

Gem Industry & its Development

by

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Abstract : Sri Lanka is endowed with a galaxy of Gem minerals. This great opportunity provided by natural processes should be harnessed to the maximum to bring much needed foreign exchange to Sri Lanka while generating job opportunities to a vast number of people in Sri Lanka. Hence the need to streamline this industry.

Sri Lanka is one of the richest gem lands in the world. With the possible exception of Brazil no other country in the world produces such an abundance and variety of gemstones as Sri Lanka does. With the exception of a few gemstones such as Diamonds, Emeralds, Turquoise, Opals, Jades, etc. stones of commercial importance and rare stones are also found in this most favoured land.

The potential for our gemstones being so high, it is this very reason why we should give this valuable money spinner a better boost than it is enjoyed today. As with all industries the competition from the private sector is stiff but still the State sector can better its scope to earn more foreign exchange if serious thought is given on the areas mentioned below.

The areas where Sri Lanka could develop the gem industry are numerous. It could be divided into the following sectors :

- (a) Mining of gem materials should be more scientific than it is done today in Sri Lanka.
- (b) Scientific identification of the extracted gem products for which trained personnel should be available.
- (c) Grading of coloured stones that should go into set jewellery.
- (d) Ornamental materials such as Serpentine, Agates etc. and a number other minerals can be made use of for the manufacture of figurines, necklaces, pendants, earstuds etc.
- (e) Another aspect of this industry which is hitherto not practised widely in Sri Lanka is the Tumbling process for rough gem materials, i.e. by allowing the rough stones to go through a rotary process in steel cylinders and the final result being rounded polished stones.

- (f) The heat treatment of rough gem stones, although this is not so widely practised in Sri Lanka due to lack of expertise, it is happy to note that the State Gem Corporation has embarked on the process of geuda treatment with laudable results. The conversion of geuda that is sub-standard corundum to a beautiful blue colour product could be achieved by heating such stones in a reducing atmosphere using a diesel blower at a temperature between 1700°C - 1750°C.

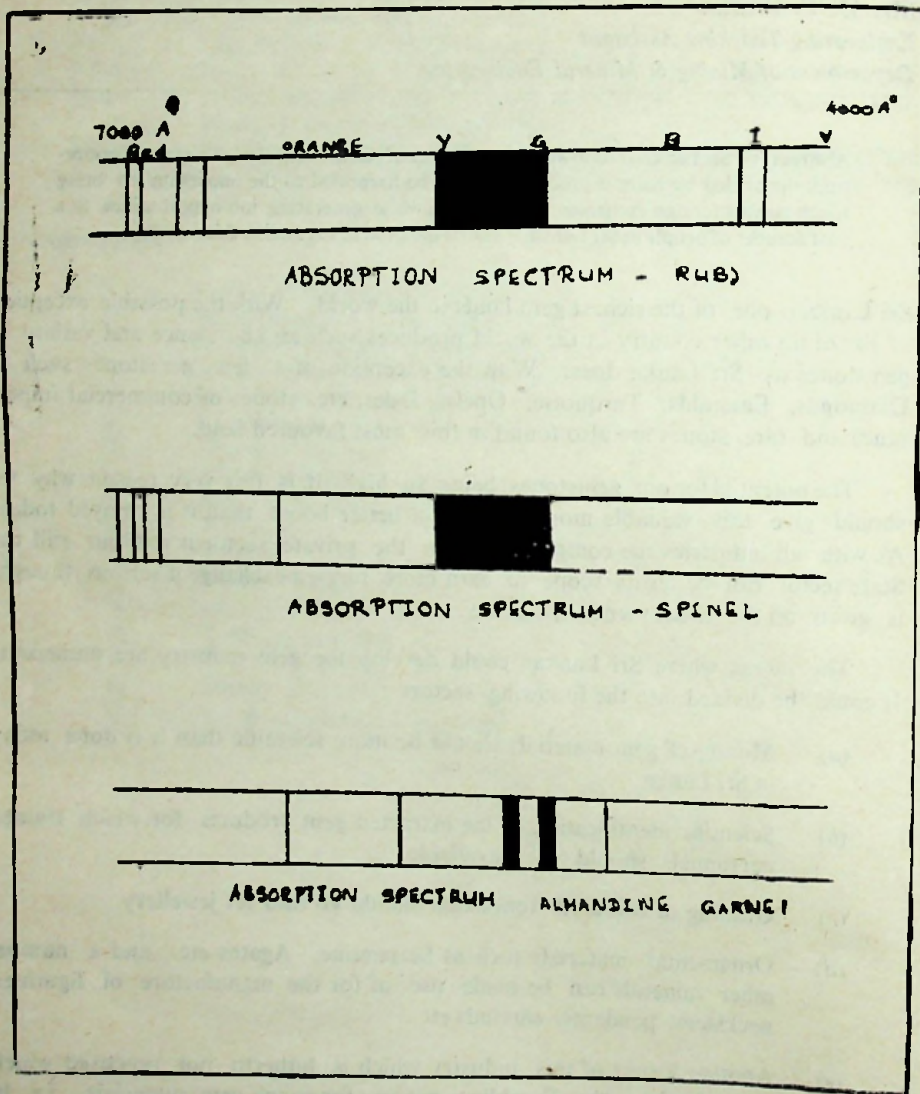
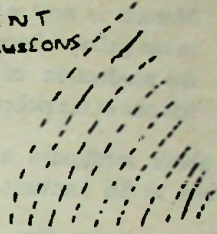


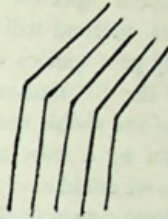
Fig. 1

INCLUSIONS IN GEMSTONES

THUMB-PRINT
LIKE INCLUSIONS



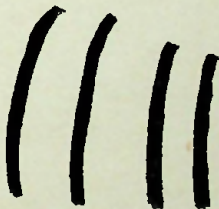
ZIRCON HALOS IN BLUE SAPPHIRE



HEXAGONAL
ZONING IN
NATURAL BLUE
SAPPHIRE

INCLUSIONS IN SYNTHETIC
GEM STONES

CLOSELY SPACED CURVED
LINES AND BUBBLES
IN A SYNTHETIC RUBY



BROAD CURVED COLOUR
BANDS IN SYNTHETIC
BLUE SAPPHIRE

Fig. 2

- (g) The pearl industry which was once done on a small scale off the shores of Mannar is now a neglected area although pearls earn a unique position in the galaxy of precious stones. We in Sri Lanka should go ahead with the production of cultured pearls on the lines practised by Japan which has one of the richest pearl banks in the world.

The above mentioned areas of the gem industry will generate ample job opportunities to Sri Lankans.

Before concluding this paper I would like to briefly mention a few scientific gem testing methods used to distinguish between gem species. Every gem mineral has a specific index called the R. I. First, we record the R. I. of gem species on the standard refractometer which differ in different species, thereby enabling one to quickly separate them on this basis. This method will apply mostly to cut and polished stones. Secondly, we can identify gem species with certainty by means of the spectroscope (Fig. 1). Here we study the distribution patterns of the absorption lines distributed in different sections of the visible spectrum. For example, of two red stones (not cut and polished) one can be a ruby and the other a red spinel. From the study of the absorption spectrum we could easily distinguish photograph. Thirdly, by the study of inclusions using a good gemmological microscope (Fig. 2). For example, the photograph shows that in natural blue sapphire the zonal lines are straight whilst in synthetic sapphire the lines are broad and curved. Fourthly, the S. G. test will quickly distinguish between stones of similar appearance or a parcel of different stones. Here we use heavy liquids diluted to one's requirements.

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