

Queensland Survey Department

This is an extract of an article cataloguing the development of the reprographic process in the map-making department of the Government of Queensland, Australia. Due acknowledgements are given.

1860 to 1880: Printing procedures for reproduction of maps

The following is the method used to prepare maps for publication in Queensland from the 1860s, using the lithographic process.

After compilation of a map by a cartographic draftsman, a specialist lithographer transferred the map to a printing stone (specially imported limestone from Bavaria). The detail was traced in reverse onto the stone using 'greasy ink'. The lithographs were printed from this stone with a slow production rate of 300 copies/hour.

The work on the stone fattened after being used as a print master. This consequently made the original unsuitable for further reproduction. However, before this occurred, the stone was inked and a paper copy 'pulled'.

Whilst the ink was still wet on the paper, it was dusted with a fine red powder, known as rattle or dragon's blood. The powdered copy was very carefully placed on a new stone and was then run through the press, leaving a powdered impression on the stone. The edges of the sheet were glued in position around the stone.

Small sections of a protective paper cover were gently raised to allow redrawing of the work without disruption to the remainder of the powdered image.

During this period, production of a coloured map containing, for example five colours, would require the preparation of five such separate powdered impressions.

The stones were heavy and fragile. It was important that they were perfectly aligned with the paper to retain registration integrity. The final output quality and texture was exquisite.



Government printing building, Brisbane, 1869

1881 to 1900: Lithographic stone copied

Printing from the original stone was discontinued during the late 1880s. To prolong the useful life of the originals, the process was modified. A copy of the original was taken as described above and was then transferred directly to another stone from which the printing was done.



Original printing stone

1901 to 1920: Advancements in printing processes

Toward the end of the First World War, great advances were made in map reproduction, especially in the direction of printing from metal plates.

The limestone quarries in Bavaria were mostly destroyed during World War I. This formed the catalyst for the replacement of stone plates with zinc and aluminium plates.

However the process of printing from stone remained in Queensland for many years.

1921 to 1950: Zinc plates replace stone

The revolutionary method of printing from zinc plates, rather than stone, was introduced in the early 1930s. This resulted in a saving in process time and improved accuracy in the scale of the lithographs.

Large format cameras



Hunter Penrose camera



Compilation of a map on the copyboard before reproduction

During the period from the 1940s to the late 1960s, the Hunter Penrose 35 inch x 45 inch Gallery Camera was used



for photographic reproductions in the Survey Office. The camera produced large format negatives on hand-coated glass plates.

The photographic emulsion was a light-sensitive coating made up of silver salts known as halides, suspended in gelatin.

The image shows a 'pieman' transporting glass plate negatives.



Coating the emulsion to a glass plate

The glass plates were progressively replaced with flexible, coated film used in the [offset lithographic printing process](#).