

George Guice

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RELEVANT EMPLOYMENT

July 2019 – present **Peter Buck Postdoctoral Fellow, Smithsonian National Museum of Natural History**

Role: Research geologist, department of Mineral Sciences (advisor: Dr Michael Ackerson).

Sept. 2018 – present **Freelance scientific editor, Stallard Scientific Editing**

Role: Editing of scientific manuscripts (written by non-native English speakers) in the fields of: igneous and metamorphic petrology; tectonics; structural geology; and economic geology.

EDUCATION

2019 **PhD**, Cardiff University (UK)

Thesis: Origin and geodynamic significance of Archaean ultramafic-mafic complexes in the Kaapvaal and North Atlantic cratons. <http://orca.cf.ac.uk/123339/>

2015 **MSc Mining Geology**, Camborne School of Mines, University of Exeter (UK). Merit

Thesis: The characteristics and genesis of the Sotkavaara Intrusion, including PGE mineralisation.

2014 **BSc Geology (major)**, with Physical Geography, University of Keele (UK). First class (with honours)

AWARDS AND BURSARIES

Awards and honours:

2019: Peter Buck Postdoctoral Fellowship (2 year award), Smithsonian National Museum of Natural History.

2018: Granulites & Granulites conference poster prize.

2018: Geological Society representative, Voice of the Future, Houses of Parliament, UK.

2018: Nominated for an Enriching Student Life Award (graduate tutor/demonstrator), Cardiff University.

2016: SRK consulting, student oral presentation award, North Atlantic Craton conference (£120)

Bursaries awarded:

2017: Geochemistry Group Travel Bursary (£150)

2017: Geological Society, Timothy Jefferson Field Research Fund (£1500)

2016: Highly Siderophile Element geochemistry conference travel bursary (£100)

2016: Society of Economic Geologists (SEG) Graduate Student Fellowship (£3700)

2016: Mineralogical Society student travel bursary (£375)

2014: Warwickshire Geology Conservation Group postgraduate award (£2500)

POSITIONS OF RESPONSIBILITY

Conferences:

2018: Lewisian Gneiss Complex fieldtrip leader and fieldguide co-author. Granulites & granulites conference.

2018: Session chair. Granulites & granulites conference.

Learned Society Committees:

2016-2018: Applied Mineralogy Group (Min. Soc. of Great Britain and Ireland) committee member

2016-2018: *Applied Mineralogist* (Min. Soc. of Great Britain and Ireland) lead editor.

PUBLICATIONS AND CONFERENCES

Published in international, peer-reviewed journals:

4. Guice, G. L., McDonald, I., Hughes, H. S. R., Anhaeusser, C. R. (2019) An Evaluation of Element Mobility in the Modderfontein Ultramafic Complex, Johannesburg: Origin as an Archaean Ophiolite Fragment or Greenstone Belt Remnant. *Lithos*. 332-333, 99-119.
<https://www.sciencedirect.com/science/article/pii/S0024493719300830>
3. Guice, G. L., McDonald, I., Hughes, H. S. R., Schlatter, D. M., Goodenough, K. M., MacDonald, J. M., Faithfull, J. W. (2018b) Assessing the validity of negative high field strength-element anomalies as a proxy for Archaean subduction: evidence from the Ben Strome Complex, NW Scotland. *Geosciences, special issue: Geology of the Early Earth – geodynamic constraints from cratons*. 8(9), 338.
<https://www.mdpi.com/2076-3263/8/9/338>
2. Guice, G. L., McDonald, I., Hughes, S. R., MacDonald, J. M., Blenkinsop, T. G., Goodenough, K. M., Faithfull, J. W., Gooday, R. J. (2018a) Re-evaluating ambiguous age relationships in Archean cratons: Implications for the origin of ultramafic-mafic complexes in the Lewisian Gneiss Complex. *Precambrian Research*. 311, 136-156.
<https://www.sciencedirect.com/science/article/pii/S0301926818300627>
1. Guice, G. L., Törmänen, T., Karykowski, B. T., Johanson, B., Lahaye, Y. (2017) Precious metal mineralisation in the Sotkavaara Intrusion, northern Finland: Peak Pt, Pd, Au and Cu offsets in a small intrusion with poorly-developed magmatic layering. *Ore Geology Reviews*. 89, 701-718.
<https://www.sciencedirect.com/science/article/pii/S0169136817303141>

Conference papers:

- Guice, G. L., McDonald, I., Hughes, H. S. R., MacDonald, J. M., Goodenough, K. M., Faithfull, J. W. (2018) Ultramafic-mafic complexes in the Lewisian Gneiss Complex: a record of petrogenetically distinct phases of Archean magmatism. Granulites and granulites, Ullapool (UK).
- Guice, G. L., McDonald, I., Hughes, H. S. R., MacDonald, J. M., Schlatter, D. M., Goodenough, K. M., Faithfull, J. W. (2018) Assessing the origin of Nb anomalies in the Ben Strome Complex: implications for Archean geodynamic interpretations. Granulites and granulites, Ullapool (UK).
- Wainwright, A.N., Debaille, V., Pourkhorsand, H., Zircon, S.A., Mole, D.R., Barnes, S.J., Maas, R., Guice, G.L. (2018). Tracing Early Earth Differentiation with ¹⁴²Nd. Goldschmidt, Boston (USA).
- Guice, G. L., McDonald, I., Hughes, H. S. R., Schlatter, D. M. (2017) A lithochemical assessment of element mobility in Archaean cratons: implications for Nb-Ta anomalies and PGE mobility. Goldschmidt, Paris (France)
- Guice, G. L., Törmänen, T., Johanson, B., Lahaye, Y. (2016) Offset-type PGE mineralisation in the Sotkavaara Intrusion, northern Finland: an association with zones of low-Cr clinopyroxenite. MDSG Meeting, Bristol (UK).
- Guice, G. L., McDonald, I., Hughes, H. S. R., Anhaeusser, C. R. (2016) Using PGE to characterise ultramafic-mafic complexes in Archaean cratons. Highly Siderophile Element geochemistry, Durham (UK).
- Guice, G. L., Hughes, H. S. R., McDonald, I. (2016) Geochemical distinctions between ultramafic-mafic bodies in the Lewisian Complex. North Atlantic Craton conference, Edinburgh (UK).

Other conferences attended:

- 2018: Earth dynamics and the development of plate tectonics. Royal Society, London (UK).
- 2017: Bryan Lovell Meeting, Mining for the Future. Geological Society, London (UK).

RESEARCH EXPERIENCE

Fieldwork:

- 2016-2018: Fifteen weeks independent fieldwork studying Archaean ultramafic-mafic rocks in remote parts of NW Scotland and the Outer Hebrides. Includes: mapping of the 7 km² Ben Strome Complex (see Guice et al. 2018a); detailed mapping of smaller complexes; and reconnaissance surveys in new areas.
- 2017: Three days fieldwork studying the Stac Fada Member (proposed impact ejecta), NW Scotland.
- 2017: Three weeks (voluntary) fieldwork on Mount Etna (Sicily), assisting Dr John Murray, Open University.
- 2016: Four weeks fieldwork studying fragments of an Archaean greenstone belt in the Johannesburg Dome (South Africa), including detailed mapping, logging of key transects and sampling.
- 2016: One-week fieldtrip to the Outer Hebrides, led by Dr Kathryn Goodenough and Dr Hannah Hughes.
- 2016: One-week of field and mine visits, SEG student chapter fieldtrip, Finland.
- 2015: One-week (voluntary) fieldwork on Mount Etna (Sicily), assisting Dr John Murray, Open University.
- 2015: Three-week of drillcore logging and fieldwork, studying the Sotkavaara Intrusion (Finland).
- 2015: Two-week fieldtrip (including mine visits), Ontario, Canada, as part of MSc Mining Geology course.
- 2014-2015: Ten days fieldwork (including mine visits) in Cornwall (UK), as part of MSc Mining Geology course.
- 2014: Two-week fieldtrip studying Italian volcanoes, as part of BSc Geology course.
- 2013: One-week (voluntary) fieldwork on Mount Etna (Sicily), assisting Dr John Murray, Open University.
- 2013: Two-week fieldtrip to SE Spain, as part of BSc Geology course.
- 2013: Four weeks independent mapping of Carrock Fell and the surrounding area (15 km²), Lake District (UK).

Analytical methods:

- 2018: 3-day training course for new solution-based ICP-OES and ICP-MS systems at Cardiff University.
- 2017-2018: several days experience operating LA-ICP-MS, Cardiff University.
- 2016-2019: over 250 bulk-rock samples prepared for major and trace-element analysis by ICP-OES/MS.
- 2016-2019: extensive experience operating SEMs and A-SEMs. Experience includes: major-element mineral chemistry; BSE imaging; element mapping; U-Pb geochronology method development.
- 2014-2019: extensive experience applying optical microscopy to a variety of rock types.

TEACHING EXPERIENCE

Student supervision:

- 2018: MESci student (Cardiff University), research project.
- 2017: Four final-year BSc students (Cardiff University), geological mapping, Ballachulish, Scotland.

Postgraduate field demonstrator (Cardiff University, 2015 – 2019):

- Residential field course to Pembrokeshire (1 week) for Year 1 students (2016, 2017, 2018). Primary field leader for St. David's Head field day (focusing on igneous rocks) in 2017 and 2018.
- Residential field course to Arran (1 week) for Year 2 students (2016, 2017). Includes mapping training.
- Extensive day fieldtrips to field sites in South Wales, including mapping training (2016-2018).

Postgraduate laboratory demonstrator (Cardiff University, 2015 – 2019):

- Year 1 Introduction to Earth System Science (2015)
- Year 1 Geographical information systems (2016)
- Year 1 Formation of the British Isles (2016)
- Year 2 Geological Resources (2017, 2019)
- Year 2 Metamorphic Petrology (2017, 2018)
- Year 3 Applied Mineralogy (2016, 2017, 2018)

SPECIALIST TRAINING, OUTREACH AND OTHER QUALIFICATIONS

Specialist courses attended:

2017: Three-day geochemical exploration/ litho geochemistry course run by Denis Schlatter.

2016: Two-day Leapfrog software course at SRK consulting, Cardiff (UK).

2015: Five-day Datamine course and one-day Micromine course.

Outreach:

2015-2019: STEM ambassador, South Wales (UK).

Specialist software and other relevant qualifications:

2016-2019: Expertise using toughbook and associated Arc-GIS/sigma mobile geological mapping software.

2013-2019: Arc-GIS, R and CorelDraw.

2015: First-aid certificate (UK)

2014: UK driving license.