ACT Heritage Council

Entry to the ACT Heritage Register

Heritage Act 2004

10001. Bamberg Theodolite

CMAG collection, currently on loan to NCA for exhibition at Regetta Point

OBJECTS

This document has been prepared by the ACT Heritage Council.

This entry which was previously part of the old heritage places or the old heritage objects registers (as defined in the ***Heritage Act 2004***), as the case may be, is taken to be registered under the ***Heritage Act 2004***.

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AUSTRALIAN CAPITAL TERRITORY
HERITAGE OBJECTS REGISTER

For the purpose of S12 of the Heritage Objects Act 1991, a citation for:

Bamberg Theodolite

has been approved by the Minister for the Arts and Heritage for entry in the Heritage Objects Register.

The date of Instrument of Approval: 10 April 1996

Enquiries about this object and copies of this citation are available from:

The Secretary
ACT Heritage Council
TUGGERANONG ACT 2901

Telephone: 207 2179 Facsimile: 207 2177

HERITAGE OBJECTS REGISTER

CITATION

Bamberg Theodolite

NOMINATED BY

Museums and Galleries Unit
Department of the Environment, Land and Planning

LOCATION OF OBJECT

Security Store
ACT Government Survey Depot
10 Cape Street
DICKSON ACT 2602

Block 18, Section 34, Dickson

SHORT DESCRIPTION

This citation includes the Bamberg Theodolite and its tripod, boxes and accessories.

DESCRIPTION

A nineteenth-century brass geodetic theodolite manufactured by Carl Bamberg (Berlin).

The instrument comprises a telescope, numbered 2262 at centre, and an eyepiece numbered '42', with lens cover, mounted on a semi-circular index arm with two adjustable micrometers which are used to read the vernier or graduating scales. The whole assembly is mounted on three adjustable level screws. The base plate frame is inscribed "No 2262 Carl Bamberg Berlin 1884"

Accompanying the theodolite are:

1. a wooden tripod with brass insets. Each join is numbered for easy assembly;

2. a wooden box for the telescope, with brass catches and keyhole, and leather brackets for handles at top. Hand written on the inside in black ink is the word 'Ocular'. Inscribed at top centre 'CB 2262" and bottom left 'HA532'. Inside the box are stored a second eyepiece, numbered '66', a sun lens and a spare screw;

3. a wooden box for the main body of the theodolite, with leather handles at either side, inscribed at top 'CB 2262' and '532 HA'. The instrument is secured by brass clamps to a wooden tray inscribed CB 2262 and hand written in black ink 'Vorne Klemme'. A rack on the door holds accessories. Those present are three steel "tommy" bars or adjustment levers, one empty small glass bottle with cork stopper with feather attached for cleaning and lubricating the instrument. The clamps for holding a plate bubble are missing. At the base of the box are stored objects used when mounting the theodolite on a concrete pillar in the field, namely three black painted brass base plates.

The overall dimensions of the theodolite are H 35cm and W 55 cm, with telescope in horizontal position. The tripod is 99.5 cm high and 68 cm wide at ground level.

CONDITION

The theodolite is in good working order. The tripod and boxes are in reasonable condition for age with keys missing, locks broken, some cracking of wood and leather and superficial scratching to surfaces.

HISTORY

The theodolite was purchased from the NSW Lands Department for £50 on 5 March 1912. The manufacturer of the instrument was the German company, Bamberg.

The theodolite was used for the geodetic survey of the Federal Capital Territory (now the ACT) which began in 1913. The survey was undertaken by the Lands and Surveys Branch of the Commonwealth Department of Home Affairs under the direction of Charles Robert Scrivener. This survey established the place of the Federal Capital Territory in global geography.

Scrivener in the Annual Report for the Lands and Survey Branch for 1912-13 stated that a "…geodetic survey should be the foundation for every other class of survey, the standard to which all other work would be referred…". He referred to the 8 inch Bamberg theodolite used for this survey as "not now rated very highly" but the results he acknowledged were fairly satisfactory "as the average closing error of the triangles observed, having sides averaging from 5 to 10 miles in length, is 1.1 seconds of an arc".

A geodetic survey is a control survey to accurately define points on the earth's surface in latitude, longitude and height above sea level. The points on the survey are known as trigonometric points, Geodetic surveying covers large areas of the earth's surface, as distinct from small-scale mapping. Generally, theodolites are used to measure horizontal and vertical angles. This theodolite only measures horizontal angles. Geodesic theodolites are instruments which are designed to take into account the curvature of the earth.

Early work on the geodesic type of theodolite began in the late eighteenth century, notably with the English scientific instrument makes, Jesse Ramsden (1735-1800). By the late nineteenth century, geodesic theodolites were commonly used especially in regard to mapping large areas of the earth, usually as a result of a government sponsored exploration programme (pers. Comm. Barrett Sept. 1994). The manual method of reading this theodolite has now been superseded by automatic reading, and also modern theodolites are more compact and lighter. This theodolite therefore is representative of a type of instrument that is no longer used and evidence of a method of surveying no longer practised.

The theodolite has remained in the possession of the successors of the Lands and Survey Branch and is now owned by the Survey Services Section, Land Information Office, Department of the Environment, Land and Planning.

ANALYSIS AGAINST THE CRITERIA

3 An object which is evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function which is no longer practised, is in danger of being lost, or is of exceptional interest.

The 1884 Bamberg theodolite is evidence of a method of surveying no longer practised. This now superseded manual method of surveying was used to establish geographically points within the Federal Capital Territory (now ACT). It was the standard to which all other survey work was referred.

7 An object which has strong or special associations with a person, group, event, development or cultural phase in local or national history.

The theodolite was the instrument used for the geodetic survey of the Federal Capital Territory (now ACT). The survey, which commenced in 1913, was undertaken by the Commonwealth Department of Home Affairs Lands and Survey Branch under the direction of Charles Scrivener. The instrument therefore has a strong and special association with the foundation of the Federal Capital Territory.

The geodetic survey established the place of the Federal Capital Territory in global geography.

STATEMENT OF SIGNIFICANCE

The theodolite is of exceptional interest as evidence of a method of surveying no longer practised and for its special association with the original geodetic surveying of the Federal Capital Territory under the direction of Charles Scrivener. This survey was the standard to which all other survey work was referred. It provided the basis for the subsequent development of Canberra and established the place of the Federal Capital Territory in global geography.

CONSERVATION POLICY

1. Store and display the theodolite in secure conditions.

2. Regularly monitor the condition of the theodolite.

3. Any necessary maintenance or conservation treatment is to be carried out with professional advice.

4. Adaptation should be accepted if it means that the significance of the object is better conserved. When any original material is replaced it would be retained, its location recorded and the changes documented.

5. Replace any component that wears out or is lost with reconstructed components to match the original in detail and finish, and where appropriate, the original material.

The heritage significance of the object is to be retained as described under the Specific Conservation Requirements.

SPECIFIC CONSERVATION REQUIREMENTS

In accordance with Section 6 (d) of the Heritage Objects Act 1991, the following requirements are identified as essential to the retention of the heritage significance of the object:

1. A conservation and management plan is to be prepared and submitted to the Heritage Council for approval prior to any action affecting the theodolite.

2. The approval plan is to be implemented and adhered to in regard to any work undertaken on the instrument.

3. The theodolite is to be kept operational.

REFERENCES

Department of Home Affairs 1914 *Annual Report of Lands and Surveys Branch 1912-13,* Government Printer, Sydney.

Department of Home Affairs *Federal Capital Record of Instruments etc Purchases of Equipment and Stores 1910-1912*.

Barrett, Desmond Curator, Science and Technology, Powerhouse Museum, Sydney (pers. comm. September 1994) provided the description and the history of geodesic theodolites.

Institution of Surveyors File NO5 26

O'Sullivan, Reg Survey Section ACT Land Information Office.(pers. comm. November 1994) contributed to the description of and provided access to the instrument.

NOMINATION NUMBER	
DATE OF NOMINATION	1 September 1994
REGISTER NUMBER	
DATE OF GAZETTAL : INTERIM REGISTER REGISTER	
FILE NUMBER	93/08064
TYPE OF OBJECT	Manufactured
OWNER	ACT Department of the Environment, Land and Planning
KEEPER	ACT Department of the Environment, Land and Planning Survey Section.

Prepared by Pamela Fabricius
4 July 1995