

Mike Baxter – Archaeology publications

Books

1. Baxter M.J. (1994) *Exploratory Multivariate Analysis in Archaeology*. Edinburgh: Edinburgh University Press.
2. Baxter M.J. (2003) *Statistics in Archaeology*. London: Arnold.

Chapters in books

3. Heyworth M.P., Baxter M.J. and Cool H.E.M. (1995) Compositional analysis of the Roman vessel glass from Colchester, Essex. In Cool, H.E.M and Price, J., *Roman Vessel Glass from Excavations in Colchester 1971-1985*, Colchester Archaeological Report **8**, 261-306.
4. Baxter M.J. and Buck C.E. (2000) Data handling and statistical analysis. In Ciliberto, E. and Spoto, G. (eds.), *Modern Analytical Methods in Art and Archaeology*. Wiley: New York, 681-746.
5. Baxter M.J. (2001) Multivariate analysis in archaeology. In Brothwell, D. and Pollard, A.M. (eds.), *Handbook of Archaeological Sciences*. Wiley: Chichester, 681-690.
6. Baxter, M.J. (2004) Distance and transformation in the multivariate analysis of archaeometric data. In Martini, M., Milazzo, M. and Piacentini, M. (eds.) *Proceedings of the International School "Enrico Fermi" Course CLIV - Physics Methods in Archaeometry*, IOS Press: Amsterdam, 17-36.
7. Baxter, M.J. (2008) Cluster analysis. In Liritzis I. (ed.), *New Technologies in the Archaeognostic Sciences*, Gutenberg Press, Athens, Greece, 445-481. (paper and book in Greek)

Journal publications

8. Baxter M.J. (1988) The morphology and evolution of post-medieval wine bottles revisited. *Science and Archaeology* **30**, 10-14.
9. Baxter M.J. (1989) Multivariate analysis of data on glass compositions: a methodological note. *Archaeometry* **31**, 45-53.
10. Baxter M.J., Cool H.E.M. and Heyworth M.P. (1990) Principal component and correspondence analysis of compositional data: some similarities. *Journal of Applied Statistics* **17**, 229-235.
11. Baxter M.J. (1991) Principal component and correspondence analysis of glass compositions: an empirical study. *Archaeometry* **33**, 29-41.
12. Baxter M.J. (1992) Statistical analysis of chemical compositional data and the comparison of analyses. *Archaeometry* **34**, 267-277.
13. Baxter M.J. (1993) Comment on D.Tangri and R.V.S. Wright, 'Multivariate analysis of compositional data ...', *Archaeometry* **35**, 112-115.
14. Baxter M.J. (1994) Principal component analysis in archaeometry. *Archaeologia e Calcolatori* **5**, 23-38.
15. Baxter M.J. (1994) Stepwise discriminant analysis in archaeometry: a critique. *Journal of Archaeological Science* **21**, 659-666.
16. Baxter M.J., Cool H.E.M., Heyworth M.P. and Jackson C. (1995) Compositional variability in colourless Roman vessel glass. *Archaeometry* **37**, 129-141.
17. Baxter M.J. (1995) Standardisation and transformation in principal component analysis, with applications to archaeometry. *Applied Statistics* **44**, 513-527.
18. Baxter M.J., Cool H.E.M. and Heyworth M.P. (1996) Detecting unusual multivariate data: an archaeometric example. *Analecta Praehistorica Leidensia* **28**, 95-101.

19. Beardah C.C. and Baxter M.J. (1996) MATLAB routines for kernel density estimation and the graphical presentation of archaeological data. *Analecta Praehistorica Leidensia* **28**, 179-184.
20. Baxter M.J. and Beardah C.C. (1996) Beyond the histogram – improved approaches to simple data display in archaeology using kernel density estimates. *Archeologia e Calcolatori* **7**, 397-408.
21. Beardah C.C. and Baxter M.J. (1996) The archaeological use of kernel density estimates. *Internet Archaeology* **1**,
(http://intarch.ac.uk/journal/issue1/beardah_index.html).
22. Baxter M.J. and Cool H.E.M. (1995) Notes on some statistical aspects of pottery quantification. *Medieval Ceramics* **19**, 89-98. (published 1997)
23. Baxter M.J., Beardah C.C. and Wright R.V.S (1997) Some archaeological applications of kernel density estimates. *Journal of Archaeological Science* **24**, 347-354.
24. Baxter M.J. and Gale N.H. (1998) Testing for multivariate normality via univariate tests: a case study using lead isotope ratio data. *Journal of Applied Statistics* **25**, 679-691.
25. Baxter M.J. (1999) Detecting multivariate outliers in artefact compositional data. *Archaeometry* **41**, 321-338.
26. Baxter M.J. (1999) On the multivariate normality of data arising from lead isotope fields. *Journal of Archaeological Science* **26**, 117-124.
27. Cool, H.E.M. and Baxter, M.J. (1999) Peeling the onion: an approach to comparing vessel glass assemblages. *Journal of Roman Archaeology* **12**, 72-100.
28. Baxter, M.J., Beardah, C.C. and Westwood, S. (2000) Sample size and related issues in the analysis of lead isotope data. *Journal of Archaeological Science* **27**, 973-980.
29. Baxter, M.J. (2001) Statistical modelling of artefact compositional data. *Archaeometry* **43**, 131-147.
30. Baxter, M.J. (2001) Methodological issues in the study of assemblage diversity. *American Antiquity* **66**, 715-725.
31. Baxter, M.J. and Jackson, C.M. (2001) Variable selection in artefact compositional studies. *Archaeometry* **43**, 253-268.
32. Papageorgiou, I., Baxter, M.J. and Cau, M.A. (2001) Model-based cluster analysis of artefact compositional data. *Archaeometry* **43**, 571-588.
33. Cool, H.E.M. and Baxter, M.J. (2002) Exploring Romano-British finds assemblages. *Oxford Journal of Archaeology* **21**, 365-380. item Cau, M.A., Day, P.M., Baxter, M.J., Papageorgiou, I., Iliopoulos, I. and Montana, G. (2004) Exploring automatic grouping procedures in ceramic petrology. *Journal of Archaeological Science* **31**, 1325-1338
34. Baxter, M.J., Cool, H.E.M. and Jackson, C.M. (2005) Further studies in the compositional variability of colourless Romano-British glass. *Archaeometry* **47**, 47-68.
35. Baxter, M.J., Beardah, C.C., Cool, H.E.M. and Jackson, C.M. (2005) Compositional data analysis of some alkaline glasses. *Mathematical Geology* **37**, 183-196.
36. Cool, H.E.M. and Baxter, M.J. Cemeteries and significance tests. *Journal of Roman Archaeology* **18**, 397-403.
37. Baxter, M.J., Cool, H.E.M. and Jackson, C.M. (2006) Comparing glass compositional analyses. *Archaeometry* **48**, 399-414.
38. Baxter, M.J. and Freestone, I.C. (2006) Log-ratio compositional data analysis in archaeometry. *Archaeometry* **48**, 511-531.

39. Baxter, M.J. (2006) A review of supervised and unsupervised pattern recognition in archaeometry. *Archaeometry* **48**, 671-694.
40. Baxter, M.J., Beardah, C.C., Papageorgiou, I., Cau, M.A., Day, P.M. and Kilikoglou, V. (2008) On statistical approaches to the study of ceramic artefacts using geochemical and mineralogical data. *Archaeometry* **50**, 142-157.
41. Baxter, M.J. and Cool, H.E.M. (2008) Notes on the statistical analysis of some loomweights from Pompeii. *Archeologia e Calcolatori* **19**, 49-66.
42. Baxter, M.J. (2008) Fifty years of mathematics and statistics in archaeometry. *Archaeometry* **50**, 968-982.
43. Baxter, M.J. (2009) Archaeological data analysis and fuzzy clustering. *Archaeometry* **51**, 1035-1054.
44. Baxter, M.J. and Cool, H.E.M. (2010) Detecting modes in low-dimensional archaeological data. *Journal of Archaeological Sciences* **37**, 2379-2385.
45. Baxter, M.J., Cool, H.E.M., and Anderson, M. (2010) Statistical analysis of some loomweights from Pompeii: a postscript. *Archeologia e Calcolatori* **21**, 185-200.
46. Baxter, M.J. and Cool, H.E.M. (2010) Correspondence analysis in R for archaeologists: an educational account'. *Archeologia e Calcolatori* **21**, 211-218.
47. Gliozzo, E., Turchiano, M., Lombardi, M., Turbanti Memmo, I. and Baxter, M.J. (2012) North Apulian coarse wares and fine painted wares: A reappraisal according to new data from Herdonia and Canusium. *Archaeometry*, in press.

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48. Baxter M.J. and Heyworth M.P. (1989) Principal components analysis of compositional data in archaeology. In Rahtz, S. and Richards, J. (eds.), *Computer Applications and Quantitative Methods in Archaeology 1989*. BAR International Series 548, Oxford: BAR, 227-240.
49. Cool H.E.M. and Baxter M.J. (1991) An approach to quantifying window glass. In Lockyear, K. and Rahtz, S. (eds.), *Computer Applications and Quantitative Methods in Archaeology 1990*. BAR International Series 565, Oxford: Tempus Reparatum, 127-131.
50. Baxter M.J. and Heyworth M.P. (1991) Comparing correlation matrices: with applications in the study of artifacts and their chemical compositions. In Pernicka, E. and Wagner, G.A. (eds.), *Archaeometry '90*. Basel: Birkhäuser Verlag, 355-364.
51. Baxter M.J. (1992) Archaeological uses of the biplot - a neglected technique?. In Lock, G. and Moffett, J. (eds.), *Computer Applications and Quantitative Methods in Archaeology 1991*. BAR International Series 577, Oxford: Tempus Reparatum, 141-148.
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53. Baxter M.J. and Beardah C.C. (1995) Graphical presentation of results from principal components analysis. In Huggett, J. and Ryan, N. (eds.) *Computer Applications and Quantitative Methods in Archaeology 1994*. BAR International Series 565, Oxford: Tempus Reparatum, 63-67.
54. Cool H.E.M. and Baxter M.J. (1996) Quantifying glass assemblages. *Annales du 13^e Congrès de l'Association Internationale pour l'Histoire du Verre*, 93-101.

55. Baxter M.J. (1999) Testing multivariate normality with applications to lead isotope data analysis in archaeology. In Dingwall, L., Exon, S., Gaffney, V., Laffin, S and van Leusen, M. (eds.), *Archaeology in the Age of the Internet: CAA97*. BAR International Series 750, Oxford: Archaeopress, 107.
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57. Jackson C.M. and Baxter M.J. (1999) Variable selection in archaeometry: the statistical analysis of glass compositional data . In Barceló, J., Briz, I. and Vila, A., (eds.), *New Techniques for Old Times: CAA98*. Oxford: Archaeopress, 159-162.
58. Beardah, C.C. and Baxter, M.J. (1999) Three-dimensional data display using kernel density estimates. In Barceló, J., Briz, I. and Vila, A., (eds.), *New Techniques for Old Times: CAA98*. Oxford: Archaeopress, 163-169.
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61. Beardah C.C., Baxter M.J., Papageorgiou I. and Cau. M.A. (2002) Approaches to petrographic data analysis using S-Plus. In Burenhult, G. (ed.) *Archaeological Informatics: Pushing the Envelope, CAA2001*. BAR International Series 1016, Oxford: Archaeopress, 441-448.
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63. Jackson, C.M., Cool, H.E.M. and Baxter, M.J. (2003) Identifying group and meaning: an investigation of Roman colourless glass. In Foy, D. and Nenna, M-D. (eds.), *Echanges et Commerce du Verre dans le Monde Antique du VIe Siecle av. J.-C. au VIIIe Siecle apr.*, Marseilles: Proceedings of the AFAV Colloquium, 33-39.
64. Beardah, C.C., Baxter, M.J., Papageorgiou, I. and Cau, M.A. (2003) "Mixed-mode" approaches to the grouping of ceramic artefacts using S-Plus. In Doerr, M. and Sarris, A. (eds.), *The Digital Heritage of Archaeology: CAA2002*, Hellenic Ministry of Culture, 261-265.
65. Beardah, C.C., Porcinai, S. and Baxter, M.J. (2004) Clustering with KDEs: art historical and archaeological applications. In Fennema, K. and Kamermans, H. (eds.), *Making the Connection to the Past: CAA99*, Faculty of Archaeology, Leiden University: Leiden, 49-55.
66. Cool, H.E.M and Baxter, M.J. (2005) Cups for gentlemen. *Annales du 16^e Congrès de l'Association Internationale pour l'Histoire du Verre*, 127-130.

Other

67. Heyworth, M.P., Baxter M.J. and Cool, H.E.M. (1990) Compositional analysis of Roman glass from Colchester, Essex. *Ancient Monuments Laboratory Report* **53/90**.
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69. Mortimer C. and Baxter M.J. (1996) Analysis of colourless Roman vessel glass from Lincoln. *Ancient Monuments Laboratory Report* **44/96**.

70. Darvill, T. and Fulton, A. (1998) *MARS: The Monuments at Risk Survey of England, 1995: Main Report*. Bournemouth and London: Bournemouth University and English Heritage. (contributor)
71. Baxter, M.J., Beardah, C.C., Cool, H.E.M. and Jackson, C.M. (2003) Compositional data analysis in archaeometry. *CoDaWork03: Compositional Data Analysis Workshop*, Girona, Spain, (http://ima.udg.es/Activitats/CoDaWork03/paper_baxter_Beardah1.pdf)
72. Beardah, C.C., Baxter, M.J., Cool, H.E.M. and Jackson, C.M. (2003) Compositional data analysis of archaeological glass: problems and possible solutions. *CoDaWork03: Compositional Data Analysis Workshop, Girona, Spain*. (http://ima.udg.es/Activitats/CoDaWork03/paper_baxter_Beardah2.pdf)
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74. Baxter, M.J., Beardah, C.C. and Freestone, I.C. (2005) Compositional analysis of archaeological glasses. *CoDaWork'05: Compositional Data Analysis Workshop*, Girona, Spain, (<http://ima.udg.es/Activitats/CoDaWork05/CD/Session4/Baxter-Beardah-Freestone.pdf>)
75. Beardah, C.C. and Baxter, M.J. (2005) An R library for compositional data analysis in archaeometry. *CoDaWork'05: Compositional Data Analysis Workshop, Girona, Spain*. (<http://ima.udg.es/Activitats/CoDaWork05/CD/Session5/Beardah-Baxter.pdf>)
76. Baxter, M.J. (2009) Book review of 'Artifact Classification: a Conceptual and Methodological Approach' by Dwight W. Read, *Cambridge Archaeological Journal* **19**, 260-261.