

Ganga Microsurgery Training Laboratory



Passion Beating The Odds

Dr S Raja Sabapathy

Published by Dr S Raja Sabapathy, on behalf of the Ganga Plastic, Reconstructive and Microsurgery Trust.

For additional copies please contact, Dr S Raja Sabapathy, Director, Ganga Hospital, 313, Mettupalayam Road, Coimbatore - 641 043. Email: rajahand@gmail.com

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Dr S Raja Sabapathy

Our Founders



Mrs. Kanagavalli & Dr. J.G. Shanmuganathan

*Fed us the idea that everything is possible
provided you are willing to work for it.*

As we cross the milestone of 1500 Trainees.....

The 30th of Jan, 2023 will be a day to remember for all of us at Ganga as we crossed the milestone of 1500 trainees who have passed through the Ganga Microsurgery Training Laboratory. That these trainees came from 70 countries and 142 cities of India is a source of immense satisfaction and pride. We started in May 2000 and crossed the 1000 milestone in February 2018. While we took 18 years to reach 1000, we trained the next 500 trainees in five years, with two of these being Covid restricted years. It has not been an easy journey, but, when you jump many hurdles successfully, looking back gives one a sense of joy and pride.

I was thinking of the landmark on the flight to Miami for the American Society for Reconstructive Microsurgery Congress. Our friend, Bauback Safa, had kindly invited me to be part of the 'Master's Session' on 'The Ultimate in Microsurgery'. Bauback asked me to talk on 'The Ultimate Musculoskeletal Microsurgery Hospital - how we made it.' The title had me worried, firstly, as to whether we deserved this accolade and, secondly, whether we could sustain the momentum. This weighed heavily on my mind.



I realised that institutions like the Tatas sustain their status with the tales of their growth, retold repeatedly to inspire the younger generation and maintain the work ethos and culture.

When we passed the 1000 milestone in 2018, we had a small in-house celebration at the beginning of the course. At that time, I penned a note of all the events which led to the formation of the micro lab but did not print it. Now at the 1500 mark, I feel that this should be printed as this is a success for all involved and goes to prove that 'When anyone wins, everybody wins'.

The next generation does not need to face the same problems we did, but do need the qualities that helped us make decisions at times of uncertainty, surmount the difficulties, and carry on until the goal is reached in all things they will do in the future.

When Mr Bhaskar Bhat, Director of Tata Sons, came to Ganga to deliver the 2022 Founders' Oration, he said that it is wonderful that we inspire everyone who comes in contact with us, impacting on the lives of all whom we touch.

I hope the story of setting up the Microsurgery training lab at Ganga will inspire the young and provide them with the confidence to pursue their dreams. I also hope that, through the hands of these 1500 surgeons, this endeavour will have made a positive impact on the lives of many people around the world.

Dr S Raja Sabapathy

*MS, M Ch, DNB, FRCS (Edin), FAMS, Hon FRCS (Glasgow),
Hon FRCS (Eng), Hon FACS, D SC (Hon)*

Director, Ganga Hospital
Coimbatore, India

Note written on reaching the milestone of 1000 trainees

(Written in March, 2018)

At Ganga Hospital, the microsurgery course in the week beginning Monday the 19th Feb 2018 was special. The 1000th trainee milestone was crossed. It was a proud moment for every member of the Department of Plastic Surgery, the Institution and the Speciality itself, because the trainees have come from 61 countries, a unique feat for any institution in any speciality in this country: 434 international trainees from 61 countries and 568 from 127 cities of India have attended this course. We have recorded the comments of every trainee from the first to the present ones in the laboratory register and the Visitors' Book and these make very interesting reading. It is also gratifying to note that many of these trainees are now very accomplished and renowned microsurgeons.

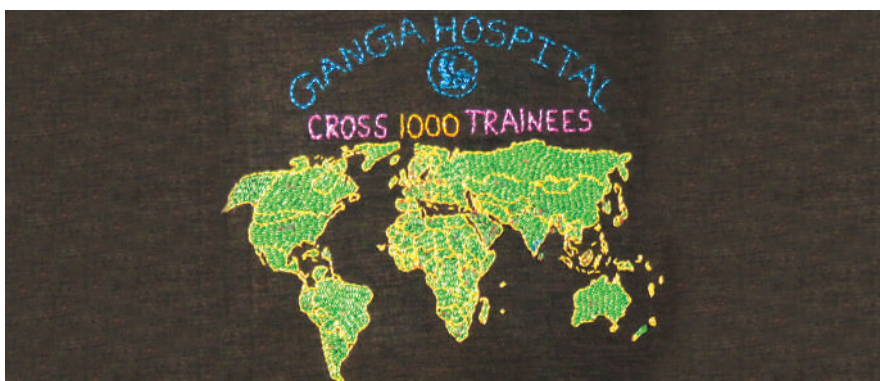
We can take four trainees at a time for this week long course. The course starting on the 19th Feb 2018 was also truly international. There were two trainees from Uganda, one from India and one from Togo. Before the start of this course, the number of trainees who had passed through the laboratory stood at 998.

To decide which individual would be the 1000th trainee, we consulted our Chairman, Dr JG Shanmuganathan, and he picked the candidate's names out of a hat: the 999th trainee was to be from Uganda, the 1000th was Dr Shenol Sasankan from Trivandrum in India, the 1001th was, again, from Uganda and the candidate from Togo was 1002th. All were presented with a copy of Dr Acland's 'Practice Manual of Microvascular Surgery'.

On learning of the event, a grateful patient had made a map of the world with rice grains and had written on it the names of all sixty-one countries from which the 1000 trainees had come. It was a nice present and nice to see all 61 names in their correct places in the world map under the microscope



Picture marking the landmark course - Dr Shenol Sasankan from Trivandrum holding the 1000th trainee board flanked by Mrs and Dr JG Shanmuganathan. Dr Cornelius Masambu (Uganda), Dr Naomi Leah Kekisa (Uganda), Dr Komla Sena Amoutou (Togo) the other trainees of the particular course holding the Acland Practice Manual.



The World Map made of rice created by a grateful patient. One rice grain in each country from which the 1000 trainees had come to Ganga between 2000 and 2018 had the country's name painted on it. The name of the countries can be seen under the microscope!

When we inaugurated the laboratory on 14th May 2000, we never thought it would attain this level of achievement. In fact, this was not in our mind at all. We were passionate to set up a microsurgery training laboratory and run it simply for the love of this pursuit. No one foresaw the future. However, it is possible to look back to advantage and this was such an occasion. I believe this is useful as it helps one, personally, to continue with any project and fuels us to take on further projects that are needed but considered difficult or impossible.

Foreword

It gives me great pleasure to write this foreword to the Saga of the Ganga Micro Lab and the extraordinary achievements of Dr Sabapathy and the Ganga team, firstly, in setting up the lab and, secondly, in training 1500 young surgeons in microsurgery.

I use the word ‘Saga’ deliberately as the road to these successes was both hard and very long. As you will realise as you read further, many, even most, of us would have faltered along the way. While I have not been involved directly in this project, I have watched closely from the sideline as this, and the other facets of the building of the Ganga Hospital plastic / microsurgery unit, have moved from what Dr Sabapathy describes below as ‘a private centre run by a single person in a small hospital in a tier two Indian city’ to an acknowledged bastion of reconstructive plastic and microsurgery, with few units in the world which can match its ethos, work rate and surgical excellence.

I believe creation of this lab, and this unit, serve as a model which all surgeons in our speciality should attempt to emulate, particularly at a time when quality medical care is threatened by many problems, not least of which is the cost of providing this level of expertise and excellence.

Worldwide, the impact of 1500 trained microsurgions sent out to deal with some of the most difficult problems surgeons can face is of a degree that is difficult to describe, even envisage. Certainly, a matter for great pride for the Ganga team.



David Elliot MA, FRCS (England)

President, British Society for Surgery of the Hand, 2005.

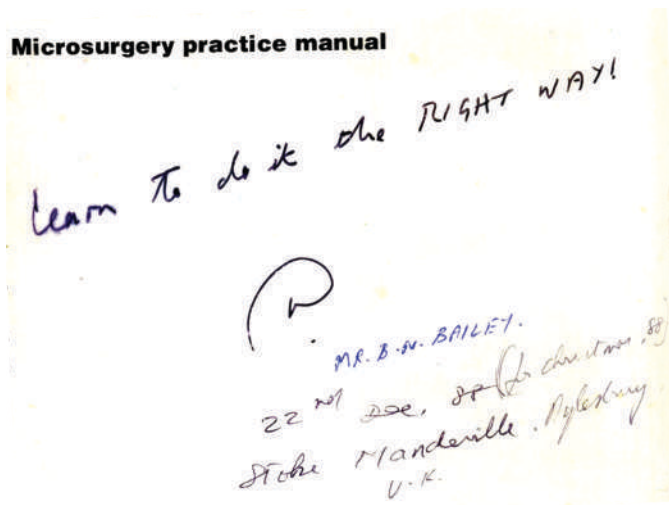
Pioneer of the International Federation of Societies for Surgery of the Hand, 2022

Story of the Ganga Microsurgery Laboratory

In the early nineteen-eighties, reconstructive microsurgery was becoming popular. It was being done in major institutions like Stanley Medical College, Chennai, Christian Medical College, Ludhiana and a few centres in Mumbai. For trainees, learning was largely through assisting a senior surgeon.

Some centres had laboratory microscopes, but these facilities were not open to all, in particular to those from outside the particular institutions. There were no structured courses. When I joined the Stoke Mandeville Hospital, in the UK, I was fortunate to be sponsored to attend the week-long microsurgery course at Northwick Park Hospital in London.

Before I started the course, my chief, Mr Bruce Bailey, told me 'Raja, Bob (Dr Robert Acland) has given me a set of tapes for microsurgical training. They are in my room and are rarely used. They are good. Maybe, you should look at them before you go on the course'. He also gave me a copy of Dr. Acland's Microsurgery practice manual.



Mr Bailey gave a bottle of Champagne as a Christmas gift to all registrars and since he knew I did not take alcohol he gifted me Dr Acland's book with the inscription 'Learn to do it the right way'.

I looked at the tapes in the evenings after work and found them very stimulating. In the Northwick Park course, which was well organised by Dr Colin Green, the trainer, Ms Sandra Simpkins, used to demonstrate an anastomosis, the trainees used to watch this on the television screen and, then, do it. She was superb. Having also seen the Acland tapes, I believe I did much better than most. I also realised that, however good the trainer, it is not possible to show all that it is necessary to learn about any one anastomosis by seeing one demonstration and repeating it.

Fortune led me to Louisville, essentially as a result of the support of Bruce Bailey. There, I had the opportunity to do the week-long microsurgery course in Acland's laboratory. It was thrilling. I was convinced that it was the way India had to be trained. But there were problems. The tapes were expensive. Two months before completion, with the meagre savings of the fellowship, I bought the set of 7 tapes. I was so thrilled to carry these big video tapes home..



The tapes: many of the present generation may not have seen such big tapes!

Frank Allen, who ran the laboratory, told me that I was the first fellow ever to buy the tapes. My excitement on owning the tapes did not last long! Another fellow at Louisville told me that I would have problems using them in India as they were made using the NTSC system and Indian tape recorders ran on the PAL system. As a consequence, they would be incompatible. I was dumbstruck when he went on to say that these tapes were made in such a way that they could neither be converted nor copied. I also felt guilty that I had spent quite a large amount of my savings on a useless venture. So, the only way forward was to buy a tape recorder which would play NTSC tapes in India. We then hit another road block: video tape recorders using the PAL system, which run on 220 volts (The voltage of the Indian electricity system), are available in the US but one could not get a NTSC video tape recorder which would work on 220 volts.

The NTSC system, which was exclusively used in USA and Canada, worked on 110 volts. My wife, Nirmala, and I read innumerable catalogues and went to many shops but could find no answer and this became my main topic of conversation with everyone. All seemed surprised, sometimes amused, by our quest. First, one Indian suggested buying a video recorder and player which played NTSC tapes with an adapter to convert the voltage! However, we then discovered that a voltage converter would not work reliably for big appliances such as video tape recorders. One night at a dinner party of Indians in Louisville, a friend suggested that I should go to the big cities such as Chicago or New York and search in places like Jackson Heights and the suburbs in Queens, where there were Indian shops frequented by home-going Indians.

So we went to New York, praying to God that we would get a video tape player which would work on 220 volts. At Jackson Heights there was none. We then went to the neighbouring suburbs in Queens. To our surprise, we found a JVC company player in a shop which would work on 220 volts. The shopkeeper had only one such video tape player and he was very happy to see us as he had imported this machine specifically for someone who then did not turn up again and it had been lying in his shop for a long time. He also said that it is impossible to find another similar anywhere. Realising our need, he

quoted a price of US \$ 800, which was a very high price for any normal person: at that time (1990), one could get a return air ticket to the US from India for 150 - 200 \$. All this just to play a few tapes! My wife Nimmi and I stayed outside the shop, walking back and forth, for more than half an hour. Then, Nimmi, seeing that I wanted it so much, pushed me back inside to get it. Having decided to buy it, we asked the shopkeeper to test it. To this end, I had brought a tape with me. The shopkeeper said this was not possible as it would only work on 220 volts! So, again, we dithered for a further half an hour, trying to decide if we should take a chance. Having decided that we had no other option and, again after offering up a further prayer, we went ahead. So, we now had the tapes and a video player and a compatible television to play the tapes.



The television set and the video player in our lab when Dr. Acland visited us. The picture shows the young Dr. Acland when he made the tapes

We returned to India in April 1991 and started practice. I was very tense when we opened the video player to run a tape. However, to our delight, it worked and, when I saw Tape 1 playing, I was deeply moved. It took a couple of years for me to settle in practice and then I became very busy. At that time, I had no thought of setting up a laboratory. I knew this needed microscopes and good micro instruments. My aim at the time was to run courses periodically

with the help of industry, who could provide microscopes, micro instruments and micro sutures.

When in the US, I had thought many companies would enthuse at my offering to run such courses in India and jump at the opportunity to sponsor the microscopes and instruments for these courses every six months. It proved that I was an unrealistic optimist. At that time, there were no paying, organised courses running on a regular basis in the country and my idea was not appealing to the big companies. Everyone said that this was a good idea but followed up by saying

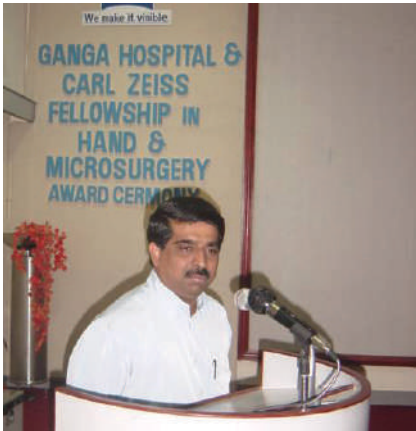
that it was unrealistic. A small hospital, a tier two city and a private centre run by a single person were all mentioned as difficulties. No one believed that Coimbatore could attract plastic surgeons to come for laboratory training. No company believed it was a good business plan for them.

Every few months, I would discuss this with any senior executive for suture and microscope companies who visited Coimbatore. Always, the conversation would end as predicted with ‘We appreciate your passion, but ‘ and the same points would be reiterated, again and again. I became fed up. This went on for ten years after returning home. The tapes and the video player remained in the attic and I was angry at myself for having purchased the equipment. However, anger is a very powerful emotion if it does not destroy you! I had by then come to the firm conclusion that no company would transport microscopes to Coimbatore for the courses, and no suture company would give me free sutures to run the courses. By that time, Johnson & Johnson had started a micro lab in Bombay with the guidance of Dr Tambwekar. Before the Bombay lab was inaugurated I made a request to J & J that it be done in Coimbatore, Having seen how the Acland’s laboratory worked, I was convinced that we needed to get the best microscopes and the best instruments for the course and that the same trainer had to be there throughout the whole five days. That would be the only way I could attract trainees to come to Coimbatore. Acland’s words “Beginners need the best”, were continually ringing in my ears.

Then, Dr Mohan, a plastic surgeon joined me. He had qualified in Chennai, trained further in the UK and later did a one year fellowship in Louisville. He was always pushing me to start the laboratory. However, the investment needed was a major issue. We discussed less expensive local microscopes and local instruments, but I was not willing to compromise. I wanted our lab to be exactly like the Louisville lab, with Carl Zeiss microscopes and S&T instruments.

At that time, Mr Rajamani was the person representing Carl Zeiss in the region. I liked him very much. Every time he came, I used to talk about the laboratory, and he was the first (and only) person who listened patiently to my long monologues. He said neither “yes”, nor

“but”, nor repeated the usual reasons for giving the answer ‘NO’. He said that higher level German officials in the company might be favourable but getting them to come to Coimbatore was almost impossible. Rajamani felt that decisions which needed vision was taken only at a higher level and none in India would take the risk! He said that the best he could do was to get Mr Ven Raman to Coimbatore. At that time, Ven was the head of the Asia Pacific division of Carl Zeiss and was based in Singapore.



Mr Ven Raman during one of his subsequent visits to Ganga Hospital

One day, Ven Raman came to meet me. He was very pleasant, spoke Tamil and appeared to be genuine. I talked about the micro lab once again. He listened. I told him that he would sell more microscopes if we trained more microsurgions! He laughed at my amateur sales talk. I told him that many young surgeons were now coming to see our work and that it would be good to train them. He replied that even I was not operating with a Carl Zeiss microscope, which caught me off guard. At that time, I was using a refurbished Weck microscope,

bought when I was in Louisville (which in itself is an interesting story). It was a very good microscope, used in many Louisville theatres and called the ‘Kleinert’ model: simple, with good optics, and easy to use. Ven continued ‘As a businessman, if someone was to sponsor Tendulkar, he would want Tendulkar to bat with their bat. As many young surgeons are coming to see you, I would like you to be seen operating with our new Carl Zeiss Pro Magis microscope’.

I thought he was speaking good business sense and, to be honest, I also liked his suggestion! I was also keen to get microscopes for the laboratory. As I was silent for a few moments, he asked me how keen I was for the micro lab to get off ground. I thought he was testing me and replied that I was very keen. Then he offered a package, wherein if

I bought a new ProMagis for the operating theatre, he would try to source 2 OPMI microscopes with full foot controls and all accessories for the laboratory. I immediately said “Yes”. Both of us were surprised at the way the conversation had gone. He suggested a price for the three microscopes which was a good offer, but I was being asked to buy three microscopes all at once and it was a really huge expense. Such a purchase had been not even a remote thought when I came to the hospital, but I had completed the deal by lunchtime!

I sat silently in my room for some time after he left, then rang my mother, who has always been a source of inspiration, and never said no to anything progressive. I asked her if it was possible to get a loan for that amount based on my current income. She suggested ways of getting the loan, and the monthly repayment that I would have to make, which was staggering, but possible.

Our team was happy. Dr Mohan said that he would take charge of training. Dr Hari and Dr Bharathi had just joined after achieving their M Ch, and Hari said that he would get all his friends in Bombay and Gujarat to come to the course. When I went home that night, I told my wife Nimmi. She was surprised that the deal had already been agreed but said, “OK, at last the tapes and the video player will be used”. She seemed happy. Then, after a few moments, she asked if I was remembering that our son, Raja Shanmugakrishnan, was studying in the 12th Standard, and had to join Medical College the coming year. What would we do for money if he did not join on merit? I had not thought of this and slowly said ‘No’. The conversation ended that night with that answer! Fortunately, my son got good marks, entered medical college on merit, and we had no further stress from that direction!

Then the micro instruments. I wanted new S & T instruments for the laboratory and “not the discarded ones from the OR” as Acland used to remark. The same story: one set to the main OR and two sets to the laboratory. A good package, no doubt, but, as a whole, worryingly expensive. I must thank Marcus Springler of S & T for helping and Mathur at Myovatec for coordinating the purchase. All were enthusiastic to help, but still, the distance we were running was long.



With Marcus on my left and Mathur to my right in one of the conferences.

With the microscopes coming, we needed to build the laboratory. A small 10 x 13 feet room which was used as a rest room for the night duty medical officer was chosen. I brought Mr Ramani Shankar, the best architect in town, to modify the room. He understood what we wanted and did a great job. A very elegant and, functionally, very good laboratory was created in the space available. Marble top tables and sleek lighting all made it really grand! On completion, he wished

me luck. He also appreciated that I was not worried about creating competition by training people in what we are good at.

The microscopes arrived in March 2000, and we were all set to go. We tried our hand with a mock course, and all seemed to work well. I wanted to do a full course with real outside trainees before the formal inauguration, believing that, once inaugurated, there would be great demand and we would have to be fully ready at that time. How wrong I was! Then I had the most frustrating time of all. We 'proudly' informed all the Plastic Surgery centres in India and spoke to the heads of the departments about our laboratory, how good it was and how useful it would be for training. We were going to charge only Rs 7500 for a course which would only be one fifth of the cost of the course in the West. Same quality - much more value for money. There was a stunning lack of response from all the units.

Meanwhile, we could not keep postponing the official inauguration which had been scheduled for Sunday 14th May 2000. Wanting to make the function good, thereby maximising awareness of the course and encouraging trainees to attend, we invited Dr G Balakrishnan, who was then the Head of the Department of Hand and Microsurgery at Stanley Medical College in Chennai and one of my teachers during my M Ch., to inaugurate the laboratory. To add further prestige, I also

invited my good friend Professor Beng Hai Lim, from Singapore, and Professor Rajasekaran, President of the National Board of Examinations, as Guests of Honour.



Professor G Balakrishnan inaugurating the laboratory. Other dignitaries present were Professor A Rajasekaran, President of the National Board of Examinations, and Professor Beng Hai Lim of Singapore.

I was keen to run a course from the Monday, 15th May, the day after the inauguration ceremony. We tried very hard to get somebody to take the course, but failed. From the purchase of the tapes and the video player to the unused lab, this saga was, at times, most depressing. Were the views of the company executives correct after all? A small hospital, a tier two city, a private set up, a non-teaching centre: were we too far ahead of the times for this concept? The monthly repayments to the bank were also on-going since March of that year. However, although these negative thoughts played on my mind, they were only there for a few moments at a time, and I remained very optimistic. Simply going to the lab, switching on the microscope lights and running the tapes was like having a shot of adrenaline!

So, now the problem was how to get a trainee into the lab? Shortly after the inauguration, I was on a private visit to Bangalore. Dr Sunil Thirkannad, a young orthopaedic surgeon from Ramaiah Medical College had visited us a few months previously when I was trying to sell the concept of the course to any and all of our visitors, in fact to

any one whom I saw! He came to meet me, and I said that we should go for a walk. I started talking about the value of a week-long micro course and that it would be useful for him. He accepted the idea, and I was thrilled. However, when he heard that it would cost him around Rs 7500, he exclaimed that it was most of his salary for one month. Having come this far, I was not willing to let go and said that he could do the course at whatever cost he could afford.

He accepted, and, thus, Sunil became the first trainee in our laboratory. We said that we would run the course whenever he could get leave from his hospital! There were two slots, and I thought it would be good to have one more trainee. At that time, Dr Jayadev, a plastic surgeon from Salem, used to refer major upper limb crush injuries with vascular compromise to us.

I spoke to him and said that the course would be useful for him in that he would then be able to repair radial and ulnar arteries at the wrist with more confidence. The cost for this first course was now not excessive. He agreed and, so, our laboratory 'opened' on 3rd July, 2000, four months after we got the microscopes. I am very grateful to Sunil and Jayadev for getting the laboratory off the ground.

More challenges were to come. In October 2000, a few months after we started, Dr Mohan left us for personal reasons and later went back to the UK. At that time, I was working non-stop from 7 am until 10 pm, and the micro course was a terrific strain. My anaesthetist, Dr. Bhat, was just becoming proficient at anaesthetising the rats, and we were only just learning how to keep the animals alive for the whole day. It was simply not possible to be in and out of the laboratory training the candidates as well as looking after our busy clinical load. At that time, to fill the vacuum, we involved Ravi, our theatre assistant, in the course, in so doing following exactly what had been done at Louisville.

The Louisville lab was well managed by Frank Allen, who was not a doctor, and I thought we should do the same. Often when we came across any problem, I used to think that it is not likely that we were the first to encounter this situation. Previously many would have faced the same difficulty and got around the problem. It was only



With Frank Allen at the Louisville lab in 2006 on one of my subsequent visits. Frank first gave me the idea that setting up a quality lab was possible. Frank remembered the table where most of the trainees sat for their training. Here we stand near the desk where I took the training.

necessary to look around. Here, we just repeated the process!

Ravi fitted into the role in a remarkable manner. He took over the whole process. Now, the course runs on 'autopilot' with him in charge. I meet all the participants when they start, give them a talk on as to how to get the best out of the course and the value of the training. Then Ravi takes over and I only need to meet the participants again when they finish. We had six candidates from July to December of 2000. The

next year, we had even fewer. In the whole of 2001, we had only nine candidates and the laboratory was closed for most of the time. Financially, this was very taxing. However, we just slogged on. So often we read that one needs conviction of purpose and the ability to sustain any major venture for it to become successful. Our micro lab was no exception.

After two years things improved. The yearly intake became 20, and we reached a maximum of 129 candidates in the year 2016. Now we easily reach the 100 mark every year, with many acclaiming it as one of the best courses available in the world. It took us five years to become self-sustaining. I am also pleased that our decision to set up the micro laboratory has influenced the growth of our unit and even the speciality in the country, albeit indirectly. This makes me very proud of the whole project.

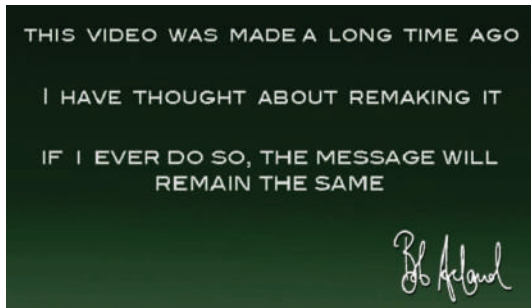
In 2003, when Dr Sridhar became president of the Association of Plastic Surgeons of India, he conducted the national meeting at Ooty (APSICON 2003). For logistical purposes, we played host and I was the organising secretary of the Ooty conference. We had invited Dr Luis Scheker from Louisville as a member of the faculty. He called me a few

days before leaving for India to ask if I needed anything from the US.

I told him about the micro lab and asked him to try to get a copy of the first Acland tape, entitled 'Preconditions for Learning Microsurgery' as our copy of that tape had come close to wearing out. The reason for this was that, whenever I felt sad that the micro laboratory was not being used, myself, Ravi and other members of our team used to go to the lab and play the tapes many times. On these occasions, I always used to play the first tape as I, particularly, liked Acland's philosophy of what to do when one gets into difficulties. He used to say that the distance between Difficulty, Desperation and Disaster was not much in Microsurgery.

Even at the last stage, he would say that you could still retrieve things by just stopping and thinking why you were in such a situation. I liked that tape and used to listen to it again and again, always finishing at that point, hoping against hope that our micro laboratory would also turn round. This tape was worn out as a result.

When Luis Scheker approached Dr Acland for the tapes, he exclaimed, 'I am so surprised that someone is still using my tapes, albeit in a far-away place. I thought the tapes had outlived their use'. He did not have any extra copies so he, amazing man that he is, worked very hard to change the first tape into DVD format and sent a copy to me with Dr Scheker. So that is how the DVDs of the Acland Tapes were born. He asked me to go through the tape and let him know if anything needed changing. I was humbled by the request but had no suggestions to make. So he completed the final edited version of all the tapes & sent a full set to me. These tapes still begin with his words



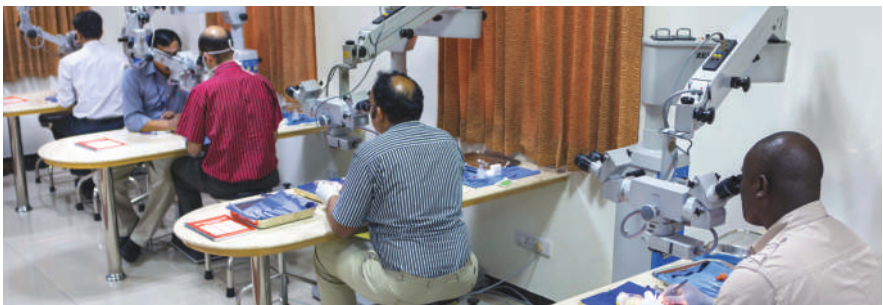
We ran the course well, and it became increasingly popular. It was a great attraction to overseas surgeons. They could do the course and also be with us for some time to see the volume of work and the Ganga philosophy of trauma care which we have now popularised worldwide. When we moved over to the new building in Mettupalayam Road in 2007, the micro laboratory became bigger (30 ft x 28 ft), and we bought two more Carl Zeiss microscopes. So we now have four microscopes in the laboratory.



The words engraved in rock in the Louisville lab. Acland wanted every trainee to get it 'ingrained' in their mind. We got it written on a brass plate for the Ganga Microsurgery lab.



The inauguration of the new laboratory on 26th July, 2007 in the present premises of Ganga Hospital. Our Chairman, Dr JG Shanmuganathan, opening the new laboratory.



The present laboratory with four Carl Zeiss Microscopes

I thank God that we did not give up when the going was tough. This project has given us a lot to be happy about. Some of the benefits are

- A closer relationship with Dr. Acland, with him having made two visits to India. When I was the President of the Indian Society for Reconstructive Surgery, he came to deliver the Godina Oration. Seeing the laboratory was a particular joy for him. He followed this with another visit, in 2011, to deliver the Sushruta Oration when I was President of the Association of Plastic Surgeons of India. He said that it would be the last lecture he would ever give, and it was.



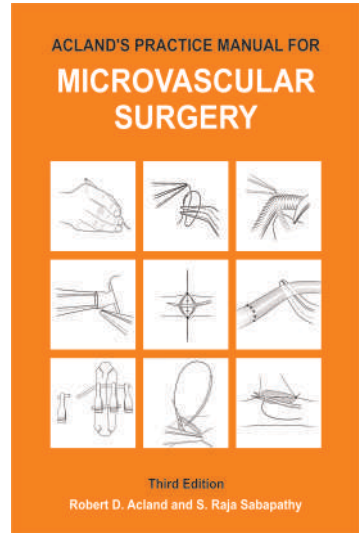
Dr Acland visiting the laboratory in 2006 when he came to deliver the Godina Oration at the Indian Society for Reconstructive Microsurgery Meeting in Coimbatore. Ravi and myself are with him at the entrance to the laboratory. (B) Dr Acland putting his thoughts into the Visitors'Book.

Visitors Book

Date	Name & Address	Remarks
9.2.06	Dr Robert Acland 324 MK Building University of Louisville School of Medicine Louisville KY 40292, USA <bob.acland@louisville.edu>	I am so happy to be here, in your new United Nations of Microsurgical progress and education. This feels the same, in terms of energy and excitement, as Louisville in the '70s, or Ljubljana in the 80s. My best wishes for your long-continued success.

His entry in the Visitors' Book. I am so happy to be here, in your new United Nations of Microsurgical Progress and education. This feels the same, in terms of energy and excitement, as Louisville in the 70s, or Ljubljana in the 80s. My best wishes for your long continued success'

- It also led to the publishing of Dr Acland's Practice Manual of Microvascular Surgery from Coimbatore. This rose out of a casual conversation Dr Acland had with Dr Sunil in a coffee shop in Louisville, following which he placed the copyright of the book with the Indian Society for Surgery of the Hand. It has yielded the ISSH over Rs 50 lakhs and we have set up the Robert Acland - S&T International Travelling Fellowship with the corpus. This fellowship provides the opportunity for an Indian hand surgeon to go abroad and train every year.



- The laboratory has made our unit a preferred destination for training and has helped us put Coimbatore and India on the world map for microsurgeons. As on 31st March, 2024 we have had 172 trainees from the UK which means that we have almost one person who has visited Ganga in every plastic surgery unit in the UK.
- Dr Martin Boyer, a hand surgeon from St. Louis, USA, visited us as part of the Bunnell Fellowship of the American Society for Surgery of the Hand in 2005. He saw the laboratory and initiated a link with Washington University in St Louis which includes sending all their hand fellows for the course, a relationship which we have found mutually beneficial. It has been a very stimulating partnership with over 50 hand fellows coming to us from one premier centre of the United States. In all, we have had 85 fellows attend the course from the USA as on 31st March, 2014.
- Major organizations including Resurge Africa, Medicine Sans Frontiers, Operation Smile and International Medical Education Trust have chosen us as their training arm for surgeons going to places in need.

The course was highlighted in many magazines and reports by past trainees and had a full page write up in the BMJ. Ravi was featured in this article.

OVERSEAS TRAINING



Microsurgery in India

Philip Yoong travelled to India to learn microsurgery

Coimbatore is the second largest city in the state of Tamil Nadu, with a population of two million. It is not a major tourist destination. Ganga Hospital, Coimbatore, is a specialist trauma, orthopaedics, and plastic surgery centre in south India with 400 beds. A five day course in microsurgery is offered by the plastic surgery department.

Life's a beach

Attending a microsurgery course is a requirement for plastic surgery trainees. However, the skills and techniques, especially knot tying and tissue handling, are useful in all surgical specialities. No previous experience is required, and the course is recognised in the United Kingdom. It could be combined with a holiday on the beaches of Kerala in the south west (120 miles) or in the nearby hill station of Ootacamund (50 miles).

I spent five days in an air conditioned microsurgical training institute. Each day comprised eight hours of teaching. The course is a clone of Robert Acland's course taught at the Kleinert Institute in Louisville, with only two students at any time. His microsurgery training manual was available for £3.50, complementing the week's activities. We were supervised by an experienced nurse specialist, who helped as and when needed, and we had regular

input from consultants. Zeiss floor mounted microscopes were used, as in theatre, adding a touch of realism.

Rats, veins, and videotape

The complexity of the course increased gradually, with regular breaks every few hours.

Each day started with a video of Acland talking and demonstrating, followed by practice on anaesthetised laboratory rats. On the first day, we watched an introductory video about microscope use and basic operative technique; we then practised by suturing a rubber glove with 10-0 nylon and attempted to anastomose a chicken leg artery. In the next few days, we tried to clamp, sever, and anastomose numerous rat

Starting with little knowledge in this field, I finished confident in various microsurgical principles and practices, having acquired useful skills which I could use at home

femoral arteries and veins. It was satisfying to release the clamps and have a flowing vessel. On the last day, vein grafts and end to side anastomoses were attempted. The rat vessels used are around 1 mm in diameter, smaller than most vessels likely to be encountered clinically. I practised on seven live arteries and three veins in total, with mixed results

FURTHER INFORMATION

• Contact Raja S Sabapathy, lead plastic and reconstructive surgeon, Ganga Hospital, Coimbatore, India rajahand@vsnl.com

but noticeable improvement over the course.

Starting with little knowledge in this field, I finished confident in various microsurgical principles and practices, having acquired useful skills which I could use at home.

Flights and food

I booked flights after emailing the hospital to confirm an available week. Arriving in Coimbatore by plane on a Sunday evening, I was taken to my hotel by a driver from the hospital. The Sri Lakshmi Hotel was inexpensive (£10 a night) and a 10 minute walk from Ganga Hospital. The room was comfortable, with noisy air conditioning and reliable hot water. I had cable television with CNN, BBC World, and live Premiership football as well as local broadcasting. Food was not provided in the hotel, but an adjacent restaurant served excellent south Indian food, with a two course meal for £1.50. Otherwise I ate in the clean and cheap hospital canteen. At a medical bookshop close by, books were considerably cheaper than in the UK—the *Oxford Handbook of Clinical Medicine* cost £2.50.

Why India?

Studying in India has several advantages. The course fees were £300. Even taking into account the price of a return flight to Bangalore (£400), connecting flight to Coimbatore (£30), and cost of food and lodging, I still saved money compared with a course in the UK. Each week long course has only two trainees, so supervision is close and thorough. I organised my trip around annual leave as the course dates are flexible. Furthermore, when time allows, you can go to theatre and watch real life microsurgery to consolidate the principles learnt on the course. Coimbatore is hot and local food may not be to everyone's taste. Western food was not available in the hospital canteen, but there were no other downsides.

I also had a chance to meet local surgical trainees. I was amazed to learn that they worked seven days a week from 7 am to 10 pm, with two days off a month. This certainly put the working time directive into perspective. Philip Yoong, SHO in plastic surgery, Queen Victoria Hospital, East Grinstead binatang@doctors.org.uk

- It helped to reconfirm my conviction that teaching and training others does not affect your practice. In fact, it has enhanced our practice volume. As Jayadev, the other trainee of the first course said, ‘Sir, after the course, I do a lot of things better and the visit to Ganga also showed me what all is possible in your place. So, I now refer many patients whom I would not have referred before. It is good for the patients and both of us and I think every plastic surgeon must take the course’.
- This list could go on, but, on this day, I would like to think of the humble beginnings and the struggle to set the laboratory up. I also remember with gratitude Mr Ven Raman of Carl Zeiss who asked the vital question, ‘How keen are you on setting up the micro lab?’ and the subsequent Carl Zeiss managers, Mr Marcus Springler of S & T who was generous when generosity was needed, and the many executives of Johnson & Johnson who supported our venture.



- However, I believe we need to keep moving forward with the same enthusiasm. We are now setting our goal higher in planning to set up ‘super’ microsurgery courses and, by so doing, help push microsurgery further.
- Acland wanted to gift some of the things he considered as his ‘precious possessions’, to his close friends. He gifted me the template he made to make the arterial anastomosis tape which was the first tape he made. The letter informing the decision to gift is reproduced. As per his dictate, on one of my visits to the ASSH meetings I went across the USA to personally collect the gift and brought it as my hand baggage. The yellow sheets of papers had on one side the spoken words and on the other side the corresponding actions that he has to do. For one tape he had made a book of instructions!!

Robert D. Acland MD
2020 Winston Avenue
Louisville, KY 40205

October 22, 2014

Dear Raja,

This is the original handwritten script for my 1983 instructional video "Rat Femoral Artery Anastomosis". I am sending it to you as a gift in recognition of our long friendship and your commitment to the educational tradition to which we belong.

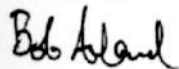
Originally, sets of the double sheets of yellow paper were taped to each other to make long accordion-pleated scrolls, that stretched the length of a long table. When I took these out of the file where they had been tightly folded for many years, the transverse running tape began to fall apart, so I disassembled the scrolls and stapled them together along the edge. The script is in four sections: 1) Introduction and equipment, 2) Vessel dissection; 3) Vessel end preparation; and 4) Suturing and tests of patency. The first three sections are handwritten; the fourth was typed out by my patient secretary.

The script was written partly on the basis of my own well remembered struggles to learn an effective anastomotic technique as I worked alone in the early 1970s. Those memories were reinforced by observing the work of trainees in the University of Louisville Microsurgery Teaching Lab under my instruction, beginning in 1975. I felt the trainees' successes and failures reflected success and failure on my part as an instructor, and I made constant improvements to my instruction. This went on for years, week after week, teaching a fresh group of 3 or 4 trainees each week. Up until 1980 I taught directly, with a video camera on the microscope and the trainees sitting close to me, watching on a monitor. It was easy to add new points of emphasis to my instruction, and then observe the effect of those improvements. What a teaching experience, for me as an instructor!

By 1980 my weekly demonstrations were as good as I knew how to make them, and I decided to start making videotapes. These were surprisingly effective: it seemed the trainees learned better from them than from my live instruction. This was partly because trainees could watch and re-watch the tape when it suited them; partly because the distraction of my presence was removed; and partly because on tape I could more graphically show mistakes and their consequences.

The 1983 artery tape was an improvement on a 1981 version that is now lost. It was the first tape I made, in which I wrote and recorded the spoken words first, and then created the video with care to make the actions coincide exactly with the words. I have followed this principle ever since. It's much easier to do on a computer than it was back then!

My best regards,



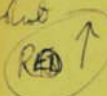
Bob Acland

Edge knot

Same action as left knot.

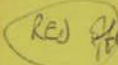
Hold still as ends come together.

Right knot



Knot being tightened with clamps too far apart

① Pull till it looks stretched, then hold it



② Push off & bring clamps together, then finish the $\frac{1}{2}$ -knot.

Shot

Same action as left-shot but thin. Shows stick holder + a little space beyond it.

- ① (Close up) cut short end (Zooming out) shows long thread (point to)
- ② Pick it up
- ④ Over the middle
- ③ Round the lower one
- ⑤ Across
- ⑦ Under the upper one & pull it.

Top knot

Just the same shot as before

- ① Over the middle
- ② Under the lower one
- ③ Under the top one
- ④ Pull to show its second
- ⑤ Cut it short

Left knot

Top knot

- ① Bring in the needle & engage it to be in the adventitia.
- ② Lift up so vessel end is well seen
- ③ Hold it, & use * electronic pointer to show chosen spot
- ④ Forgets inside
- ⑤ Pass needle
- ⑥ Pull it through
- ⑦ Pick it up

The corresponding spoken words

You saw the vessel ends come together easily. That's because the clamps were the right distance apart.

- 1 Here's what happens if the clamps are too far apart--
- 2 as you tighten the first half knot, things start to stretch.
- 3 Don't go on tightening or the stitch will cut out.
- 4 Stop quickly and bring the clamps together,
- 5 then complete the knot.

- Now the knot is tied. 1 cut one end short and leave the other end long. 2 That's the stay suture and now's the time to lock it in place on the stitch holder. There's one best way to do this.
- 3 Pick up this much spare thread
 - 4 and guide the thread over the middle of the stitch holder,
 - 5 round under the lower post
 - 6 across
 - 7 round under the upper post
 - 8 and give it a little pull to set it in place.

- 1 Once again--over the middle
- 2 under the lower one,
- 3 and under the top one.
- 4 The thread is securely held.
- 5 Cut it short,
- 6 and you're ready for the second stitch.

1 place the second stitch in just the right spot--~~namely~~ one third of the way round the circumference from the first--calls for a little judgment. The best way to make this judgment is to get yourself a clear view of the whole circumference of this vessel end. To do that you must tip the vessel end up so it's looking at you, and to do that you need to use

- this useful maneuver. 1 Using the needle as a temporary hook,
- 2 pick up just a little adventitia way back here,
 - 3 and lift up on it so the vessel end comes up.
 - 4 There, you can see the whole thing clearly and you can see the obvious place for the suture to go.
 - 5 So now--put the tips of your forceps inside
 - 6 and pass the needle.
 - 7 Pull it through,
 - 8 pick it up again
 - 9 and get ready for your exit bite.

At the time of publishing the booklet in May, 2024, we have had 1687 trainees from 78 countries of which 688 were international trainees



**International
Trainees**

Afghanistan	3	Germany	5	Namibia	1	Sri Lanka	12
Argentina	1	Ghana	5	Nepal	22	Sudan	3
Australia	39	Honduras	2	Newzealand	2	Sweden	1
Bangladesh	44	Hong Kong	1	Nigeria	12	Syria	1
Barbados	1	Indonesia	7	Norway	2	Tanzania	1
Belgium	4	Iraq	35	Oman	8	Thailand	1
Bhutan	1	Ireland	8	Pakistan	4	Togo	1
Botswana	1	Israel	1	Palestine	6	Tunisia	1
Brazil	3	Italy	6	Panama	1	Turkey	3
Brunei	1	Jamaica	3	Philippines	1	UAE	7
Canada	4	Japan	4	Poland	14	Uganda	10
Chile	1	Jordan	3	Portugal	1	UK	172
Columbia	5	Kenya	9	Qatar	10	Ukraine	1
Combodia	1	Kyrgyzstan	1	Riyadh	2	USA	85
Congo	1	Libya	3	Russia	3	Uzbekistan	1
Denmark	1	Malawi	1	Rwanda	1	Vietnam	3
Dubai	2	Malaysia	8	Saudi Arabia	7	Yemen	2
Egypt	1	Mongolia	1	Singapore	5	Zimbabwe	1
Ethiopia	8	Morocco	1	South Africa	2		
Finland	1	Myanmar	3	Spain	7		



National Trainees

Agra	2	Bhavnagar	1	Faridabad	2
Ahmedabad	104	Bhilai	1	Gaya	1
Ahmednagar	1	Bhopal	7	Goa	3
Ajemeer	1	Bhubaneswar	6	Gulbarga	2
Akola	2	Bikaner	1	Guntur	5
Aligarh	9	Chandigarh	10	Guwahati	3
Allapuzha	1	Chennai	25	Haridwar	1
Amristar	9	Chickmangalore	1	Haryana	8
Araria	1	Chidambaram	1	Hissar	1
Aurangabad	3	Chitrdurga	1	Hoshiarpur	1
Bangalore	108	Chittoor (A.P)	2	Hossur	2
Bareilly (UP)	2	Coimbatore	40	Hubli	1
Baroda	6	Coonor	1	Hyderabad	40
Bathinda	1	Cuttak	3	Idukki	1
Begusarai	1	Daman (U.T)	1	Indore	5
Belgaum	5	Dehardun	3	Jaipur	15
Bellary	1	Dharwad	3	Jalandhar	1
Berhampur	1	Dhule	1	Jammu Tawi	2
Bhadohi	1	Dibrugarh	1	Jamnagar	1
Bharuch	1	Ernakulam	1	Jodhpur	1

Kadapa	2	Mumbai	61	Shillong	1
Kakkinada	2	Mysuru	1	Sivagangai	1
Kannur	5	Nagaland	1	Solapur	1
Kanpur	2	Nagercoil	3	Sonepat	1
Kasaragod	1	Nagpur	7	Srikulam	2
Kochi	6	Namakkal	1	Srinagar	5
Kodagu	1	Nashik	6	Surat	6
Kolhapur	2	Navasari	1	Thanjavur	3
Kolkata	27	New Delhi	79	Thiruvalla	1
Koppal	1	Noida	1	Trivandrum	33
Kottayam	4	Odisha	3	Thrissur	11
Kozhikode	26	Ongole	2	Tirunelveli	1
Kurnool	1	Palakad	1	Tirupathi	5
Latur	6	Panchkula	1	Tirupur	2
Lucknow	15	Panipet	1	Trichy	2
Ludhiana	9	Patna	8	Udaipur	3
Madurai	6	Perinthalmanna	1	Ujjain (MP)	1
Mahabubnagar	1	Pondicherry	6	Utharakhand	3
Malkapur	1	Pune	25	Vadadora	5
Mandya	1	Raichur	2	Vapi	1
Mangalore	11	Raipur	2	Varanasi	8
Manipal	8	Rajkot	2	Vellore	14
Manipur	4	Ranchi	3	Vijayawada	4
Marthandam	1	Rishikesh	11	Visakhapatnam	4
Mayiladuthurai	1	Rohtak	1	Vizianagaram	1
Mazaffarpur	1	Salem	10	Wardha	2
Meerut	1	Sattur	3	Warramgal	1
Morbi	1	Secundrabad	1	Yavatmal	1

When we were about to cross the 1000th trainee mark, I found that we did not have any photographs of the first course. I sent an email to Dr Sunil, who is now doing well as a member of the full-time senior staff at the Kleinert and Kutz Centre in Louisville, USA to ask if he could send a photograph, if he had one, of that occasion. He gave an interesting reply.

“Congratulations on the phenomenal achievement of training 1000 candidates.

You have provided India with a much needed service and have done so without compromising on the quality of the course, the instruments or the equipment.

It is a matter of great pride for me that I was the first candidate to train in “The Indian Temple of Hand Surgery”

I shall ever remain grateful that your generosity in granting me a subsidy which made that possible.

Unfortunately, in keeping with my financial status at the time, I do not think I owned a camera. Hence, I do not have pictures of that wonderful time.

All memories I have of the course are seared in my soul and all skills learnt are infused in my hands!

I wish you all the very best in keeping the course going for a number of years to come”

My daughter Gayathri reading Sunil’s letter said, ‘Appa, that letter is the best photograph you could have of the first course’.



S Raja Sabapathy

**Department of Plastic Surgery,
Hand & Microsurgery and Burns**



*From Left: Dr R. Raja Shanmuga Krishnan, Dr Hari Venkatramani, Dr T Sunilkumar,
Dr M Senthil Kumaran, Dr Praveen Bhardwaj, Dr Vimalambiga Ramani, Dr S Raja
Sabapathy, Dr Kannan Balaraman, Dr Keerthana Bhat, Dr R. Ravindra Bharathi,
Dr V.S. Sanjai Ramkumar, Dr Madhu Periasamy*



Editing the Third edition of Acland's Practice Manual for Microvascular Surgery

“Success in clinical microsurgery is achieved neither by chance nor by accident, but by the execution of a series of well-defined steps. It requires attention to detail and demands a fair amount of discipline. Once it becomes a habit, microsurgical procedures become easy and are very rewarding. Inadequate preparation is the common cause of failure and it must be avoided at all times.”

The last lines in the manual.

Ganga Microsurgery Training Laboratory

Young Indian Medical Graduates traveling to the west for training in the Nineteen Eighties, were impressed by the structured training offered for skill development. Microvascular surgery was one such field. The fine skill of suturing blood vessels of 1 mm and less were perfected in the labs with quality microscopes and micro instruments. The practice of the adage, 'The beginner needs the best'. was very evident.

Raja Sabapathy was fortunate to experience the micro courses at Northwick Park, London Canniesburn Hospital, Glasgow and at Louisville, USA in the lab set by the master teacher Dr Acland himself. Fired by the thought that this is what India needed, he set upon building up the lab at Ganga Hospital. That dream and the goals set in 1990 took 10 years to see the light of the day. When it was finally complete, Ganga Hospital became the first centre in the country which had a lab with brand new Carl Zeiss Microscopes and S & T instruments open to all. There were no fixed course dates and the candidates could choose the dates that suited them. What was started for the benefit of Indian trainees, soon became an attraction for trainees around the world.

It happened in a 'small hospital, run by a single surgeon in a tier two city of India'. This story could serve as an inspiration and encourage any youngster to dream big and convince them that anything is possible if we work till it works.



Ganga Medical Centre & Hospitals Private Limited

313 & 314 - 1, Mettupalayam Road, Coimbatore - 641 043. India
Phone: 0422 2485000 / 4250000 | Email: rajahand@gmail.com
Website: www.gangahospital.com