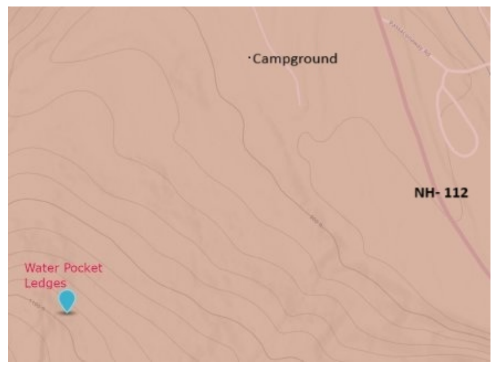
Ledges in the "Water Pocket" Vicinity

By Bob Wilken

If you are searching for what New Hampshire collectors call Peter Samuelson's "Water Pocket" on Mindat.org, you will not find it. Instead, the page is titled "Pyrochlore Pocket, Albany, Carroll County, New Hampshire."

The listed mineral species for the locality include bastnaesite-(Ce), columbite-(Fe), fluocerite-(Ce), the 'pyrochlore group' (including 'var. uranpyrochlore'), thorite, and zircon. Ironically, despite smoky quartz and microcline being Peter's primary obsession, they are absent from the official species list—along with other mica group minerals that are clearly present.

For a more extensive species list, check out Mindatnh.org, where you will also find some of the same photos featured in this article.



I believe my first trip there was around 2011 with Bob Janules, though I can't say for certain. After that, I made a few solo visits and returned with Gordon at least twice more.

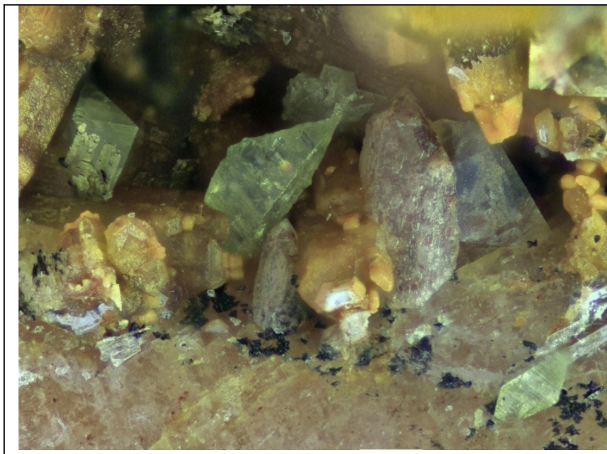
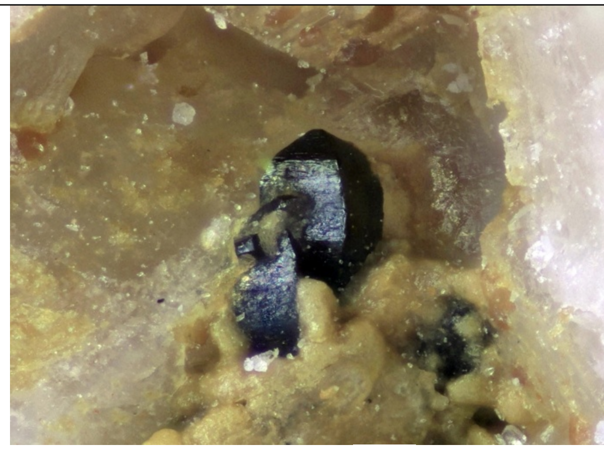
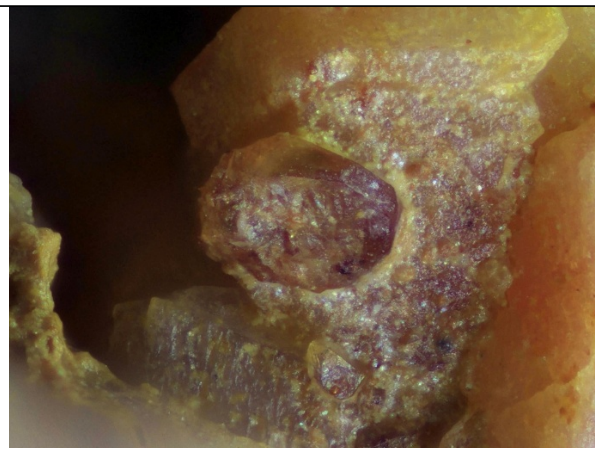
The hike is not especially long, but the uneven terrain makes it tricky to take a direct path through the woods. Once I had the coordinates, I relied entirely on my GPS.

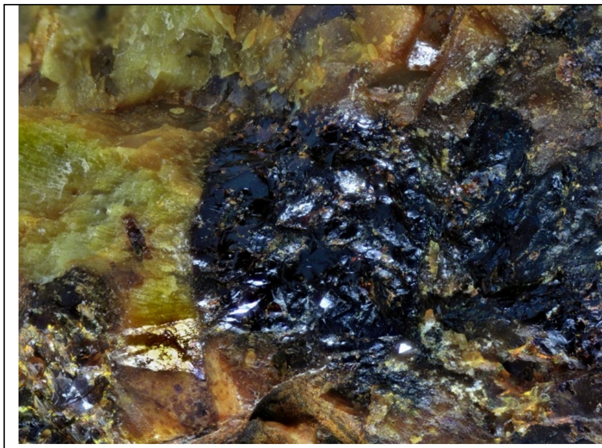
I can only assume that, as far as the White Mountain National Forest was concerned, collecting here was off-limits. The "water pocket" itself is a water-filled hole—about on and a half to two feet wide—plunging straight down into granite. It sits just below a two-foot-high ledge.

By the time I first visited, the tailings formed a thin, widely dispersed dump along the gentle slope beneath the "water pocket." It looked as though collectors had thoroughly sifted through t It did not take long before I started exploring the area upslope from Samuelson's dig, a spot I've come to call the Water Pocket Ledges. The tallest of these ledges is a granite wall, reaching about seven or eight feet high at its peak, stretching roughly twenty-five to thirty feet along its length.

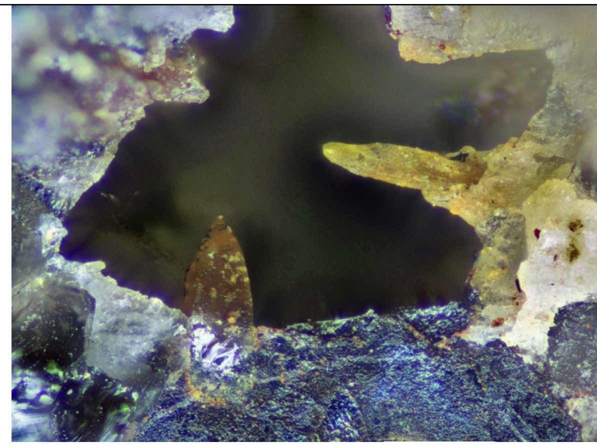
One broad band of granite seemed to have a notably high percentage of medium-grained spongy feldspar, ranging in color from a creamy tan to a rich, deep flesh tone. Even to the naked eye, the rock exhibited widespread vugginess.

Under the microscope at home, I could see that this vugginess resulted from the dissolution of fluorite. It was not uncommon to find eroded fluorite—ranging from colorless to purple—rattling around within some of the vugs.

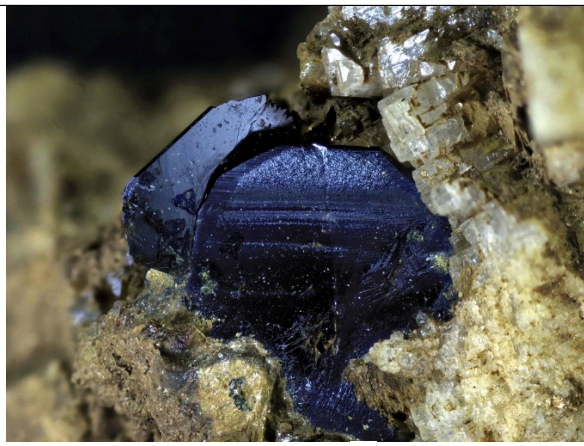
 Anatase... TiO_2 1.0 mm field of view	 Anatase... TiO_2 0.2 mm crystal
 Bastnaesite-(Ce)... $Ce(CO_3)F$ 0.8 mm (largest crystal)	 Bastnaesite-(Ce)... $Ce(CO_3)F$ 0.3 mm crystal
 Bertrandite... $Be_4(Si_2O_7)(OH)_2$ A 1.4 mm crystal	 Bertrandite... $Be_4(Si_2O_7)(OH)_2$ A 2.5 mm field of view



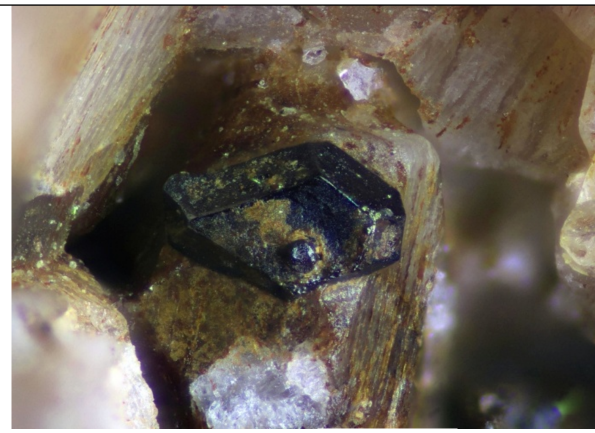
Fayalite... $Fe^{2+}{}_2SiO_4$
A 4.7 mm field of view



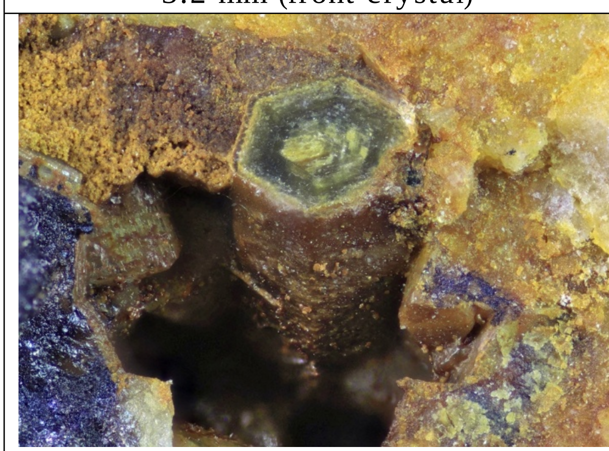
Fergusonite-(Y)... $YNbO_4$
A 1.0 mm field of view



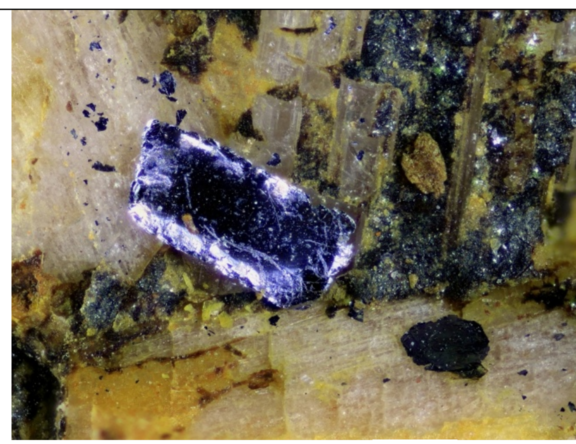
Ilmenite... $Fe^{2+}TiO_3$
3.2 mm (front crystal)



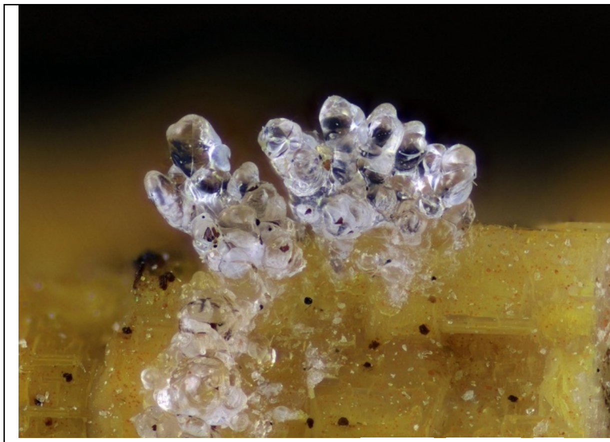
Ilmenite... $Fe^{2+}TiO_3$
A 0.5 mm xl



Mica Var. Zinnwaldite...
$KLiFe^{2+}Al(AlSi_3)O_{10}(F,OH)_2$
1.0 mm diameter

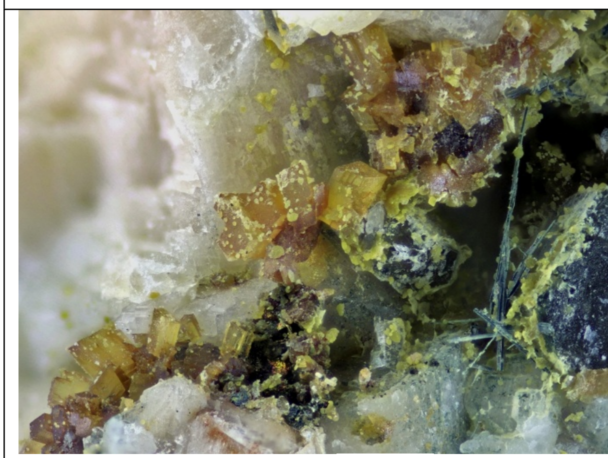


Molybdenite... MoS_2
A 1.0 mm mass

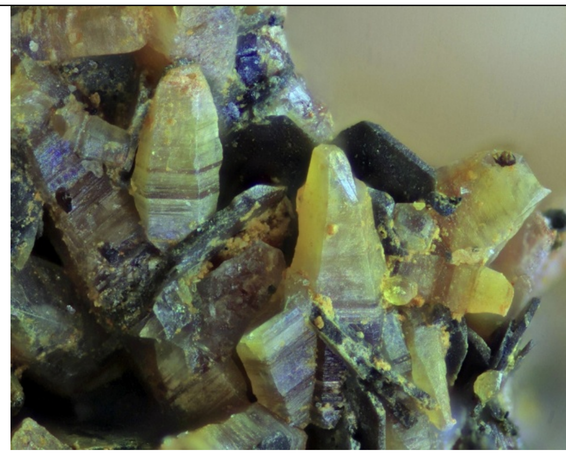


Opal Var Hyalite... $SiO_2 \cdot nH_2O$
A 1.63 mm

Rutile...TiO_2
A 1.5 mm field of view



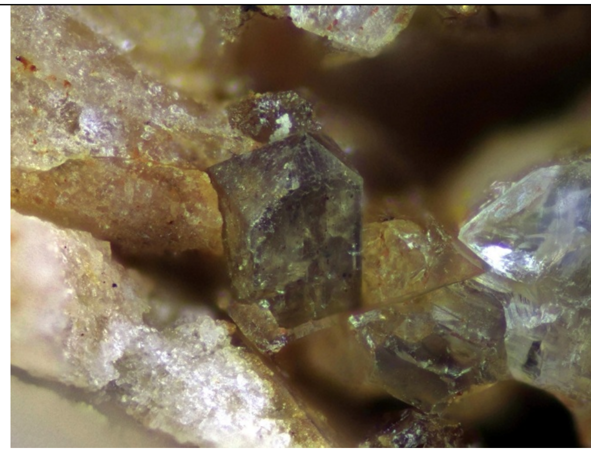
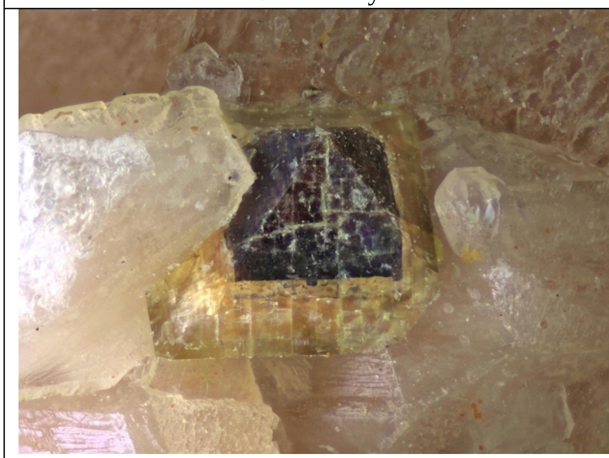
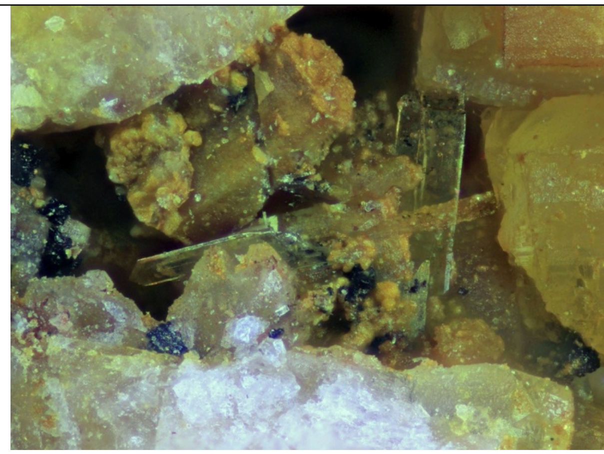
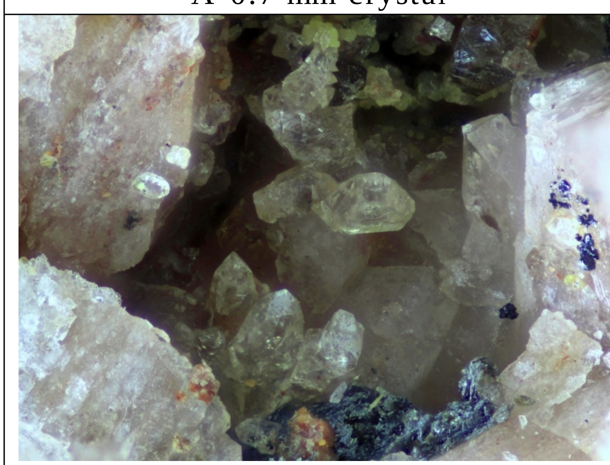
Siderite...$FeCO_3$
A 3.3 mm field of view



Synchysite...$CaCe(CO_3)_2F$
A 1.4 mm field of view

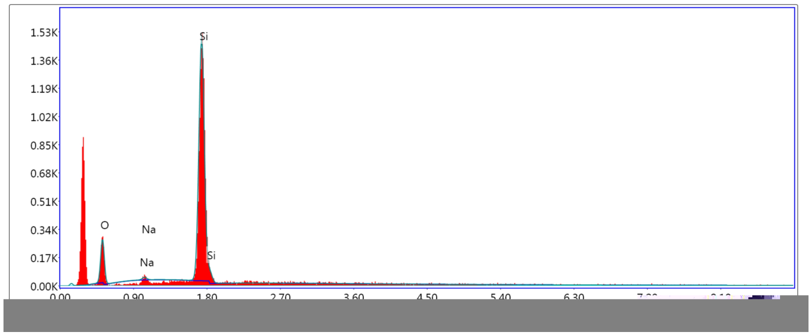
Titanite...$CaTi(SiO_4)O$
A 0.7 mm crystal

Topaz...$Al_2(SiO_4)(F,OH)_2$
A 1.9 mm crystal

 Xenotime-(Y)…$Y(PO_4)$ A 0.6 mm crystal	 Zircon…$Zr(SiO_4)$ A 0.4 mm crystal
 Zircon transformed to Xenotime Hydrothermal alteration A 0.7 mm crystal	 Unknown A 1.2 mm field of view
 Unknown A 1.2 mm field of view Fluorescent yellow LW, MW & SW	 Encrusted Anatase and Xenotime? A 2.9 mm “obelisk”

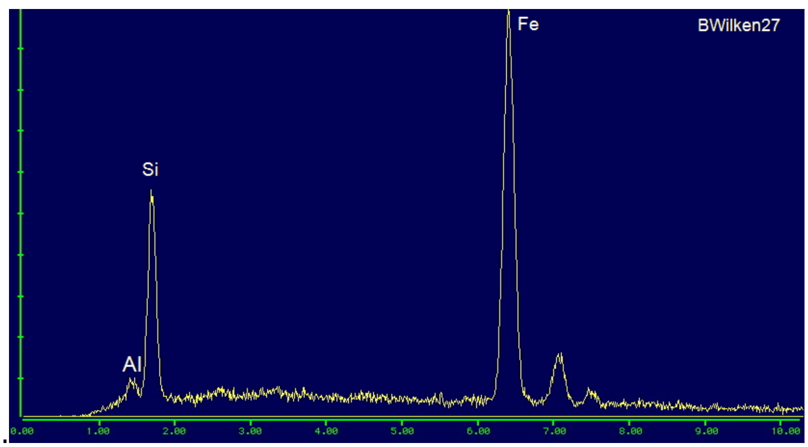
Brief Specimen Testing Data

Bertrandite:



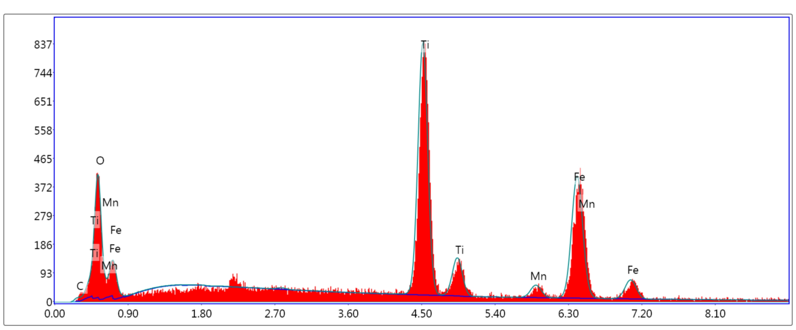
Beryllium (Be) is assumed in this result. Because both bertrandite and phenakite are chemically the same optical methods would be required to discriminate the crystallographic difference. But based upon the simple orthorhombic crystal form, betrandite would seem reasonable.

Fayalite



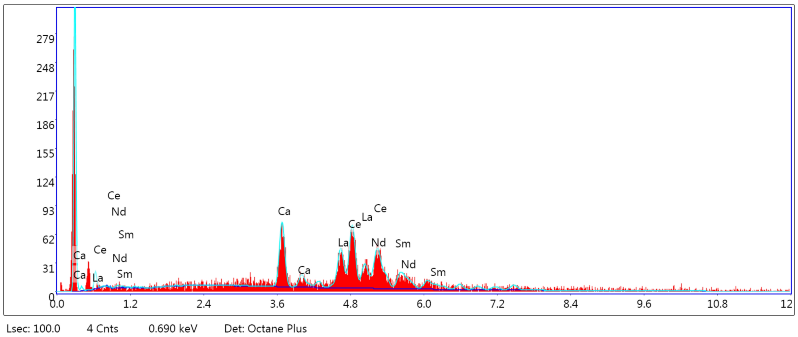
An iron rich silicate in the olivine family, here with minor aluminum substitution

Ilmenite:



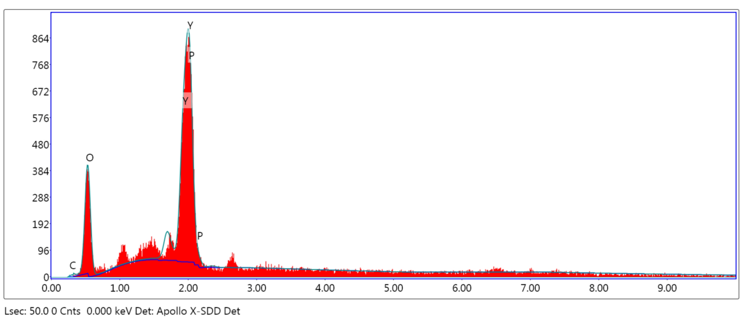
Magnetic property is the easiest diagnostic test.

Synchysite



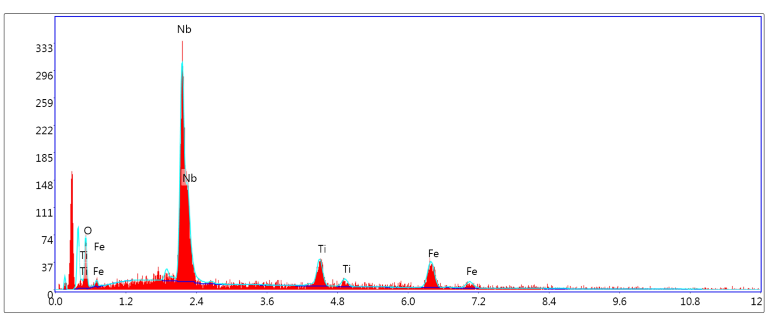
Synchysite requires calcium. In this case, along with cerium, lanthanum, neodymium, and samarium round out the replacement rare earth elements present in this EDS result . Fluorine does not make the required showing but, unless anticipated, the keV level of the Scanning Electron Microscope (SEM**)** can affect whether fluorine (F) appears. The group member parasite often intergrows with synchysite.

Xenotime-(Y)



Plain and simple, an yttrium phosphate and, like zircon, in the tetragonal crystal system.

Undetermined: Not Photographed



Niobian Columbite-(Fe) … $(Fe,Mn)Nb_2O_6$…in the orthorhombic columbite crystal system.
Achalaite ………………… $Fe^{2+}TiNb_2O_8$ … monoclinic and in the wodginite group.