracle', as Seeliger put it: the skies cleared temporarily.⁶ The photographers and naval officers operated the photoheliograph and over four hours exposed 20 wet plates and 95 dry plates (see page 98). Johannes Krone spent the next few weeks contact copying all 115 plates to provide a backup in case of misadventure.

Exploring was a favourite pastime with both the sailors and the expedition members. In January they made trips to smaller islands in the Aucklands group. The 'basalt tuff castle' on the wildly fissured north-west coast of Rose Island clearly impressed the photographers, given the number of images showing it in the albums, one of which is reproduced above.⁷ Hermann Krone was also a keen naturalist, and several of the Krone photographs



The depot with provisions for castaways at Pig Point, Auckland Island. Krone album, H86.2/10

concentrate on the islands' vegetation, compared to only one in the Wolfram album. Another attraction for Krone was the sandy beach on Enderby Island, 'abundantly covered with bleaching bones' (see page 99).⁸ While he was searching for beetles there, he almost lost his life. A drunken sailor mistook his red fez for a bleeding sea lion head and fired his gun to finish the animal off. Luckily his aim was bad.

Auckland Island had housed a whaling and sealing station from 1849 to 1852. Surprisingly, the only remnant photographed was the grave of a three-month-old baby girl. Shipwrecks evidently loomed larger in the photographers' minds. Three were known from the previous decade, following which Australian and New Zealand authorities had sent several ships to search for castaways and establish supply dumps to succour future ones. Remains of these missions feature in both albums, as do shelters built by the castaways (see above and page 101). The corpse of one castaway had been found in the abandoned settlement, and it had been examined and buried – three times!



Left A castaway hut near Dea's Head, misidentified by Hermann Krone as where a corpse had been found. Krone album, H86.2/5 **Right** Johannes Krone's drawing makes this difficult photograph easier to decode. J Krone, *Die Hütte im Urwald der Aucklandsinsel, in welcher Musgrave die Leiche der James Right fand*, drawing, published as engraving in H Krone, 'Die deutsche Venusexpedition auf den Aucklandsinseln', *Illustrierte Zeitung*, vol. 65, 1875, pp. 475–78, p. 477

Completing calibration observations and dismantling the station took until 6 March 1875, when the expedition left Port Ross. The *Alexandrine's* two anchor chains became entangled, but disaster was narrowly avoided. It took 22 days to reach Sandridge (now Port Melbourne). After being feted in official and private circles, the expedition was back in Europe by mid-year. As for measuring the solar distance, the results were disappointing. Things only began to improve following the discovery of the asteroid Eros in 1897, which was easier to triangulate.

Despite Hermann Krone's renown, and fading notwithstanding, I can only feel that the Wolfram photographs are superior both technically and in composition. Coupled with Krone's writings, the albums provide a unique insight to the activities and tribulations of an early scientific expedition to an inhospitable corner of the globe. It is marvellous that these heritage items have survived and are available for all to view.