BARKCLOTH CONSERVATION RESOURCES: DISCUSSION OF SHARING DATA IN THE CONSERVATION COMMUNITY

Natasha Trenear

Workshop and Project Images

Images and Recordings from Collecting Trips

Conservation references

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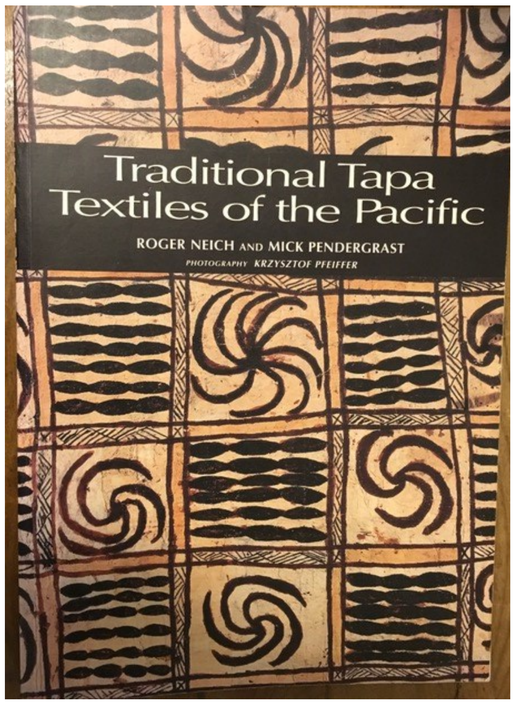
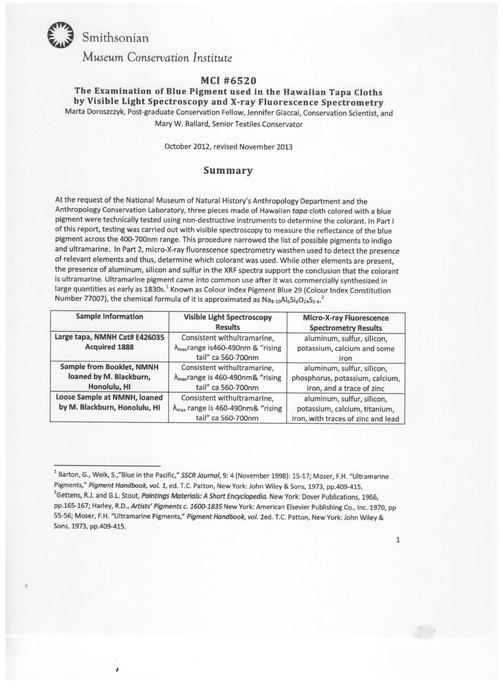


Images and Documents from Collaborations with Community Scholars: Above Uilisone Fuavaa Fitiao and Regina A. Meredith Fitiao conserve Samoan Tapa (Siapo).

Scientific Reports and Research Collections: Below left is a Smithsonian Museum Conservation Institute Report. Below right are samples collected for future testing now in SI NMNH Anthropology Collections.



Smithsonian
Museum Conservation Institute

MCI #6520

The Examination of Blue Pigment used in the Hawaiian Tapa Cloths by Visible Light Spectroscopy and X-ray Fluorescence Spectrometry

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Summary

At the request of the National Museum of Natural History's Anthropology Department and the Anthropology Conservation Laboratory, three pieces made of Hawaiian *tapa* cloth colored with a blue pigment were technically tested using non-destructive instruments to determine the colorant. In Part I of this report, testing was carried out with visible spectroscopy to measure the reflectance of the blue pigment across the 400-700nm range. This procedure narrowed the list of possible pigments to indigo and ultramarine. In Part 2, micro-X-ray fluorescence spectrometry wasthen used to detect the presence of relevant elements and thus, determine which colorant was used. While other elements are present, the presence of aluminum, silicon and sulfur in the XRF spectra support the conclusion that the colorant is ultramarine. Ultramarine pigment came into common use after it was commercially synthesized in large quantities as early as 1830s.[1] Known as Colour Index Pigment Blue 29 (Colour Index Constitution Number 77007), the chemical formula of it is approximated as $Na_{8-10}Al_6Si_6O_{24}S_{2-4}$.[2]

Sample Information	Visible Light Spectroscopy Results	Micro-X-ray Fluorescence Spectrometry Results
Large tapa, NMNH Cat# E426035 Acquired 1888	Consistent withultramarine, λ_{max}range is460-490nm & "rising tail" ca 560-700nm	aluminum, sulfur, silicon, potassium, calcium and some iron
Sample from Booklet, NMNH loaned by M. Blackburn, Honolulu, HI	Consistent withultramarine, λ_{max}range is 460-490nm& "rising tail" ca 560-700nm	aluminum, sulfur, silicon, phosphorus, potassium, calcium, iron, and a trace of zinc
Loose Sample at NMNH, loaned by M. Blackburn, Honolulu, HI	Consistent withultramarine, λ_{max} range is 460-490nm& "rising tail" ca 560-700nm	aluminum, sulfur, silicon, potassium, calcium, titanium, iron, with traces of zinc and lead

[1] Barton, G., Weik, S.,"Blue in the Pacific," *SSCR Journal*, 9: 4 (November 1998): 15-17; Moser, F.H. "Ultramarine Pigments," *Pigment Handbook*, vol. 1, ed. T.C. Patton, New York: John Wiley & Sons, 1973, pp.409-415.
[2] Gettans, R.J. and G.L. Stout, *Painting Materials: A Short Encyclopedia*. New York: Dover Publications, 1966, pp.165-167; Harley, R.D., *Artists' Pigments c. 1600-1835* New York: American Elsevier Publishing Co., Inc. 1970, pp 55-56; Moser, F.H. "Ultramarine Pigments," *Pigment Handbook*, vol. 1ed. T.C. Patton, New York: John Wiley & Sons, 1973, pp.409-415.

1