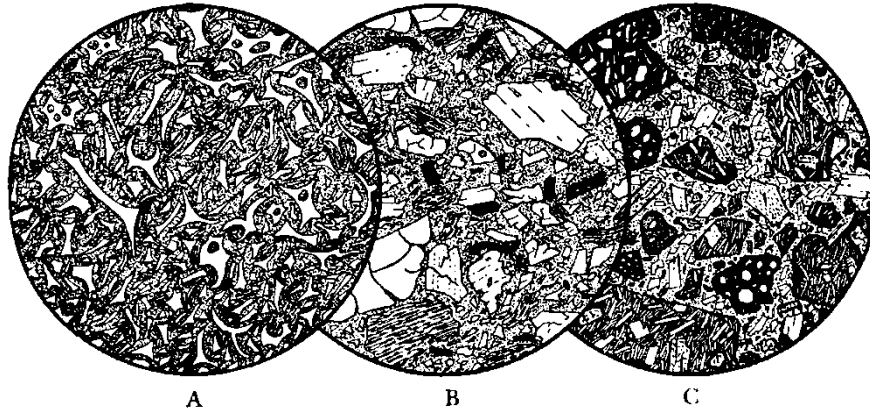


GY 402 Sedimentary Petrology (2017)
Volcaniclastic Sedimentary Rock Thin-sections



Tuffs in thin section (field of view for each approximately 2 mm).

From Williams, H., Turner, F.J and Gilbert, C.M., 1954. Petrography. W.H. Freeman & Co., 406pp.

Introduction: Rocks containing grains dominantly produced by volcanic eruptions are a problematic class in sedimentary petrology. Are they volcanic or are they sedimentary? Well, they're really both. The specimens that you will see today include crystal tuffs (some flow banded; Group A), and vitric tuffs, lithic tuffs (both Group B). Identifying the various components comprising these rocks should be a snap for you (you're almost experts in sedimentary petrography).

Lab exercise (do in your note books, not re-doable): The list of volcaniclastic thin-sections that will be available in the lab is shown on the bottom of this page. All specimens have accompanying hand specimens. I would like you to look at one example Group A and one example from Group B (go for RI 3735 if you can), and to produce a petrography summary of each of them in your hard covered note book using the standard format.

Discussion Question (re-doable): In a separate paragraph at the end of your thin section report, discuss in ½ to one page (handwritten = 100-300 words preferably with a separate diagram/sketch) devitrification of volcanic ash. How and why does it occur in sedimentary environments and soils? What chemical conditions promote this and what minerals form during the conversion? Ignore hydrothermal alteration. This discussion question is re-doable for revised credit.

Due Date: I expect 2 thin section reports in your notebooks and a separate discussion page by the deadline specified on the website and the class calendar.

Thin-sections for this lab

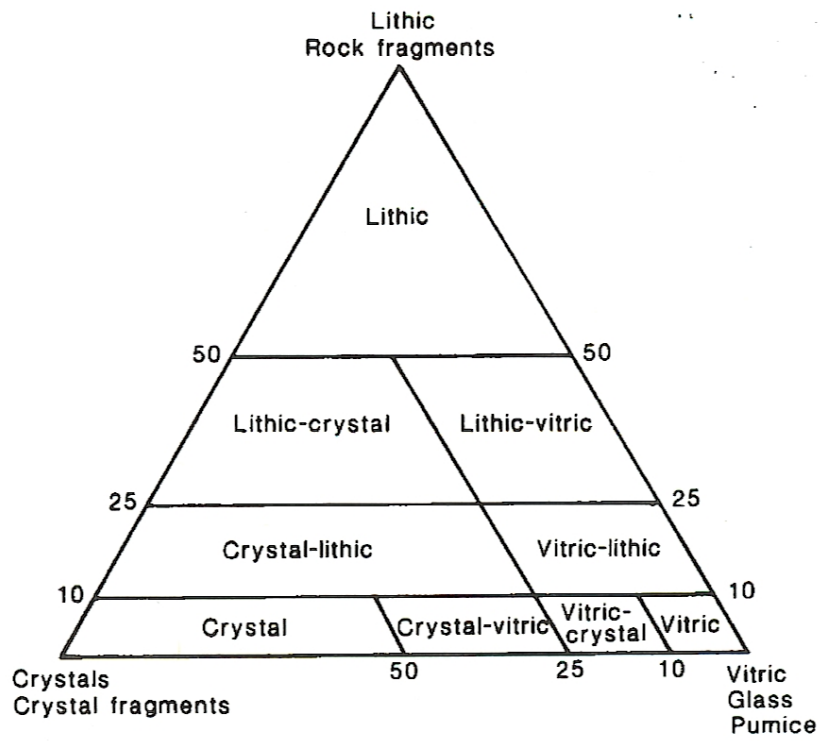
(n)- number of thin sections per sample

Group A: (mostly crystal tuffs);

RI3603(2), RI3604*, RI3605* (2) [*use RI3605 hand specimen]

Group B: (mostly vitric and lithic tuffs);

RI1277** (4), RI2548**, RI3606 (2), RI3607 (2), RI3608 (3),
RI 3735 (6); beautiful pristine vitric matrix
[**use RI1277 hand specimen]



Source: Carozzi, A.V., 1993. Sedimentary Petrology. Prentice Hall, 263p