

Curriculum Vitae of Richard Jeremy Herrington

Personal website:

<http://www.nhm.ac.uk/research-curation/about-science/staff-directory/earth-sciences/r-herrington/index.html>

Career

2022 – present: Lead Scientist, Resourcing the Green Economy, The Natural History Museum (NHM)

Visiting Professor, Camborne School of Mines, University of Exeter, UK since 2011 and Imperial College, Royal School of Mines, UK since 2012

2009 – present: UK Research Council Individual Merit Promotion

2013 – 2022: Head of Earth Sciences, NHM

2018 – 2019: Acting Director of Science, NHM

1991 – 2013: Researcher at the NHM (Economic and Environmental Mineralogy)
Programme Leader, Mineralogy and Origins of Ore Deposits

1987 – 1991: Imperial College London, PhD Research Student (Rio Tinto Bursary)

1980 – 1987: Exploration Geologist, Mining Industry (Falconbridge, Cominco Ltd)

Current roles

- **Lead Scientist** for the NHM's research theme '**Resourcing the Green Economy**' focused on developing a 'centre of excellence' focused on using the Earth's natural resources for a sustainable future for our planet and its people.
- Member of the **UK Government Critical Minerals Expert Committee** since 2021
- Advisory Board Member of the **Critical Minerals Intelligence Centre** since 2022
- Councillor, **Society of Economic Geologists** since 2022

Former roles

- **Head of Earth Sciences, NHM** from 2013 to 2022, responsible for ca. 100 geoscientists working across mineral sciences, planetary geology, palaeobiology and human evolution.
- **Acting Director of Science, NHM** from October 2018 to June 2019, I was where I co-drafted the NHM Strategy to 2031 and worked on the strategic Collections Programme for the NHM.
- From 1980 to 1987 worked in the mining industry leading successful exploration programmes in Europe and Africa.

Profile

- Publishing 100+ scientific papers, my profile as an active researcher is recognised by my RCUK 'Individual Merit Researcher' status awarded in 2009 and renewed for a further 5 years in 2019. My current research is focused on metals critical for our modern economy in earth systems, integrating this work into strategies that ensure that mining those metals will be both nature and people positive.
 - Currently I am focused on projects investigating the discovery and recovery of copper and a range of critical metals.
 - Other research interests: evaluating novel bioprocessing and bioremediation strategies for critical metals; Earth's geodynamic history and mineral deposit formation.
- I am committed to diversity and equality and also committed to training the next generation of geoscientists. I have an active Post-Doc and PhD cohort, teach undergraduate courses at Imperial College, and supervise 4th year MSci students.

Qualifications

BSc. ARSM 1980 Royal School of Mines, Imperial College, Mining Geology

PhD DIC 1991 Royal School of Mines, Imperial College, Economic Geology

Active research grants

- 2022 DEFRA GCBC Fastrack project Bio+Mine: Biodiversity positive mining for the net zero challenge £720,000 (**Lead Scientist**)
- 2021 EU Horizon Europe project: Vectors to Accessible Critical Raw Material Resources in Sedimentary Basins, Proposal 101058483 Call HORIZON-CL4-2021-RESILIENCE-01 (**VECTOR**) €7,000,000 (**Institution PI**)
- 2020 NERC Highlight Topic Grant NE/V007068/1 Lithium for future technology (**LiFT**) £2,500,000 (**Institution PI**)
- 2019 NERC Highlight Topic Grant NE/T002921/1 Copper Basin Exploration Science (**CuBES**) £2 million (Co-I)
- 2019 NERC NC&C Award NE/T009063/1 Automated Mineral Analyser - Automated mineralogical analysis to underpin earth sciences £300,000 (**PI**)
- 2017 H2020 SC5-14(c)-2016-2017 **CROCODILE** First of a kind commercial **Compact** system for the efficient **Recovery Of CO**balt **Designed** with novel **Integrated LE**ading technologies €14,900,000 (Co-I)

10 most cited scientific papers (number of citations in brackets):

- (164) Little, C.T.S., **Herrington, R.J.**, Maslennikov, V.V., Morris, N.J. and Zaykov, V.V., 1997, Silurian hydrothermal vent community from the southern Urals, Russia, *Nature*, 385, 146-148
- (148) Brown, D., Spadea, P., Puchkov, V., Alvarez-Marron, J., **Herrington, R.**, Willner, A., Hezel, R. and Gorozhanina, Y., 2006. Arc continent collision in the Southern Urals, Earth-

Science Reviews, 79, 261-287

- (146) **Herrington, R.J.** and Wilkinson, J.J., 1993, Colloidal gold and silica in mesothermal vein systems, *Geology*, v.21, p.539-542
- (122) Gleeson, S.A., **Herrington, R.J.**, Durango, J., Velásquez, C.A. and Koll, G., 2004, The mineralogy and geochemistry of the Cerro Matoso SA Ni laterite deposit, Montelíbano, Colombia. *Economic Geology* 99 (6), 1197-1213
- (116) Müller, A., **Herrington, R.**, Armstrong, R., Seltmann, R., Kirwin, D.J. and Stenina, N.G. 2010. Trace elements and cathodoluminescence of quartz in stockwork veins of Mongolian porphyry-style deposits, *Mineralium Deposita* 45 (7), 707-727
- (110) Maslennikov, V.V., Maslennikova, S.P., Large, R.R., Danyushevsky, L.V., **Herrington, R.J.**, Ayupova, N.R., Zaykov, V.V., Lein, A.Yu., Tseluyko, A.S., Melekestseva, I. Yu. and Tesselina, S.G., 2017, Chimneys in Paleozoic massive sulfide mounds of the Urals VMS deposits: Mineral and trace element comparison with modern black, grey, white and clear smokers, *Ore Geology Reviews* 85, 64-106
- (102) **Herrington, R.**, Maslennikov, V.V., Zaykov, V.V., Seravkin, I.G., Kosarev, A., Buschmann, B., Orgeval, J.J., Holland, N., Tesselina, S.G., Nimis, P. and Armstrong, R., 2005. Classification of VMS deposits: Lessons from the South Uralides *Ore Geology Reviews* 27 (1), 203-237
- (94) Little, C.T.S., **Herrington, R.J.**, Maslennikov, V.V. and Zaykov, V.V., 1998, The fossil record of hydrothermal vent communities. In: Mills, R.A. and Harrison, K. (Eds.) *Modern Ocean Floor Processes and the Geological Record*. Geological Society Special Publications. 148: 259-270.
- (93) Williamson, B.J., **Herrington, R.J.**, Morris, A., 2016, Porphyry copper enrichment linked to excess aluminium in plagioclase, *Nature Geoscience*, doi: 10.1038/ngeo2651
- (93) **Herrington R. J.**, Zaykov V.V., Maslennikov V.V., Brown D. and Puchkov V N 2005. Mineral deposits of the Urals and Links to Geodynamic Evolution. In: Hedenquist et al. (eds.), *Economic Geology, One Hundredth Anniversary Volume, 1905-2005*, Society of Economic Geologists Inc., Littleton, Colorado, ISBN: 978-1-887483-01-8, pp1069-1095.

Policy related papers:

- **Herrington, R.**, 2013, Road map to mineral supply, *Nature Geoscience*, 6, 892-894
- Vidal, O., **Herrington, R.** and Arndt, N., 2016, Metalle für Europas Industrie — ob die Öffentlichkeit sie will oder nicht?, (English: Metal needs for European industry - whether the public wants it or not?) in: *Kausch, P. et al. (eds.) Rohstoffwirtschaft und gesellschaftliche Entwicklung: Die nächsten 50 Jahre*, p. 3-18, *Springer Spektrum* ISBN: 978-3-662-48854-6 (Print) 978-3-662-48855-3 (Online)
- **Herrington, R.J.**, 2021, Mining our green future, *Nature Reviews Materials*, 6, 456–458 [10.1038/s41578-021-00325-9](https://doi.org/10.1038/s41578-021-00325-9)
- Gloaguen, R., Ali, S., **Herrington, R.**, Ajjabou, L., Downey, E. and Stewart, I., 2022, Mineral revolution for the Wellbeing Economy *Global Sustainability*, 5, e15, DOI: <https://doi.org/10.1017/sus.2022.13>
- **Herrington, R.**, Tibbett, M., 2022, Cradle-to-cradle mining: a future concept for inherently reconstructive mine systems? *Mine Closure 2022*, M Tibbett, AB Fourie & G Boggs (eds.) © 2022 Australian Centre for Geomechanics, Perth, ISBN 978-0-6450938-4-1, doi:10.36487/ACG_repo/2215_0.02