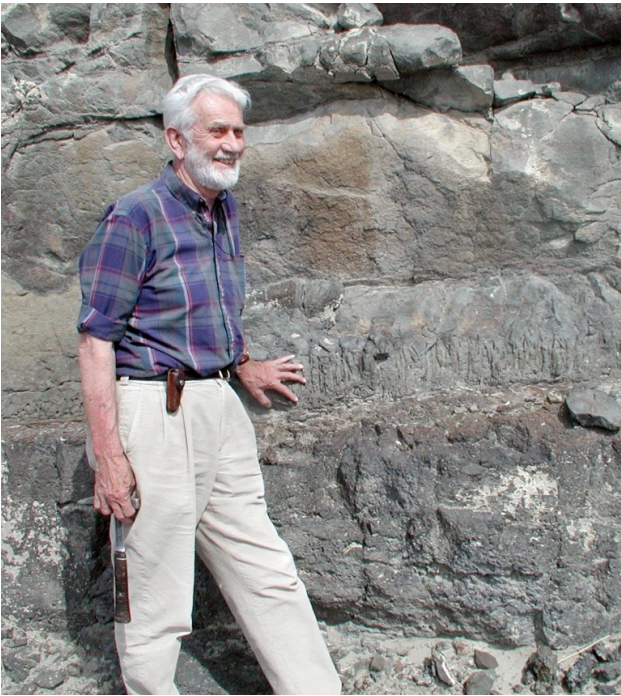


Dedication to Peter R. Hooper (1931-2012):



Numerous geologists have advanced our knowledge of the Columbia River Flood Basalt Province (CRFBP), but none have been more dedicated to unraveling its mysteries than Peter Hooper. Although he officially retired as Professor of Geology at Washington State University in 1996, he continued to remain active in research and publishing until his untimely death on April 21, 2012. We are pleased to honor his long devotion and many contributions to CRB research by dedicating this volume to his memory.

Peter's early fieldwork on the basalts of Anvers Island, off the Antarctic Peninsula, set the stage for a long career devoted to the application of geoanalytical data to better understand the tectonomagmatic evolution of volcanic terrains. His work on Anvers Island formed the basis of his PhD dissertation, which he completed at the University of Birmingham, U.K., in 1959. Shortly thereafter, he was appointed to the post of Lecturer at University College, Swansea, where one of his

earliest tasks was to purchase an X-ray Fluorescence Spectrometer, a new and largely untried geoanalytical tool at the time, and explore its potential geologic applications. Peter was one of the first geologists in Britain to experiment and adopt a rapid method of using single fused beads for major- and trace-element XRF analysis. Over the years, Peter and his colleagues published a number of papers on this evolving technique in *Mineralogical Magazine*, *Analytical Chemistry*, and *Advances in X-ray Analysis*.

After a productive sabbatical year (1968-69) on a Fulbright Scholarship at Washington State University, Peter became convinced that a key to understanding the stratigraphic evolution of the CRFBP may lie in the ability to identify and correlate individual lava flows through the application of the same rapid XRF technique that he had developed and refined at Swansea. Eager to test this idea, he accepted an invitation to become Chairman of the WSU Geology Department in 1971, thus initiating a long and illustrious career in the United States that would not only realize significant advances in our understanding of the CRFBP, but would also bring a well-deserved global reputation to the WSU geoanalytical lab. From the beginning, Peter was instrumental in bringing CRFBP researchers together to share information and coordinate efforts. Workers on the CRFBP have benefitted greatly from Peter's very substantial body of published work, which includes now-classic papers on CRB stratigraphy and petrology. In addition to his more detailed work on the flood-basalts (see selected publications), Peter contributed a number of papers on the regional synthesis of the CRFBP published in *Science* (Hooper, 1982), the book "Continental Flood Basalts" (Hooper, 1988a), AGU Monograph 100 (Hooper, 1997), and GSA Special Paper 430 (Hooper et al., 2007). In the later part of his career, he expanded his interests in flood-basalt volcanism to petrogenetic studies of the Deccan Basalt Province in India, the Karoo Basalt Province in South Africa, and the Harrat Basalt Province of western Saudi Arabia. Peter's knowledge and well-established reputation were endorsed by the invitation that he received to write the chapter on flood-basalt volcanism for the *Encyclopedia of Volcanoes* (Hooper, 1999).

Despite Peter's background in geoanalytical techniques, he had a strong belief that analytical data must be accompanied by a solid foundation of fieldwork and an equally solid understanding of stratigraphic and structural relationships. Indeed, this legacy is instilled into the mindset of all his former students, and is followed today by most workers on the CRFBP. Peter was a kind and humble man, more interested in advancing the science than in personal recognition. We will miss his guidance, his focused determination, and his scientific integrity. Just as Peter was dedicated to understanding the evolution of the CRFBP, we are dedicated to honoring his memory in this Special Paper.

Selected CRBG Publications of Peter Hooper

Hooper, P.R., 1974, Petrology and Chemistry of the Rock Creek Flow, Columbia River Basalt, Idaho, Geological Society of America Bulletin, v. 85, no. 1, p. 15-26.

Hooper, P.R., Knowles, C.R., and Watkins, N.E., 1979, magnetostratigraphy of the Imnaha and Grande Ronde basalts in the southeast part of the Columbia Plateau, American Journal of Science, v. 279, p. 737-754.

Hooper, P.R., and Camp, V.E., 1981, Deformation of the southeast part of the Columbia Plateau, Geology, v. 9, p. 323-328.

Hooper, P.R., 1981, The role of magnetic polarity and chemical analyses in establishing the stratigraphy, tectonic evolution and petrogenesis of the Columbia River Basalt, Memoir of the Geological Society of India, v. 3, p. 362-376.

Hooper, P.R., 1982, The Columbia River Basalts, Science, v. 215, p. 1463-1468.

Hooper, P.R., Structural model of the Columbia River Basalt near Riggins, Idaho, Idaho Bureau of Mines and Geology Bulletin 26, p. 129-136.

Hooper, P.R., Webster, G.D., 1982, Geology of the Pullman, Moscow West, Colton, and Uniontown 7 ½-minute quadrangles, Washington and Idaho, Washington Department of Natural Resources, Division of Geology and Earth Resources.

Hooper, P.R., Kleck, W.D., Knowles, C.R., Reidel, S.P., Thiessen, R.L., 1984, Imnaha Basalt, Columbia River Basalt group, Journal of Petrology, v. 25, p. 473-500.

Hooper, P.R., 1984, Physical and chemical constraints on the evolution of the Columbia River basalt, Geology, v. 12, 495-499.

Hooper, P.R., 1985, A case of simple magma mixing in the Columbia River Basalt Group: The Wilbur Creek, Lapwai and Asotin flows, Saddle Mountains Formation. Contributions to Mineralogy and Petrology, v. 91, p. 66-73.

Hooper, P.R., Webster, G.D., Camp, V.E., 1985, Geologic map of the Clarkston 15 minute quadrangle, Idaho and Washington, Washington Department of Natural Resources Geologic Map GM-31.

Hooper, P.R., 1988a, The Columbia River Basalt, *in* Continental Flood Basalts, J.D. Macdougall editor, Kluwer Academic Publishers, Boston, p. 1-34.

Hooper, P.R., 1988b, Crystal fractionation and recharge (RFC) in the American Bar flows of the Imnaha Basalt, Columbia River Basalt Group, Journal of Petrology, v. 29, p. 1097-1118.

Hooper, P.R. and Conrey, R. M., 1989, A model for the tectonic setting of the Columbia River Basalt eruptions. In Reidel, S.P. and Hooper, P.R. (eds) *Volcanism and Tectonism in the Columbia River Flood Basalt Province*. Geol. Soc. Amer. Special Paper 239, 293-306.

Hooper, P.R., and Swanson, D.A., 1990, The Columbia River Basalt Group and associated volcanic rocks of the Blue Mountains province, U.S. Geological Survey Professional Paper 1437, p. 63-99.

Hooper, P.R., Steele, W.K., Conrey, R.M., Smith, G.A., Anderson, J.L., Bailey, D.G., Beeson, M.H., Tolan, T.L., Urbanczyk, K.M., 1993, The Prineville Basalt, north-central Oregon, *Oregon Geology*, v. 55, p. 3-12.

Hooper, P.R., and Hawkesworth, C.J., 1993, Isotopic and geochemical constraints on the origin and evolution of the Columbia River Basalt, *Journal of Petrology*, v. 34, p. 1203-1246.

Hooper, P.R. and Gillespie, B.A., and Ross M.E., 1995, The Eckler Mountain basalts and associated flows, Columbia River Basalt Group. *Can. J. Earth Sci.* 32, 410-423.

Hooper, P.R. and Gillespie, B.A., 1996, Geologic Map of the Pomeroy area, southeastern Washington. Washington Division of Geology and Earth Resources Open-File Report 96-5, scale 1:48,000.

Hooper, P.R., 1997, The Columbia River flood basalt province, current status, in *Large Igneous Provinces: continental, oceanic, and planetary flood volcanism*, American Geophysical Monograph, v. 100, p. 1-27.

Hooper, P.R., 1999, Flood basalt provinces, in *Encyclopaedia of Volcanoes*, B., Houghton, S.R., McNutt, H. Rymer, and J. Stix editors, Academic Press, San Diego,

Hooper, P.R., 2000, Chemical discrimination of Columbia River Basalt flows, *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2000GC000040.

Hooper, P.R., Binger, G.B., Lees, K.R., 2002, Ages of the Steens and Columbia River flood basalts and their relationship to extension-related calc-alkalic volcanism in eastern Oregon, *Geological Society of America Bulletin*, v. 114, p. 43-50.

Hooper, P.R., Camp, V.E., Reidel, S.P., Ross, M.E., 2007, The origin of the Columbia River flood basalt province: plume versus nonplume models, in *The Origins of Melting Anomalies: plumes, plates, and planetary processes*, G.R. Foulgar and D.M. Jurdy editors, Geological Society of America Special Paper 430, p. 635-668.