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Visit to a New Mineralogy Museum: The University of Arizona Alfie Norville Gem & Mineral Museum

The University of Arizona in Tucson has an excellent collection of minerals that had been housed in the lower level of Flandrau Planetarium. The facility, managed by the UA Geosciences Department, was not large enough to do justice to the collection, so Museum Curator Robert T. Downs searched for a new, modern, spacious, accessible building. He must have been persuasive (or at least persistent) because in 2017 renovations began on the historic Pima County Courthouse. The result is preservation of a beautiful building that today houses (among other things) a spectacular museum devoted to minerals called the Alfie Norville Gem & Mineral Museum. (Not surprisingly, PSRD approves of all facilities dedicated to planetary materials.)

A fascinating highlight for me is that the first display area visitors encounter explains the concept of *mineral evolution*. This idea was the creation of Robert M. Hazen (Carnegie Institution of Washington, CIW) and an interdisciplinary group of collaborators at CIW, the Geological Survey of Canada, Johns Hopkins University, the Smithsonian Institution Natural History Museum, and the University of Arizona (including Bob Downs). The idea is that the first minerals formed when the first stars exploded, making about a dozen minerals, which cosmochemists have found in primitive meteorites. Then some reworking of interstellar material gave us the minerals in **chondrites** (bringing the total number to about 60). Planetary **accretion** gave us a bigger variety because of planetary igneous **differentiation** and aqueous alteration (bringing the tally to 250 minerals). Then, mantle reworking and crust formation, including plate tectonics on one planet got us up to 1500 minerals. And then all kinds of mineral action happened once Earth became a biological world with an ocean, resulting in the present total of about 5000 different minerals. The museum exhibit explains all this with displays of key minerals for each era.

The museum has spectacular mineral specimens, information about their uses that includes mining (a major source of dazzling mineral specimens), the role of experiments to make synthetic minerals, and, of course, a room full of gems. Another informative display shows NASA's OSIRIS-Rex spacecraft on asteroid Bennu [[read more about OSIRIS-Rex from our archives](#)]. The spacecraft is managed by the University of Arizona's Lunar and Planetary Laboratory (**LPL**). If you are in Tucson, Arizona, make time to visit the museum. More information can be found at: gemandmineralmuseum.arizona.edu.



(www.sc.pima.gov) Pima County Courthouse

See Reference:

· Hazen, R. M., Papineau, D., Bleeker, W., Downs, R. T., Ferry, J. M., McCoy, T. J., Sverjensky, D. A., and Yang, H. (2008) Mineral Evolution, *American Mineralogist*, v. 93, p. 1693-1720. doi: 10.2138/am.2008.2955. [[open access article](#)]

See also a more general discussion:

· Hazen, R. M. and Ferry, J. M. (2010) Mineral Evolution: Mineralogy in the Fourth Dimension, *Elements*, v. 6, p. 9-12. doi: 10.2113/gselements.6.1.9. [[open access article](#)]

· [List of Minerals from the International Mineralogical Association](#) (Follow the links for the updated July 2021 list.)

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