

# ARCLG123: Conservation: Materials Science: James Hales

Postgraduate: core: 0.5 units  
Two terms

View Online



1.

Colombini, Maria Perla, Modugno, Francesca. Organic mass spectrometry in art and archaeology. Chichester: Wiley; 2009.

2.

Chalmers, John M., Edwards, Howell G. M., Royal Society of Chemistry (Great Britain). Raman spectroscopy in archaeology and art history. Vol. RSC analytical spectroscopy monographs. Cambridge: Royal Society of Chemistry; 2005.

3.

Glinsman, Lisha. The application of X-ray fluorescence spectrometry to the study of museum objects. [S.l: s.n.]; 2004.

4.

Henderson, Julian. The science and archaeology of materials: an investigation of inorganic materials. London: Routledge; 2000.

5.

Grieken, R. van, Janssens, Koen H. A. Non-destructive microanalysis of cultural heritage materials. Vol. Comprehensive analytical chemistry. Amsterdam, London: Elsevier; 2004.

6.

Jones, A. V. Access to chemistry. Cambridge: Royal Society of Chemistry; 1999.

7.

Jones M, May E. Conservation science: heritage materials. Cambridge: RSC Publishing; 2006.

8.

Batt, Catherine, Young, Suzanne, Pollard, A. M., Stern, Ben. Analytical chemistry in archaeology. Cambridge: Cambridge University Press; 2007.

9.

Pollard, A. M., Heron, Carl, Royal Society of Chemistry (Great Britain). Archaeological chemistry. 2nd ed. Cambridge: Royal Society of Chemistry; 2008.

10.

Price, T. Douglas, Burton, James H. An introduction to archaeological chemistry. London: Springer; 2011.

11.

Watt, Ian M. The principles and practice of electron microscopy. 2nd ed. Cambridge: Cambridge University Press; 1997.

12.

Bousfield, Brian. Surface preparation and microscopy of materials. Chichester: Wiley; 1992.

13.

Eastaugh N. The pigment compendium: Optical microscopy of historical pigments [Internet]. Amsterdam: Elsevier Butterworth-Heinemann; 2004. Available from: <http://www.tandfebooks.com.libproxy.ucl.ac.uk/doi/view/10.4324/9780080454573>

14.

Gribble, C. D., Hall, A. J. Optical mineralogy: principles and practice. New York: Chapman & Hall; 1993.

15.

McCrone, Walter C., Delly, John Gustav, McCrone, Lucy B. Polarized light microscopy. Michigan: Ann Arbor Science; 1978.

16.

Robinson, P. C., Bradbury, Savile, Royal Microscopical Society (Great Britain). Qualitative polarized-light microscopy. Vol. Microscopy handbooks. New York: Royal Microscopical Society; 1992.

17.

United Kingdom Institute for Conservation of Historic and Artistic Works. Analysis of pigments and plasters: its relevance to current wall painting and stone conservation practice : post prints of a day conference of the Wall Paintings Section of the United Kingdom Institute for Conservation of Historic and Artistic Works held 22 February 1997. London: United Kingdom Institute for Conservation of Historic and Artistic Works; 1998.

18.

Gill R. Chemical fundamentals of geology [Internet]. 2nd ed. London: Chapman & Hall; 1996. Available from:  
[http://reader.ebilib.com/\(S\(zuwe20sfan4kuw1bxrdvdwfu\)\)/Reader.aspx?p=1879373&o=504&u=nUs9BbgxiTiELedlfjKQsj%2fXQ%2fc%3d&t=1443268164&h=C369E95BF75F42ED6E124C40E1F9505169866D7C&s=38424073&ut=1535&pg=1&r=img&c=-1&pat=n&cms=-1&sd=2](http://reader.ebilib.com/(S(zuwe20sfan4kuw1bxrdvdwfu))/Reader.aspx?p=1879373&o=504&u=nUs9BbgxiTiELedlfjKQsj%2fXQ%2fc%3d&t=1443268164&h=C369E95BF75F42ED6E124C40E1F9505169866D7C&s=38424073&ut=1535&pg=1&r=img&c=-1&pat=n&cms=-1&sd=2)

19.

Gribble, C. D., Hall, A. J. Optical mineralogy: principles and practice. New York: Chapman & Hall; 1993.

20.

Henry A. Stone conservation: principles and practice. Shaftesbury: Donhead; 2006.

21.

Bregnhøi L, Nationalmuseet (Denmark). Paint research in building conservation. London: Archetype; 2006.

22.

Dawson J, Wright MM, Rozeik C, Fitzwilliam Museum, Icon Archaeology Group. Decorated surfaces on ancient Egyptian objects: Technology, deterioration and conservation : Proceedings of a conference held in Cambridge, UK on 7-8 September 2007. London: Archetype in association with the Fitzwilliam Museum and Icon Archaeology Group; 2010.

23.

Delamare F. Colour: making and using dyes and pigments. Vol. New horizons. London: Thames & Hudson; 2000.

24.

Eastaugh N. The pigment compendium: Optical microscopy of historical pigments [Internet]. Amsterdam: Elsevier Butterworth-Heinemann; 2004. Available from: <http://www.tandfebooks.com.libproxy.ucl.ac.uk/doi/view/10.4324/9780080454573>

25.

Feller RL, Roy A, FitzHugh EW, Berrie BH. Artists' pigments: A handbook of their history and characteristics. Washington: National Gallery of Art; 2007.

26.

Abd El Salam SA. Egyptian and Graeco-Roman wall plasters and mortars: A comparative scientific study. Vol. BAR international series. Oxford: Hedges; 2004.

27.

Eckel EC. Cements, limes and plasters: Their materials, manufacture and properties. Shaftesbury: Donhead; 2005.

28.

Pender, Robyn, Gowing, Robert, Secular Wall Paintings Symposia, Institute of Conservation, English Heritage. All manner of murals: the history, techniques and conservation of secular wall paintings ; proceedings of the Secular Wall Paintings Symposia organised by the Icon Stone and Wall Paintings Group and supported by English Heritage, London 2004-5. London: Archetype; 2007.

29.

Bray, Charles, Society of Glass Technology. Ceramics and glass: a basic technology. Sheffield: Society of Glass Technology; 2000.

30.

Brill, Robert H., Rising, Brandt A., Corning Museum of Glass. Chemical analyses of early glasses. Corning, N.Y.: Corning Museum of Glass; 1999.

31.

Heck M, Hoffmann P. Analysis of early medieval glass beads - The raw materials to produce green, orange and brown colours. Mikrochimica acta. 2002;139:71-6.

32.

Newton RG, Davison S. Conservation of glass. Rev. ed. Vol. Butterworths series in conservation and museology. London: Butterworth-Heinemann; 1996.

33.

Bray C, Society of Glass Technology. Ceramics and glass: A basic technology. Sheffield: Society of Glass Technology; 2000.

34.

Freestone, Ian, Bimson, M., British Museum. Early vitreous materials. Vol. Occasional paper. London: British Museum; 1987.

35.

Heck M, Hoffmann P. Analysis of early medieval glass beads - The raw materials to produce green, orange and brown colours. *Mikrochimica acta*. 2002;139:71-6.

36.

Koob SP, Corning Museum of Glass. Conservation and care of glass objects. London: Archetype in association with the Corning Museum of Glass; 2006.

37.

Newton RG, Davison S. Conservation of glass. Rev. ed. Vol. Butterworths series in conservation and museology. London: Butterworth-Heinemann; 1996.

38.

Chandler H. Metallurgy for the non-metallurgist. Materials Park, Ohio: ASM International; 1998.

39.

Lang, Janet, Craddock, P. T. Mining and metal production through the ages. London: British Museum; 2003.

40.

Biswas AK, Davenport WG. Extractive metallurgy of copper. 4th ed. Oxford: Pergamon; 2002.

41.

Hodges H. Artifacts: an introduction to early materials and technology. Duckworth; 1989.

42.

Jones M, May E. Conservation science: heritage materials. Cambridge: RSC Publishing; 2006.

43.

Scott, David A. Metallography and microstructure of ancient and historic metals. [Marina del Rey, CA]: Getty Conservation Institute; 1991.

44.

Lang J, Craddock PT. Mining and metal production through the ages. London: British Museum; 2003.

45.

Ottaway BS, Wang Q. Casting experiments and microstructure of archaeologically relevant bronzes. Vol. BAR international series. Oxford: Archaeopress; 2004.

46.

Scott DA, Getty Conservation Institute. Copper and bronze in art: Corrosion, colorants, conservation. Los Angeles: Getty Conservation Institute; 2002.

47.

Scott, David A. Metallography and microstructure of ancient and historic metals. [Marina del Rey, CA]: Getty Conservation Institute; 1991.

48.

Selwyn L, Canadian Conservation Institute. Metals and corrosion: A handbook for the conservation professional. Ottawa: Canadian Conservation Institute; 2004.

49.

Buchwald VF, Kongelige Danske videnskabernes selskab. Iron and steel in ancient times. Vol. Historisk-filosofiske skrifter. Copenhagen: Det Kongelige Danske Videnskabernes Selskab; 2005.

50.

Lang J, Craddock PT. Mining and metal production through the ages. London: British Museum; 2003.

51.

Hayman R. Ironmaking: The history and archaeology of the iron industry. Stroud: Tempus; 2005.

52.

Janaway RC, Scott BG, United Kingdom Institute for Conservation of Historic and Artistic Works, Council for British Archaeology. Evidence preserved in corrosion products: New fields in artifact studies. Vol. Occasional papers. London: United Kingdom Institute for Conservation; 1989.

53.

Jones DA. Principles and prevention of corrosion. 2nd ed. Upper Saddle River, NJ: Prentice Hall; 1996.

54.

Scott, David A. Metallography and microstructure of ancient and historic metals. [Marina del Rey, CA]: Getty Conservation Institute; 1991.

55.



Scott DA, Eggert G. Iron and steel in art: Corrosion, colorants, conservation. London: Archetype; 2009.

56.

Selwyn L, Canadian Conservation Institute. Metals and corrosion: A handbook for the conservation professional. Ottawa: Canadian Conservation Institute; 2004.

57.

Craddock PT, La Niece S. Metal plating and patination: Cultural, technical and historical developments. Boston: Butterworth-Heinemann; 1993.

58.

Drayman-Weisser T, American Institute for Conservation of Historic and Artistic Works. Gilded metals: History, technology and conservation. London: Archetype Publications in association with The American Institute for Conservation of Historic and Artistic Works; 2000.

59.

Selwyn L, Canadian Conservation Institute. Metals and corrosion: A handbook for the conservation professional. Ottawa: Canadian Conservation Institute; 2004.

60.

Hather JG. The identification of northern European woods: A guide for archaeologists and conservators. London: Archetype; 2000.

61.

Hoadley RB. Identifying wood: Accurate results with simple tools. Newtown, CT: Taunton Press; 1990.

62.

Mills, John S., White, Raymond. The organic chemistry of museum objects. 2nd pbk ed. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 1999.

63.

Dorge V, Howlett FC, American Institute for Conservation of Historic and Artistic Works. Painted wood: History and conservation. Los Angeles: Getty Conservation Institute; 1998.

64.

Eaton RA, Hale, M. D. C. Wood: Decay, pests, and protection. 1st ed. London: Chapman & Hall; 1993.

65.

Hather JG. The identification of northern European woods: A guide for archaeologists and conservators. London: Archetype; 2000.

66.

Hoadley RB. Identifying wood: Accurate results with simple tools. Newtown, CT: Taunton Press; 1990.

67.

Mills, John S., White, Raymond. The organic chemistry of museum objects. 2nd pbk ed. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 1999.

68.

Rivers, Shayne, Umney, Nick. Conservation of furniture. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 2003.

69.

Sands R. Prehistoric woodworking: The analysis and interpretation of Bronze and Iron Age toolmarks. Vol. Wood in archaeology. London: UCL Institute of Archaeology; 1997.

70.

Appleyard HM, Wira. Guide to the identification of animal fibres. 2nd ed. Leeds: Wira; 1978.

71.

Catling D, Grayson JE. Identification of vegetable fibres. London: Chapman & Hall; 1982.

72.

Greaves, P. H., Saville, B. P., Royal Microscopical Society (Great Britain). Microscopy of textile fibres. Vol. Microscopy handbooks. Oxford: BIOS Scientific in association with the Royal Microscopical Society; 1995.

73.

Mills, John S., White, Raymond. The organic chemistry of museum objects. 2nd pbk ed. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 1999.

74.

Janaway RC, Wyeth P, AHRC Research Centre for Textile Conservation and Textile Studies. Scientific analysis of ancient and historic textiles: Informing preservation, display and interpretation: Postprints. London: Archetype; 2005.

75.

Boersma F, Brokerhof AW, van den Berg S, Tegelaers J. Unravelling textiles: A handbook for the preservation of textile collections. London: Archetype; 2007.

76.

Strand, Eva B. Andersson, North European Symposium for Archaeological Textiles. North European Symposium for Archaeological Textiles X. Vol. Ancient textiles series. Oxford: Oxbow Books; 2009.

77.

O'Connor SA, Brooks MM. X-radiography of textiles, dress and related objects [Internet]. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Elsevier/Butterworth-Heinemann; 2007. Available from: <https://www-dawsonera-com.libproxy.ucl.ac.uk/readonline/9780080550206>

78.

Schoeser M. World textiles: A concise history. Vol. World of art. London: Thames & Hudson; 2003.

79.

Seiler-Baldinger A. Textiles: A classification of techniques. Washington, D.C: Smithsonian Institution Press; 1994.

80.

Watkins SM. Clothing: The portable environment. Ames, Iowa: Iowa State University Press; 1984.

81.

Haines B, Leather Conservation Centre. Parchment: The physical and chemical characteristics of parchment and the materials used in its conservation. Northampton: Leather Conservation Centre; 1999.

82.

Kite M, Thomson R. Conservation of leather and related materials [Internet]. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 2006. Available from: <http://www.vlebooks.com/vleweb/product/openreader?id=UCL&isbn=9780080454665>

83.

Richards M. Deerskins into buckskins: How to tan with brains, soap or eggs. 2nd ed., rev.updated. Cave Junction, Or: Backcountry Pub; 2004.

84.

Calnan CN, Haines B, Leather Conservation Centre. Leather: Its composition and changes with time. Northhampton, England: Leather Conservation Centre; 1991.

85.

Kite M, Thomson R. Conservation of leather and related materials [Internet]. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 2006. Available from: <http://www.vlebooks.com/vleweb/product/openreader?id=UCL&isbn=9780080454665>

86.

Larsen R. Microanalysis of parchment. London: Archetype; 2002.

87.

Wright MM, Conservators of Ethnographic Artefacts. The conservation of fur, feather and skin: Seminar organised by the Conservators of Ethnographic Artefacts at the Museum of London on 11 December 2000. Vol. Conservators of Ethnographic Artefacts. London: Archetype; 2002.

88.

Holztaffel CH. Working horn, ivory & tortoiseshell. Portland OR: Caber Press; 2000.

89.

MacGregor A. Bone, antler, ivory & horn: The technology of skeletal materials since the Roman period. London: Barnes & Noble Books; 1985.

90.

Mills, John S., White, Raymond. The organic chemistry of museum objects. 2nd pbk ed. Vol. Butterworth-Heinemann series in conservation and museology. Oxford: Butterworth-Heinemann; 1999.

91.

Starling K, Watkinson D, United Kingdom Institute for Conservation of Historic and Artistic Works. Archaeological bone, antler and ivory. Vol. Occasional papers / United Kingdom Institute for Conservation of Historic and Artistic Works. London: United Kingdom Institute for Conservation; 1987.

92.

Arnold, Dean E. Ceramic theory and cultural process. Vol. New studies in archaeology. Cambridge: Cambridge University Press; 1985.

93.

Barclay, Katherine. Scientific analysis of archaeological ceramics: a handbook of resources. Oxford: Oxbow; 2001.

94.

Bray, Charles, Society of Glass Technology. Ceramics and glass: a basic technology. Sheffield: Society of Glass Technology; 2000.

95.

Gaimster, David R. M., Freestone, Ian. Pottery in the making: world ceramic traditions. London: British Museum Press; 1997.

96.

Hamer, Frank, Hamer, Janet. The potter's dictionary of materials and techniques. 3rd ed. London: A & C Black; 1991.

97.

Kingery, W. D., Vandiver, Pamela B. Ceramic masterpieces: art, structure, and technology. London: Free Press; 1986.

98.

Orton, Clive, Tyers, Paul, Vince, A. G. Pottery in archaeology. Vol. Cambridge manuals in archaeology. Cambridge: Cambridge University Press; 1993.

99.

Potts, P. J. A handbook of silicate rock analysis. New ed. London: Blackie Academic & Professional; 1992.

100.

Rice, Prudence M. Pottery analysis: a sourcebook. Chicago: University of Chicago Press; 1987.

101.

Prudence M. Rice. Recent Ceramic Analysis: 1. Function, Style, and Origins. Journal of Archaeological Research. Vol. 4(No. 2):133–63.

102.

Prudence M. Rice. Recent Ceramic Analysis: 2. Composition, Production, and Theory. Journal of Archaeological Research. Vol. 4(No. 3):165–202.

103.

Rye, Owen S. Pottery technology: principles and reconstruction. Vol. Manuals on archeology. Washington, D.C.: Taraxacum; 1981.