SPHENE:
A MINERAL EMANATES FIRE WITH TWO NAMES.

Titanite, as it is known to modern mineralogists for its significant titanium content, was first recognized as a new mineral by the great German chemist Martin Heinrich Klaproth in 1795. Soon after its discovery, in 1801, the wedge-shaped crystals inspired the mineralogist Rene Just Haüy, the name bearer of mineral hauyne, to introduce the name "Sphene" after "sphenos," meaning wedge in Greek. The International Mineralogical Association (IMA) Commission on New Minerals and Mineral Names (CNMMN) adopted the name titanite and "discredited" the name sphene as of 1982. However, the name sphene has been so widely recognized that it is the only one used in gemology. It is also still encountered in some mineralogical publications.

This titanium calcium silicate mineral typically forms in lighter igneous rocks associated with pegmatites and sometimes in metamorphic rocks and skarn zones. Fully formed monoclinic sphene crystals are always an attraction as mineral specimens. Its transparent and faceted forms exhibit a characteristic "fire" due to high dispersion. In fact, the dispersion of sphene is 0.051 which is considerably higher than that of diamond. No wonder it looks like it's on fire when it is well cut even with a darker body color. It is said that when one buys sphene, it is the fire that drew them in. Sphene is occasionally set in jewelry but is most often appreciated as a collector's gem due to its low hardness of 5 to 5.5 in Mohs' scale and two directional cleavage. Sphene comes in yellow, green and reddish brown color range and displays strong trichroism. The most desirable color has been green and more common ones are yellow-green, mostly with brownish tinge. The chro-

Faceted sphene from Zimbabwe.
Left to right, 9.71ct, 14.64ct and 29.91ct.
Courtesy of Pala International. Photo by Mia Dixon.

31ct carved sphene from Zimbabwe.
Courtesy of Meg Berry. Photo by Orasa Weldon.

mophore of sphene is typically iron with some rare earth elements. Once chromium is present, such as is the case with specimens from Pakistan, the color is a brighter green and sometimes with color-change.

Sphene has been mined in Brazil, Myanmar, Mexico, Pakistan and mostly Madagascar for decades. The most commonly traded sizes are around 5ct and smaller, although sphene weighing more than 10ct are known. Last year, Pala International of Fallbrook, CA shared the latest sphene finds from Zimbabwe. Today, this location is regarded for producing some of the most popular examples of this gem. These exceptional stones have the desirable green color but not due to chromium. Prof. George Rossman of CalTech has tested these stones and established the chromophore as vanadium. The new source is welcomed, although the production so far appears to be limited. The output from Madagascar was already getting scarce. Sphene prices however have been relatively stable due to old stock. In general, with sphene, the greener and cleaner they get, per carat price will increase. Once the stones are above 5ct sizes, the prices will jump significantly.

The material from Zimbabwe in fine grades are commanding higher prices in the trade. For example, a nicely cut eye clean stone weighing 10.91ct is priced at $400 per carat, while a similar quality stone weighing more than 29ct is priced at $500 per carat. Pala International reported that an exceptional quality of 10ct or larger can demand around $700 per carat but it is extremely rare. Please note that all prices above are wholesale level.

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