



Piروزeh; A Novel Name for Persian Turquoise Bearing Gemstone

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ABSTRACT

In recent decades, mineralogy has improved rapidly; many new mineral phases known by advance analytical methods which bring several scientific mineralogical and gemological names in to use. Various, a large number of traditional names are used in gem trades every day. Application of recently developed scientific mineralogical findings in modern gem business demand proper terminology. In this article the general mineralogy of the Persian turquoise is brought forward in order to offer a novel name.

1. Introduction

Turquoise is one of the oldest gemstones mined since the ancient times around the world. It historically has come from the Neyshabour district in Iran (Gübelin, 1966). It is widely believed Ancient Persia to be the first and the best source for turquoise; thus, most of the fine turquoise today are selling as "Persian". Generally, this gemstone is cut as cabochon, but frequently are faceted or engraved. Often it has an attractive blue or sky-blue color of fine-quality. North American turquoise is more porous and therefore paler than the Persian ones (Manuchehr-Danai, 2005).

Turquoise is known as an **isomorphous isomorphic** group of minerals with a general formula $A_{0-1}B_6(PO_4)_{4-x}(PO_3OH)_x(OH)8.4H_2O$, where $x = 0-2$, and consists of six members: planerite, turquoise, faustite, aheylite, chalcociderite and an unnamed Fe^{2+} - Fe^{3+} analogue (Ford and Taggart, 1998).

They crystallize in the triclinic system. It is a crypto-crystalline and mainly semi-translucent or opaque gem (Read, 1988). Turquoise forms in a weathering (semi-arid) environment when acidic copper-bearing solutions seep into porous volcanic rocks and react with the aluminum and phosphorus bearing minerals. Its round and bumpy morphology confirms is formed from cool water (Keller, 1990). In many cases, these host rocks are inferred to have supplied the elemental and molecular constituents necessary to form turquoise; copper from copper-bearing minerals (e.g. chalcocopyrite), phosphorous from apatite and aluminum from feldspars, clays (especially kaolinite) or other aluminum-rich phases. Turquoise is not limited to being formed from the weathering of igneous rocks. Turquoise deposits on the Sinai Peninsula in Egypt are found in sedimentary rocks, where copper and phosphorous-charged ground waters have interacted with aluminum-rich concretions made of alunite and gibbsite.

It is a review paper rather than original paper. Therefore, Materials and methods should be omitted.

2. Results and discussion

Although pure turquoise exists (Braithwaite 1981; Foord and Taggart, 1998; Barwood, 2003); however, mineralogical studies reveal that most of the known gemstones known as turquoise, are composed of several minerals including the turquoise mineral group, quartz, pyrite, limonite, kaolinite, alunite, sericite and jarosite (Thibodeau et al., 2015).

The Persian type ranges from different shades Fig. 1 -of blue to shades of green. Some have a matrix which differ greatly in color and pattern. The deep blue color known in the market as “Persian blue” is the most prized and valuable. In detail, the main minerals in many Persian samples of turquoise are aheylite. a silica phase, pyrite, clay minerals and mica which concentrations make gemstone patterns known as matrix in markets. The turquoise mineral could be one of the constitutes which in fact is not necessarily mon_omineral material and could influence the making of several different minerals. This fact could classify and put it in a stone class rather than a mineral type. In modern gemology, it is crucial to introduce and understand the nature of materials which create the gemstones. The composition of gem materials affects treatment, polishing and cut processes. Answers to the ambiguity of using a mono_mineral name for a poly_mineral stone, requires a proper stone name starting with a review based on historical and scientific background.

The name turquoise which means 'Turkish;' refers to the fact that prized Persian material was originally brought to Europe via Turkey (Federman, 1990). It has several scientific names including Agaphite, Callais, Kaloslitho, Chalchuite, Coeruleolactite, Henwoodite, Johnite, Oriental Turquoise, Rashleighite, Orodontolite, Turkey Stone. At 1909, Bauer mentioned Calaitite or Kalaitite as a mineralogical name for Turquoise. Furthermore; it has many traditional names in

different languages. The main known names are as follow (Lecouteux, 2012):

Ancient Egyptian: *Majkaat*;

Ancient Greek: *Thyites* (Cunningham, 1996), *Caeruleum*, *Kyanos* (Manutchehr-Danai, 2005); Arabic: Firôzag (Birooni, 1018), Feyrizech, Fayruz, Erfebronug, Ahtat, Farasquin;

French: *Turchion*, *Turchogis*, *Turchesia*, *Turgei*;

Hungarian: *Turkoyses*, *Turgei*, *Turcke*;

Italian: *Turchiman*, *Turchese*, *Turchina*, *Turcos*, *Turkis*, *Turkois*;

Portuguese: *Turqueza* (Manutchehr-Danai, 2005);

Spanish: *Turcheise*, *Turkoys*, *Turcas*, *Turquemaux*, *Turquemaf*, *Turqueniáf*, *Turquemac*, *Turcaman*, *Torquemant*, *Truquamans*, *Cucremas*, *Curquema(N)S*, *Curquemaf*, *Curtemaf*, *Surquemac*, *Purquemaf*, *Turmak*, *Crismaf*, *Curc(Re)Maf*, *Crasnuez*, *Gurgum*, *Turquesa*;

Tibetan: *Gyu*.

Persian: *Piroozeh* (Joohari-Neyshabouri, 1170), *Piruz*, *Firoozeh*, *Firuz*, *Firuzza*, *Firuzah*, *Ferozal*.

3. Conclusion

The Caspian stone is also an old term for Persian turquoise (Manutchehr-Danai, 2005). Piroozeh, means successful, victory, or victorious. It is the original version of Firoozeh, which is nowadays common in Iran. The ~~authors~~ author offer the term “Piroozeh” as a novel name for the Persian turquoise bearing gemstone. The term has been admitted by the national and international Gemkish 2018 precipitants. It will open a new line of mineralogical and petrographical classification for this valuable gemstone.

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Fig. 1. Piroozeh from Neyshabour, an ancient source of Persian Turquoise, NE Iran

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