

The University of Melbourne acknowledges the Traditional Owners of the unceded land on which we work, learn and live: the Wurundjeri Woi-wurrung and Bunurong peoples (Burnley, Fishermans Bend, Parkville, Southbank and Werribee campuses), the Yorta Yorta Nation (Dookie and Shepparton campuses), and the Dja Dja Wurrung people (Creswick campus).

The University also acknowledges and is grateful to the Traditional Owners, Elders and Knowledge Holders of all Indigenous nations and clans who have been instrumental in our reconciliation journey.

We recognise the unique place held by Aboriginal and Torres Strait Islander peoples as the original owners and custodians of the lands and waterways across the Australian continent, with histories of continuous connection dating back more than 60,000 years. We also acknowledge their enduring cultural practices of caring for Country.

We pay respect to Elders past, present and future, and acknowledge the importance of Indigenous knowledge in the Academy. As a community of researchers, teachers, professional staff and students we are privileged to work and learn every day with Indigenous colleagues and partners.



THE UNIVERSITY OF
MELBOURNE

Cultural heritage and synchrotron science

Dr Paula Dredge,
Grimwade Centre for Cultural Materials Conservation,
University of Melbourne

Cultural materials conservation



Frans Snyder, *The boar hunt*, c. 1650s, oil on canvas, 172.0 x 239.0 cm, Art Gallery of NSW. Gift of Charles Davies-Scourfield 2005. Before conservation treatment 2005



After conservation treatment 2007

WHY



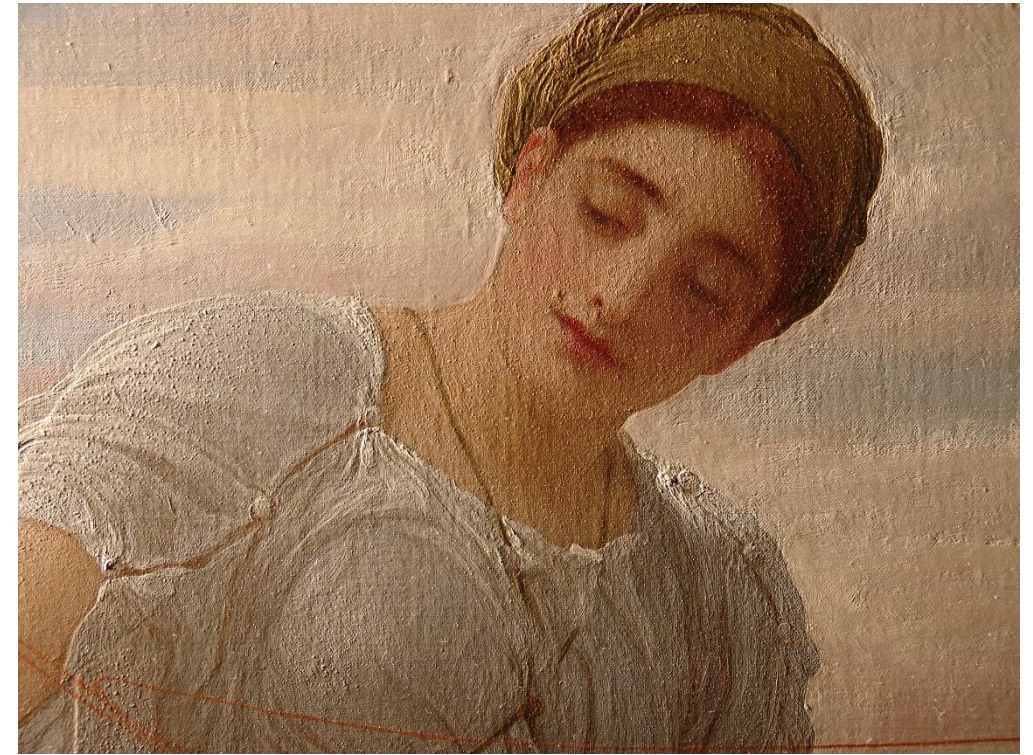
Heritage Materials Conservation is a profession at which materials and techniques are at the centre of our work.

We endeavour to understand structure and making to ensure we apply materials and techniques in our efforts to conserve that are compatible, reversible and have good ageing characteristic.

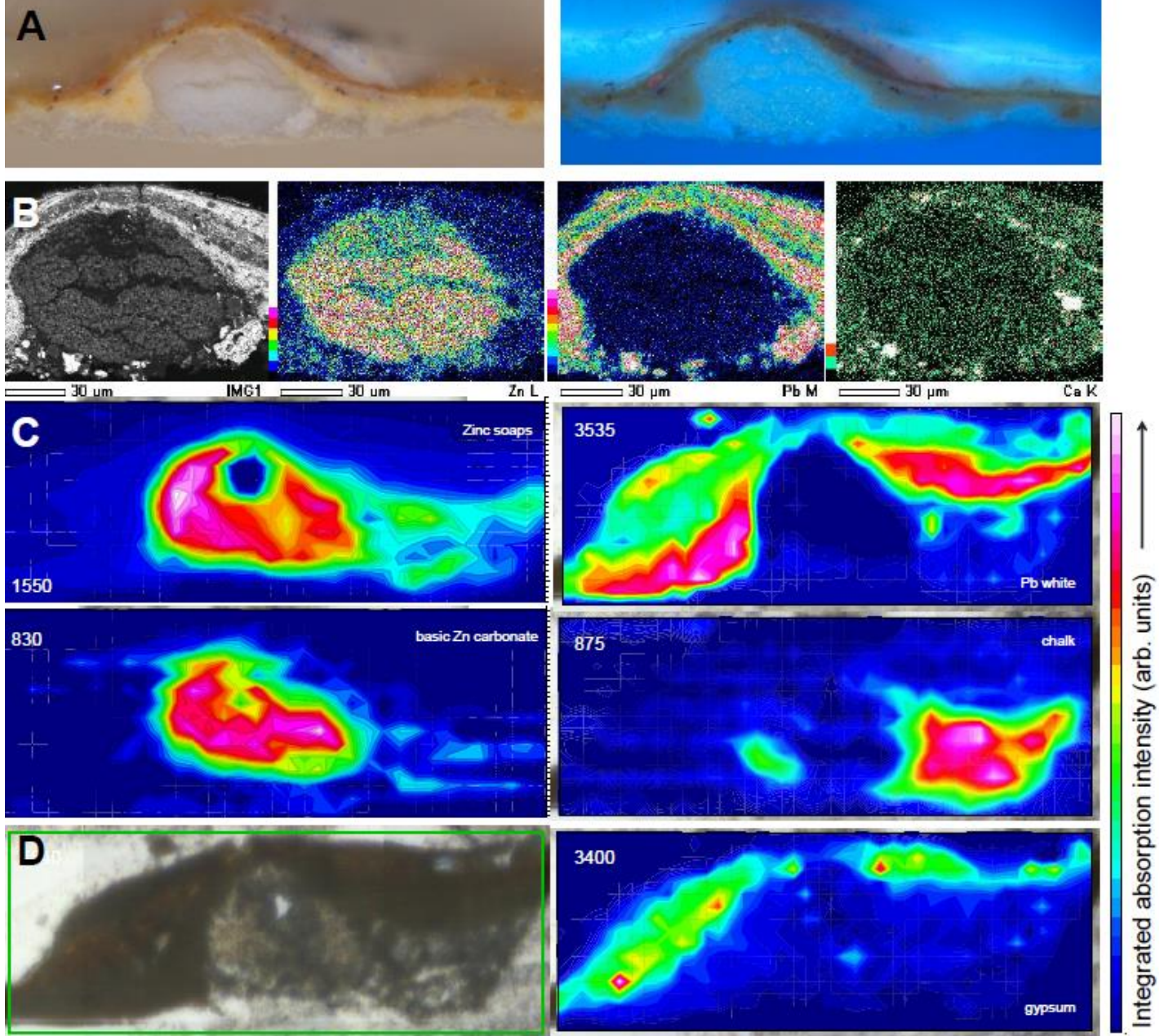
Sometimes the knowledge we gain to understand an object for treatment also contributes to understand the process of making, the history and context of the work adding new understanding and enriching our experience of the works



Frederick Leighton, *Winding the skein*, 1878, Art Gallery of NSW, Sydney



Dredge, Osmond & Ives, Zinc carboxylate formation and distribution in mid 20th century Ripolin paints, 2012



Dredge, Osmond & Ives, Zinc carboxylate formation and distribution in mid 20th century Ripolin paints, 2012



Charles Conder, *An Impressionist (Tom Roberts)* c. 1889, Art Gallery of New South Wales

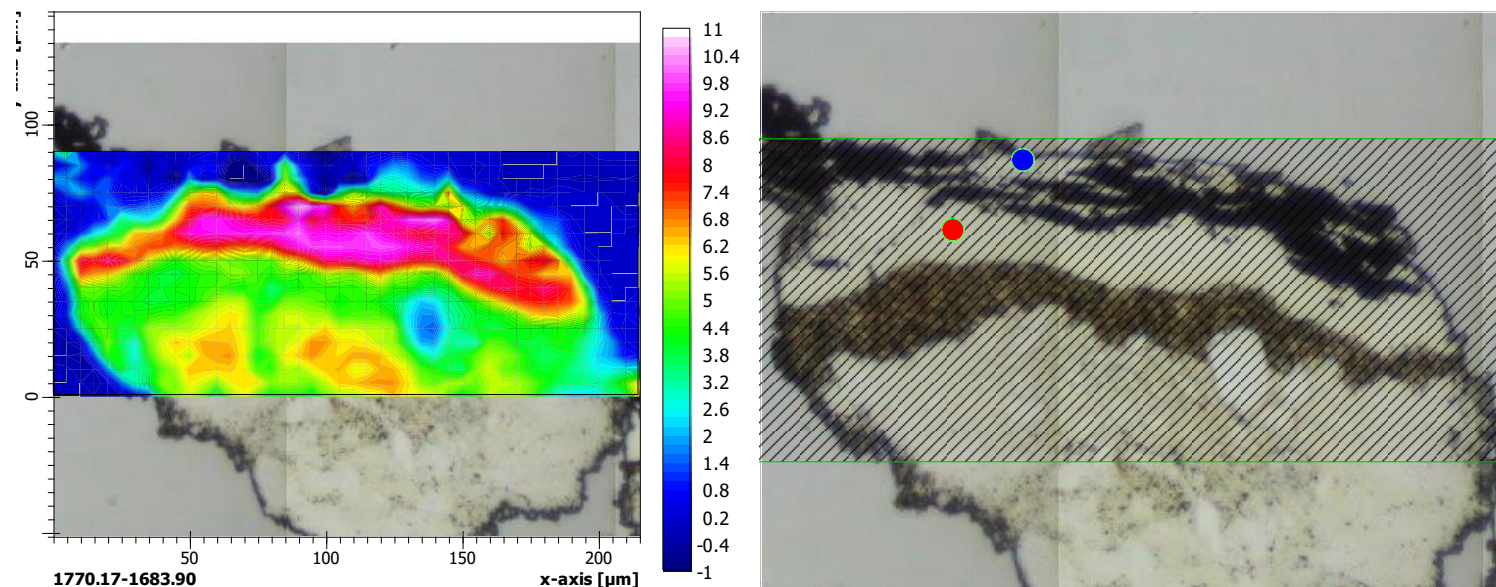


Ralph Balson, *Painting*, 1941



Roy de Maistre, (*Magnolias and path*) early 1930s, Art Gallery of New South Wales

Puskar, Dredge, Allen & Sawicki, *Understanding the Composition and Rheology of Metallic Paints used by Australian artists from late 19th century to 1960's*, 2013



Sample integration on nitrocellulose peak at 1645cm^{-1} (blue and red)
 against library spectra for nitrocellulose paint (brown)



Anglo-Flemish workshop, *Portrait of Henry VIII*, circa 1535
Before treatment 2013



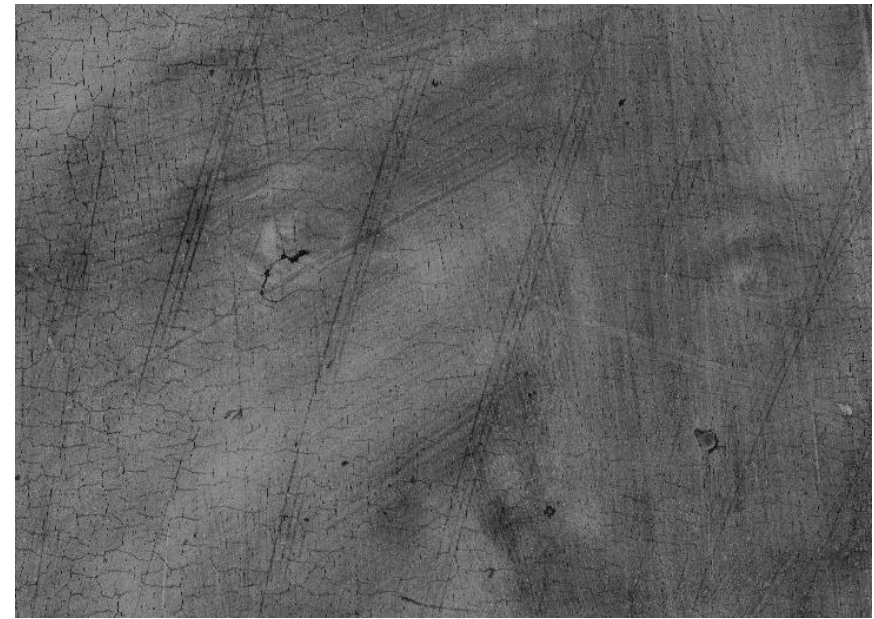
Dredge & Ives, *High-Definition X-ray Fluorescence Elemental Mapping of an Early Tudor Portrait of Henry VIII*, 2013



X-radiography



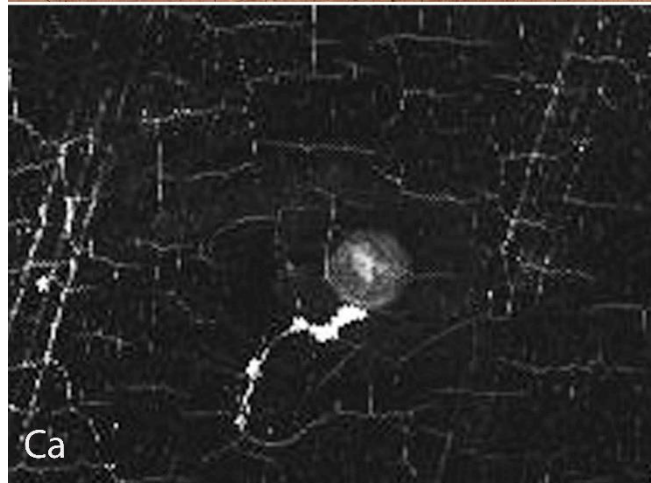
Synchrotron-sourced X-ray
fluorescence mapping, lead peak



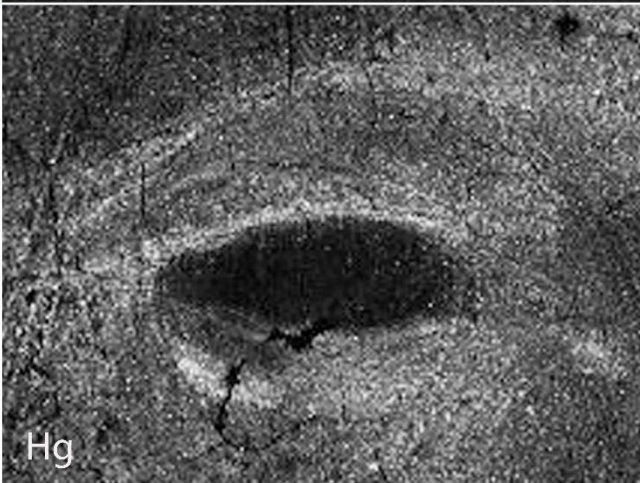




Fe



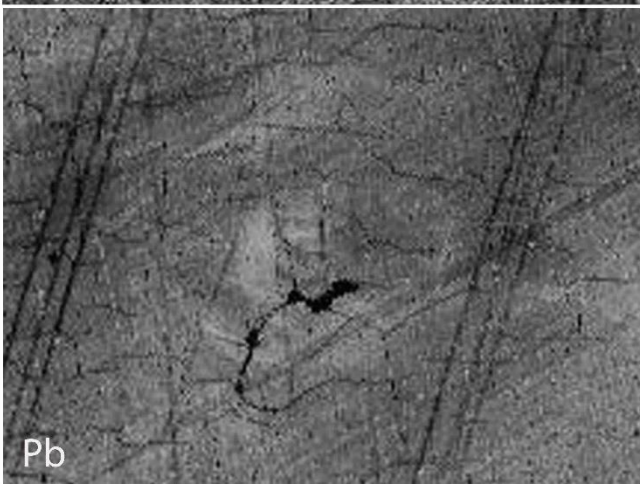
Ca



Hg



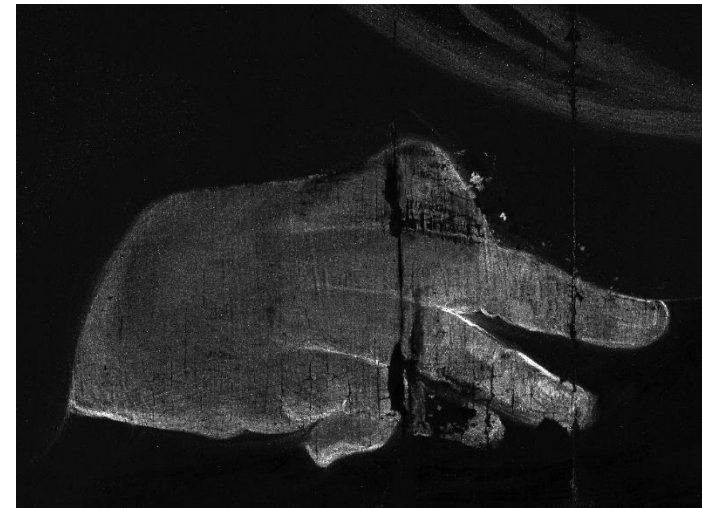
Cu



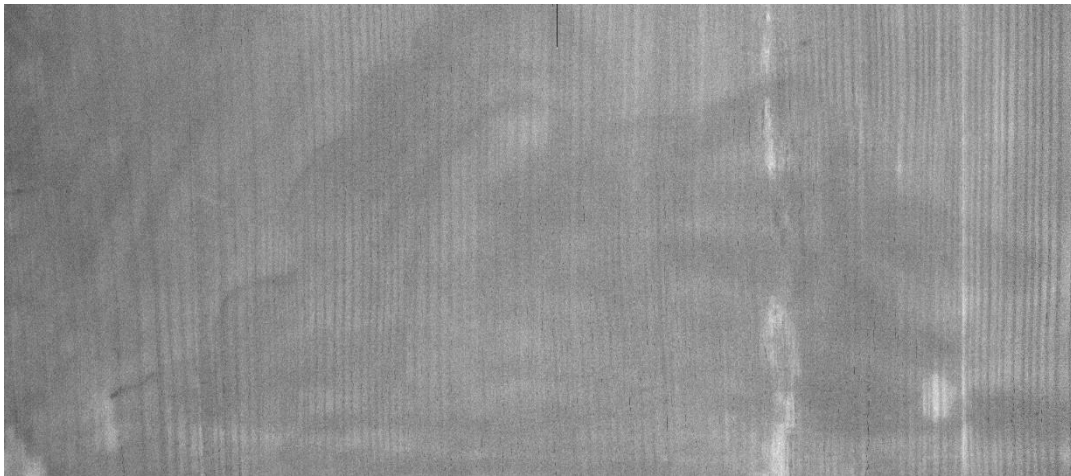
Pb



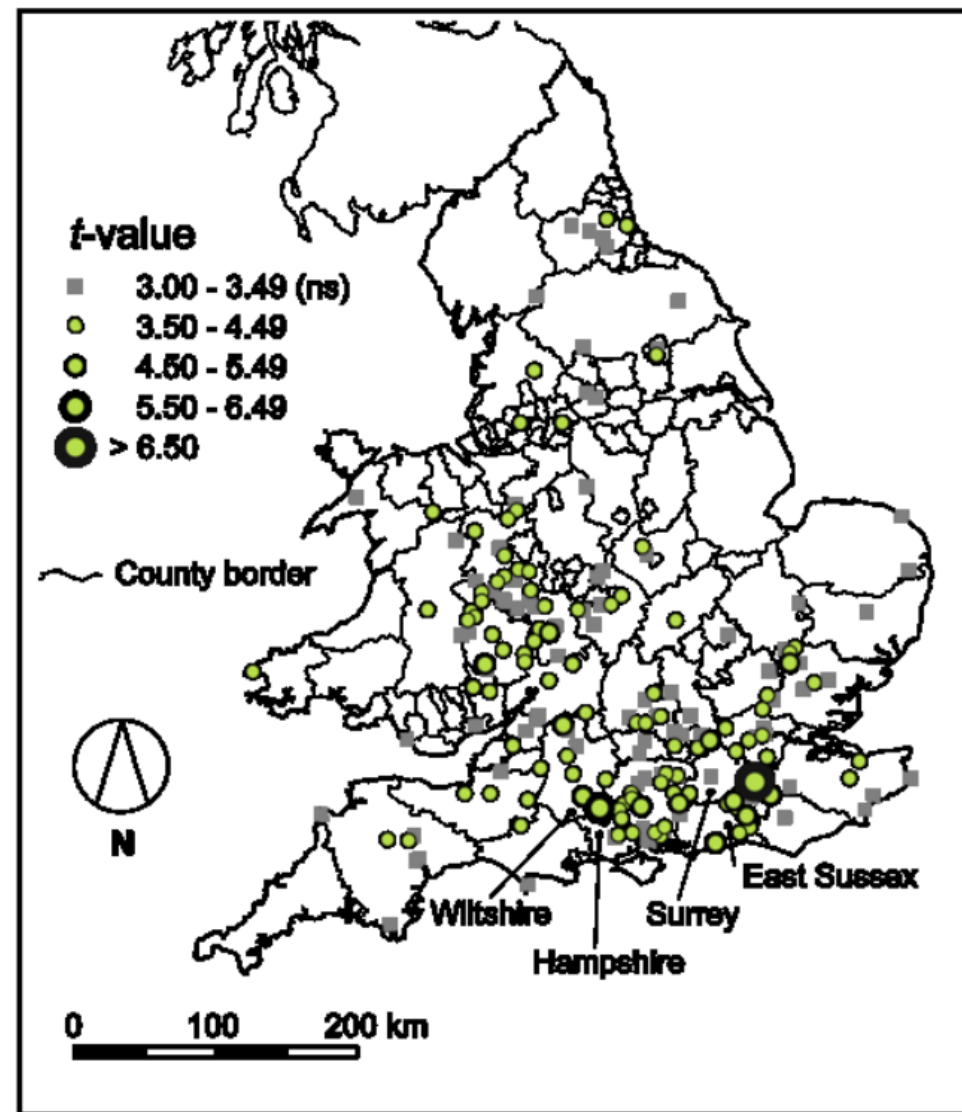
Dredge & Ives, *High-Definition X-ray Fluorescence Elemental Mapping of a Early Tudor Portrait of Henry VIII*, 2013



Dredge & Ives, *High-Definition X-ray Fluorescence Elemental Mapping of a Early Tudor Portrait of Henry VIII*, 2013



Elastic scatter XRF map lower left showing oak panel tree growth ring pattern



Brookhouse, M., S. Ives, P. Dredge, D. Howard, M. Bridge. (2021) *Mapping Henry: Dendrochronological Analysis of a Sixteenth-Century Panel Painting Based Upon Synchrotron-Sourced X-ray Fluorescence Mapping*, *Studies in Conservation*
DOI: [10.1080/00393630.2020.1848133](https://doi.org/10.1080/00393630.2020.1848133)



Anglo-Flemish workshop, *Portrait of Henry VIII*, circa 1535
Before treatment

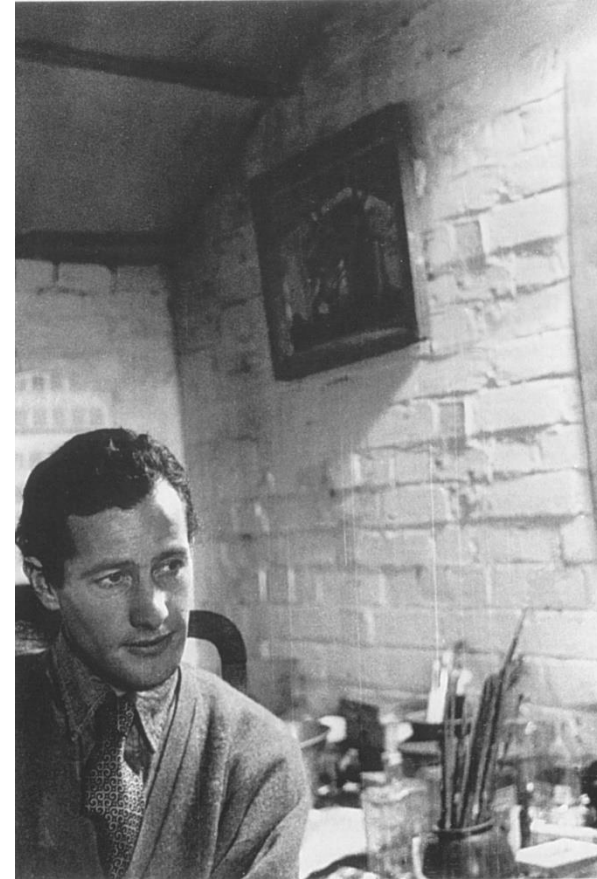


Anglo-Flemish workshop, *Portrait of Henry VIII*, circa 1535
After treatment 2018



Sidney Nolan, *Ned Kelly, 'Nobody knows anything about my case but myself'*, 1945

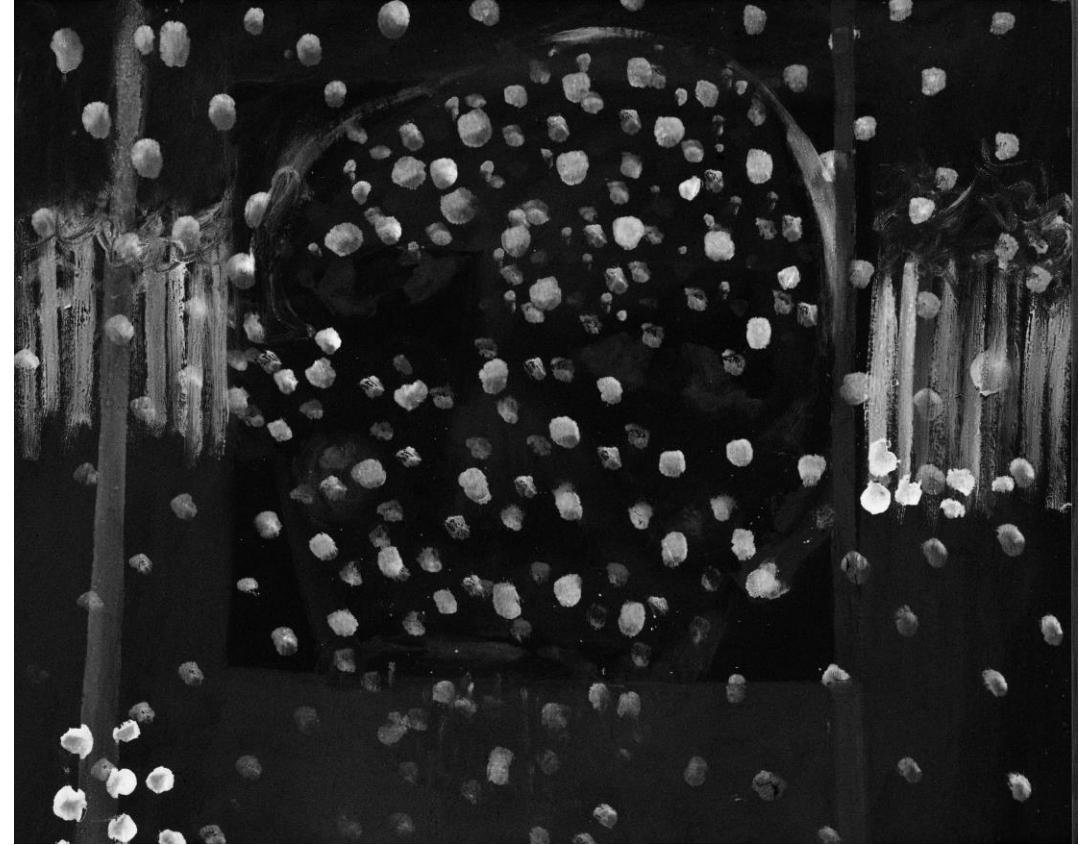
Collection: Heide Museum of Modern Art



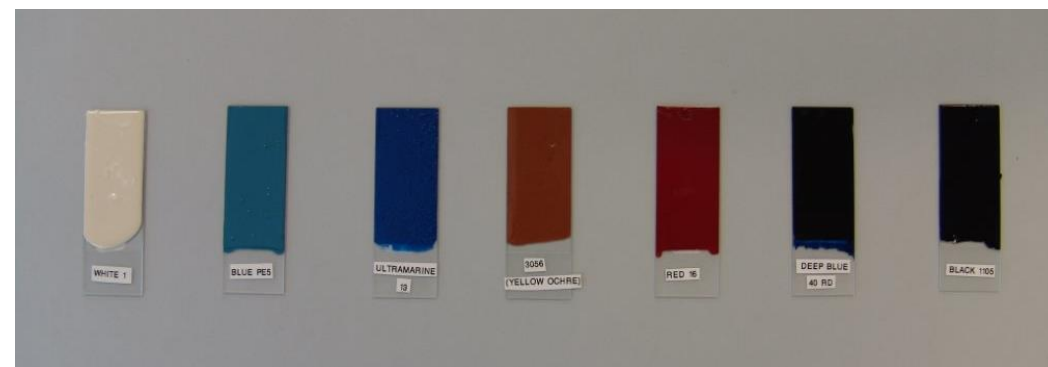
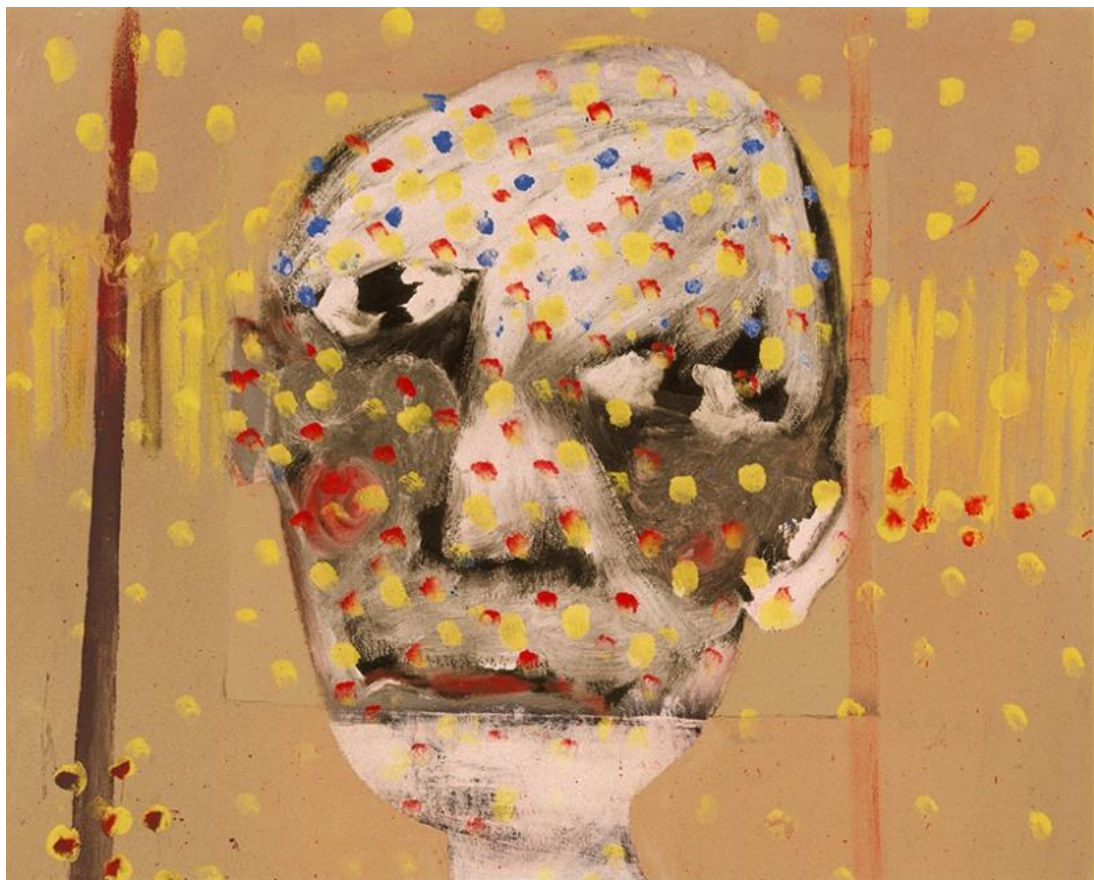
Albert Tucker, photograph of Sidney Nolan in Parkville studio, 1944



X-ray fluorescence barium map (represents red paint containing barium sulphate)



X-ray fluorescence chromium map (represents yellow paint containing chromium chromate)





Judges' comments: *This is an innovative project that provides new ways of looking at iconic works. It also demonstrates power of partnerships within and outside of the sector. An extremely exciting and attractive project that tugs at the Australian heartstrings! The marrying of technologies and art is cutting edge. The use of VR to see beneath the surface and hypothesise on the artist's intentions is a simple yet powerful tool for art appreciation.*

Nolan Unmasked, Heide Museum of Modern Art, April 2017
2018 Museums & Galleries Australia National Award winner for interpretation, learning and audience participation

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