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## 16-7: ARE THE HARRISON GNEISS AND SISCOWIT GRANITE IN THE STAMFORD AND POUND RIDGE QUADRANGLES, CONNECTICUT, CO-GENETIC, NON-ARC MAGMAS?

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**Sunday, March 17, 2019**

**05:00 PM - 05:20 PM**

 *Holiday Inn - Portland by the Bay - Massachusetts Room*

Bedrock of the Stamford and Pound Ridge 7.5 minute quadrangles located in southwestern CT is dominated by noritic and dioritic plutonic rocks of the Harrison Gneiss (named by Hall in 1968 on his fieldtrip for the NEIGC's 60<sup>th</sup> meeting) and a variety of granites, all part of the Siscowit Granite (named by Scotford [GSA Bull. 67 155] for granite, granitic gneiss, and granitic pegmatite in and around the Siscowit Reservoir in Pound Ridge, NY). The Harrison has been correlated with similar orthogneisses elsewhere in western Connecticut including the Brookfield Gneiss located to the north and northeast of Stamford which yielded a U-Pb zircon crystallization age of  $453 \pm 3$  Ma (Sevigny and Hanson, GSA Bull. 107 487), the same age as a leucocratic aplite dike which intrudes it (Walsh, et al., GSA Mem. 197 729). The crystallization age of the Siscowit is not known but it shares the same high-temperature igneous flow fabrics and deformation history as the Harrison, which suggest they are co-genetic and are not arc magmas.

Four whole-rock samples of variably deformed Harrison and fourteen whole-rock samples of Siscowit were analyzed for their major, minor, and trace elements. The Harrison, where it preserves an igneous flow fabric and is least deformed, has the primary assemblage PL+OPX>CPX overprinted by HBL+BT+QTZ+EP+SPN. Whole-rock analyses range from subalkaline to slightly alkaline with a composition equivalent to basaltic trachy-andesite. On Sun & MacDonough's 1989 chondrite-normalized REE diagram, samples of Harrison show enrichment in the LREEs, a small negative Eu anomaly, and negatively slope across the HREEs, with the slope flattening out from Er to Lu. The analyzed granitic rocks are peraluminous, calc-alkaline granite. Chondrite-normalized REE patterns of these granites show two groups: one is enriched in LREEs, has a pronounced negative Eu anomaly, and negatively sloping HREEs; the second is less enriched in LREEs compared to the other group, has flat MREEs without an Eu anomaly, and gently positively sloping HREEs. Compositions intermediate between the Harrison and Siscowit are lacking in southwestern CT, but the chemistry of the Bedford Gneiss in the Pound Ridge quadrangle in NY and the Brookfield and Newtown Gneisses in western CT and adjacent NY may link the mafic Harrison to the felsic Siscowit, and to an age.

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