

**DUNCAN S. KELLER**

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**EDUCATION AND DEGREES**

- Ph.D., Yale University, New Haven, CT, USA *Expected May 2021*  
Earth and Planetary Sciences  
Thesis: New Petrogenetic Approaches to the Study of Ultrahigh-temperature and Ultrahigh-pressure Rocks  
Advisor: Jay J. Ague  
Committee: D.M. Rye, M.T. Brandon, D.A.D. Evans
- MPhil., Yale University, New Haven, CT, USA *December 2017*  
Geology and Geophysics  
Advisor: Jay J. Ague
- B.A., Colgate University, Hamilton, NY, USA *May 2015 (Honors, Magna Cum Laude)*  
Geology  
Advisor: William H. Peck

**PUBLICATIONS**

- Keller, D.S. and Ague, J.J. Rock History Recorded by Low-energy Crystallographic Orientation Relationships of Exsolution Lamellae in Garnet. *Journal of Petrology* (in review).
- Keller, D.S. and Ague, J.J. Quartz, mica, and amphibole exsolution from majoritic garnet reveals ultra-deep sediment subduction, Appalachian orogen. *Science Advances* **6**, 11, eaay5178 DOI: 10.1126/sciadv.aay5178 (2020).
- Keller, D.S. and Ague, J.J. Crystallographic and textural evidence for solid-state precipitation of rutile, ilmenite, corundum, and apatite lamellae from garnet. *American Mineralogist* **104**, 980–995 (2019).
- Keller, D.S. and Ague, J.J. High-pressure granulite facies metamorphism (~1.8 GPa) revealed in silica-undersaturated garnet-spinel-corundum gneiss, Central Maine Terrane, Connecticut, U.S.A. *American Mineralogist* **103**, 1851–1868 (2018).

**GRANTS AND FUNDED PROPOSALS**

**Proposer:** Keller, D.S. and Ague, J.J. Nano-scale Structures of Crystallographic Boundaries Between Exsolution Lamellae and Host Garnets. Brookhaven National Laboratory Center for Functional Nanomaterials (05/2018 – 09/2020).

**Supported by:** Ague, J.J. Crystallographically-oriented Lamellae Phases in Garnet and Their Potential Use as Petrogenetic Indicators, Central Maine Terrane, Connecticut. National Science Foundation EAR 1753553 (01/2018 – 12/2020).

### **RESEARCH TECHNIQUES AND EXPERIENCE**

**Electron Probe Microanalyzer (EPMA)**

Keller and Peck (2015); Keller and Ague (2018); Keller and Ague (2020)

**Scanning Electron Microscopy (SEM)**

Keller and Peck (2015); Keller and Ague (2019); Keller and Ague (2020)

**Electron Backscatter Diffraction (EBSD)**

Keller and Ague (2019); Keller and Ague (2020)

**Transmission Electron Microscopy (TEM)**

Keller and Ague (in preparation)

**Focused Ion Beam In-Situ Lift-Out (FIB; sample preparation for TEM)**

Keller and Ague (in preparation)

**Raman Spectroscopy**

Keller and Ague (2020)

**Pseudosection Modelling**

Keller and Ague (2018); Keller and Ague (2020)

**MATLAB**

Keller and Ague (2019); Keller and Ague (2020); Keller and Ague (in preparation)

**Petrography**

Keller and Peck (2015); Keller and Ague (2018); Keller and Ague (2019); Keller and Ague (2020)

**Thin section preparation**

Keller and Ague (2018); Keller and Ague (2019); Keller and Ague (2020)

### **PROFESSIONAL EXPERIENCE**

**Mineral Curator**

*Colgate University, 2013-2015*

Organizing, labeling, and assessing Colgate's Ten Eyck-Burr Mineral Collection

**Colgate Geology 320 Field Course ("O.C.")**

*Colorado, Utah, and Wyoming, June-July 2013*

Five-week field course focused on mapping formations in the western United States with a particular focus on stratigraphy and sedimentology, structural geology, and metamorphic petrology.

**Colgate Geology 120 Field Course**

*Oregon and Washington, August 2013*

Two-week field course focused on volcanology, volcanoclastic deposits, and natural hazards.

### **MUSEUM EXHIBITS**

**David Friend Hall**

*Yale Peabody Museum of Natural History, 2016*

Designed educational content for app (Yale Peabody Museum David Friend Hall, available in the Apple App Store) accompanying specimens on permanent display.

### **TEACHING FELLOW EXPERIENCE**

**Yale G&G 220: Mineralogy and Petrology**

*Spring 2018*

**Yale G&G 220: Mineralogy and Petrology**

*Spring 2017*

**Yale G&G 100: Natural Disasters**

*Fall 2015*

**Colgate Geology 201: Mineralogy (Lab Learning Assistant)**

*Fall 2013*

**FIELD EXPERIENCE**

**Research Fieldwork**

Tinos Island, Cyclades [supervised by Jay J. Ague]	2019
Connecticut [supervised by Jay J. Ague]	2016-2018
Maryland [supervised by William H. Peck]	2014
Broken Hill, Australia [supervised by Paul F. Carr]	2013

**Field Camps Attended**

Colgate Geology 320	2013
Colgate Geology 120	2013

**Field Trips Organized**

Yale Dept. Trip, Japan (15 days) [Regional Geology]	2017
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**Field Trips Attended**

Rhode Island [Regional Geology]	2016
Connecticut [Taconic Orogeny Tectonic History]	2015

**PROFESSIONAL AND VOLUNTEER SERVICE**

Geology & Geophysics Colloquium Committee Co-Chair	Yale University	2019-2020
Yale Peabody Museum of Natural History	Yale University	2016-2019
Geology & Geophysics Colloquium Committee	Yale University	2016-2019
Geology & Geophysics Dana Club Vice President	Yale University	2017-2018

**AWARDS**

William Ebenezer Ford Prize	Yale University	2018
Awarded to students who have distinguished themselves in study or research in mineralogy		
Excellence in Teaching Prize	Yale University	2018
American Federation of Mineralogical Societies Scholarship		2017-2018
Bateman Award (on entry to graduate school)	Yale University	2015
For outstanding undergraduate performance		
Magna Cum Laude	Colgate University	2015
Norma Vergo Prize	Colgate University	2015
“To the student who contributes to the spirit of excellence among their fellow majors”		
Robert M. Linsley Prize for Excellence in Geology	Colgate University	2014
“To a rising senior who has demonstrated the promise and potential for leadership and excellence in earth science scholarship and research”		
Phi Eta Sigma	Colgate University	2012
National Forensic League (NSDA) Academic All-American	Unionville High School	2011

## FELLOWSHIPS

Alan M. Bateman Fellowship in Geology	Yale University	2016-2017
University Fellowship	Yale University	2015-2017

## PRESENTATIONS

**Poster Presentation:** Keller, D.S. and Ague, J.J., 2020. “Crystallography of Exsolution Lamellae in Garnet: A New Tool for Interpreting Metamorphic Environments of UHP Rocks.” American Geophysical Union Annual Meeting.

**Oral Presentation:** Keller, D.S. and Ague, J.J., 2020. “UHP, UHT, and HPG Metamorphism in the Acadian/Neocadian Orogen, Appalachians: Indicators and Implications.” Geological Society of America Annual Meeting.

**Poster Presentation:** Keller, D.S. and Ague, J.J., 2019. “Quartz, amphibole, mica, ilmenite, apatite, and rutile precipitation from majoritic garnet reveals ultra-deep sediment subduction in the Appalachian orogen.” American Geophysical Union Annual Meeting.

**Oral Presentation:** Keller, D.S. and Ague, J.J., 2018. “A Precipitation Origin for Diverse Crystallographically-Oriented Lamellae in Garnet.” Geological Society of America Annual Meeting.

**Invited Seminar:** “From Mineral to Rock to Plate: Interpreting Petrological Samples from a Mineralogical Basis.” Colgate University, Oct. 2, 2018.

**Oral Presentation:** Keller, D.S. and Ague, J.J., 2018. “Silica-Undersaturated High Pressure Granulite from the Central Maine Terrane, CT, USA.” Goldschmidt Annual Meeting.

**Oral Presentation:** “Mineralogical Curiosities from Connecticut’s Deep Crustal Rocks.” 2017 Yale Mineral and Gem Symposium.

**Oral Presentation:** Keller, D.S. and Ague, J.J., 2016. “Silica-Undersaturated Garnet + Spinel + Corundum Mineral Assemblages Record UHT Metamorphism, Central Maine Terrane, Connecticut, USA.” Geological Society of America Annual Meeting.

**Poster Presentation:** Keller, D.S. and Peck, W., 2015. “Garnet Exsolution in Megacrystic Clinopyroxene: Evidence of Ultrahigh-Pressure Metamorphism in the Maryland Piedmont?” Geological Society of America Annual Meeting.

## PROFESSIONAL MEMBERSHIPS

American Geophysical Union  
Geological Society of America  
Geochemical Society  
Mineralogical Society of America

**MISCELLANEOUS**

Finalist, Yale 3 Minute Thesis Competition 2020  
[\[https://www.youtube.com/watch?v=VtUN2fpJkEQ\]](https://www.youtube.com/watch?v=VtUN2fpJkEQ)

Official Bagpiper of the Yale Graduate School of Arts and Sciences *2016-present*