

# ROSS P. ANDERSON

Senior Researcher of Natural History | Royal Society University Research Fellow | Fifty-Pound Fellow  
Museum of Natural History and All Souls College, University of Oxford

**Research Interests: Preserving the rise of complex life**  
*Early life, Earth history, Geobiology, Palaeobiology, Taphonomy*

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Date of Birth: 13<sup>th</sup> February 1989  
Nationality: British (UK)

## PROFESSIONAL APPOINTMENTS

Senior Researcher of Natural History & Royal Society University Research Fellow	Museum of Natural History University of Oxford	2024–Present
Fifty-Pound Fellow	All Souls College University of Oxford	2023–Present
Royal Society University Research Fellow	Dept. of Earth Sciences University of Oxford	2022–2024
Post-Doctoral Research Fellow in Life Sciences	All Souls College University of Oxford	2017–2022

## EDUCATION

PhD Geology and Geophysics <i>Advisor: Derek E.G. Briggs</i>	Yale University	2012–2017
MPhil Geology and Geophysics <i>Advisor: Derek E.G. Briggs</i>	Yale University	2012–2014
AB Earth and Planetary Sciences <i>Magna cum laude with highest honours and French language citation, GPA 3.817</i> <i>Advisor: Andrew H. Knoll</i>	Harvard University	2008–2012
Harry Carlton Comprehensive School	Loughborough, UK	2000–2007

## FELLOWSHIPS

University Research Fellowship	£ 612,620	Royal Society	2022–2027
Post-Doctoral Research Fellowship	£ ~350,000	All Souls College, Uni. of Oxford	2017–2022
Earth and Space Science Fellowship	\$ 90,000	NASA	2014–2017
University Fellowship		Yale University	2012–2017
Edwin Binney Fellowship		Yale University	2012–2015
Robert Tucker Hayes Cornerstone Scholarship		Harvard University	2010–2012
Summer Undergraduate Research Fellowship	\$ 5,000	Harvard Origins of Life	2011

## RESEARCH GRANTS

University Research Fellowship Enhancement	£ 398,805	Royal Society	2022–2027
User Access SM34183 (co-I) 15 shifts Infrared beamline		Diamond Light Source	2023
Undergraduate Research Bursary (co-I/supervisor)	£ 2,188	Palaeontological Association	2023
User Access SM34019-1 (co-I) 2 shifts Infrared beamline		Diamond Light Source	2023

## R P Anderson – CV

NEOF Proteomics Pilot Project 1502 (co-I)	£ 15,000	UKRI NERC	2022
User Access SP1630-1 (co-I) 6 shifts Microfocus beamline		Diamond Light Source	2022
John Fell OUP Fund for Svalbard fieldwork	£ 3,570	University of Oxford	2019
User Access SM21059 18 shifts Infrared beamline		Diamond Light Source	2018
Research Grant for Svalbard fieldwork	£ 16,670	Royal Society	2018
User Access SM15975 (co-I) 12 shifts Infrared beamline		Diamond Light Source	2017
Director's Discretionary (co-I) 6 shifts Infrared beamline		Advanced Light Source	2016
Student Research Grant for research visit	\$ 800	Paleontological Society	2016
Graduate Student Research Grant for research visit	\$ 1,023	Geological Society of America	2016
Daniel Pidgeon Fund for research visit	\$ 1,392	Geological Society of London	2016
Dissertation Improvement Grant for PhD research	\$ 4,000	Yale Inst. for Biospheric Studies	2015
NASA Astrobiology Lewis & Clark for Mongolia fieldwork	\$ 3,293	American Philosophical Society	2014
Doctoral Pilot Grant for PhD research	\$ 2,500	Yale Inst. for Biospheric Studies	2014
Student Geoscience Grant for Newfoundland fieldwork	\$ 7,500	ExxonMobil/Geol. Soc. America	2014
Fermor Fund for conference attendance	£ 1,000	Geological Society of London	2012

## AWARDS

Best Lectures in Earth Sciences	University of Oxford	2020
Simpson Prize for a paper on evolution and the fossil record	Yale Peabody Museum	2020
Best Lectures in Earth Sciences	University of Oxford	2019
President's Prize for the best early career talk	Palaeontological Association	2017
Orville Prize for outstanding research and scholarship in the earth sciences	Yale University	2017
Geobiology & Geomicrobiology Student Award for best student talk	Geological Society of America	2016
Excellence in Teaching Prize	Yale University	2016
MAPS Outstanding Student Award for top-3 student research proposals	Paleontological Society	2016
Hammer Prize to an outstanding geology graduate student	Yale University	2014
Structural Geology & Tectonics Award for outstanding research proposal	Geological Society of America	2014
Geophysics Award for outstanding research proposal	Geological Society of America	2014
Hatcher Award for field-based research by an outstanding graduate student	Geological Society of America	2014
Fermor Prize for the best independent research as an undergraduate	Geological Society of London	2012
Bateman Award for outstanding undergraduate performance	Yale University	2012
Fay Prize Nominee one of only three science senior theses receiving nomination	Harvard University	2012
Hoopers Prize for outstanding scholarly work or research as an undergraduate	Harvard University	2012

Honourable Mentions: President's Prize (Palaeontological Association, 2013,2016); Jérôme H. Remick Award (Geological Association of Canada, 2015)

## PROFESSIONAL EXPERIENCE

Associate Researcher	Mus. of Nat. His., Uni. of Oxford	2022–2024
Leadership Effectiveness Course	Royal Society/Imperial College	2024
Introduction to Management Course	Royal Society/Imperial College	2023
Networking and Promoting Yourself Course	Royal Society	2023
Mentoring Workshop	Royal Society	2022
Agouron Advanced Geobiology Field Course	Agouron Institute	2015
International Geobiology Course	Uni. of Southern California	2013
Harvard Origins of Life Undergraduate Research Fellowship	University of Birmingham	2011
Seismology Research Assistant	Harvard University	2010–2011
Summer Placement Trainee	E.ON Engineering	2009,2010
Placement Trainee	E.ON Engineering	2007–2008

## FIELD EXPERIENCE

### Fieldwork:

Svalbard, Norway (1 month)	Neoproterozoic Geobiology	2019
Svalbard, Norway (1 month)	Neoproterozoic Geobiology	2018

## R P Anderson – CV

Khuvsgul Terrane, Mongolia (8 days)	Ediacaran Geobiology	2017
Zavkhan Terrane, Mongolia (10 days)	Neoproterozoic Geobiology	2014
Avalon Terrane, Newfoundland, Canada (8 days)	Ediacaran Tectonics	2014
Zavkhan Terrane, Mongolia (10 days)	Neoptz./Cambrian Geobiology	2013
Isle of Islay, Scotland, UK (5 days)	Cryogenian Geobiology	2011

### Field Trips Organised:

Ediacaran England (2 one-day)	Earth Sciences, Uni. of Oxford	2021
Regional Perspectives on Geoscience: Alpine Europe (2 weeks)	Geology and Geophysics, Yale	2015
Regional Perspectives on Geoscience: Great Britain (2 weeks)	Geology and Geophysics, Yale	2013

### Field Trips Attended:

Canada (Alberta, British Columbia, Maritime Provinces), Italy, USA (Colorado, Death Valley, Hawaii, New England, New Mexico, Utah, Texas, Wyoming)

## TEACHING EXPERIENCE

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### Doctoral Supervisor:

George Wedlake (University of Oxford)		2023–Present
<i>Project: The Tonian rise of crown eukaryotes</i>		
<i>Principal Supervisor</i>		

### Undergraduate / Master's Supervisor:

Ariadokht Ezaz-Nikpay (University of Oxford)	Master's	2024–Present
<i>Master's project: The origin of eukaryotes in the Paleoproterozoic Rove and Virginia formations North America</i>		
Lucy Jackson (University of Oxford)	Summer intern '23/Master's	2023–Present
<i>Master's project: Homology or homoplasy in Palaeozoic echinoderm respiratory structures</i>		
<i>Internship project: Understanding the evolution of pharyngeal structures in fossil echinoderms</i>		
<i>Co-supervised with F.S. Dunn and I.A. Rahman</i>		
Orin Lole Durbin (University of Oxford)	Summer intern '23/Master's	2023–Present
<i>Internship and Master's Project: Mongolian fossils at the dawn of animal life</i>		
<i>Principal Supervisor</i>		
Amy Wahab (University of Oxford)	Summer intern '23	2023
<i>Internship project: Reconstructing articulated small shelly fossils from the Cambrian of Mongolia</i>		
<i>Co-supervised with L.A. Parry</i>		
Sanaa Mughal (University of Oxford)	Summer intern '21	2021–2023
<i>Internship project: New microfossils from the ~790-million-year-old Svanbergfjellet Formation of Svalbard: Investigating the emergence of green algae</i>		
<i>Principal Supervisor</i>		
<i>Now: Graduate student University of Alberta</i>		
George Wedlake (University of Oxford)	Summer intern '21, '22/Master's	2021–2022
<i>Internship and Master's project: New microfossils from the ~850-million-year-old Veteranen Group of Svalbard: Insights into the nascent eukaryotic world</i>		
<i>Principal Supervisor</i>		
<i>Student won University of Oxford's BP Prize for Best Project, Palaeontological Association Prize for Best Project in Palaeontology, and Brewer-Loughman Award for Undergraduate Research</i>		
<i>Now: Graduate student University of Oxford</i>		

### Other Mentorship:

Kelly Tingle (Vanderbilt University)	Doctoral student mentor	2024–Present
Spencer Pevsner (University of Oxford)	Doctoral student co-supervisor	2023–Present
Christina Woltz (University of California, Santa Barbara)	Doctoral student mentor	2018

### Lecturer in Charge:

Invertebrate Palaeobiology	Earth Sciences, Uni. of Oxford	2018–2024
Palaeobiology (with E. Saupe 2018, N. Santodomingo 2023)	Earth Sciences, Uni. of Oxford	2018,2023
Co-evolution of Earth and Life (with J. Cosmidis, R. Rickaby, S. Robinson)	Earth Sciences, Uni. of Oxford	2022–2023
Major Environmental Change (with J. Cosmidis, R. Rickaby, S. Robinson)	Earth Sciences, Uni. of Oxford	2020–2021

Guest Lecturer:

Palaeobiology	Earth Sciences, Uni. of Oxford	2022
Major Environmental Change	Earth Sciences, Uni of Oxford	2019

Tutorials:

Did oxygen cause the Cambrian Explosion of animals?	Earth Sciences, Uni. of Oxford	2020
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Teaching Fellow:

History of Life	Geology and Geophysics, Yale	2013,2014,2016
Natural Disasters	Geology and Geophysics, Yale	2013
Regional Perspectives on Geoscience: Great Britain	Geology and Geophysics, Yale	2013

**SERVICE**

Committees/Roles:

Chaplain Appointment Working Group	All Souls College, Uni. of Oxford	2024–Present
Co-Vice President Earth System Science Group	Geological Society of London	2023–Present
High Street Development Working Group	All Souls College, Uni. of Oxford	2023–Present 2021–2022
Governing Body Member and Trustee	All Souls College, Uni. of Oxford	2023–Present 2017–2022
PalaeoClub Seminar Convener	Oxford Palaeobiology Group	2019–Present
Property Investment Sub-Committee	All Souls College, Uni of Oxford	2018–Present
Assistant Examiner for the Examination Fellowship	All Souls College, Uni of Oxford	2019, 2024
SRF election in Life/Environ. Sciences Working Group	All Souls College, Uni of Oxford	2023–2024
Panel for NERC Environmental Research DTP	Earth Sciences, Uni. of Oxford	2022–2023
PDRF elections in Life/Environ. Sciences Working Group	All Souls College, Uni of Oxford	2022–2023
Undergraduate Admissions	Earth Sciences, Uni. of Oxford	2021–2022
Junior Dean and Benefices Committee	All Souls College, Uni of Oxford	2020–2022
Domestic Committee	All Souls College, Uni of Oxford	2018–2022
PDRF election in Theoretical Physics Working Group	All Souls College, Uni of Oxford	2020–2021
Estates Bursar Appointment Working Group	All Souls College, Uni of Oxford	2020–2021
Annual Meeting Science Committee	Palaeontological Association	2020
Climate Change Working Group	All Souls College, Uni of Oxford	2019
Colloquium Committee	Geology and Geophysics, Yale	2012–2016
Dana Club Treasurer	Geology and Geophysics, Yale	2014–2015

Academic Meetings Hosted/Organised:

Life and Planet Meeting <i>Member of organising committee</i>	Geological Society of London	2023–Present
The Past and Future of Life on Our Dynamic Planet <i>Convenor of 8 session seminar series</i>	All Souls College, Uni. of Oxford	2024
Climate Protection, Energy Security, Geopolitics: Squaring the Circle <i>Organised with W. Ernst, M. Meyerhoff, S. Toppaladoddi</i>	All Souls College, Uni. of Oxford	2022
Ediacaran Taxonomy Meeting <i>Hosted meeting organised by F.S. Dunn and C.G. Kenchington</i>	All Souls College, Uni. of Oxford	2021
Emergence of Complex Life Meeting <i>Organised with N.J. Tosca</i>	All Souls College, Uni. of Oxford	2018
Northeastern Geobiology Symposium <i>Organised with E.J. Bellefroid</i>	Geology and Geophysics, Yale	2014

Conference Sessions Organised:

T76: Exceptional fossilization in time and space <i>Organised with L.G. Tarhan</i>	Geol. Soc. of America Meeting	2020
T66: Exceptionally preserved Proterozoic and early–Paleozoic fossils <i>Organised with S. McMahon and L.G. Tarhan</i>	Geol. Soc. of America Meeting	2017

Reviewer:

*American Philosophical Society; Australian Journal of Earth Sciences; BioEssays; Chemical Geology; Earth and Planetary Science Letters; Earth Science Reviews; Ecology and Evolution; Fossils and Strata; Frontiers in Earth Science; Geobiology; Geological Magazine; Geology; Geoscience Frontiers; Global and Planetary Change; GSA Bulletin; Journal of the Geological Society of London; Journal of Paleontology; Natural Sciences and Engineering Research Council Canada; Nature Communications; Nature Ecology and Evolution; Palaeontologia Electronica; Palaeontology; Palaeoworld; Palaeogeography, Palaeoclimatology, Palaeoecology; Palaios; PLOS ONE; Precambrian Research; Proceedings of the Royal Society B – Biological Sciences; Science Advances; Scientific Reports; Sedimentology; Springer; Terra Nova; Trends in Ecology and Evolution*

## OUTREACH

Public Talk: “Being a Royal Society Mentee”	Royal Society Mentoring	2023, 2024
Public Talk: “Preserving the rise of complex life”	Cheltenham Min. and Geol. Soc.	2023
Science Advisor: PBS/NOVA/BBC Ancient Earth Frozen	PBS/NOVA/BBC	2023
UNIQ Earth Sciences Summer School	Earth Sciences, Uni. of Oxford	2020–2023
Science Committee: “First Animals” Exhibition	Mus. of Nat. His., Uni. of Oxford	2019
Public Talk: “Digging the dirt on the world’s oldest fossils”	Oxford Geology Group	2019
Chair: Oxford Palaeontology Symposium	Oxford Geology Group	2019
Public Talk: “Digging the dirt on the world’s oldest fossils”	Mus. of Nat. His., Uni. of Oxford	2018
Public Talk: “Digging the dirt on the world’s oldest fossils”	British Science Festival	2018
Science Committee: “Bacterial World” Exhibition	Mus. of Nat. His., Uni. of Oxford	2018
Dinosaur Days Meet the Scientist	Yale Peabody Museum	2014,2016,2017
Gallery Talk: “The Peabody’s Oldest Fossils”	Yale Peabody Museum	2017
Behind the Scenes Tours	Yale Peabody Museum	2016–2017
Duxbury Middle School Interview	Yale Peabody Museum	2016
EVOLUTIONS After School Program	Yale Peabody Museum	2016

## PROFESSIONAL AFFILIATIONS

Geological Society of America  
 Geological Society of London (Fellow, FGS)  
 Palaeontological Association  
 Paleontological Society

## RESEARCH PUBLICATIONS

*h-index 14, citations 640 (Google Scholar, 29/04/24), \* student contribution*

1. **Anderson, R.P.**, Fairchild, I.J., Tosca, N.J., Knoll, A.H., 2013. Microstructures in metasedimentary rocks from the Neoproterozoic Bonahaven Formation, Scotland: Microconcretions, impact spherules, or microfossils? *Precambrian Research* **233**, 59–72. ([Link](#))
2. **Anderson, R.P.**, McCoy, V.E., McNamara, M.E., Briggs, D.E.G., 2014. What big eyes you have: The ecological role of giant pterygotid eurypterids. *Biology Letters* **10**, 20140412. ([Link](#))
3. McCoy, V.E., Lamsdell, J.C., Poschmann, M., **Anderson, R.P.**, Briggs, D.E.G., 2015. All the better to see you with: Eyes and claws reveal the evolution of divergent ecological roles in giant pterygotid eurypterids. *Biology Letters* **11**, 20150564. ([Link](#))
4. McCoy, V.E., Saupe, E.E., Lamsdell, J.C., Tarhan, L.G., McMahan, S., Lidgard, S., Mayer, P., Whalen, C.D., Soriano, C., Finney, L., Vogt, S., Clark, E.G., **Anderson, R.P.**, Petermann, H., Locatelli, E.R., Briggs, D.E.G., 2016. The ‘Tully Monster’ is a vertebrate. *Nature* **532**, 496–499. ([Link](#))
5. Darroch, S.A.F., Locatelli, E.R., McCoy, V.E., Clark, E.G., **Anderson R.P.**, Tarhan, L.G., Hull, P., 2016. Taphonomic disparity in foraminifera as a paleo-indicator for seagrass. *Palaios* **31** (5), 242–258. ([Link](#))
6. **Anderson, R.P.**, Tarhan, L.G., Cummings, K.E., Planavsky, N.J., Bjørnerud, M., 2016. Macroscopic structures in the 1.1 Ga continental Copper Harbor Formation: Concretions or fossils? *Palaios* **31** (7), 327–338. ([Link](#))

7. McMahan, S., **Anderson, R.P.**, Saupe, E.E., Briggs, D.E.G., 2016. Experimental evidence that clay inhibits bacterial decomposers: Implications for preservation of organic fossils. *Geology* **44** (10), 867–870. ([Link](#))
8. **Anderson, R.P.**, McMahan, S., Bold, U., Macdonald, F.A., Briggs, D.E.G., 2017. Palaeobiology of the early Ediacaran Shuurgat Formation, Zavkhan Terrane, south-western Mongolia. *Journal of Systematic Palaeontology* **15** (11), 947–968. ([Link](#))
9. **Anderson, R.P.**, Macdonald, F.A., Jones, D.S., McMahan, S., Briggs, D.E.G., 2017. Doushantuo-type microfossils from latest Ediacaran phosphorites of northern Mongolia. *Geology* **45** (12), 1079–1082. ([Link](#))
10. **Anderson, R.P.**, Tosca, N.J., Gaines, R.R., Mongiardino Koch, N., Briggs, D.E.G., 2018. A mineralogical signature for Burgess Shale-type fossilization. *Geology* **46** (4), 347–350. ([Link](#))
11. Fairchild, I.J., Spencer, A.M., Ali, D.O., **Anderson, R.P.**, Anderton, R., Boomer, I., Dove, D., Evans, J. D., Hambrey, M.J., Howe, J., Sawaki Y., Shields, G.A., Skelton, A., Tucker, M.E., Wang, Z., Zhou, Y., 2018. Tonian–Cryogenian boundary sections of Argyll, Scotland. *Precambrian Research* **319**, 37–64. ([Link](#))
12. **Anderson, R.P.**, McMahan, S., Macdonald, F.A., Jones, D.S., Briggs, D.E.G., 2019. Palaeobiology of latest Ediacaran phosphorites from the upper Khesen Formation, Khuvs gul Group, northern Mongolia. *Journal of Systematic Palaeontology* **17** (6), 501–532. ([Link](#))
13. Wiemann, J., de Queiroz, K., Rowe, T.B., Planavsky, N.J., **Anderson, R.P.**, Gogarten, J.P., Turner, P.E., Gauthier, J.A., 2020. Pan-Biota in Phylonyms: A companion to the Phylocode, eds. De Queiroz, K., Cantino, P., Gauthier, J.A. CRC Press. ([Link](#))
14. Wiemann, J., de Queiroz, K., Rowe, T.B., Planavsky, N.J., **Anderson, R.P.**, Gogarten, J.P., Turner, P.E., Gauthier, J.A., 2020. Biota in Phylonyms: A companion to the Phylocode, eds. De Queiroz, K., Cantino, P., Gauthier, J.A. CRC Press. ([Link](#))
15. **Anderson, R.P.**, 2020. Intrinsic iron may have promoted ancient nervous tissue fossilization. *BioEssays* **42**, 2000070. (Invited article) ([Link](#))
16. **Anderson, R.P.**, Tosca, N.J., Cinque, G., Frogley, M.D., Lekkas, I., Akey, A., Hughes, G.M., Bergmann, K.D., Knoll, A.H., Briggs, D.E.G., 2020. Aluminosilicate haloes preserve complex life approximately 800 million years ago. *Interface Focus* **10**, 20200011. (Invited article) ([Link](#))
17. Cohen, P.A., Vizcaíno, M., **Anderson, R.P.**, 2020. Oldest fossil ciliates from the Cryogenian glacial interlude reinterpreted as possible red algal spores. *Palaeontology* **63** (6), 941–950. ([Link](#))
18. Wen, B., Evans, D.A.D., **Anderson, R.P.**, McCausland, P.J.A., 2020. Late Ediacaran paleogeography of Avalonia and the Cambrian assembly of West Gondwana. *Earth and Planetary Science Letters* **552**, 116591. ([Link](#))
19. **Anderson, R.P.**, Tosca, N.J., Saupe, E.E., Wade, J., Briggs, D.E.G., 2021. Early formation and taphonomic significance of kaolinite associated with Burgess Shale fossils. *Geology* **49** (4), 355–359. ([Link](#))
20. Gibson, T.M., Millikin, A.E.G., **Anderson, R.P.**, Myrow, P.M., Rooney, A.D., Strauss, J.V., 2021. Tonian deltaic and storm-influenced marine sedimentation on the edge of Laurentia: The Veteranen Group of northeastern Spitsbergen, Svalbard. *Sedimentary Geology* **426**, 106011. ([Link](#))
21. Jing, Y., Chen, Z.-Q., **Anderson, R.P.**, Wang, X., Zheng, Z., 2022. Microscopic and geochemical analyses of the Tonian Longfengshan biota from the Luotuling Formation (Hebei Province, North China) with taphonomic implications. *Precambrian Research* **382**, 106899. ([Link](#))
22. **Anderson, R.P.**, Woltz, C.R., Tosca, N.J., Porter, S.M., Briggs, D.E.G., 2023. Fossilisation processes and our reading of animal antiquity. *Trends in Ecology and Evolution* **38** (11), 1060–1071. ([Link](#))
23. Woltz, C.R., **Anderson, R.P.**, Tosca, N.J., Porter, S.M., 2023. The role of clay minerals in the preservation of Precambrian organic-walled microfossils. *Geobiology* **21** (6), 708–724. ([Link](#))
24. Etemad-Saeed, N., **Anderson, R.P.**, Tosca, N.J., Bergmann, K.D., Knoll, A.H., 2024. Stratigraphic occurrence and taphonomy of *Sabellidites* in Terreneuvian rocks of the Soltanieh Formation, Soltanieh Mountains, Northern Iran. *Palaeogeography, Palaeoclimatology, Palaeoecology* **639**, 112084. ([Link](#))

25. Morton-Hayward, A.L., **Anderson, R.P.**, Saupe, E.E., Larson, G., Cosmidis, J.G., 2024. Human brains preserve in diverse environments for at least 12,000 years. *Proceedings of the Royal Society B—Biological Sciences* **291**, 20232606. ([Link](#))
26. **Anderson, R.P.**, \*Mughal, S., \*Wedlake, G.O., in review. Proterozoic microfossils continue to provide new insights into the rise of complex eukaryotic life. *Royal Society Open Science*. (*Invited article*)
27. Lei, X., Cong, P., Zhang, S., Wei, F., **Anderson, R.P.**, in review. Unveiling an ignored taphonomic window in the early Cambrian Chengjiang Biota. *Geology*.
28. Mughal, S.\*, Millikin, A.E.G., Zhang, T., Gibson, T.M., Rooney, A.D., Tosca, N.J., Bergmann, K.D., Strauss, J.V., **Anderson, R.P.**, in review. The Svanbergfjellet Formation: Viewing the nascent eukaryotic world. *Journal of the Geological Society of London*.

## OTHER PUBLICATIONS

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1. **Anderson, R.P.**, 2013. Britain's oldest eukaryotes? *Geoscientist* **23** (6), 10-15. (*Invited article*) ([Link](#))
2. **Anderson, R.P.**, 2023. Scientists can't agree on when the first animals evolved – our research hopes to end the debate. *The Conversation* ([Link](#)).

## RESEARCH PRESENTATIONS

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\**Student contribution*

### *Invited Seminars:*

1. **Anderson, R.P.**, 2015. The rise of eukaryotes: Environmental controls during the Neoproterozoic-Cambrian transition. University of Bristol Palaeobiology Seminar, Bristol, UK.
2. **Anderson, R.P.**, 2017. Fossilisation of the earliest eukaryotes. Diamond Light Source Seminar, Didcot, UK.
3. **Anderson, R.P.**, 2018. The rise of eukaryotes: Environmental controls on the early fossil record. Labatoire de Géologie de Lyon Seminar, Lyon, France.
4. **Anderson, R.P.**, 2018. The rise of eukaryotes: Environmental controls on the early fossil record. University of Cambridge Palaeobiology Seminar, Cambridge, UK.
5. **Anderson, R.P.**, 2018. A new Doushantuo-style fossil Lagerstätte from latest Ediacaran phosphorites of northern Mongolia. The Precambrian–Cambrian Phosphogenic Event Working Group Meeting, University of Science and Technology of China, Hefei, China.
6. **Anderson, R.P.**, 2018. The rise of eukaryotes: Environmental controls on the early fossil record. University of Leicester Department of Geology Seminar, Leicester, UK.
7. **Anderson, R.P.**, 2019. Clay minerals and the fossilisation of early complex life. The origin and rise of complex life: Integrating models, geochemical and palaeontological data, Royal Society Discussion Meeting, London, UK.
8. **Anderson, R.P.**, 2021. The importance of fossilisation to our reading of animal antiquity. KU Leuven Department of Earth and Environmental Sciences Seminar, Leuven, Belgium.
9. **Anderson, R.P.**, 2022. Darwin's Dilemma: The importance of fossilization to our reading of animal antiquity. Texas A&M Department of Geology and Geophysics Seminar, College Station, USA.
10. **Anderson, R.P.**, 2022. Darwin's Dilemma: The importance of fossilization to our reading of animal antiquity. UC Riverside Virtual Seminar in Precambrian Geology, Riverside, USA, online.
11. **Anderson, R.P.**, 2022. The rise of complex life: Environmental controls on the early fossil record. Department of Earth Sciences and Department of Genetics, Evolution, and Environment Seminar, University College London, London, UK.
12. **Anderson, R.P.**, 2023. The rise of complex life: Environmental controls on the early fossil record. Department of Earth Sciences, University of Oxford, Oxford, UK.
13. **Anderson, R.P.**, 2023. The rise of complex life: Environmental controls on the early fossil record. School of Earth and the Environment, University of Leeds, Leeds, UK.

14. **Anderson, R.P.**, 2023. Preserving the rise of complex life: Environmental controls on the early fossil record. Department of Earth Sciences, University of Cambridge, Cambridge, UK.
15. **Anderson, R.P.**, 2023. Preserving the rise of complex life: Environmental controls on the early fossil record. Department of Earth and Environmental Sciences, Vanderbilt University, Nashville, USA.
16. **Anderson, R.P.**, 2023. Preserving the rise of complex life: Environmental controls on the early fossil record. Department of Earth Science, University of California Santa Barbara, Santa Barbara, USA.
17. **Anderson, R.P.**, 2023. Preserving the rise of complex life: Environmental controls on the early fossil record. Department of Environment and Geography, University of York, York, UK.

Conference Oral Presentations:

1. Corsetti, F.A., **Anderson, R.P.**, Bird, J.T., Meneske, M., Trower, E.J., Petryshyn, V.A., Tripathi, A., Stamps, B.W., Stevenson, B.S., Spear, J.S., 2013. Ooid formation in the Great Salt Lake, Utah: Insights from clumped isotope paleothermometry and molecular biology. Geological Society of America Annual Meeting, Denver, USA. (*Presentation given by F.A. Corsetti*)
2. **Anderson, R.P.**, McCoy, V.E., McNamara, M.E., Briggs, D.E.G., 2013. The mode of life of pterygotid eurypterids: Insights from their visual system. Palaeontological Association Annual Meeting, Zürich, Switzerland. (*Honourable mention for President's Prize*)
3. Locatelli, E.R., Darroch, S.A.F., McCoy, V.E., **Anderson, R.P.**, Clark, E.G., Hull, P., 2014. Experimental taphonomy of foraminifera. North American Paleontological Convention, Gainesville, USA. (*Presentation given by E.R. Locatelli*)
4. McCoy, V.E., Lamsdell, J.C., Poschmann, M., **Anderson, R.P.**, Briggs, D.E.G., 2015. Eyes and claws reveal the evolution of divergent ecological roles in giant pterygotid eurypterids. Geological Society of America Annual Meeting, Baltimore, USA. (*Presentation given by V.E. McCoy*)
5. McMahan, S., **Anderson, R.P.**, Briggs, D.E.G., 2015. Clay-microbe interactions and implications for exceptional preservation. Palaeontological Association Annual Meeting, Cardiff, UK. (*Presentation given by S. McMahan*)
6. **Anderson, R.P.**, Tosca, N.J., Gaines, R.R., Briggs, D.E.G., 2016. Sediment composition of Burgess Shale-type Lagerstätten: Implications for soft-tissue preservation. Geological Society of America Annual Meeting, Denver, USA. (*Won GSA Geobiology and Geomicrobiology Student Award*)
7. **Anderson, R.P.**, Tosca, N.J., Kearns, S.L., Briggs, D.E.G., 2016. Mineralogical insights into the tissues of Burgess Shale animals. Palaeontological Association Annual Meeting, Lyon, France. (*Honourable mention for President's Prize*)
8. **Anderson, R.P.**, Macdonald, F.A., Jones, D.S., McMahan, S., Briggs, D.E.G., 2017. A latest Ediacaran Doushantuo-type Lagerstätte from northern Mongolian phosphorites. Geological Society of America Annual Meeting, Seattle, USA.
9. **Anderson, R.P.**, Tosca, N.J., Gaines, R.R., Mongiardino Koch, N., Briggs, D.E.G., 2017. A mineralogical signature for Burgess Shale-type preservation. Palaeontological Association Annual Meeting, London, UK. (*Won President's Prize*)
10. **Anderson, R.P.**, Tosca, N.J., Kearns, S.L., Briggs, D.E.G., 2018. Taphonomic significance of the mineralogy of Burgess Shale fossils. 4<sup>th</sup> International Palaeontological Congress, Paris, France.
11. **Anderson, R.P.**, 2018. Clay mineral controls on the early fossil record. Emergence of Complex Life Meeting, All Souls College, Oxford, UK.
12. **Anderson, R.P.**, Tosca, N.J., Cinque, G., Frogley, M., Lekkas, I., Akey, A., Hughes, G.M., Butterfield, N.J., Knoll, A.H., Briggs, D.E.G., 2019. Aluminosilicate haloes preserve complex life over 800 million years ago. Palaeontological Association Annual Meeting, Valencia, Spain.
13. **Anderson, R.P.**, Tosca, N.J., Cinque, G., Frogley, M., Lekkas, I., Akey, A., Hughes, G.M., Bergmann, K.D., Knoll, A.H., Briggs, D.E.G., 2020. Aluminosilicate haloes preserve complex life over 800 million years ago. Circum-Arctic Structural Events Meeting, Hannover, Germany.
14. **Anderson, R.P.**, Tosca, N.J., Saupe, E.E., Wade, J., Briggs, D.E.G., 2020. Resolving a taphonomic role for kaolinite-organic interactions in the Burgess Shale. Geological Society of America Annual Meeting, online.

15. Woltz, C.R., **Anderson, R.P.**, Porter, S.M., Tosca, N.J., 2020. The role of clay minerals in the preservation of Precambrian organic-walled microfossils. Geological Society of America Annual Meeting, Montréal, Canada, online. (*Presentation given by C.R. Woltz*)
16. **Anderson, R.P.**, Tosca, N.J., Saupe, E.E., Wade, J., Briggs, D.E.G., 2020. Confirming the importance of kaolinite-organic interactions in Burgess Shale-type fossilisation. TaphCon, online.
17. Millikin, A.E.G., Strauss, J.V., Halverson, G.P., Bergmann, K.D., Tosca, N.J., Gibson, T.M., **Anderson, R.P.**, Rooney, A.D., 2021. New Re-Os ages from the Neoproterozoic Hecla Hoek succession, Svalbard, Norway. Goldschmidt Meeting, online. (*Presentation given by A.E.G. Millikin*)
18. **Anderson, R.P.**, Woltz, C.R., Tosca, N.J., Porter, S.M., Briggs, D.E.G., 2021. Darwin's Dilemma: Taphonomic studies help constrain the origin of animals. Geological Society of America Annual Meeting, Portland, USA, online.
19. **Anderson, R.P.**, Woltz, C.R., Tosca, N.J., Porter, S.M., Briggs, D.E.G., 2021. Darwin's Dilemma: Constraints on the origin of animals from taphonomic studies. Palaeontological Association Annual Meeting, Manchester, UK, online.
20. Morton-Hayward, A.L., **Anderson, R.P.**, Cosmidis, J.C., 2022. Nerves of steel: The role of iron in the preservation of the central nervous system. Progressive Palaeontology, Lincoln, UK. (*Presentation given by A.L. Morton-Hayward, Won best flash talk*)
21. **Anderson, R.P.**, Wedlake, G.O., Gibson, T.M., Millikin, A.E.G., Piepjohn, K., Tosca, N.J., Rooney, A.D., Strauss, J.V., 2022. New multicellular eukaryotes from the ca. 950–820-million-year-old Veteranen Group of Svalbard. Geological Society of America Annual Meeting, Denver, USA.
22. Woltz, C.R., **Anderson, R.P.**, Tosca, N.J., Porter, S.M., 2023. Environmental controls on the preservation of Precambrian organic-walled microfossils. Palaeo Down Under 3, Perth, Australia. (*Presentation given by C.R. Woltz*)
23. **Anderson, R.P.**, Wedlake, G.O., Parry, L.A., Gibson, T.M., Millikin, A.E.G., Piepjohn, K., Tosca, N.J., Rooney, A.D., Strauss, J.V., 2023. New multicellular eukaryotes from the ca. 930–820-million-year-old Veteranen Group of Svalbard. Palaeontological Association Annual Meeting, Cambridge, UK.

Conference Poster Presentations:

1. **Anderson, R.P.**, Fairchild, I.J., Tosca, N.J., Knoll, A.H., 2012. Probable testate microfossils in the Neoproterozoic Bonahaven Formation, Scotland. The Neoproterozoic Era—Evolution, Glaciation, Oxygenation, Fermor Meeting of the Geological Society of London, London, UK.
2. **Anderson, R.P.**, Fairchild, I.J., Tosca, N.J., Knoll, A.H., 2012. Probable testate microfossils in the Neoproterozoic Bonahaven Formation, Scotland. Palaeontological Association Annual Meeting, Dublin, Ireland.
3. **Anderson, R.P.**, McCoy, V.E., McNamara, M.E., Briggs, D.E.G., 2013. The visual system of pterygotid eurypterids: Implications for their mode of life. Geological Society of America Annual Meeting, Denver, USA.
4. Bird, J.T., Trower, E.J., **Anderson, R.P.**, Meneske, M., Berelson, W., Sessions, A.L., Osburn, M., Spear, J.S., Stamps, B.W., Stevenson, B.S., Shapiro, R.S., Torres, M., Corsetti, F.A., 2013. Evaluating the biological influences on ooid formation in the Great Salt Lake, Utah. American Geophysical Union Fall Meeting, San Francisco, USA. (*Presentation given by J.T. Bird*)
5. **Anderson, R.P.**, Bird, J.T., Meneske, M., Trower, E.J., Berelson, W., Petryshyn, V.A., Shapiro, R.S., Sessions, A.L., Tripathi, A., Corsetti, F.A., 2013. Ooid formation in the Great Salt Lake, Utah: Insights from clumped isotope paleothermometry. American Geophysical Union Fall Meeting, San Francisco, USA.
6. **Anderson, R.P.**, Macdonald, F.A., Tosca, N.J., Bosak, T., Bold, U., Briggs, D.E.G., 2014. Taphonomy of eukaryotic microfossils between Cryogenian ice ages explored in the Zavkhan Terrane, southwestern Mongolia. Geological Society of America Annual Meeting, Vancouver, Canada.
7. **Anderson, R.P.**, Wen, B., McCausland, P.J.A., Evans, D.A.D., 2014. Quantifying late Ediacaran tectonics and plate motions of the Avalonia Terrane: Regional and global implications. Geological Society of America Annual Meeting ExxonMobil Student Geoscience Grant Special Poster Session, Vancouver, Canada.

8. **Anderson, R.P.**, Macdonald, F.A., Tosca, N.J., Bosak, T., Bold, U., Briggs, D.E.G., 2014. Apparent diversity drop after the Cryogenian (Sturtian) ice age in southwestern Mongolia—a product of extinction or taphonomy? Palaeontological Association Annual Meeting, Leeds, UK.
9. **Anderson, R.P.**, Macdonald, F.A., Tosca, N.J., Bosak, T., Bold, U., Briggs, D.E.G., 2015. The role that clay minerals play in organic fossil preservation: Insights from the Zavkhan Terrane, southwestern Mongolia. Mud, glorious mud, and why it is important for the fossil record, Lyell Meeting of the Geological Society of London, London, UK.
10. **Anderson, R.P.**, Evans, D.A.D., McCausland, P.J.A., Wen, B., 2015. Uncovering late Ediacaran kinematics of the Avalonia Terrane using paleomagnetism. Joint Assembly of the American Geophysical Union, Montréal, Canada. (*Honourable mention for GAC Remick Award*)
11. **Anderson, R.P.**, McMahon, S., Bold, U., Macdonald, F.A., Briggs, D.E.G., 2015. Microfossils from cherts of the Ediacaran Shuurgat Formation, Zavkhan Terrane, southwestern Mongolia. Geological Society of America Annual Meeting, Baltimore, USA.
12. **Anderson, R.P.**, McMahon, S., Bold, U., Macdonald, F.A., Briggs, D.E.G., 2015. Microfossil communities preserved in Ediacaran cherts of the Shuurgat Formation, Zavkhan Terrane, southwestern Mongolia. Palaeontological Association Annual Meeting, Cardiff, UK.
13. **Anderson, R.P.**, McMahon, S., Bold, U., Macdonald, F.A., Briggs, D.E.G., 2016. A new early Ediacaran microfossil Lagerstätte: The Shuurgat Formation, Zavkhan Terrane, southwestern Mongolia. Northeastern Geobiology Symposium, Harvard University, Cambridge, USA.
14. Vizcaíno, M., **Anderson, R.P.**, Macdonald, F.A., Cohen, P., 2016. Morphology and stratigraphic distribution of putative tintinnid fossils from the Tsagaan Olom Group, Mongolia. Geological Society of America Annual Meeting, Denver, USA. (*Presentation given by M. Vizcaíno*)
15. **Anderson, R.P.**, Tosca, N.J., Mongiardino Koch, N., Briggs, D.E.G., 2017. A mineralogical fingerprint of Burgess Shale-type fossilization. Northeastern Geobiology Symposium, University of Connecticut, Storrs, USA.
16. Vizcaíno, M., Cohen, P., **Anderson, R.P.**, 2017. Reinterpretation of putative tintinnid lorica fossils from the Neoproterozoic Tsagaan Olom Group, Mongolia. Northeastern Geobiology Symposium, University of Connecticut, Storrs, USA. (*Presentation given by M. Vizcaíno*)
17. **Anderson, R.P.**, Tosca, N.J., Kearns, S.L., Briggs, D.E.G., 2017. Revealing the mineralogy of Burgess Shale animals. Geobiology Society Conference, Banff, Canada.
18. **Anderson, R.P.**, Macdonald, F.A., Jones, D.S., McMahon, S., Briggs, D.E.G., 2017. Diverse Ediacaran Doushantuo-style microfossils in northern Mongolian phosphorites. International Symposium on the Ediacaran–Cambrian Transition, St John's, Canada.
19. **Anderson, R.P.**, Macdonald, F.A., Jones, D.S., McMahon, S., Briggs, D.E.G. 2018. The latest Ediacaran Khesen Formation: A new Doushantuo-style fossil Lagerstätte. Palaeontological Association Annual Meeting, Bristol, UK.
20. Gibson, T.M., Strauss, J.V., **Anderson, R.P.**, Millikin, A.E.G., Rooney, A.D., Legge, E., Mackey, T.J., Bergmann, K.D., Summons, R.E., 2019. Tonian Geobiology of Svalbard. Northeastern Geobiology Symposium, Amherst College, Amherst, USA. (*Presentation given by T.M. Gibson*)
21. Millikin, A.E.G., Rooney, A.D., Gibson, T.M., **Anderson, R.P.**, Bergmann, K., Strauss, J.V., 2019. Geochronology, geochemistry, and stratigraphy of the Neoproterozoic Hecla Hoek succession, Svalbard, Norway. Geobiology Society Conference, Banff, Canada. (*Presentation given by A.E.G. Millikin*)
22. Millikin, A.E.G., Gibson, T.M., **Anderson, R.P.**, Strauss, J.V., Rooney, A.D., 2019. Geochronology, geochemistry, and stratigraphy of the Neoproterozoic Hecla Hoek succession, Svalbard, Norway. Geological Society of America Annual Meeting, Phoenix, USA. (*Presentation given by A.E.G. Millikin*)
23. Gibson, T.M., Millikin, A.E.G., **Anderson, R.P.**, Myrow, P.M., Rooney, A.D., Strauss, J.V., 2020. Sedimentology, stratigraphy and age of the Tonian Veteranen Group, northeastern Spitsbergen, Svalbard. Geological Society of America Annual Meeting, online. (*Presentation given by T.M. Gibson*)

24. Gibson, T.M., Millikin, A.E.G., **Anderson, R.P.**, Piepjohn, K., McClelland, W.C., Crowley, J.L., Rooney, A.D., Strauss, J.V., 2021. Synthesis of the lower Hecla Hoek succession across eastern Svalbard: Early Tonian magmatism and basin formation along the northeastern margin of Laurentia. Geological Society of America Annual Meeting, Portland, USA. (*Presentation given by T.M. Gibson*)
25. \*Wedlake, G.O., \*Mughal, S., Gibson, T.M., Millikin, A.E.G., Strauss, J.V., Rooney, A.D., Piepjohn, K., Tosca, N.J., **Anderson, R.P.**, 2021. Microfossils from the ~850-million-year-old Veteranen Group of Svalbard: Insights into the nascent eukaryotic world. Palaeontological Association Annual Meeting, Manchester, UK, online. (*Presentation given by G.O. Wedlake*)
26. \*Mughal, S., \*Wedlake, G.O., Gibson, T.M., Millikin, A.E.G., Strauss, J.V., Rooney, A.D., Tosca, N.J., Bergmann, K.D., **Anderson, R.P.**, 2021. Re-exploring the exceptionally preserved fossils of the Tonian Svanbergfjellet Formation of Svalbard to understand the rise of eukaryotes. Palaeontological Association Annual Meeting, Manchester, UK, online. (*Presentation given by S. Mughal*)
27. Barnes, N.L., Cunningham, J.A., Donoghue, P.C.J, **Anderson, R.P.**, Briggs, D.E.G., 2022. The affinity of embryo-like fossils: New evidence from Mongolia. Progressive Palaeontology, Lincoln, UK. (*Presentation given by N.L. Barnes*)
28. Barnes, N.L., Cunningham, J.A., Donoghue, P.C.J, **Anderson, R.P.**, Briggs, D.E.G., 2022. The affinity of embryo-like fossils: New evidence from Mongolia. Palaeontological Association Annual Meeting, Cork, Ireland. (*Presentation given by N.L. Barnes*)
29. Morton-Hayward, A.L., **Anderson, R.P.**, Cosmidis, J.G., 2022. Suspicious minds: A molecular taphonomy approach to preservation of the central nervous system in the fossil record. Palaeontological Association Annual Meeting, Cork, Ireland. (*Presentation given by A.L. Morton-Hayward*)
30. Tingle, K.E., **Anderson, R.P.**, Manning-Berg, A., Darroch, S.A.F., 2022. Experimental taphonomy of protists. Geological Society of America Annual Meeting, Denver, USA. (*Presentation given by K.E. Tingle*)