

Ceramah Teknik (Technical Talk)

THE CORUNDUM (RUBY & SAPPHIRE) MINES OF MOGOK, MYANMAR

27 January 2005
Geology Department
Universiti Malaya

(In collaboration with the Dept. of Geology, Universiti Malaya)

LAU YIN LEONG

GINN-M Corporation Sdn. Bhd
e-mail: jadeite@streamyx.com

Report

More than twenty interested people including several non-geologists turned up for the talk by Mr. Lau (Chairman of the Economic Minerals Working Group of our Society) at the Department of Geology, University Malaya at 5.30pm on Friday, 27.1.2005. Those present were entertained and informed about the world of sapphires and rubies and treated to a virtual visit to Mogok in Myanmar where the best of these gems are produced today. Questions and comments from the floor were already flowing freely during the talk as the curious audience could not wait till the talk was over. The discussion went on for quite a while after that showing how interesting was the topic.

Lee Chai Peng

Summary

Red rubies (chromium rich), blue sapphires (iron and titanium rich) and fancy sapphires of all other colours are all varieties of corundum. They are heavy with S.G. 4 and R.I. 1.762-1.770. They contain minute rutile "silk" inclusions that are helpful in detecting heat-treated stones as these inclusions are broken during heat treatment. Zircon and calcite inclusions and negative crystals are helpful in identifying the source of the stones.

The Mogok Stone Tract is the most famous of all the rubies and sapphire mines in the world where top pigeon blood rubies come from. It is in a restricted area north of Mandalay at an elevation of over 3000m and access is strictly controlled by the military junta.

The rubies are embedded in calcite veins in skarn rocks that are accessed through crude tunnels dug into the ground. The rocks are simply blasted with dynamite and carried to the top by a series of conveyor belts. Alluvial mining is also carried out by vertical "monkey pits" sunk into the gem-bearing gravel beds. The rubies and sapphires are strictly traded at government auctions where each stone is certified by six gemmologists to guarantee its genuineness!

Over 90% of the rubies and sapphires on sale have been heat treated or otherwise enhanced (beryllium treatment by bulk diffusion or surface diffusion with methylene iodide) to improve their clarity or change their colours to make them more attractive. Good quality untreated natural stones are very rare and can be more expensive than diamonds on a per carat basis. Synthetic stones are quite easily produced and are cheaply available.