

## ONE-DAY GEMOLOGICAL SEMINAR HELD AT GTL .....

GTL had organized one-day seminar related to the current status of gem and jewellery trade on 26<sup>th</sup> April 2003. The seminar included all the aspects of the trade whether it is a use of latest technology in processing of a jewellery piece or the technical advancements like the treatments performed on certain stones. The basic idea behind organizing such a seminar was to provide the overall knowledge of the current status of the industry i.e. what is moving in the market, different stones, treatments, technology & techniques, etc. The seminar was followed by the annual award function of GTL where the successful candidates received their diplomas and certificates.

The topics on which the talk was given included Jewellery Making Equipments, Gem Testing Equipments, Polishing Powder, Facetting Equipments, Importance of Trade and Laboratory relations, overview on HPHT treatment, unusual stones tested at GTL, Jaipur, Certification criteria for fracture filled gemstones, Mining and exploration in Kagam, Zambia Export- Import Policies and effect of SARS on gemstone Industry. The talks were given by Shri Mehul Durlabhji, Smt. Shyamala Fernandes, Shri Girdharilal Sharma, Shri N. K. Tatiwala, Shri Mustaqeem Khan, Shri Gagan Choudhary, Shri Rajendra Oswal, Shri Ramesh Bhalla, Shri Vivek Agrawal, Shri Jackson Mtonga and Shri Julian Chamulu.

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## Diamond Treatments - an Overview

Diamond treatments and their identification has become one of the most important issues due to the increasing technology and awareness amongst the consumers. Diamond is the most important commercial gemstone; the saying is very true "Diamond is Forever". Clarity as well as colour enhancements are being done on diamonds; clarity is improved by fracture filling with glass or by laser drilling to remove the inclusions, while exposing the stone at high temperature and pressure, as well high-energy particles like electrons or gamma rays does colour enhancement.

**Fracture Filling:** Clarity enhancement of diamonds by fracture filling began in the late 1980's, by Yehuda Dimond Corporation, treated diamonds also known as Yehuda diamonds or the treatment is known as Yehuda treatment. The treatment involves the filling of surface breaking fractures with a high lead glass so as to make the fracture invisible or less visible. The treatment is generally performed on cut and polished stones but the few rough has also been encountered.

The key-identifying feature for fracture filled diamonds is the flash effect; the flashes of violet and pink colours are seen when the fracture is seen at different angles. Some spectral colours are also visible in a natural unfilled fracture but there is a difference in the viewing angle. Colour flashes in filled fracture is visible when it is viewed parallel to the fracture while in case of untreated, colours are seen perpendicular to the fracture. Except colour flashes, other features like trapped gas bubbles, devitrification effect, areas of incomplete filling and cloudy filling can be seen.

**Laser Drilling:** The technique is another common treatment performed on diamonds for clarity enhancement. The technique is carried out on the stones, which have inclusion very near to the surface

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The day was divided into three sessions:

**Session 1:** Basically the speakers were from the market giving information on different tools and techniques available in the market for gem and jewellery processing and testing. The session started with the very first stage of a jewellery piece, which a common person wears, i.e., cutting and polishing of gemstone from its rough stage.

Following are the abstracts of the papers presented in the first session :

**1. Faceting Equipment:** Mr. Mustaqeem Khan, Executive- Training & Technical, GTL with the help of M/s Anand Engineering Works, Jaipur, spoke on different types of faceting equipments available in the market with their advantages and disadvantages. The emphasis was given on the need for latest technology in the gemstone processing, so as to compete in the international market by reducing the labour, time and cost. The presentation also dealt with the processing of gemstones i.e. from the stage of choosing rough up to the polishing using different techniques and technology.

He covered slicing, pre-forming, faceting and polishing, problems encountered and their solutions with the market potential. A comparison was made between the older technique and present technique and the changes required giving advantages and disadvantages for each step in the processing.



**2. Polishing Powder:** Mr. Rajendra Oswal of M/s Jewels & Tools, Jaipur gave a talk on different types of polishing powders available in the market - their uses. Type of powder used for different gemstone- categorized on the basis of material of powder like chromic oxide, tin oxide, silicon carbide, alumina or even synthetic diamond powder. The choice also depends on the particle size of the particular powder whether it is finer or coarser, ranges from 80 meshes and goes up to 500 mash. The type of powder used varies from stone to stone depending on the toughness and hardness of the stone. For example: Chromic oxide is used to polish emeralds while tin oxide or diamond powder is used to polish garnets, corundum or diamond. The major producers of the diamond powders are De Beers, GE Synthetics, Glucon all in USA while Algen in South Korea.

**3. Jewellery Making:** Mr. Ramesh Bhalla from JPDC, Jaipur gave emphasis on the latest developments in the field of jewellery making right from designing up to the quality control. He discussed the different stages of jewellery making like how a masterpiece is made and with that one masterpiece one can make thousands of same jewellery piece at a much faster rate with the help of rubber moulds, tree making and then casting. The use of computer really has made the job much easier and faster. Now one can lay his imagination on the computer as a design and form a jewellery piece just by one command to the computer. This can be done with the help of CAD i.e. Computer Aided Design and CAM, i.e. Computer Aided Machine.



**4. Gem Testing Equipment:** Mr. Vivek Agrawal and Ms. R.Lalitha, the students of current batch of Master Diploma Gem Identification at GTL presented a paper on a standard set up of a laboratory. Different manufacturers and suppliers of gem testing equipment have been emphasized with their costing, advantages and disadvantages. The major suppliers discussed were GIA, Gem A and System Eickhorst. The talk emphasized on three points: basic equipments required for setting up a standard laboratory; how and where to get those instruments; how to go about the options available and the best choice.

**Session 2:** The session included more technical papers like treatments, unusual stones with their identification, certification of fracture filled stones, mining, etc.

**1. Importance of Trade and Laboratory relations:** Shri Nawal Kishore Tatiwala, the first student of GTL and a trader spoke on the relations that the trade members and a laboratory has to be maintained for the benefit of the industry. He gave emphasis that how the trade members can help a laboratory to upgrade its knowledge by way of providing them the samples of newer materials including treated and synthetics arriving in the market on a daily basis. He also stated the importance of laboratory certificate for a stone to a trader as that particular certificate can affect the price a lot. The importance of gemology in the modern gemstone industry was also highlighted; as the traditional trader does not know why he is calling a ruby as ruby but gemology has answered the question why a ruby is ruby. Now a consumer much more educated as ever before, therefore a jeweler / trader need to answer such questions. The acquisition of latest techniques will definitely improve the quality of certification that will gain more confidence to a laboratory as well as the traders.





**2. HPHT Treatment An Overview :** Mr. Gagan Choudhary, Executive - Technical & Training, GTL spoke on the latest development in treating the gemstone. He covered HPHT treatment on diamonds - the launching in the international market, process, i.e. how the colour changes and the identification. The diamonds are exposed to elevated conditions- temperature of 1600 ° to 2000 ° c and pressure of around 70 kilo bars. At such conditions crystal lattice goes through the process of reconfiguration and vacancies destroy; vacancies and nitrogen impurities mobilize; N3 centres are created. The treatment sent a shockwave in the international diamond industry when General Electric announced it in collaboration with Pegasus Overseas Limited also known as GEPOL as the identification is very difficult. Some times there is alteration in the inclusion pattern due to high heat, but that is not always conclusive. Since then all the major gemological associations and laboratories are involved in developing a simpler method of identifying the treatment. The identification uses several advanced techniques like Infrared spectroscopy, Laser Raman, UV-VIS NIR, or X-ray topography, photoluminescence or cathode luminescence.

**3. Unusual stones tested at GTL:** Mr. Mustaqem Khan, Executive - Technical & Training, GTL gave a talk on Unusual stones tested at GTL, Jaipur. As the consequences of more and exploration for gemstones is being carried, some newer minerals are arriving in the market on the daily basis which are used as simulants for any other well known stone. GTL has tested few such stones like, Fuchsite, Hemimorphite, Prehnite, Scheelite and Siderite. He discussed the identifying properties of all these stones with their separation from the simulants. Fuchsite - emerald green, 1.58 RI, SG of 2.85, granular/ flaky structure; Hemimorphite- blue colour with radiating fibrous structure; Prehnite- green, yellow, brown in colour, 1.62 RI with birefringence of 0.030 and fibrous structure radiating from different centers; Scheelite- doubly refractive yellow brown with adamantine lustre and SG of around 6.00; Siderite- green yellow- brown with high birefringence, RI ranges from 1.63- 1.87, strong doubling. All these stones are also used as the simulants of many common well known stones like : Fuchsite- Emerald; Hemimorphite- Turquoise; Prehnite- Jadeite, Tourmaline; Scheelite- Diamond, Zircon; and Siderite- Spinel, Zircon.



**4. Certification of Fracture Filled Stones:** Mrs. Shyamala Fernandes, Joint Executive Director, GTL gave a talk on certification of fracture filled stones. She emphasized on different types of filler material used like oils- coloured / colourless, resins- coloured/ colourless and glasses. The common stones treated by the materials and how to identify them using classical instruments or advanced instruments like FTIR. She discussed the identification criteria for each material and certification wordings followed by GTL in the gem identification report so as to keep the report very neutral. The identification of filler material is done basically following three tests- magnification, UV fluorescence and infrared spectroscopy. Each material exhibits a different pattern when magnified like- oil exhibits iridescence, resin shows colour flashes in emerald, glass in diamond also exhibit pink/ violet colour flash, while the same glass in ruby gives a sheet like effect with high reflection. She also laid down the problems in identifying the particular treatment and the comment to

**5. Mining and Exploration at Kagem, Zambia:** Mr. Jackson Mtonga and Mr. Julian Chamulu from Kagem- a mining company in Zambia gave the mining technique and exploration of rough gems and their treatment. The specific location of the mine, its geology and production was stated in brief so as to get a proper idea about the conditions in that area. Different stages of treating the rough was explained in a simpler way, as the speakers were mine supervisor and miners themselves. The process includes extraction, crushing, washing, assorting, weighing, oiling, and stocktaking. The mine is situated in the copper tract province in Kitwe, Zambia- lies 67 km to the south east of Kitwe. Emeralds at this location are found in veins of pegmatite and pocket- form in Talc schist with the transparency varies from opaque to transparent with a bluish shade.



**6. Export Import Policies:** Mr. Girdharilal Sharma of Vaibhav Gems Limited told the audience in brief that how the export/ import started all over the world. The formalities, which are to be completed and followed, the procedures in export and import. He stated major importers of Indian gem and jewellery, complications faced when dealing with a particular country, for example: trade with Hong Kong is much simpler as compared to trade with USA. The procedure includes the registration of a firm, a bank account has to be opened preferably with the director general of foreign exchange, a proper valuation of the goods is being done by the customs department, the transaction can be made directly with the customer or through Reserve Bank of India, etc.

**7. SARS and its effect on Gem & Jewellery industry:** Mr. Mehul Durlabhji, Co-Convener of GTL and third generation of a leading jeweler spoke on the effect of SARS on gem and jewellery trade. The decline in the exports and imports is the major affect, which will ultimately result in heavier losses to the traders as well as the government as there will be decline in the foreign currency coming in the country. Although the percentage decline in exports is just 5- 6%, but that makes around nine million US dollars, which is a huge amount. He gave the instance of the Basel show recently held that the participants from China and Japan were not allowed in the exhibition center because of the threat of SARS. The show is considered as most important one because of the fact that most of the large business houses or companies launch their product over their, and this time it was very dull, due to lack of participants.



April 26<sup>th</sup> 2003.....

## GTL Annual Award Function

The Awards function for the presentation of certificates to successful candidates is being held on 26<sup>th</sup> April 2003 at the Rajasthan Chamber Bhawan.

**Shri K.S. Money**, Secretary Industries, Rajasthan has kindly consented to present the certificates and deliver the valedictory address.

### Successful candidates who will be receiving their; Diploma

#### 25<sup>th</sup> Batch : May 2002 to August 2002

1. Anoop Kumar Dosaya - 1<sup>st</sup> overall
2. Chandan Arora - 1<sup>st</sup> Practical
3. Aastha Kala
4. Abhishek Agrawal
5. Garima Agrawal
6. Preeti Jain
7. Priyanka Singh
8. Sanjay Jain
9. Shraddha Kala
10. Siddarth Goel

#### 26<sup>th</sup> Batch: September 2002 to January 2003

1. R. Lalitha - 1<sup>st</sup> Overall
2. Meillason Maryline - 1<sup>st</sup> Practical
3. Puru Agarwal
4. Richa Rawat
5. Shweta Palsani
6. Vinisha Chamaria
7. Vivek Agrawal
8. Mohit Jain
9. Chaman Nahta
10. Neha Gupta
11. Kunjan Kapoor
12. Rakhi Gupta
13. Sunny Singh
14. Alok Atreya
15. Ashish Sharma

### Correspondence Course in Gem Identification

1. Hemant Kumar Jain - Distinction
2. Dr. Liaqat Ali Khan Rao

### Masters' Diploma in Gem Identification

- |                     |       |       |
|---------------------|-------|-------|
| 1. H.P. Goyal       | Th: C | Pr: C |
| 2. Archana Mittal   | Th: B | Pr: A |
| 3. Manish Soni      | Th: C | Pr: C |
| 4. Sandeep Kumar N. | Th: C | Pr: B |
| 5. Subhash K. Saraf | Th: C | Pr: C |
| 6. Rajiv Kumar Jain | Th: C | Pr: C |
| 7. Anil Kumar Arora | Th: B | Pr: C |

### Certificate Course in Gem Identification

1. Pradeep Jain
2. Kalpana Kasliwal
3. Mridula Gupta
4. Anil Balai
5. S.C. Jain
6. Sanjay Malpani
7. Suyash Malpani
8. Bhojraj Pahuja
9. Vijay Kotawala
10. Neha Kalani
11. Phunchog Dolma Thakur

### Diploma in Gemmology Gem A (U.K.)

1. Neha Sehgal won Anderson Medal for preliminary
2. Avneet Verma won preliminary trade prize.
3. Gagan Choudhary
4. Vibha Agrawal

### Field Visits :

The 25<sup>th</sup> and 26<sup>th</sup> Batch of Diploma students visited the Jewellery units of Vaibhav Gems Ltd., Amrapali and Dwaraka's. 26<sup>th</sup> Batch went to the garnet mines at and near Tonk. These visits have provided them with a valuable insight into the manufacturing process of gemstones and jewellery.

### Our Grateful Thanks

We are highly obliged to **Shri. Rahimullah Khan**, (Ms. Vaibhav Gems Ltd.), **Shri. Satish Saklecha** **Shri. S.K. Ajmera**, **Shri. Rajesh Ajmera**, (Amrapali) and **Shri Vijay Chordia** (Valentine Jewels), for providing In House Training for students of the Master's Diploma. Their continued support and encouragement is deeply appreciated.

**Trade Awards :** Successful candidates for the awards initiated for students of GTL are :

### GJEPC Award for the Best Overall student in Each batch :

- Mr. Anoop Kumar Dosaya 25<sup>th</sup> Batch
- Ms. R. Lalitha 26<sup>th</sup> Batch

**Durlabhji Education Trust Award** for the Best Overall Student for the Year 2002 - 2003

- Mr. Hemant Kumar Jain

**Bhuramal Rajmal Surana Award** for the Best Student in Practicals for the year 2002 2003

- Ms. Meillason Maryline

**CONGRATULATIONS TO ALL OUR STUDENTS AND WE WISH THEM ALL THE VERY BEST IN ALL THEIR FUTURE ENDEAVOURS.**

**WE HOPE THEY WILL MAKE A VALUABLE CONTRIBUTION TO THE GEM & JEWELLERY TRADE.**



### ***diamond treatments.....***

A drill hole is made up to the inclusions and the inclusion is bleached out with a vacuum or acid, thereby improving the clarity. The drill hole is either left as it is or filled with a glass of high refractive index.

The identification can be made by the presence of fine etch channels caused by the drill holes, and discolouration along the drill holes. If the drill hole is filled with glass, violet / pink colour flashes are visible along the drill hole.

A new laser treatment has been evolved in early 2000, which does not have surface reaching drill holes. In this case, a laser is used to expand or widen the feather or a cleavage crack to reach the inclusions. This surface reaching feather provides the path for acid to enter the diamond and bleach or dissolve the inclusions. The resulting feather has a more natural appearance than the older laser drill holes.

The identifying feature includes several small channels in the center of the cleavage plane with fine discs. Some stress discs are also seen in rows forming a step like pattern, connected by numerous wormholes like channels. On proper illumination and examination few mirror like feathers with irregular channels that connect internal inclusions to the surface of the stone.

**Irradiation:** The treatment is generally performed on cut diamonds to change or induce colour. The technique requires the exposure of diamonds to high energy particles like electrons, neutrons, gamma rays or cyclotron. The colour can be modified by subsequent heating.

These treatments can only be used to change or intensify the colour. Electron and neutron bombardment are the most commonly used methods of irradiation today. This generally produces green to blue-green colour, which is uniform and stable. Few other colours like orange, yellow, brown or pink can be obtained by further heating.

If the stones are cyclotron treated, they may show a dark ring inside the girdle if treated from side, and an umbrella effect around the culet, if treated from pavilion side.

Irradiated diamonds show an absorption line at 741 nm also known as GR1 line. If the stone is further heated, a band at 595 nm will be seen, but may be destroyed if heated above 1000°C.

**Graphitization :** The current trend in the fashion jewellery sought the black diamonds the most. These diamonds could be natural as well as treated. The process known as graphitization is used to change white diamond into black. The process involves as the term suggest forming graphite along the fractures or cleavages in a diamond to give it a black appearance. Stones are heated in a vacuum in the temperature range 900° to 1650° C, for a period ranging from few minutes to several hours.

The overall appearance of the stone is black with concentration of black to gray graphite along the fractures and cleavages; some concentration of graphite is also visible along the fracture or cleavage edges forming black lines. In natural black diamond even the colour is due to the graphitization that naturally occurs, but there is a difference in the inclusion pattern. The black colour graphite does not concentrate along the fractures or cleavages, but it is randomly distribute throughout the stone.

The black colour in diamonds can also be induced through irradiation, but the actual colour is very dark green. On illumination with a strong light source some green colour hints can be seen.

**HPHT:** The treatment is basically performed on Type IIa brown colour diamonds to change into colourless or near colourless. The diamonds are exposed to elevated conditions- temperature of 1600° to 2000° c and pressure of around 70 kilo bars. At such conditions crystal lattice goes through the process of reconfiguration and vacancies destroy; vacancies and nitrogen impurities mobilize; N3 centres are created, thereby changing the colour.

The stones are also known as GEPOL stones or GEPOL treated, here GEPOL stands for General Electric- Pegasus Overseas Limited; as this was the first company who launched the treatment.

The identification is very difficult; but some times there is alteration in the inclusion pattern due to high heat, like healed fractures and cleavage cracks with dotted appearance and graphitization along them, but that is not always conclusive. The identification uses several advanced techniques like Infrared spectroscopy, Laser Raman, UV-VIS NIR, or X-ray topography, photoluminescence or cathode luminescence. A simpler method for the identification is still to be developed, as every laboratory does not have these sophisticated instruments.

## NEW TITLES AT THE GTL LIBRARY

TIMINGS: 10 AM. TO 4.30 PM.

NAME	AUTHOR
Diamond Grading ABC	Verena Pagel
Science and Technology of Diamond	G.S. Bhatnagar
Great Diamonds of India	Monisha Bhardwaj
Indian Jewellery	M.L.Nigam
Jewels of Nizam	Usha R. Balakrishnan
Jade	Roger Keverne
Rubies and Sapphires	Fred Ward
Red Coral	B Liverino
Gemstones Quality and Value Vol 3	Yasukazu Suwa
Rough Diamonds	Nizam Peters
Mogok Valley of Ruby & Sapphire	Ted Themelis
Jewellery Wax Modelling	Adolfo Mattiello
Tropical Gemstones of India & Srilanka	Periplus Editions
The Healing Power of Crystals	Cass & Janie Jackson

You are welcome to visit the GTL Library on all working days between 10 am. & 4.30 pm. There are a number of books on gem & jewellery related topics. These books are meant to be referred here only and cannot be issued out.

## Stone News - what's moving these days

### Some interesting stones through GTL.....

**Diffused Star Sapphire 6 rayed:** Natural Blue Star Sapphire, of good colour and a very sharp 6 rayed star came for the certification. First of all, the star gave the appearance of a synthetic star, but when that stone was observed under a strong light source, it displayed a strong hexagonal zoning. On changing the illumination, using an optic fibre light, diffused silk was observed lying just below the surface on all the sides. The depositor also informed that when the stone is repolished or recut, star disappears. That can happen only when silk is diffused into the stone. Stone also had lot of fine grooves on the surface, which opened the option of grooved star, but those grooves were not in a proper orientation that could cause such a strong star effect. When the stone was observed in immersion liquid, it had dark girdle edge, which confirmed the stone was diffusion treated.

### Gemstones .....

**Hemimorphite :** This is a very new stone has arrived in the Jaipur market. A translucent blue piece was tested with appearance similar to Turquoise. Refractive Index similar to Turquoise, i.e. , 1.61 1.63, birefringence of 0.020. But there is a huge difference in specific gravity and the structure between the two. Hydrostatic weighing revealed specific gravity of 3.43. Under magnification, the specimen had a blady/fibrous radiating structure.

**Scheelite:** Gray coloured stone with admantine luster very similar to diamond but the difference of hardness. The stone had a soft look as of calcite. The hardness of Scheelite is only 4.5 -5 on Moh's scale. The stone is anisotropic, uniaxial with high dispersion.

Specific gravity measured by hydrostatic method was 5.95. under magnification, highly reflecting fingerprints and crystals were present which concluded the stone as natural.

**Synthetic Sapphire- Diffusion Treated:** A lot of synthetic colourless sapphires, which are diffused to blue are arriving in the market. These stones are coming for testing in huge quantities from last four to five months. The treatment can be identified easily in immersion liquid, but the problem was to identify whether those stones are natural or synthetic as most of the pieces were clean. The only feature observed was the weak plato effect in those stones which helped in the identification, only few stones had gas bubbles.

**Dyed Sillimanite:** Nowadays, sillimanite or fibrolite are also being dyed in any colour. Here, at GTL, few colours of dyed sillimanite came for testing like green, red and blue. Red dyed sillimanite had the shade as well as the appearance of ruby. These stones were semi- translucent to opaque and had a sheen effect on the surface, which is very common in rubies. This is effect is due to fine fibres or silk like inclusions which are the characteristic of sillimanite. These stones were identified on the basis of refractive index of 1.66 1.68 as compared to 1.76- 1.77 for ruby , a high birefringence of 0.020 and a lower specific gravity of 3.23. Under magnification, dense fibres and colour concentrations along cracks were observed.

# A look at the activities.....

## 1. The ICA Congress (January 2003):

At the ICA Congress held at Jaipur in January 2003, GTL took an active part in the following:

- A total of 565 single stones and 608 inches bead string were tested in December 2002, which were put up for auction. A Trade Contribution of Rs. 1 lac was made to GTL by the ICA
- Smt. Fernandes and Gagan Choudhary compiled mining report on the Asian sub continent, which was presented by Mr. Mehul Durlabhji.
- Smt. Fernandes presented a paper on the Gemstone deposits in the Asian Sub- Continent with emphasis on the Indian deposits.
- Smt. Fernandes also presented a Review of Gemstones Tested at GTL, Jaipur. This paper defined the certification categories and criteria being followed at GTL, Jaipur.

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## 2. Seminars & Conferences:

- Smt. Shyamala Fernandes, was deputed to represent GTL at the Gemstone Industry and Laboratory Conference (GILC) which was held at Bangkok in September 2002. Delegates from a number of laboratories, ICA members and representatives for De Beers, HRD and the Thai Gem & Jewellery Association were present. The main issue was the controversy surrounding the naming of the new Thai treatment of pink orange sapphires.

Smt. Shyamala Fernandes visited the Gem & Jewellery Institute of Thailand and the workshop of Ted The melis, the renowned expert on treatments. Discussions with other gemologists were very fruitful and on varied technical topics.

- At the 4th. Indian Gemmological Conference held at Udaipur in November 2002, Shri. Mustaqeem Khan and Shri Gagan Choudhary presented technical papers on behalf of GTL.

1. Some Unusual Gemstones Tested at GTL, Jaipur - Mustaqeem Khan
2. Certification Terminology and Comments of Treated Gemstones - Gagan Choudhary

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## 3. Diploma in Gem Identification:

Next batch of Diploma Course in Gem Identification is commencing on 11<sup>th</sup> June 2003. The following batches will commence on 31<sup>st</sup> October 2003 and 10<sup>th</sup> March 2004.

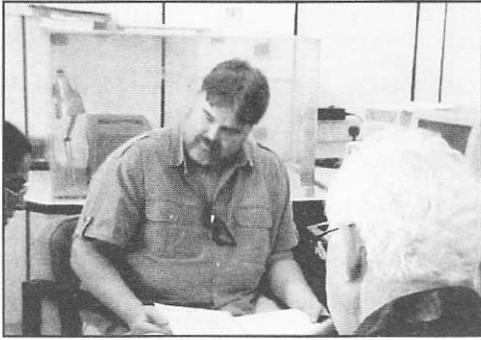
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## 4. Donations to the laboratory:

- A number of stones has been donated to GTL by number of students and the trade members. Donated stones include few rarer and unusual materials like Hemimorphite, Fuchsite, Vesuvianite, prehnite, etc. A lot of common stones were also donated like scapolite, zircon, chalcedonies, quartz, emeralds, etc. for the educational purposes.
- A trade contribution of Rs. 90,000 was received during the year for the purchase of instruments and other developmental activities at GTL from the working committee members.
- We are grateful to all the members for giving donation to GTL in terms of stones or finance for the developmental activities and hope they will continue to help GTL to go well ahead.

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- ## 5. Visitors at GTL:
- Dr. Sakta Siripant of the Gem & Jewellery Institute of Thailand, Yehuda Kassiff, Chief Executive - The Israel Precious Stone and Diamond Exchange, Thomas Lind, ICA Director, Roland Naftule, ICA Director, Shane McClure, Director West Coast Identification Services, GIA and Ya'akov Almor, Gem Bureau Coordinator. Students from AMU, Aligarh, Vogue Institute, Bangalore, Design students, Noida, and Deccan Gem Society, Hyderabad visited GTL.

## Few Visual Memories.....



Visitors at GTL during ICA; Mr. Shane McClure and Mr. Roland Naftule with Mrs. Shyamala Fernandes



Mr. K.S. Money, Chief Guest at the award function giving the certificates to GTL students



GTL students with their certificates

Mr. H.K. Jain receiving the Durlabhji Trust Award for outstanding student of the year 2002-2003 from Mr. Mehul Durlabhji.



The panel comprises (from left) Mr. K.D. Maheshwari, Mr. K.S. Money, Mr. R.K. Durlabhji, Mr. Mehul Durlabhji and Mr. K.L. Jain



A section of the gathering at the award function.