

RICHARD N. ABBOTT, JR.
Department of Geological and Environmental Sciences
Appalachian State University
Boone, North Carolina 28608

Phone: (336) 414-4112
E-mail: <abbottrn@appstate.edu>
Website: <www.appstate.edu/~abbottrn>

EDUCATION

Harvard University, Ph.D. (1977), Cambridge, Massachusetts 02138
Thesis: Petrology of the Red Beach Granite near Calais, Maine.
Advisers: J.B. Thompson, Jr., C.W. Burnham, Alan B. Thompson.

University of Maine, M.Sc. (1973, Phi Kappa Phi), Orono, Maine 04473
Thesis: Retrograde paragenesis of staurolite-kyanite grade metamorphic schist in the Goshen Formation of western Massachusetts.
Advisers: P.H. Osberg, S.A. Norton, C.G. Cinnamon.

Bowdoin College, B.A. (1971, Magna cum Laude, Phi Beta Kappa, High Honors in Chemistry),
Brunswick, Maine 04011.
Thesis: The petrology of lower sillimanite grade pelites in the Small Point Quadrangle, Maine.
Advisor: Arthur M. Hussey, III

Natick High School (1967), Natick, Massachusetts 01760.

WORK EXPERIENCE

Appalachian State University,
Professor (1989-2014), Associate Professor (1984-1989), Assistant Professor (1979-1984).
Appalachian State University,

Study Abroad Summer Program, International Studies (2000-2004), Analysis and Management of Geohazards and Risks, with Special Reference to the Caribbean. Course of instruction at The University of the West Indies, Kingston, Jamaica.

University of the West Indies, Kingston, Jamaica,
Fulbright Fellowship, Caribbean Regional Lecturing Program,
Visiting lecturer in crystallography and mineral chemistry, (Jan.-Jun., 1995).

Harvard University, Cambridge, Massachusetts 02138, Postdoctoral Research Fellow in Geology (Spring, 1987).

Abubakar Tafawa Balewa College, Bauchi, Nigeria, Visiting Lecturer (Fall, 1986).

Maine Geological Survey, August, Maine, (Geologic mapping, summer 1986).

North Carolina State University, Raleigh, North Carolina 27650, Field course instructor (Summers, 1982-1984).

Dalhousie University, Halifax, Nova Scotia, Canada B3H 3J5, Killam Postdoctoral Fellow (1977-1979).

Harvard University, Cambridge, Massachusetts 02138,
Teaching Assistant, optical mineralogy and X-ray crystallography (1973-1977).

University of Maine, Orono, Maine 04473,
Mapping surficial material for the Maine Coastal Planning Board (Summer, 1973).

AWARDS AND HONORS

XI International Eclogite Conference (2015, Rio San Juan, Dominican Republic, invited field trip organizer).

Fulbright Fellowship, Caribbean Regional Lecturing Program (Jan.-Jun., 1995, University of the West Indies, Kingston, Jamaica).

Mineralogical Society of America Special Session. Hydrogen in Minerals: Mineralogy and Crystallography (1991, Spring AGU meeting, invited speaker).

Geological Society of America Symposium. Metamorphic Petrology: Implications for Appalachian Tectonics (1991, NE-SE GSA meeting, invited speaker).

International Mineralogical Association Symposium on Phyllosilicates (1986, invited participant).

Penrose Conference (1986, Migmatites and Crustal Melting, invited speaker).

Sigma Xi Research Society (1983-2014 President of the local chapter, 1984-1985).

Hawley Award (1979, presented by the Mineralogical Association of Canada for the best article published in Canadian Mineralogist in 1978).

Sir I.W. Killam Postdoctoral Fellowship (1977-1979, Dalhousie University).

Phi Kappa Phi (1973, University of Maine).

Guy Charles Howard Scholarship for Graduate Studies (1971, Bowdoin College).

Phi Beta Kappa (1971, Bowdoin college).

Undergraduate Award in Analytical Chemistry (Bowdoin College, 1970; Division of Analytical Chemistry, American Chemical Society).

FUNDED RESEARCH

National Science Foundation.

Project title: International: Characterization of high pressure/ultra-high temperature Alpine-type garnet peridotite in Northern Dominican Republic. \$7010 (2002-2005; PI, R.N. Abbott, Jr.), companion proposal \$9280 (2002-2005; PI, G. Draper).

Project title: RUI: Acquisition of an Environmental Scanning Electron Microscope (ESEM) and Energy Dispersive Spectrometer (EDS). \$233,622 (2001-2004; PI, S.J. Hageman; CO-PI's, R.N. Abbott, E.C. Cowan, F.K. McKinney, B.C. Schreiber).

Appalachian State University - University Grants.

Project title: Metamorphic History of Jamaica: Greenschist/Blueschist transition, Union Hill, St. Thomas, Jamaica, \$2100 (2001).

Project title: Ultra-high pressure metamorphic rocks in northern Dominican Republic, \$1000, (2000).

Project title: Metamorphic History of Jamaica: Mt. Hibernia-Union Hill Area, \$1000, (1999).

Project title: Hydrogen in phyllosilicate minerals: Structure energy calculations, \$887 (1989).

Project title: Determination of the structure of chlorite by energy minimization, \$509 (1987-1988).

Project title: Metamorphic History of the Ashe Metamorphic Suite, Northwestern North Carolina, \$1000 (1985-1986).

Project title: Origin of the Ashe Melange, northwestern North Carolina, \$700 (1980-1981), \$936 (1982-1983).

Appalachian State University - International Programs Scholarly Travel Grant.

Project title: Significance of retrograded eclogite in northern Dominican Republic, \$450, (1999).

Maine Geological Survey, August, Maine.

Project: Geologic mapping, Robbinston 15' quad., Maine, \$5000 (1986).

Mineralogical Society of America Grant for Research in Crystallography,

Edward H. Kraus Crystallographic Research Foundation.

Project title: $KAlSiO_4$ stuffed derivatives of tridymite: phase relationships, \$1500 (1982).

National Science Foundation.

Project title: The internal structure of the eastern part of the South Mountain Batholith,
Nova Scotia. \$10,000 (1980-1981).

Daly Fund-Harvard University, Thesis support.

PROFESSIONAL ORGANIZATIONS

Mineralogical Society of America (1979-present),

Dana Medal Committee (2003-2005)

Tellers Committee (1996-1998),

Abstractor (1992),

Speaker Committee (1988-1991),

Awards Committee (1988),

Symposium Co-Convenor: Crystal-liquid equilibria in granites and migmatites (1986),

Representative to the Joint Technical Programs Committee, Geological Society of America (1984-1987).

Mineralogical Association of Canada (1978 - Honorary life member),

Associate editor of Canadian Mineralogist, (1990-1992).

Geological Society of America (2007-present)

American Geophysical Union (1990-present).

Geological Society of Jamaica (1995-present).

Clay Mineral Society (1988-1998).

Geological Society of Maine.

Harvard Mineralogical Museum Association.

PARTICIPATION IN INSTITUTIONAL AFFAIRS
(Appalachian State University)

Faculty Senate (1998-2001), Student Welfare Committee.

Library Service Committee (1998-2006).

Morgan Lecture Committee (1990-1995).

Departmental Curriculum Committee (2005-2014)

Departmental News Letter committee (2005-2008).

Departmental Personal Committee (1979-2014).

Departmental Equal Opportunity-Affirmative Action Rep. (1979-1999, 2011-2014).

Departmental Library Liaison (1979-1980, 1983-1993, 1994-2005).

University Research Committee (1983-1986).

PROFESSIONAL PAPERS (61)

2018, Trace element thermometry of garnet-clinopyroxene pairs, revisited. *American Mineralogist*, 103, 1169-1171.

2017, (Abbott, R.N., Jr., and Bandy, B.R.), Geochemistry of basalt clasts near the base of the Wagwater Formation, parish of St. Andrew, Jamaica. *Caribbean Journal of Earth Science*, 50, 21-29.

2016, Modal-space theory: a study of the mineralogical expression of tholeiitic compositions at $T > 850^{\circ}\text{C}$ in the lithosphere and mantle. *Canadian Mineralogist*, 54, 1437-1457.

2016, (Mitchell, S.F., Abbott, R.N., Jr., and 22 others), Revision of Jamaican lithostratigraphic nomenclature decided at a stratigraphic workshop of the Jamaican Stratigraphic Committee at the 60th Anniversary of the Geological Society of Jamaica. *Caribbean Journal of Earth Science*, 48, 37-45.

2016, (Abbott, R.N., Jr., West, D.P., Jr., Bandy, B.R., and McAleer, R.J.), Petrology and tectonic history of Green Bay Schist, Portmore, St. Catherine Parish, Jamaica. *Caribbean Journal of Earth Science*, 48, 1-18.

2015, (Abbott, R.N., Jr., and Draper, G.), UHP eclogite and garnet ultramafic rock in the Cuaba Unit, Rio San Juan Metamorphic Complex, Dominican Republic. in Hertwig, A. and Maresch, W. eds., XI International Eclogite Conference Field Guide Volume, Dominican Republic, 58-86. (not refereed).

2014, (West, W.P., Jr., Abbott, R.N., Jr., Bandy, B.R., and Kunk, M.J.), The origin and thermotectonic history of metamorphic rocks in eastern Jamaica: Evolution of a transform plate boundary. *Geological Society of America Bulletin*, 126, 600-614, doi:10.1130/B30704.1

2013, (Abbott, R.N., Jr., Bandy, B.R., and Rajkumar, A.), Cenozoic burial metamorphism in eastern Jamaica. *Caribbean Journal of Earth Science*, 46, 13-30.

2013, (Abbott, R.N., Jr., and Draper, G.), The case for UHP conditions in the Cuaba terrane, Rio San Juan metamorphic complex, Dominican Republic. *Geologica Acta*, 11(2), 149-165.

2012, (Gazel, E., Abbott, R.N., Jr., and Draper, G.), Reply to Comment on "Garnet-bearing ultramafic rocks from the Dominican Republic: Fossil mantle plume fragments in an ultra high pressure oceanic complex?" by Jan C.M. De Hoog. *Lithos*, 134-135, 335-339, DOI:10.1016/j.lithos.2011.12.002

- 2011, (Gazel, E., Abbott, R.N., Jr., and Draper, G.), Garnet-bearing ultramafic rocks from the Dominican Republic: Fossil mantle plume fragments in an ultra high pressure oceanic complex? *Lithos*, 125, 393-404, DOI:10.1016/j.lithos.2011.02.021
- 2010, (Abbott, R.N., Jr., and Draper, G.), Comments on "Corundum-bearing peridotite from northern Dominican Republic: a metamorphic product of an arc cumulate in the Caribbean subduction zone," by Hattori et al. [*Lithos* 114 (2010) 437-450]. *Lithos*, 117, 322–326, DOI: 10.1016/j.lithos.2010.03.011
- 2008, (Abbott, R.N., Jr., and Bandy, B.R.), Amphibolite and Blueschist-Greenschist Facies Metamorphism, Blue Mountain Inlier, Eastern Jamaica. in Donovan, S.K. ed., *Geological Crustal and Biotic Evolution of the Caribbean Plate: A tribute to T.A. Jackson*. *Geological Journal*, 43, 525-541, DOI: 10.1002/gj.1126.
- 2008, (Abbott, R.N., Jr., and Draper, G.), Southern Rio San Juan complex: Cuaba Gneiss Terrane, Rio Cuevas. In Draper, G., and Lewis, J., eds., *Field trip guide to the Median Belt and subduction zone rocks, Dominican Republic*, 18th Caribbean Geological Conference, Santo Domingo. (not refereed).
- 2007, (Abbott, R.N., Jr., and Draper, G.), Petrogenesis of UHP eclogite from the Cuaba Gneiss, Rio San Juan Complex, Dominican Republic. *International Geology Review*, 49, 1069-1093.
- 2007, (Abbott, R.N., Jr., Broman, B.N., and Draper, G.), UHP magma paragenesis revisited, olivine clinopyroxenite and garnet-bearing ultramafic rocks from the Cuaba Gneiss, Rio San Juan Complex, Dominican Republic. *International Geology Review*, 49, 572-586.
- 2006, (Abbott, R.N., Jr., Draper, G., and Broman, B.N.), P-T path for ultra high pressure garnet ultramafic rocks of the Cuaba Gneiss, Rio San Juan Complex, Dominican Republic. *International Geology Review*, 48, 778-790.
- 2006, (Abbott, R.N., Jr., Draper, G., and Keshav, S.), UHP magma paragenesis, garnet peridotite and garnet clinopyroxenite: An example from the Dominican Republic. *in* Liou, J. G., and Cloos, M., eds., *Phase relations, high-pressure terranes, P-T-ometry, and plate pushing: A tribute to W. G. Ernst*. Bellwether Publishing, Ltd. for Geological Society of America, International Book Series, 9, 653-667.
- 2005, (Maaloe, S., and Abbott, R.N., Jr.), Tetrahedral plots of the phase relations for basalts. *Journal of Mathematical Geology*, 37, 869-893.
- 2005, (Abbott, R.N., Jr., Draper, G., and Keshav, S.), UHP metamorphism in garnet peridotite, Cuaba unit, Rio San Juan complex, Dominican Republic. *in* Draper, G., ed., *Transactions of the 16th Caribbean Geological Conference*, Barbados. *Caribbean Journal of Earth Science*, 39, 13-20.
- 2005, (Abbott, R.N., Jr., Draper, G., and Keshav, S.), UHP magma paragenesis, garnet peridotite and garnet clinopyroxenite: An example from the Dominican Republic. *International Geology Review*, 47, 233-247.
- 2003, (Abbott, R.N., Jr., Bandy, B.R., Jackson, T.A., and Scott, P.W.), Blueschist-greenschist transition in the Mt. Hibernia Schist, Union Hill, Jamaica. *International Geology Review*, 45, 1-15.
- 2002, (Abbott, R.N., Jr., and Draper, G.), Retrograded eclogite in the Cuaba Amphibolite of the Rio San Juan Complex, Northern Hispaniola, *in* Jackson, T.A., ed., *Caribbean geology: Into the third millennium: Transactions of the 15th Caribbean Geological Conference*. The University of the West Indies Press, Kingston, ch. 8, 97-108.
- 2001, (Abbott, R.N., Jr., Draper, G., Keshav, S.), Garnet peridotite found in the Greater Antilles. *EOS, Transactions, American Geophysical Union*, 82 (35), 381-388.
- 2001, (Abbott, R.N., Jr., and Greenwood, J.P.), Retrograde metamorphism of eclogite in the southern Appalachian Mountains, U.S.A.—A case of seamount subduction? *Journal of Metamorphic Geology*, 19, 433-444.

- 1999, (Abbott, R.N., Jr., Jackson, T.A., and Scott, P.W.), The serpentization of peridotite from Cedar Valley, Jamaica. *International Geology Review*, 41, 836-844.
- 1997, (Raymond, L.A., and Abbott, R.N., Jr.), Petrology and tectonic significance of ultramafic rocks near the Grandfather Mountain Window in the Blue Ridge Belt, Toe Terrane, western Piedmont Zone, North Carolina, *in* Stewart, K.G., Adams, M.G., and Trupe, C.H., *Paleozoic Structure, Metamorphism, and Tectonics of the Blue Ridge of Western North Carolina*. Carolina Geologic Society Field Trip Guidebook, 67-86.
- 1997, (Abbott, R.N., Jr., and Raymond, L.A.), Petrology of pelitic and mafic rocks in the Ashe and Alligator Back Metamorphic Suites, northeast of the Grandfather Mountain Window, *in* Stewart, K.G., Adams, M.G., and Trupe, C.H., *Paleozoic Structure, Metamorphism, and Tectonics of the Blue Ridge of Western North Carolina*. Carolina Geologic Society Field Trip Guidebook, 87-101.
- 1996, (Abbott, R.N., Jr., Jackson, T.A., and McSween, H.Y., Jr.), Metamorphic conditions in the Westphalia Schists of the Blue Mountain Inlier, Jamaica: Tectonic implications. *International Geology Review*, 38, 1143-1154.
- 1996, Optical properties of C2/c pyroxenes: A point-dipole theoretical explanation. *Canadian Mineralogist*, 34, 595-603.
- 1996, (Wood, K.Y., and Abbott, R.N., Jr.), Pumpellyite and clinozoisite from the McKinney Mine, Spruce Pine District, North Carolina. *Mineralogical Record*, 27, 289-292.
- 1994, Electronic polarizability of oxygen and various cations in selected triclinic minerals: Point-dipole theory. *Canadian Mineralogist*, 32, 909-918.
- 1994, Energy calculations bearing on the dehydroxylation of muscovite. *Canadian Mineralogist*, 32, 87-92.
- 1993, Calculation of the orientation of the optical indicatrix in monoclinic and triclinic crystals: The point-dipole model. *American Mineralogist* 78, 952-956.
- 1992, Hydrogen in minerals: A review of theoretical energy calculations. *in* Trends in Mineralogy, Council of Scientific Research Integration, Trivandrum, India, 1, 43-55.
- 1992, (Abbott, R.N., Jr., and Burnham, C.W.), Calculating O-H stretching frequencies for different local orderings of Fe and Mg in simple clinoamphiboles. *Canadian Mineralogist*, 30, 335-342.
- 1991, Relationships between intrusive rocks in the Robbinston 15' quadrangle, Maine. *in* Ludman, A., ed., *New England Intercollegiate Geological Conference, Guidebook*, 133-156.
- 1991, (Abbott, R.N., Jr., and Burnham, C.W.), Energy calculations bearing on biopyriboles. *American Mineralogist*, 76, 728-732.
- 1991, A short-range O-H potential for amphiboles, based on OH stretching frequencies. *Canadian Mineralogist*, 29, 131-142.
- 1990, Topaz: Energy calculations bearing on the location of hydrogen. *Canadian Mineralogist*, 28, 827-833.
- 1989, (Hill, M., and Abbott, R.N., Jr.), Commingled gabbroic and granitic magmas in the northern Bays-of-Maine Igneous Complex, Calais area. *in* Tucker, R.D. and Marvinney, R.B., eds., *Studies in Maine Geology, Volume 4: Igneous and Metamorphic Geology*, Maine Geological Survey, 35-44.
- 1989, (Raymond, L.A., and Abbott, R.N., Jr.), Late Precambrian crustal extension preserved in Fries Fault Zone mylonites, southern Appalachians: Comment. *Geology*, 17, 870-871.
- 1989, (McSween, H.Y., Jr., Abbott, R.N., Jr., and Raymond, L.A.), Metamorphic conditions in the Ashe Metamorphic Suite, North Carolina Blue Ridge. *Geology*, 17, 1140-1143.

- 1989, (Abbott, R.N., Jr., Burnham, C.W., and Post, J.E.), Hydrogen in humite-group minerals: Structure energy calculations. *American Mineralogist*, 74, 1300-1306.
- 1989, Internal structures in part of the South Mountain batholith, Nova Scotia, Canada. *Geological Society of America Bulletin*, 101, 1493-1506.
- 1989, (Abbott, R.N., Jr., Post, J.E., and Burnham, C.W.), Treatment of the hydroxyl in structural energy calculations. *American Mineralogist*, 74, 141-150.
- 1988, (Abbott, R.N., Jr., and Burnham, C.W.), Polyttypism in micas: A polyhedral approach to energy calculations. *American Mineralogist*, 73, 105-118.
- 1986, Preliminary report on the bedrock geology of the Devils Head, Robbinston, and Red Beach 7.5-minute quadrangles, Maine. *Maine Geological Survey, Open-file 86-73*, 36p. (with map).
- 1985, Muscovite-bearing granites in the AFM liquidus projection. *Canadian Mineralogist*, 23, 553-561.
- 1984, Al-Si ordering in 1M trioctahedral micas. *Canadian Mineralogist*, 22, 659-668.
- 1984, KAlSiO₄ stuffed derivatives of tridymite. *American Mineralogist*, 69, 449-457.
- 1984, (Abbott, R.N., Jr., and Raymond, L.A.), The Ashe Metamorphic Suite, Northwest North Carolina: Metamorphism and observations on geologic history. *American Journal of Science*, 284, 350-375.
- 1984, The greenschist-amphibolite transition in the CFM projection. *American Mineralogist*, 69, 250-251.
- 1982, A petrogenetic grid for medium and high grade metabasites. *American Mineralogist*, 67, 865-876.
- 1981, The role of manganese in the paragenesis of magmatic garnet: An example from the Old Woman-Piute Range, California: Discussion. *Journal of Geology*, 89, 767-772.
- 1981, AFM liquidus projections for granitic magmas, with special reference to hornblende, biotite and garnet. *Canadian Mineralogist*, 19, 103-110.
- 1979, On 'Mantled feldspars from the Golden Horn Batholith, Washington.' *Lithos*, 12, 347-348.
- 1979, Polymetamorphism in the Siluro-Devonian Goshen Formation of western Massachusetts. *Geological Society of America Bulletin*, 90, 871-876.
- 1979, (Abbott, R.N., Jr., and Clarke, D.B.), Hypothetical liquidus relationships in the system Al₂O₃-FeO-MgO projected from quartz, alkali feldspar and plagioclase, a(H₂O) < 1. *Canadian Mineralogist*, 17, 549-560.
- 1978, Peritectic reactions in the system An-Ab-Or-Qz-H₂O. *Canadian Mineralogist*, 16, 245-256. [Winner of the Hawley Award for the best article published in Canadian Mineralogist in 1978.]
- 1978, The geology of the Red Beach Granite. in Ludman, A. (ed.), *New England Intercollegiate Geological Conference, Guidebook*, 17-37.

ABSTRACTS (47)

2015, (Abbott, R.N., Jr., West, D.P., Jr., Bandy, B.R., and McAleer, R.J.), Geology of the Green Bay Schist, Port Henderson Hill, St. Catherine Parish, Jamaica. Geological Society of Jamaica 60th Anniversary Conference, University of the West Indies, Kingston, Jamaica.

2015, Eclogite in modal space: A brave but not so new frontier. XI International Eclogite Conference Abstract Volume, Dominican Republic, 13.

2015, (Abbott, R.N., Jr. and Draper, G.), UHP rocks in the Cuaba Unit of the Rio San Juan Complex, A review. XI International Eclogite Conference Abstract Volume, Dominican Republic, 14.

2013, (Frushour, A.M., and Abbott, R.N.), Garnet growth in response to mylonitization, Grandfather Mountain Window, Blue Ridge Province, western North Carolina. Geological Society of America Abstracts with Programs, v. 45, no. 7, Denver.

2013, (Abbott, R.N., Jr., Bandy, B.R., and Rajkumar, A.), Upper zeolite facies burial metamorphism in Paleocene-Eocene redbeds of the Wagwater Group, eastern Jamaica. Geological Society of America Abstract with Programs, Southeastern Section, San Juan.

2011, (Abbott, R.N., Jr., West, D.P., Jr., and Bandy, B.R.), Thermotectonic history of metamorphic rocks in the Blue Mountain Inlier, Jamaica. 19th Caribbean Geological Conference, Guadeloupe. Program and Abstracts, 56-57.

2011, (Abbott, R.N., Jr., Gazel, E., and Draper, G.), Fragments of a mantle plume in northern Dominican Republic: Garnet-ultramafic rocks in the Rio San Juan complex. 19th Caribbean Geological Conference, Guadeloupe. Program and Abstracts, 58.

2010, (West, D.P., Jr., Abbott, R.N., Jr., Bandy, B.R., and Madourie, M.), Geochemistry and tectonic setting of Cretaceous (?) metamorphic rocks in the Blue Mountain inlier, eastern Jamaica. Geological Society of America Abstracts with Programs, 43(6), Denver.

2008, (Abbott, R.N., Jr., and Draper, G.), Evolution of garnet and clinopyroxene in UHP ultramafic rock, Cuaba Gneiss, Rio San Juan complex, Dominican Republic, Geological Society of America Abstracts with Programs, 41(6), 193-37, Houston.

2008, (Abbott, R.N., Jr., and Draper, G.), Review of evidence for UHP conditions in the Cuaba Terrane, Rio San Juan Complex, Dominican Republic. 18th Caribbean Geological Conference, Santo Domingo, DR.

2008, (Draper, G., Abbott, R.N., Escuder-Viruet, J., Joyce, J., Krebs, M., Maresch, W.V., Perez-Estaun, A., Pindell, J.P., and Schertl, P.), Tectonic overview of the Late Cretaceous-Paleogene subduction zone rocks of Hispaniola. 18th Caribbean Geological Conference, Santo Domingo, DR.

2005, (Broman, B.N., Abbott, R.N., Jr., and Draper, G.), P-T path for UHP garnet ultramafic rocks, Cuaba Gneiss, Rio San Juan Complex, Dominican Republic. Geological Society of America Abstracts with Programs, 37(6), Salt Lake City.

2005, (Draper, G., Abbott, R.N., Jr., and Keshav, S.), Cuaba Gneiss, Dominican Republic: An ultra high pressure metamorphic terrane in the northern Caribbean. 17th Caribbean Geological Conference, San Juan, PR.

2003, (Abbott, R.N., Jr., Draper, G., and Keshav, S.), UHP magmatic paragenesis, garnet peridotite, Cuaba Unit, Rio San Juan Complex, Dominican Republic. Geological Society of America Abstracts with Programs, 35(6), Seattle.

2003, (Abbott, R.N., Jr., Draper, G., and Keshav, S.), Tectonic implications of UHP garnet peridotite in the Cuaba Unit, Rio San Juan Complex, Dominican Republic. Cordilleran Section, Geological Society of America Abstracts with Programs, 35, Puerto Vallarta.

2002, (Draper, G., Abbott, R.N., Jr., and Keshav, S.), Indication of UHP metamorphism in garnet peridotite, Cuaba Unit, Rio San Juan Complex, Dominican Republic. 16th Caribbean Geological Conference, Barbados.

2001, (Abbott, R.N., Jr., Draper, G., and Keshav, S.), Alpine-type garnet peridotite in the Caribbean. Geological Society of America Abstracts with Programs, 33(6), Boston.

2001, Mafic rocks in the Ashe Metamorphic Suite adjacent to the Grandfather Mountain window, northwestern North Carolina—subduction of a seamount? Southeast Section, Geological Society of America Abstracts with Programs, 33(2), Raleigh.

2000, (Abbott, R.N., Jr., and Greenwood, J.P.), Retrograde metamorphism in the Eastern Blue Ridge Province of the southern Appalachian Mountains: Implications regarding the origin of the Ashe Metamorphic Suite. Southeast Section, Geological Society of America Abstracts with Programs, 32(2), Charleston.

1998, Observations on the serpentinization of peridotite from Cedar Valley, Parish of St. Thomas, Jamaica. 15th Caribbean Geological Conference, Kingston, Jamaica.

1998, (Abbott, R.N., Jr., and Draper, G.), Retrograde eclogite in the Cuaba Amphibolite of the Rio San Juan Complex, northern Hispaniola. 15th Caribbean Geological Conference, Kingston, Jamaica.

1996, Metamorphic conditions in the Westphalia Schists, eastern Jamaica: Defining a new amphibolite subfacies in a Sanbagawa Series. De La Beche Meeting, Kingston, Jamaica.

1995, Optical properties of *C2/c* pyroxenes: Electronic polarizabilities. Geological Society of America Abstracts with Programs, New Orleans.

1994, Calculating principal refractive indices and orientation of the optical indicatrix in selected triclinic minerals. International Mineralogical Association, 16th General Meeting, Pisa.

1993, Orientation of the optical indicatrix in triclinic minerals: Point-dipole theory. Geological Society of America Abstracts with Programs, Boston.

1991, (Abbott, R.N., Jr., and Burnham, C.W.), Calculating O-H stretching frequencies for different local orderings of Fe and Mg in simple clin amphiboles. American Geophysical Union and Mineralogical Society of America, Spring Meeting, Baltimore, (invited).

1991, (Abbott, R.N., Jr., Raymond, L.A., and McSween, H.Y., Jr.), Taconic invariant points in the central Blue Ridge Belt and their structural/tectonic implications. Northeast-Southeast Sections, Geological Society of America Abstracts with Programs, Baltimore.

1990, An improved empirical method for calculating short-range O-H potentials in minerals. Geological Society of America Abstracts with Programs, 103rd Annual Meeting, Dallas.

1989, Kaolinite: Energy calculations bearing on the location of the inner hydrogen atoms. Geological Society of America Abstracts with Programs, 102nd Annual Meeting, St. Louis.

1989, (Abbott, R.N., Jr., Burnham, C.W., and Post, J.E.), Hydrogen in humite group minerals: Structure energy calculations. Amer. Geophysical Union and Mineralogical Society of America, Spring Meeting, Baltimore.

1988, (Abbott, R.N., Jr., Post, J.E., and Burnham, C.W.), Structure energy calculations bearing on the location of hydrogen in various hydroxyl-bearing minerals. Geological Society of America Abstracts with Programs, 101st Annual Meeting, Denver.

1988, (Raymond, L.A., Leatherman, L.E., Vance, K., Cook, T., and Abbott, R.N., Jr.), The Greer Hollow Ultramafic Body, Eastern Blue Ridge Province, North Carolina: Petrography, field relations, and implications for metamorphic history of the Blue Ridge Province. Southeast Section, Geological Society of America Abstracts with Programs, 37th Annual Meeting, Columbia, SC.

1988, (Hill, M., and Abbott, R.N., Jr.), Commingled gabbroic and granitic magmas in the northern Bays-of-Maine Complex, Calais area. Northeast Section, Geological Society of America Abstracts with Programs, Portland, Maine.

1987, (Abbott, R.N., Jr., and Burnham, C.W.), Polytypism in micas: A polyhedral approach to energy calculations. Geological Society of America Abstracts with Programs, 100th Annual Meeting, Phoenix.

1986, (Abbott, R.N., Jr., Burnham, C.W., and Post, J.E.), Energetics of polytypism in Di- and Trioctahedral micas. International Mineralogical Association, Annual Meeting, San Francisco (invited).

1985, (Abbott, R.N., Jr., and Raymond, L.A.), Metamorphism of Alpine ultramafic rocks, North Carolina Blue Ridge Belt: II - Theoretical considerations. Geological Society of America Abstracts with Programs, 98th Annual Meeting, Orlando.

1985, (Raymond, L.A., and Abbott, R.N., Jr.), Metamorphism of Alpine ultramafic rocks, North Carolina Blue Ridge Belt: I - Observed metamorphic histories. Geological Society of America Abstracts with Programs, 98th Annual Meeting, Orlando.

1985, (Raymond, L.A., Abbott, R.N., Jr., and Yurkovich, S.P.), Melanges of the Blue Ridge Belt, North Carolina. Geological Society of America Abstracts with Programs, 98th Annual Meeting, Orlando.

1984, KAlSiO₄ stuffed derivatives of tridymite: Phase relationships. Southeastern Section, Geological Society of America, 33rd Annual Meeting, Lexington, KY.

1984, Al-Si ordering in 1M micas? Geological Society of America Abstracts with Programs, 97th Annual Meeting, Reno.

1983, Metamorphism in the Ashe Formation and associated ultramafic rocks., northwestern North Carolina. Southeast Section, Geological Society of America Abstracts with Programs, 32nd Annual Meeting, Tallahassee.

1982, (Abbott, R.N., Jr., and Raymond, L.A.), Origin of the Ashe metamorphic/ultramafic association, southeastern Appalachian Mountains, U.S.A. Geological Society of America Abstracts with Programs, 95th Annual Meeting, New Orleans.

1982, The internal structure of the eastern part of the South Mountain Batholith, Nova Scotia. Combined Southeastern-Northeastern Sections, Geological Society of America Abstracts with Programs, 31st Annual Meeting, Washington, D.C.

1980, Hypothetical liquidus relationships in the subsystem Al₂O₃-FeO-MgO projected from quartz, alkali feldspar and plagioclase for $a(\text{H}_2\text{O}) \leq 1$, with special reference to hornblende, the breakdown of biotite and effects of MnO. Joint Annual Meeting, Geological Society of Canada - Mineralogical Association of Canada, Halifax, Canada.

1980, (Raymond, L.A., and Abbott, R.N., Jr.), Metamorphism and structure of the Sevenmile Ridge Area, Spruce Pine District, North Carolina. Southeastern Section, Geological Society of America Abstracts with Programs, 29th Annual Meeting, Birmingham, Alabama.

1979, (Abbott, R.N., Jr., Clarke, D.B., and MacDonald, M.A.), Andalusite, cordierite and garnet in the granites of southern Nova Scotia. Atlantic Geoscience Society, Biennial Colloquium, Amherst, Nova Scotia.

1978, Preliminary report on the internal structure of the eastern part of the South Mountain Batholith, Nova Scotia. Atlantic Geoscience Society, Biennial Symposium, Fredricton, New Brunswick.

COMPUTER PROGRAMS

CRYSTAL: Package of freeware computer programs, primarily for instructional purposes, to solve crystallographic problems of the sort detailed in Boisen and Gibbs, "Mathematical Crystallography," *Reviews in Mineralogy*, v. 15, Mineralogical Society of America.

OPT and OPTRFN: Freeware computer programs, mainly for research. These are the first (and only?) available programs that successfully calculate principal refractive indices and orientation of the optical indicatrix for triclinic minerals, from only unit-cell geometry, atomic coordinates, and electronic polarizabilities. Articles: Abbott (1993, 1994, 1996). Abstracts: Abbott (1993, 1994, 1995).

STRETCH (distributed with CRYSTAL): Freeware computer program, mainly for research. The program calculates O-H stretching frequencies for OH-bearing minerals. Articles: Abbott (1991, 1992); Abbott, and Burnham (1992). Abstracts: Abbott, and Burnham (1991).

QUICKSIT and QUICKMAP (distributed with CRYSTAL): QUICKSIT performs a search for an atom's minimum-energy position in the context of up to 100 neighboring atoms. QUICKMAP performs energy calculations for individual sites or sites on a grid in the context of up to 100 neighboring atoms. Articles: Abbott (1990, 1992, 1994); Abbott, Burnham, and Post (1989); Abbott, Post, and Burnham (1989). Abstracts: Abbott (1989); Abbott, Burnham, and Post (1989); Abbott, Post, and Burnham (1988).