

**Evolution of Neurosciences in India:  
Biographical Sketches of Some  
Indian Neuroscientists**

Edited by

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## FOREWORD

A poet once said that history is only a bucket of ashes. I do not agree with this statement. Unless written down, the trials and tribulations of the pioneers in any field will be forgotten. The founders of neurosciences in India started their small departments more than half a century ago. Historians will blame us for not making an attempt to record the evolution of their ideas, institutions and investigations at least now.

Indians have always been reluctant to record anything. With the result the Indian history which we know of is the history written by the scribes of the British empire. We seem to get a vicarious pleasure to quote these ad nauseam. even when lone voices in isolated corners of India protest against this It is not only in the social, political and cultural history this phenomenon is existing, but in medical history also- (incidentally this is a comparatively new field)-the same problem is seen.

I am interested in history of medicine. Though my colleagues particularly Dr. Krishnamoorthi Srinivas of Madras used to present papers on history of Medicine in the annual conferences of the Neurological Society of India (NSI) earlier than me, I was responsible to start a separate session for such papers in NSI - Thanks to Dr. Mathew Chandy who was then the Secretary of NSL IT was instant success right from the first session onwards. It became the only session where both neurologists and neurosurgeons participated in large numbers giving major orations and guest lectures. Not surprisingly almost all papers read in those sessions were about European or American history of medicine.

But I presented a paper on the pathography of the greatest musician-King of India, Sri. Swathi Thirunal Maharaja in 1995 at Calcutta session and the response was overwhelming. It created so much of interest in the cultural scene of Kerala as till then Sri. Swathi Thirunal was supposed to have committed suicide by starvation. It was the first time when such a critical medical analysis of the symptoms of such a historical personality in India was done.

I have been requesting my colleagues to present papers about our heritage in these sessions. The only person who supports me right from the beginning is Prof. B. Ramamurthi. Even now in the NSI historical session, most of the historical papers are on either British or American

Neurology. I have no grumbling about it as I too have studied and published books and papers of similar nature. But I feel time has now come that we learn about our own heritage. I am sure that there will be fairly severe criticism against my attempts as we have a great aversion to anything Indian. We need another Mahatma Gandhi to teach us self esteem.

I am indeed happy that I could enthuse my colleagues in the Indian Academy of Neurology and the Association of Physicians of India also to start history of medicine sessions in their annual conferences.

Some time in 1995 or 1996 when we were toying with the idea of inviting the 1998 Annual Conference of NSI at Trivandrum, I was entrusted with the work of bringing out a souvenir. (At that time I had not even thought of competing for the election as President of the NSI). We agreed that it was good idea to focus our attention on the past history of our society and the pioneers in the field. Dr. Sunil Pandya and others have brought out a remarkable volume on the evolution of neuro-sciences in India (*Neuro-sciences in India: Retrospect and Prospect*, ed. Sunil Pandya, Published by the Neurological society of India, Trivandrum and Council of Scientific and Industrial Research. New Delhi. 1989) But personal details of the stalwarts were lacking in that volume. Prof. Sunil Pandya and Prof. S. Kalyanaraman tried to get some information in this field (CME Volume of the NSI. Edited by Prof. S. Kalyanaraman, Sunil Pandya, Sambasivan et al. 1982 and 1983). I was surprised to see that I had no idea who Dr. Menino de Souza or Dr. Grillmyr was, though both of them were Presidents of NSI long back. Perhaps in couple of decades almost every one who initiated this subject in India will be forgotten.

Even now when we ask the postgraduate students in neurosciences about the humble beginnings of our centres, most of them look dazed. In a DM examination at one of the National Centres where a lot of studies on muscle and nerve disorders are still done, I asked a good candidate about the work done in their own centre. He looked perplexed and to the chagrin of the internal examiner, his answer was that nothing much was done there. One of my co-examiners was happy to hear that answer but I felt bad.

This was the reason why I thought that I should collect the bio-graphical details and published works done at various centres. What I wanted to bring out was the history of the evolution of neurosciences in India. Some of the founders in neurosciences in India had to face very

hostile attitudes when they tried to organise their departments. Fortunately for some others, the socio-political set up was quite congenial it was only a pleasantly challenging job. Even in 1970's it was difficult for most of us in small centres to bring up the departments. Each region had its own peculiar problems, interpersonal difficulties, stiff opposition and unkind attitude from the administrators and colleagues. We thanked our stars for the meager support we got amidst these problems. I thought that these stories could be brought out if I asked the pioneers to write about their experiences.

Naturally I was faced with another problem. In 1995 when we toyed with this idea, the question was to whom we should ask to write. It was my colleague Dr. Sambasivan who suggested that if I tried to compile a volume containing either the biographical write-ups or the autobiographical notes of the Presidents of our society akin to what Prof. Kalyanaraman did in early 1980's; it would be useful for the historians later on. All the senior colleagues elected as the Presidents of our society have had long association in the field. Most of them had to start their departments from nothing. So we decided rather arbitrarily that we would ask the Presidents of our Society to write their autobiographical details giving stress to the evolution of their department in their geographical region. In this respect this volume is only a continuation of the excellent work started by Prof. Sunil Pandya and Prof. Kalyanaraman. I thank both of them for kindly permitting me to reproduce the material they published in the CME volumes of NSI in 1982, 1983. But for these books I would not have got any information about some past Presidents like Prof. Guinde. There are a few confusions in the dates -given in their publications (in the succession list of Presidents of NSI and the biographical notes) and I have chosen the dates given in the succession list. Quite likely this may be because the election results of NSI are usually declared in the last week December and the actual year of the term of the President happens to be in the next year.

I wrote to all the past Presidents and the incumbent President of our society. Naturally I thought that I would be getting excellent write ups like the autobiography of Wilder Penfield (No man alone: A Neurosurgeon's life, Boston, Little Brown and Co. 1977 ) from every one of them. Doctors are usually poor writers. exceptions only prove the rule. Many of them had to be coaxed many times (minimum reminders sent to every one of them were three). I have talked to some either di-

rectly or over telephone. Every one of them who contacted me promised to send the script as soon as possible. The last date was kept as March 1998. Only two readily agreed and sent their scripts in time.

Due to the excellent postal service we have, perhaps a few of them might have missed some of my letters. Many obliged but others did not even bother to reply. Despite so much of effort I could get only a few write-ups. There were moments when I thought why I should take this unnecessary burden among a host of pending up academic work which still I have to do. But then I knew that no one else will willingly do this sort of a thankless job.

I have taken the liberty of reproducing some of the articles from different sources when I could not get the desired write ups. The late Dr. T. K. Ghosh was an eminent personality whose memoirs were taken from the Souvenir published by Dr. Ramesh Chandra during the 35th Annual Conference of NSI at Patna in 1985. Prof. Kalyanaraman and Prof. Sunil Pandya gave me permission to use the materials published in the CME volumes where they gave the biographical details of some of the past Presidents. Prof. P. N. Tandon gave permission to reproduce his reminiscences about Prof. Baldev Singh which appeared in Neurology India (Neurology Ind 1998; 46: 1). I have reproduced the obituary of Prof. Bachawat written by Prof. Tyagi in National Medical Journal.

I have included the biographies of two really important persons who were pioneers in the field of neuroradiology and Electroencephalography- Dr. Narasimhan and Dr. Mahadevan pillai. They were not elected Presidents of NSI. I had almost an impossible task to get any detail about Prof. Mahadevan Pillai, the first ever neuroradiologist of India. I am more or less certain that the present generation of neuroradiologists has not even heard about this great doctor. I had a communication recently that they are going to form a new Society named Indian Society of Neuroradiology (FirstAnnual Symposium on 17th Sept 1998 at New Delhi). I do hope that they would at least remember about the contributions of this pioneer neuroradiologist. I am indeed happy that Prof. Ramamurthi has written about these two people in his autobiography. I have already published a biographical sketch about Prof. Mahadevan Pillai from the materials collected from different sources.

Autobiographies have an inherent problem. Without our knowledge we tend to have selective memoires to forget unpleasant incidents.

Successes are remembered, failures are forgotten. When climbing up in the ladder of life we must have pushed off many of our competitors. Those who fell out of grace and position would be naturally hurt angry. Hence there may be different versions of the same story. After all history is nothing but fables agreed on Probably I will have to face some criticism for this publication. I can always quote Bhavabhuthi, one of the great Sanskrit poets in my defence.

"Those who denigrate me,  
Do they know what I am doing?  
My work is not for them anyway,  
There will be a person  
Who will recognize the inherent value of this,  
Because time is endless, the World is so large.

I had no idea how to publish this costly book till I decided that I would ask only one or two of my friends in the Pharmaceutical sector. Fortunately the very first person with whom I discussed this readily agreed. I thank IWs Hoechst Marion Roussel for their generosity to publish this book in a nice way.

I am indeed grateful to, IWs St. Joseph's Press, Thiruvananthapuram who underlook the printing of this book. Obviously they have proved their excellence in printing this publication also.

19 Nov. 1998.

Prof. K. Rajasekltaran Nair MD, FRC\ DM.

## **A brief history of the Neurological Society of India.**

**M. Sambasivan, K. R Nair**

This unique society came into existence in 1951 due to the wide vision of its founder members, Dr' Jacob Chandy' Dr' B' Ramamurthi' Dr. S. T 'Narasimhanand Dr. Baldev Singh. All disciplines associated With Neurological Sciences have come together in the Neurological Society of India.

Till Jan 1964 the Society held its annual meetings with the Association of Physicians of India. with its own subsections of cardiologists, pediatricians Chest Physicians etc. From Dec. 1964, NSI started to have independent annual meetings. Neurosurgical subsection was then got affiliated with the World Federation of Neurosurgical Societies and Neurology subsection to the World Federation of Neurology. Similarly EEG' EMG-and pathology subsections made their affiliation to the World bodies.

The Society is registered with the Charity Commissioner, Public Trusts Registration office, Greater Bombay region as No: F-1819 dt 25thOct. 1969.

In the year 1969 NSI instituted Dr. Jacob Chandy oration and in 1974 Dr. Baldev Singh Oration'

In 1974 NSI decided to have a Continuing Medical Education (CME) to be held along with its annual conferences Dr S Kalyanaraman organised the first CME programme in 1977.

In 1997 the General Body approved the formation of Neuro-physiology/EEG subsection. In 1979 another subsection was formed as the Society of Indian Neuro-science Nurses (SINN) which was registered with the Registrar of Firms and Societies under Act 21 of 1960 as No:1550 of 1988.

The official journal Neurology India which was started very much earlier got registered at Madras under section 5 of the Press and Registration of Books Act.

The society formed a subsection of Neurophysiological Technologists in 1988.

It was a proud achievement for the society to have hosted the 9<sup>th</sup> International Congress of Neurological Surgery, 14<sup>th</sup> World Congress of Neurology and actively participated in the 18<sup>th</sup> International Epilepsy Congress at New Delhi in Oct 1989. The organisation and conduct of these congresses have been acclaimed worldwide and is a signal achievement of the society.

The society instituted the third oration named after Dr. R. G. Guinde in 1988.

***Affiliation to the International bodies.***

- (1) World Federation of Neurological Societies.
- (2) World Federation of Neurology.
- (3) International Federation of the Societies for Electroencephalography and Clinical Neurophysiology.

***Officers of the Socien and other comrnittees.***

1) Officers: a) President b). Vice-President c) Secretary d) Trea- sure e) Editor, Neurology India.

2) Executive Committee: a) President b) Vice-President c) Secretary d) Treasurer e) Editor Neurology India f) Two immediate past Presidents g) Two neurosurgeons h) Two neurologists  
i) Two from other sub-specialities.

The Neurotraumatology Committee was constituted in December 1991 with M. Sambasivan as the Chairman. He has been elected as the. Deputy Chairman of the Neurotraumatology Committee of WFNS.

Pediatric Neurosurgery and Ethical committees started functioning with Dr. S. N. Bhagavathy and Dr. A. K. Banerjee as chairpersons respectively.

With the WFNS (I) trust and WFN (I) Trusts many academic programmes were held and supported under the aegies of the NSI.

In 1991 the Indian Academy of Neurology was formed by the neurologists

In 1992 December the Annual Conference of NSI was slated to be

held at Ranchi. Due to some problems this conference could not take place.

1994 Annual Conference was held at Bangalore with Dr. Sanathan Rath as the President.

1995 also was marked with many activities. The European Congress of Neurosurgery was held at Berlin. Official delegates Dr. Sambasivan and Dr. Rout and the President, Dr. B. Ramamurthi attended the meeting. The annual conference of 1995 in New Delhi was well attended.

1996 was again an evenful year with many workshops and seminars conducted at different centres. The annual conference was held at Calcutta with Dr. Sambasivan as the President.

Many workshops and teaching sessions were held in 1997. The Annual Conference was held at Jaipur with Dr. Sarala Das at the Presidential chair. [t was a superb meeting with excellent cultural component.

The NSI was active all through 1998. The annual conference will be held at Thiruvananthapuram with Dr. V. K. Kak as the President. Dr. K Rajasekharan Nair will take over the post of the President of NSI in December 1998.

Officer Bearers:

**A) Presidents.**

Dr. Jacob Chandu	1952
Dr. T. K. Ghosh	1953
Dr. R. G. Guinde	1954-1955
Dr. W. Grillmayr	1956
Dr. Menino de Souza	1957
Dr, B. Ramamurthi	1958
Dr. E. P. Barucha	1959
Dr. R. N. Chatterjee	1960
Dr. C. G. S. Iyer	1961
Dr. Baldev Singh	1962
Dr. N. H. Wadia	1963
Dr. B. K. Anand	1964
Dr. N. S. Vahia	1965
Dr. D. K. Dastur	1966

Dr. Anil. D. Desai	1967
Dr. B. Dayananda Rao	1968
Dr. Sriramachari	1969
Dr. Ashoke K Bagchi	1970
Dr. Baldev Singh	1971
Dr. K.S. Mani	1972
Dr. B. K. Bachawat	1973
Dr. S. Balaparameswara Rao	1974
Dr. Gajendra Sinh	1975
Dr. Arjundas	1976
Dr. K. V. Mathai	1977
Dr. Vimla Virmani	1978
Dr. Mahendra Singh	1979
. Dr. K. Jagannathan	1980
Dr. D. R. Gulati	1981
Dr. S. Janaki	1982
Dr. Jacob Abraham	1983
Dr. M. Veeraraghava Reddy	1984
Dr. P. N. Tandon	1985
Dr. B. S. Singhal	1986
Dr. S. Kalyanaraman	1987
Dr. Shyamal Sen	1988
Dr. S. N. Bhagawati	1989-1990
Dr. A. K. Banerjee	1991
Dr. K. Srinivasan	1992-1993
Dr. Sanathan Rath	1994
Dr. Gouri Devi	1995
Dr. M. Sambasivan	1996
Dr. Sarala Das	1997
Dr. V. K. Kak	1998
Dr. K. Rajasekharan Nair	1999

**Secretaries**

Dr. B. Ramamurthi	1952-55
Dr. Anil Desai	1956-64
Dr. Gajendra Sinh	1965-1972

**Treasurers.**

Dr. S. T. Narasimhan	1952-55
Dr. C. G. S. Iyyer	1956
Dr. E. P. Barucha	1957-1972

Dr. P. N. Tandon 1973-1977  
 Dr. A. K. Banerji 1978-80  
 Dr. S. N. Bhagawati 1981-83  
 Dr. M. Sambasivan 1984-90  
 Dr. V. K. Kak 1991  
 Dr. J. S. Chopra 1992-(acting)  
 Dr. Mathew Chandy 1993-96  
 Dr. Ganapathy 1996-continuing

Dr. A. K. Banerji 1973-1977  
 Dr. S. N. Bhagawati 1978-80  
 Dr. B. S. Singhal 1981-83  
 Dr. V. K. Kak 1984-1990  
 V. K. Khosla 1991- continuing

### Editors of Neurology India

Dr. B. Ramamurthi 1952-1957  
 Dr. R. G. Guinde 1958-1964  
 Dr. Anil D. Desai 1965-1978  
 Dr. P. N. Tandon 1979-1982  
 Dr. Asoke K. Bagchi 1983-1984  
 Dr. S. Kalyanaraman 1985-1990  
 Dr. J. S. Chopra 1990-1996  
 Dr. S. Prabhakar 1997-continuing

Though we have tried to avoid any mistakes, there may be some minor errors in the succession list of the Office bearers and the date and venue of the different NSI sessions. In the absence of any definite documentation of the Annals of NSI so far, this is the best which we could collect. If there are any omissions or mistakes, kindly let us know so that we can correct them in subsequent editions.

### Annual Conferences of the Neurological Society of India

1st	Hyderabad	March 1952	26th Jaipur	Dec 1976
2nd	Pune	Feb 1953	27 <sup>th</sup> Pune	Dec 1977
3rd	Calcutta	Feb 1954	28 <sup>th</sup> Trivandrum	Dec 1978
4th	Nagapur	Feb 1955	29th Bangalore	Dec 1979
5th	Bornbay	Jan 1956	30 <sup>th</sup> Culcutta	Dec 1980
6th	Agra	Feb 1957	31 <sup>st</sup> Visakhapatanam	Dec 1981
7th	Trivandrum	Jan 1958	32 <sup>nd</sup> Cuttack	Dec 1982
8th	Jaipur	Jan 1959	33 <sup>rd</sup> Madurai	Dec 1983
9th	Delhi	Jan 1960	34 <sup>th</sup> Varanasi	Dec 1984
10th	Madras	Jan 1961	35 <sup>th</sup> Patna	Dec 1985
11th	Indore	Jan 1962	36 <sup>th</sup> New Delhi	Dec 1986
12th	Calcuta	Jan 1963	37 <sup>th</sup> Hyderabad	Dec 1987
13th	Patiala	Jan 1964	38 <sup>th</sup> Chandigarh	Dec 1988
14th	Bombay	Dec 1964	<i>(1989 The world congress WFNS and WFN etc.) at New Delhi</i>	
15th	Vellore	Dec 1965		
16th	Bangalore	Dec 1965		
17th	Delhi	Dec 1967	39 <sup>th</sup> Indore	Dec 1990
18th	Calcutta	Dec 1968	40 <sup>th</sup> Manipal	Dec 1991
19th	Hyderabad	Dec 1969	41 <sup>st</sup> Ranchi, (Meeting Cancelled)	
20th	Madras	Dec 1970	42 <sup>nd</sup> Madras	Dec 1991
21st	Bombay	Dec 1971	43 <sup>rd</sup> Bangalore	Dec 1994
22nd	Lucknow	Dec 1972	44 <sup>th</sup> New Delhi	Dec 1995
23rd	Ahammedabad	Dec 1973	45 <sup>th</sup> Calcutta	Dec 1996
24th	Vellore	Dec 1974	46 <sup>th</sup> Jaipur	Dec 1997
25th	Chandigarh	Dec 1975	47 <sup>th</sup> Tivendrum	Dec 1998

**Padma Bhushan Prof. Jacob Chandy**  
**The Founder President of Neurological Society of India**

M. SAMBASIVAN

"Some are born great, some attain greatness by their effort and for some greatness is thrust upon them". Prof. Jacob Chandy (J.C) belongs to the second category.

I deem it a privilege to pen the biography of my teacher, philosopher, guide and friend. Forgetting Prof. Jacob Chandy, would mean forgetting the development of Neurosciences in India and particularly the very beginnings of N.S.I. Tall, dark, rough looking and rough voiced giving a different impression at first sight, Prof. Jacob Chandy is a perfect person with a loving heart. As an artistic surgeon he was a Leonardo Da Vinci, as an administrator he was a Bismarck, an avid planner and organiser as Winston Churchill, an erudite teacher as Nagarjuna, as devout as John the Baptist and a visionary as Asoka. Rare combinations indeed!

Now let me look into the details of the history in the life of Prof. Jacob Chandy.

J. C. was born in an orthodox Christian family, father a presbyter of Anglican church and mother a house wife. In 1910, they were living in the rural areas near Kottayam. These places in those days medical care was well nigh impossible. At 7th year of J. C's age his mother suddenly took ill and died, obviously without getting any medical help. This event made a sharp dent in the mind of young J. C. which gave him the impetus to take to medicine, with the sole purpose of improving health care system in the villages. J. C. did thrive under the grand mother's care and later under the care of Ammachi, J. C's Aunt who lived for 102 years.

J. C. had his school education at Mavelikkara and the college studies at C. M. S. College, Kottayam. All along the religious back ground was maintained. As Secretary of Student Christian Movement he lead a delegation to S.C.M. Conference at Tambaram n 1927 . J. C. also participated in Evangelical tours. All these experiences moulded J. C. and the ardour to become a missionary doctor to serve in the rural areas became finite. After completing the college course of 2 years J. C. very much wanted to pursue medical education. With the background of Student Christian Movement, and the offer of a scholarship, J. C. met Lt Col Dr. Humphrey an I.M.S. officer, Principal of Madras Medical College'

J. C. got admission to the medical course.

J. C. found it difficult to forget the imperialistic and patronising attitudes of Britishers. A flame got kindled in him about National Pride, which made him come back to India and start work at C.M.C. Vellore.

After completing the medical course J. C. worked as a house surgeon in General Hoqpital, Madras under the famous E.N.T. specialist Dr. P. V. Cherian. Then on J. C's contact with C.M.C Vellore progressed. Meanwhile the political situation in India was heating up with Indian National Congress. But Madras saw less of activity. J. C. was interested in music and did sing in choirs, Sunday school and involved in church activities. This did give J. C an immense increase in faith in God, which was there as an inborn right from childhood. His "deep throated" voice was particularly appreciated by choirs.

Mahatmaji during his visit to Travancore visited Kottayam also and this made an indelible impression in the J. C's mind especially for independent India. J. C's missionary zeal prevented him from joining the government service or military service. But J. C wanted to take post- graduate training. So he joined M. M. C and had six months of surgical training and then was posted to Stanlby Medical College under. Dr.Krishnaswamy, and here he worked with him for one year. The meager income was frustrating.

Meanwhile aiming for a good placement in a missionary hospital J. C applied to a few centres. J. C got the opportunity soon and that was a doctor's job with Aramco company hospital in Bahrain. Salary was good but there was no job satisfaction. While in Bahrain J. C had chances to go to the mainland and meet different people. The contract period with Aramco was for one year. At the end of that year J. C left the job. Re-

formed Church of America had a mission Hospital in Bahrain and Dr. Paul Harrison was in charge. J. C went to this hospital and found that Dr. Paul Harrison(PH) was away on furlough. But he met Dr. Strom who was holding the fort. This area was under British rule and the administrator was a Political Agent. Dr. J. C met Dr. Strom and they became friends. Dr. Strom had to leave suddenly and the hospital had to be looked after. Thus Dr. J. C had to start work there and was in charge of hospital administration. Dr. PH came back shortly and accepted J. C as his colleague. Dr. PH was a Bible scholar. Dr. J. C with his Biblical and Missionary spirit could complement the interests of Dr. PH. Thus birds of the same feather enjoyed working together. Dr. PH became J. C's friend, philosopher and guide.

Experience in the Bahrain was plenty, and J. C came home and married Thangam on 4th September 1941. After the wedding the young couple went together to Bahrain and PH gave them a warm welcome.

An incident occurred during this period is worth mentioning. While Dr. PH was away the British Political Agent and a few respectable Arabs came to the mission hospital. The Arabs were introduced as the sons and relatives of the Ruler of Qatar. Dr. J. C was informed that during the Ruler's hunting trips, the Sheikh had become unconscious and they demanded medical help. As Dr. PH was away it became incumbent on Dr. J. C to do what was necessary in the matter. J. C was afraid that the ruler and his kinsmen could even kill him if anything untoward happened to the Sheikh. With assurances from the British Political Agent Dr. J. C accompanied by Thangam along with helpers and medical supplies proceeded to see the Sheikh in the desert. In about four to five hours travelling they reached desert. In the distance the tents, camels and some green shrubs were seen. It was in this oasis like place the Sheikh was lying unconscious in a tent on a lushly carpeted floor. He was surrounded by many men and women in Burkha. Sheikh's eldest son knew some English and Dr. J. C requested him to clear the tent of all relatives. As soon as J. C neared the patient the unmistakable odour of diabetic ketoacidosis prompted the diagnosis. Immediately an IV line was started. The Sheikh's urine was loaded with acetone. With insulin and electrolytes Dr. J. C spent the night with the patient: J. C could nab some fruits and coffee. Gradually by next evening the patient recovered his consciousness. As the Sheikh opened his eyes he saw Dr. J. C and started talking to his son. The Sheikh took hold of Dr. J. C's hand and kissed it. Then followed the

stranger ritual of every kinsman falling at Dr. J. C's feet and kissing it. It was their custom. Everyone was overjoyed. After a traditional parting dinner Dr. J. C. was given a band of 20 men and 20 women slaves as a gift!

For Dr. J. C., feeding himself and his wife was a problem with the marginal income. How to feed the 40 slaves? Dr. J. C. said he would grant them freedom. But all the slaves decided not to have freedom but to remain with the Sheikh so that there would be no food problem for them!

Later Dr. J. C. thought "why not take all the forty slaves and sell them for a huge amount of money? But the missionary spirit prevailed and he and Thangam came back to the mission hospital with all the goodwill from the Sheikh.

One day Dr. J. C. expressed to Dr. PH his desire to work in India. Dr. PH wanted Dr. J. C. to do some post graduate course in U.S for which the latter strove to get an opening. Dr. PH managed a position, got the money for tuition fee and fare for the passage. Meanwhile Mrs. J. C. was pregnant and little Mathew was born on 29th December 1943. With a farewell meeting, Dr. J. C. left Bahrain and reached Bombay by boat along with Thangam and little Mathew. Leaving the family at Kottayam, Dr. J.C managed to get a booking in a troop ship which was going transpacific to west coast of U. S. with the second world war on, amidst fears of Torpedo attacks or Japanese bomber attacks, the troop ship finally on the 43rd day reached St. Pedro Los Angeles, California. Dr. J. C. maintained his contact with Dr. PH. Dr. J. C. did his surgical course. At that period Dr. Chone's Oliver, Christian Medical Association Secretary from India visited Dr. J. C. and exhorted him to join C. M. C Vellore after the studies in U. S. In fact Dr. PH also wanted Dr. J. C. to join C. M. C Vellore. Dr. J. C. was able to make a good impression at University of Pennsylvania, Philadelphia; and did some research work on CNS also. Then came the opportunity to do Neurosurgical training at Montreal under Wilder Penfield. With the background work under Dr. Rhoads at Philadelphia Dr. J. C.'s application was considered favourably and Dr. J. C. went over to Montreal in October 1945, with Masters degree in surgery (M. Sc). Two years were spent at M. N. I (Montreal Neurological Institute). As a resident he was given the accommodation and "everything found, First six months Dr. J. C. worked with Dr. Francis Mc Naughton in clinical Neurology and Neuro anatomy. Later he was posted with Will.

iam Cone for Neurosurgery. Dr. Penfield was concentrating on epilepsy work and the tenure with William Cone in general Neurosurgery proved very beneficial.

In 1946 Dr. Robert Cochrane, Principal of C. M. C. Vellore visited J. C at Montreal. Even though Vellore had no facilities for doing Neurosurgery, he also kindled J. C's interest to join C. M. C. He also promised financial help if needed. Dr. Cone insisted on daily routine patient care, laboratory works especially E. E. G and "Library" hours. With such preparations J. C appeared for FRCS-Canada and passed the exam with flying colours.

Dr. Cone and Dr. Penfield congratulated J. C and he continued to work with Dr. Cone for another year as his chief resident. Later J. C joined Dr. Rasmussen and learnt setting up of a new department at Chicago. 1948 was thus a momentous year and Dr. J. C was awarded FACS also. His contact with Liza and Rev. Sanjeev Savarirayan and further discussions proved fruitful and the view of C. M. C. got brightened. Dr. Hilda Lazarus the then Principal of C. M. C. visited Chicago and had fruitful talks. But lack of funds for setting up a new department at C. M.C. loomed large as a spectre. Just as J. C. was pondering over this in his office, Dr. Paul Harrison entered and gave him two cheques worth 13000 U. S. D. and told J. C to buy necessary equipments and start the Department of Neurology at Vellore!

So, Dr. PH. the friend, philosopher, guide and mentor scored again. Even today there is a special examination held at the department of Neuro-sciences at C. M. C Vellore and the winner is given the Paul Harrison prize

Dr. J. C got the necessary equipments, and an EEG machine and shipped them to C.M.C, He left for India and joined C.M.C in January 1949. The entire staff of C.M.C were overjoyed to receive Dr. J. C into their fold.

All luggage was cleared and brought to C.M.C. Then C.M.C hospital had 360 beds which were increased to 500 beds, with Dr. Lazarus as Director and Principal.

In those days Dr. Kutumbaiah was the Chief Physician. He later became the Principal. "Brain Tumours" are "rare" said Dr. Kutumbaiah,

and only Syphilis of CNS was common. So J. C would take rounds in the wards and could pick out cases with papilloedema and diagnose the tumour and operate. Thus started the Department of Neurology and Neurosurgery at C.M.C, Vellore, with just 10 beds spread in the various wings of the hospital. In spite of pressure on J. C to do general surgery he stuck to neurosurgery only, even though it was unpalatable to some higher ups in the C.M.C. Dr. Issiah joined as the first assistant.

Similarly it was Dr. H. S. Bhat who helped J. C as his resident. (Later Dr. Bhat became Professor General Surgery and started the department of Genito urinary surgery). In January 1950 Dr. Baldev Singh came and met Dr. J. C and showed his fascination for Neurology. Dr. Baldev Singh joined Dr. J. C as the Neurologist.

Alongside Dr. J. C worked as Treasurer of the institution. Lots of teething troubles, differences with the administration etc. had to be overcome. Dr. J. C was also partly responsible for the revision of the constitution of the council which was formed in 1954. Dr. J. C was also partly responsible for the revision of the constitution of the council which was formed in 1954. Dr. Baldev Singh was sent to U.S.A for EEG training Dr. B. K. Bachawat joined as Neurochemist in 1952. With great will and support the department prospered and a new block N. Ward came into existence. This block was opened by the then Health Minister, Rajkumari Amrit Kaur in 1954.

In Feb. 1950 J. C. were blessed with another son, Varghese and two years later a baby girl also, Accamma.

The department of Neurology and Neurosurgery prospered and W. Penfeld visited the institution and opened the next block of the Department. J. C. could start P.G training in Neurosurgery for the first time in CMC Vellore and persons like Dr. Gajendrasinh, Dr. Dharkar, Dr. Mahendra Singh got trained.

The M. S. Neuro Surgery programme was started in 1956 as also D. M. Neurology in 1958. So many have passed through the portals of C.M.C with adequate training and got M. D., Mch and DM degrees. After 1966 the MS (Neuro) was changed to M.Ch. (Neuro). The Neurochemistry department also flourished and to the credit of Dr. Bachawat many Ph. D's followed. Candidates passing through C.M.C have established neuro-science departments at various parts of India. Dr. J. C had

occasion to go to various places as a consultant to treat VIP's. I don't want to put their names as it would be too long. In 1963 Dr. Rajendra Prasad visited C.M.C twice and for 1964 January Republic Day J. C's were invited as special guests, and they spent one week in Rashtrapathy Bhavan. In May 1964. J.C was honoured with Padma Bhushan. S. Radhakrishnan invested J. C. with Padma Bhushan. J. C became Principal of C.M.C also that year. He was also involved in the formation of National Academy of Medical Sciences and Association for the Advancement of Medical Education. He also got actively involved in the I. C. M.R, WHO and many other organisations.

Dr. J. C also was very much in the picture to start the department of Neurosurgery and Neurology at A.I.I.M.S.

Dr. Sushila Nayyar the then Health Minister lost her brother following an accident. Dr. J. C later on went to her office to offer condolences. Then followed a discussion which ended in the formation of the Neuro Department in AIIMS and before long Dr. P. N. Tandon was appointed Professor of Neurosurgery.

All these years from 1950 with Prof. B. Ramamurthy starting the department of Neurosurgery at Madras Medical College, there had been a healthy competitive spirit between the two departments.

In 1956 the Neurological society of India was born with Prof. J. C as its founder President and Prof. B. R. M. as its founder Secretary other members being Dr. Baldev Singh and Dr. Narasimhan. The foursome forged the society and today it has become a strong society with over 1400 members.

In 1960 J. C was elected member of Indian Academy of Sciences. Several times J. C had occasion to go to Military Hospitals and do surgery and he became a consultant to Armed Forces. J. C was invited to give orations and memorial lectures including "sardar Vallabhai Patel memorial lecture" In 1965 J. C visited U. S. S. R. at their invitation. J. C also participated in many international meetings. Fame of C.M.C department of neuroscience spread again due to the papers published by his trainees who later on became chiefs like Prof. K. V. Mathai, Prof. Jacob Abraham, Prof. G. M. Taory and Dr. J. C. Jacob.

In 1970 Dr. J. C, retired from C.M.C services and settled down in home town Kottayam. But he was not tired at all. He become Emeritus Prof. of Neurosurgery for the Medical Colleges of Kerala. He continued teaching. Dr. J. C had a pet programme of starting a course- "BSc" Health Sciences. A detailed curriculum was drawn up and progress was not possible due to the dogmatic approach of some University higher ups. Yet Andhra University did start this course. J. C actively involved himself in the church activities and has been the guiding spirit of Kottayam diocese.

First son, Dr. Mathew Chandy accomplished himself well in studies and became a neurosurgeon. He also adorned the seat which his father did as Professor and Chief of the Department of Neurological Sciences at C.M.C. Now he is working at Khoula Hospital, Muscat.

Second son Varghese is a chemical engineer in Australia.

Accamma got married to a Business Executive and is happy at Hyderabad.

The pinnacle of his fame was acknowledged by the World Federation of Neurosurgical societies when they presented the medal of honour at the World Congress which was held at New Delhi in 1989.

Dr. J. C diagnosed to have a carcinoma prostate 20 years ago has had treatment with hormones. With God's grace fully on him he continues to live a happy strong willed life. A mild stroke involving the left side has completely cleared. Again recently an obstructive uropathy was treated with laser surgery and J. C continues to go on his 88th year.

In the history of C.M.C hospital Vellore, J. C has made indelible impressions in every field, be it microbiology or Anatomy to Engineering department. Systematic selection of doctors and their training has made it possible for the various departments to flourish. Mentioning names here would be unnecessary. A visionary he was, he did shape second and third line of successors, so that his absence was never felt and all the training programmes did go on.

J. C has fought against all odds. J. C's firm faith has sustained him all these years. At the peak of his career as Principal of C.M.C he com-

manded respect. His presence in the institution could be felt. As a trainee doing Neurosurgery in 1964-66 I can vouch to the fact that the first impression of J. C was awe which gave way to respect and affection as time passed. He has been a loadstone, a trail blazer, and a path maker.

I take this opportunity to pray God Almighty to give him many more years of happy and healthy life.

I am sure J. C must be extremely proud over the fact that the specialty of Neuro-sciences has advanced today so much, that the sapling he planted and nurtured has grown into a big tree and the grand children looked after the big tree.

To quote the Bible "I shall show you the way. You will have to walk it. Nobody else can walk for you". And J. C continues to walk the path shown by Him.

**Editor's note:**

Dr. Sambasivan did his MS Neurosurgery under Prof. Jacob Chandy in C.M.C Vellore. He is still very close to Prof. Chandy. When I requested Prof. Chandy to write his autobiographical paper for this publication he asked me to go to his house so that he could give me the necessary details to write his biography. I was scheduled to go to USA for a holiday and hence I could not do it. Instead Prof. Sambasivan wrote Prof. Chandy's biography, a real tribute to his respected teacher.

Prof. Jacob Chandy has already published his autobiography entitled 'Reminiscences and Reflections' : The story of the Development of the Christian Medical College and Hospital, Vellore Kottayam. 1988. That publication gives a lot of information about him and the Christian Medical Mission's work in Vellore and is a valuable publication thus.

In this connection, I may mention another pioneer neurosurgeon who was Prof. Jacob Chandy's protege. Dr. Narayanan Namboothiripad (NNS 3 of the Neurological Society of India) belonged to an orthodox Namboothiri sect but later got converted as a Christian. He wanted to get trained in neurosurgery and was helped by Prof. Jacob Chandy. He passed his FRCS from UK and worked in Edinburgh and C.M.C Vellore (1960-1962). Later he became the Professor of Neurosurgery at C.M.C Hospital, Ludhiana for nearly 11 years. After his retirement from Ludhiana, he served at Calicut PVS Hospital and later at Medical Mission Hospital, Tiruvella. He died on 23 Dec 1995. Dr. Namboothiripad was very quiet and was a pioneer neurosurgeon in Punjab. I take this opportunity to pay homage to him also.

K. Rajasekharan Nair.

**Prof. B. Ramamurthi**

**President, Neurological Society of India, 1958**

K. RAJASEKHARAN NAIR

I saw Prof. B. Ramamurthi initially some time in 1971 when he came to address one of the meetings of Delhi Neuro Club. Almost all neurologists and neurosurgeons of Delhi like Prof' Baldev Singh, Dr. S. N. Pathak, Dr. P. N. Tandon, Dr. A. K. Banerjee, Dr. Vimla Virmani. Dr. S. S' Pant (a full time private neurologist practising in Delhi during those days) and others were present there. I was the junior most of the lot in that group. Prof. B. Ramamurthi was introduced by Dr. P. N. Tandon almost deifying him. Prof. B. R. M. was perfectly dressed and appeared like a dignified gentleman. The topic was something mundane.

All the juniors assembled there had some trepidation how he would be delivering his lecture in front of such great neuroscientists like Dr. Baldev Singh, Dr. Tandon and others. Honestly I did not know at that time that he was far more qualified and senior to any one else present there. The first row of the audience was for the senior colleagues' I was sitting in the last row.

The moment he was ushered in onwards we could see that he had a magnetic charm and great authenticity. I could even see the annoyance of some of my colleagues in Delhi when Prof. P. N. Tandon showered on him the praising words as welcome. When he got up to address he looked at the first row where all the senior neuroscientists of Delhi were sitting. He started his talk simply thus "Well, What I am going to say about this topic is not for the first row of people here. Probably they know it as much as I know or pretend that they know a lot more of about it' They cannot be taught any way. But if I teach the last man in this audience well, he will be receptive, thankful and benefited by my talk. Perhaps

some day he will do something very useful about it which will be beneficial to the science. So my talk is for him". As luck would have it, his eyes fell on me and I thought that the next one hour of his talk was selectively for me. I was so much impressed by his command of language, delivery of his speech and the analytical way he argued his points.

I coaxed Dr. Vimla Virmani a few months later into granting me permission to work with BRM for a short time during my annual leave. She made the necessary arrangements and got the OK from BRM so that I could spend 3 weeks with him during my summer holidays of 4 weeks. By some clerical error, the day from which I was supposed to work with him happened to be a Sunday. I like punctuality and as suggested by Dr. Virmani, I entered the Institute of Neurology at 7.20 AM" on that Sunday, 10 minutes head of time. Since I did not see any doctor there, I climbed up the stairs to see the spotlessly clean, well kept wards. Then I saw a ramrod straight thin man climbing the stairs ahead of me, eyeing me periodically. He was wearing a half sleeves shirt and trousers. He asked me briskly "Who are you? Why are you here?"

I told him that I was Dr. Nair from AIIMS and came to see Dr. B. Ramamurthi. His answer was again brisk. "Oh!, you are Rajasekharan Nair. You are late. You were supposed to be here at 7.30 AM. Bit irritatingly I told him that it was not yet 7.30 AM and would he kindly direct me to Prof. BRM's room. He looked at his watch and grudgingly agreed that it was only 7.30 AM then and he was BRM. I felt taken aback to address BRM himself. But smilingly he took me to his ward rounds when Dr. Velmurugendran and others joined him. Since that day I admire him for his meticulous way of getting things done punctually, properly and with great decorum.

The Wednesday morning clinical meeting was a lesson for me for throughout my life. The meeting started exactly at 7.30 AM. with almost everyone seated in his places. BRM started the proceedings precisely at 7.30 AM. A minute or two later the entry door at the back of the room was quietly opened by some one to enter. BRM's comment was curt and firm "Jagan, You are late. Please close the door and go". Only later I came to know that the person who came late was none other than the Professor of Neurology, Dr. K. Jagannathan.

During my short stay there BRM liked me as I was not afraid of answering questions or making comments when asked during the clini-

I was born on 23 Jan 1933 in a small hill station, Mount Abu, now in the State of Rajasthan. The population then was only 4<sup>1/2</sup> thousand and every citizen knew every other. Mount Abu is well known for its schools, temples, lake and mountains. The school days were therefore very happy with dedicated teachers, extra curricular activities and sports. I got a merit scholarship in the high school examination and moved to Jaipur for pre-medical at the University of Rajasthan. Soon after the partition, Mount Abu belonged to the Bombay State. After the inter-science, despite being first in merit, I had problems seeking admission. Grant Medical College was unwilling to accept me as I had done my pre-medical, that is 12th, from Rajasthan University. Jaipur Medical College was unwilling to admit me for reasons of domicile. (Mount Abu was in Bombay State and I did not have domicile of Rajasthan.) Luckily for me, Grant Medical College, had 4 seats reserved for students from Universities other than Bombay University. Thus I came to Grant Medical College to begin my medical career.

Grant Medical College had a fine tradition, excellent teachers and a spirit of camaraderie. Those were very happy days. Despite the poor living conditions in the "old hostel", fellows and colleagues made up happy atmosphere. There was a good healthy rivalry (for sports and academics) between the different medical institutions of Bombay namely G. S. Medical College, Topiwala National Medical College and Grant Medical College. After graduation, I was fortunate to work under very dedicated teachers like Dr. R. V. Sathe, Dr. N.H. Wadia, Dr. J. S. Moos and Dr. P. M. Udani, to name a few. There was a lot to learn in the essentials of medicine. The discipline of neurology was quite new. Dr. Menino D'Souza was physician and neurologist. He was kind-hearted, easy and encouraged the juniors. He had the sixth sense to make quick intuitive neurologic diagnosis. It is rare to get a chief who gives all freedom and is non-interfering. Dr. Wadia had just returned from UK after training under Lord Russel Brain. (We had read Brain's book in neurology). He was brimming with enthusiasm. To make an accurate clinical diagnosis of neurological conditions by simple logic and deduction was to me very impressive. Being an excellent teacher, students from all medical colleges flocked to Dr. Wadia's clinic held every Wednesday. Both Dr. Wadia and Dr. Moos took keen interest in my career and to them I owe a great deal. Through his efforts, Dr. Wadia was able to bring Prof. Darab Dastur to start the Neuropathology Department and soon Dr. Gajendra Sinh, (trained at Vellore) joined as a neurosurgeon. Dr. Jimmy Sidhwa was the neuroradiologist. We had an excellent dedicated team. Notes were kept very well and we also had an independent system of classification and indexing. This resulted in collection of interesting material. Very soon state-of-the-art papers were written by Dr. Wadia and Dr. Dastur in the Departments of Neurology and Neuropathology at Grant Medical college.

There were some other traditions established by Dr. Wadia and his colleagues namely Dr. E. P. Bharucha and Dr. Anil Desai. We have clinical meetings every month on second Saturday, which are extremely well attended with good case discussions. This was the period when Indian experience with Wilson's disease, cranio-vertebral abnormalities and tuberculosis meningomyelitis were described.

In 1959 I cleared my M.D. in internal medicine. Prof Wadia gave me personal letters to some of his colleagues in London who were very helpful in my pursuing neurology as a career. Dr. Moos, who is a cardiologist, took a lot of personal interest and guided me. I was able to start a house job in Neurosurgery at the Brook General Hospital. Under Sir Geoffrey Knight, Mr. Northcroft and Mr. J. R. Gibbs soon after reaching London. In the interview, I had expressed that my main idea would be to work in the ward and learn the essentials of neurology but I was not particularly keen to enter the operation theatre. Despite this they accepted me. Dr. Raymond Hierons was the neurologist. They were happy six

months during which time I also prepared for the membership of Edinburgh. I had met Professor R. A. Henson, mentor of Dr. Wadia, who was helpful to me in getting the job at the Maidavale Hospital attached to the Institute of Neurology in London. I was able to work under different chiefs like Dr. Sam Nevin, Dr. R. A. Henson, Dr. Reginald Kelly, Dr. Paul Sandifer and also Mr. Valentine Logue, the neurosurgeon of great eminence. Lord Russell Brain by that time had retired but he used to come occasionally to see the patients. The greatest joy in working in the London Hospital was to see the functioning of the NHS, the excellent clinical teaching that they imparted, the responsibility they left to the residents and the complete family atmosphere. One also learnt for the first time that what is written in books is not the 'Gospel Truth' and what is needed is to keep inquiring and questioning. During my residency at the Maidavale Hospital a good interaction began between Queen's Square and Maidavale Hospital which were sister institutions. My co-residents namely Dr. Gerald Stern, Dr. Net Blau and Dr. Ernest Jellineck became consultants of repute. During my stay on the house, several courses were conducted for teaching neurology to MRCP candidates, where several Indian colleagues participated including Dr. Shyam Hussain.

I returned to India in 1962. To my misfortune, Prof. Wadia returning from South America en route Portugal to India was detained at Lisbon. This was the time when Goa was liberated and we were at war with Portugal. Therefore we sadly missed the presence of Dr. Wadia. Dr. Wadia was instrumental in my returning to India and arranging the appointments at Sir J. J. Hospital and Bombay Hospital. Mine was perhaps one of the few jobs advertised by Bombay Hospital and Dr. R. G. Ginde had written to get my confidentials from my teachers including Lord Brain for England. These were the days when one could combine the honoraryship at the Sir J. J. Group of Hospitals, that is part time in mornings and one could also come and work in a private institution like Bombay Hospital and combine teaching with practice of neurology. For me this was a very happy combination. We continued to have Tuesdays joint rounds when important cases were discussed. I continued to enjoy the Saturday meetings. The clinical sessions were very interesting. There were no imaging facilities like CT scans and MRI, which have made the diagnostic dilemma to a great extent very much simpler. We had to resort to angiography and air studies and myelography which at times can be quite unpleasant. It needed a clinical skill and judgement to decide whether or not to subject the patient to these investigations.

During this period we had visitors from overseas (UK, Europe, Australia, America) like Lord John Walton, Peter Thomas, Reginald Kelly, Ralph Ross Russel, Igata of Japan, to name a few. There was a keen interest in Indian neurology. The ward rounds on those occasions became exciting. There were several inputs from the visiting scientists. Dr. Wadia was able to collect several cases of ataxia with slow eye movements. I was able to collect cases of demyelinating diseases and wrote a paper with Dr. Wadia in the Journal of Neurological Sciences. Dr. Dastur did postmortem on two of my patients which was the first proof of existence of multiple sclerosis in India. I became interested in myelopathies of unknown aetiology and with Dr. Dastur described "myelopathies with Eales' disease"

There was a great harmony in the department of Neurology. Residents of medicine during M. D. gave neurology residency as their first preference. We had excellent residents who contributed considerably to the study of the patients. We also had referrals from several institutions for the opinion on neurological problems. Our teachers were also available at any time for seriously ill patients.

I had the pleasure of working with Dr. R. G. Ginde at Bombay Hospital as well. He was in top spirits when he played golf, in which game I am told he was very good. Although he started rather late in neurosurgery at the Montreal Neurologic Institute he was one of the rare neurosurgeons who had an excellent insight into medical neurology and electrophysiology. He discussed neuropathology with Dr. Darab Dastur. He was therefore a complete neuroscientist. It was a pleasure to watch him because in those days when micro-neurosurgery was not developed he would not close the wound unless the returning fluid was absolutely clear. Therefore, it was not a surprise when there were hardly any complications when he did the surgery. The greatest pleasure was to watch him when he finished the surgery to sit

down in his office and write notes in his own hand and in great detail. He kept meticulous notes of whatever he did. I also had the occasion to attend some parties at his residence. With great care he organised every minute of the party and was an excellent host. In one of the parties he also arranged a 'Housy' or some or the other game in which everybody could be involved and there was a complete feeling of homeliness and friendliness in that environment. Otherwise Dr. Ginde was very particular, a hard task master and wanted work to be done with extreme care, without any mistakes. Subsequently, Dr. S.N. Bhagwati had joined Bombay Hospital and Sir. J. J. Hospital about the same time I returned. He has always been very dynamic, enthusiastic, innovative and wanting to do more and more. Good clinical results in neurology can be obtained when one is associated with a good neurosurgeon.

With the retirement of Prof. N. H. Wadia, I took over as the Head of Department of Neurology in July 1991. We continued to have weekly meetings of discussions on every Tuesday with my colleagues - Dr. S. Katrak and Dr. Neeta Mehta. These were learning sessions as well because our able registrars would prepare seminar topics and we had good discussions on the cases. I continued my associations with Bombay Hospital and it became a post graduate medical institute ( Bombay Hospital Institute of Medical Sciences) in January 1991. I have been Professor and Head of the Department of Neurology in this Institute since. Earlier, we were training the candidates only for the diploma of the national board, but since this change we are now also having candidates for DM Neurology. We are indeed fortunate for having good equipment and good allied branches. We have a full fledged Electrophysiology Department with Dr. Subhada Pandya and Dr. Kushnuma Mansukani, who are leading experts in the field of EMG and evoked potentials. They have managed to train several students. In the EEG.Department we had the benefit of Mr. Vinayak Mehta, who on his own steam went to Montreal Neurologic Institute to work in the Department of EEG. His trainees Mr. Devdutt Mehta and Mrs. Smita Kapadia continued to do EEGs of excellent quality. We have also been able to have the services, guidance and expertise of Dr. Darab Dastur assisted by Dr. Daya Maghani in the Department of Neuropathology. We have an excellent biochemical department. The neurosurgical department has eminent neurosurgeons like Dr. S. N. Bhagwati and Dr. K. E. Turel. Dr. Turel began his training under Dr. Bhagwati and subsequently went to Dr. Semi in Germany to learn the microneurosurgical techniques. As a neurologist, I would say' that the results of their surgery have been excellent. We also have state-of-the-art CT scan and M R I Departments. Overall, students are able to get good training in the discipline of neurology.

Active interest was pursued in the field of academic neurology and my main interests have been demyelinating diseases, multiple sclerosis, and non-compressive mylopathy including myelopathy associated with Eales' disease, infections of the nervous system including tuberculosis meningitis, solitary ring enhancing lesion (cysticercosis) and its relation to seizure disorder. On account of our interests in the non-compressive mylopathies, we were able to study HTLVI mylopathy and we were able to describe 3 patients. Dr. Osame and his colleagues from Japan visited our department on successive occasions and we were able to collaborate. We were also able to collaborate with Prof. Stuart Cook of New Jersey Medical School to compare our data with that of USA in multiple sclerosis. We also did some immunologic work in the GB syndrome. Over the years, I was fascinated by the syndrome of ..large head and progressive motor handicap". I was rather struck by the fact that majority of the children belonged to the 'Agarwal Community'. We were able to collect these children, work them up with CT scan and MRI and presented the data before the United Leukodystrophy Foundation in U. S. A. We were able to write it up and we are even now continuing to collaborate for the genetic work up. With help from Dr. Nemish Shah Cardiovascular surgeon, we were able to do thymectomy in patients with myasthenia gravis. We have a large series of patients with myasthenia but regrettably we have not been able to analyse the data to write our experiences.

At the Bombay Hospital we are developing the sub-specialities. Dr. Jimmy Lalkaka is taking interest in the field of movement disorders and Dr. Satish Khadilkar is taking interest in the field of muscle disorders. We hope to have persons dealing with epilepsy and strokes.

It was a pleasure to visit several institutes here and abroad. In clinical neurology we have been doing reasonably well. I am distressed we don't have centres of excellence for training in basics. With the help of basic scientists in the field of neurology, we may be able to do research of quality.

It has also been a pleasure to be a teacher in the University of Bombay and to be an examiner in Bombay University and several universities in India. I get distressed when the candidate does not succeed. I have always felt very strongly that the entry point should be difficult but the exit point should be easy. Our training programme should be tightened so that they get a comprehensive good training and the examination should really become superfluous. There is indeed a need for examinations as this makes the students work hard to reach the goal. Examination should be however more to assess the attitude and the aptitude rather than content of knowledge.

I managed to take an active part in the activities of the Neurological Society of India. I have been able to attend majority of the national meetings and also nearly all the international meetings after 1973. I was the National delegate at the Hamburg meeting when we invited the World Federation of Neurology Meeting in India in 1989. The meeting was successful. Along with this meeting we also had an international meeting of the neurosurgeons and the International League Against Epilepsy. The meetings were highly successful. It accelerated the growth of 'neurosciences in India. We were recognised by the world community' Not only that, we were left with substantial money to form the trusts for neurosurgeons and neurologists and the epilepsy society. From this trust it is possible to organise meetings and send delegates overseas to partake in international meetings. Several colleagues have taken advantage in the form of financial help from this trust'

I was the treasurer for the Neurological society of India from 1981 to 1983. I was surprised to find that there was no system of indexing. With the help of my secretary Katie Vania we were able to introduce a system. As a member of the executive committee I was distressed to find that there was only one executive meeting in the year and that too a hurried one so that important decisions could not be taken. When I took over as the President of the Neurological Society of India I suggested to have two or three executive committee meetings in the year. Recently, this system has been introduced and I am sure it will help to improve the cause of neuroscience activities by the society. In 1992, the Indian Academy of Neurology was founded. I continue to be a member of both the societies. A meeting of the NSI (combined society) gives an advantage to meet the neurosurgical colleagues as well. There is much in common between neurologists and neurosurgeons and we need each other's help. At the same time, with the rising numbers of the neurologists I suppose, the future needs will be better served by the Academy of Neurologists. I have also been involved with the Indian Epilepsy Association, especially with the activities of the Bombay branch. During my tenure as the Secretary of the Indian Epilepsy Association, Bombay Branch, we organised an epilepsy week which was highly successful. we gave several educational lectures through the Rotary Club, Lions Club, Radio talks. we organised an exhibition of posters for teaching, and also through director Mr. Shyam Benegal made a film on epilepsy which was subsequently donated to the Films Division of India for exhibition all over the country. Currently, I am the President of the Indian Epilepsy Association, Bombay Branch. Dr. Pravina Shah, the Secretary, is doing a splendid job. After Bangalore this is the second most active group in the country.

In the recent years, I have become interested in medical education and ethics. It is really a pleasure to participate in the sessions on medical education, ethics and delivery of neurologic sciences at international meetings. It has also been a pleasure for me to organise Neurology Update Meetings. The first was at the Taj Palace Hotel at New Delhi and subsequently at the Department of Neurology, Bombay. I hope I am able to organize such meetings in future with the help of my colleagues.

One is always grateful for what one has received over the years from the students, residents, nursing staff, colleagues and the patients. If I get a little recognition here and there or an award, it is really the recognition of the work of all the colleagues of the department. In all that I have done, I am grateful to my wife Asha (herself a gynaecologist) who has given full support. Our daughter Seema took up medicine and with her husband Dr. Jayesh Mehta is doing haematology-oncology (Bone marrow transplantation). Our son Aneesh is pursuing training in neurology at Massachusetts General Hospital, Boston and his wife Priya plans to pursue Internal Medicine.

## **Prof. S. Kalyanaraman**

**MS, MS (Neuro) FRCS (Eng), FRCS (Edin), PHD (Edin),  
FMMC, FAIS, FICA, FICS, FACS, FIAMS, FIMSA, FTNASC,  
FAMS, FASC**

**President, Neurological Society of India, 1987**

Dr. Subramanian Kalyanaraman was born in Tiruchirapalli, a town 300,mtr south of Chennai in Tamil Nadu, famous for its temples like Srirangam and Rock Fort. Sir C. V. Raman was born there and what is of more immediate interest to us, Prof. B. Ramamurthi also hails from that town. Dr. Ramamurthi's father and Dr. Kalyanaraman's father were neighbours, probably explaining why Dr. Ramamurthi was a hero to Dr. Kalyanaraman right from his childhood days.

He was always first in all the examinations and when he scored 521 out of 600 in 1948 in the SSLC examination it was a new record for the school and the district. Two years later despite a handicap of 38 marks for taking biology instead of mathematics, he scored the second rank in the " Madras University in the Intermediate examination and set up a new, record in the university for biology students and a record for his own college.

Brilliance however did not help him to clear the age bar of the Medical Council of India which insisted on a candidate completing 17 years of age before entering the Medical College. The young aspirant to . medical college spent the next year studying mathematics and managed to secure admission at the end of the year to both engineering and medical colleges.

He was posted to Stanley Medical College. He spent a lot of time in extracurricular activities like oratorical competitions, medical exhibitions and social service in villages but managed to get the first rank in the university in all the university examinations. He secured 8 out of the 9 available gold medals in the final examination. He was enthusiastically encouraged by his professor of Surgery Dr. C. Raghavachari in all his social service work especially during the year when he was the secretary of the college's Rural medical and Social service League. That year he managed to run three free medical dispensaries every Sunday in three separate villages. He also conducted a summer camp at Alamadi when the medical students under his leadership lived in the village for three weeks and conducted a house to house leprosy survey of all the surrounding villages.

His brilliance brought him problems too. when he scored 98% in medicine theory he was asked in the oral examination ..what was Napoleon's pulse rate and why was it abnormal". (He did not know as an athlete, Napoleon had bradycardia). when he tried to tell an examiner that the irradiation of forces made the inner table skull fracture larger than the outer table he was sent out for impertinence and given a zero out of fifty in the oral examination in forensic medicine. Fortunately he had scored 78% in the theory and managed to pass the subject and get the first rank too in the total.

House surgeoncy was real hard work. There were only four residents for the Professor of Surgery with a hundred and twenty patients. The day started at 4.30 AM with a cold water bath followed by doing fractional test meals for patients in the ward. He had to report to the Op at 6.45 AM after a quick round of the post-operative ward. The surgical list usually consisted of 15 to 20 procedures and lunch was at any time between 4 and 6 PM. That was the year when peptic ulcer got established. After writing case sheets, dressings started at 9 PM and ended at 10 PM.

General surgery postgraduate days were equally ,bad,. The pass percentage was very low. In 1957, 3 candidates passed out of 53 in the Madras University. In 1959 when Dr. Kalyanaraman and only one more first attempt candidate and four repeaters passed out of 60 who appeared for the examination.

The common wealth scholarships scheme brought suddenly a new opportunity. only two were medical scholarships out of a total of 40 for all subjects ranging from Astronomy to zoology. Nearly a thousand candidates had applied. The Health secretary ask Dr. Kalyanaraman during the interview, "why should we select you for this scholarship at the age of 26 years when there are so many other candidates with much more knowledge and experience?"

Dr. Kalyanaraman replied, "If you select me and make me a neurosurgeon I will serve the Government for 30 years whereas if you select a person aged 40 years and who is already a professor he will serve the government for only 15 years. I can give you double the value for the same money!"

He worked for four years at Edinburgh with Prof. Norman Dott and Prof. John Gillingham (who became President of the Royal College later). At that time Edinburgh was among the top 4 or 5 neurosurgical centres in the world and an endless stream of visitors and trainees used to come. there from all continents. This enriched his experience and developed an international outlook. In addition to training in all aspects of neurosurgery he also managed to secure, working in the late evening hours, FRCS's of both London and Edinburgh. He also became the first Neurosurgeon not only in India but also in Britain and probably in the world to get a Ph.D degree in neurosurgery.

He showed by stimulation studies in the living human brain that the pyramidal tract occupied only a small part of the posterior limb of the internal capsule contrary to earlier descriptions in standard anatomy books. He demonstrated that transcapsular surgical lesions can be made in the Parkinsonian patients without producing pyramidal deficit, and abolishing tremor and rigidity. Unfortunately the Edinburgh university regulations at that time forbade publication of Ph D thesis material and other workers who arrived at this truth much later got the credit in textbooks and journals.

He joined Dr. Ramamurthi's team as Assistant Professor at Madras in June 1964. For an uninterrupted period of 28 years he continued in the Madras Medical College and Government General Hospital becoming reader in '67, Additional Professor in '68, Professor in '84 and Director of the Institute of Neurology in '86. With Dr. Ramamurthi and other colleagues, he was responsible for putting Madras on the stereotaxic map of the world as an outstanding centre. His work on bilateral stereotaxic surgery, stereotaxic surgery for pain, stereotaxic leucotomy, stereotaxic capsulotomy for epilepsy and stereotaxic hypothalamotomy are well known and has been published in Neurology India and other international journals. The Government of India recognised his merit by conferring the Sir Shanthi Swarup Bhatnagar Award in 1969. He is one of the very few medical men on the clinical side to get this prestigious award and probably the only one among clinical neuroscientists to be given this award in the past four decades.

His work in ward 20 of the Royal Infirmary of Edinburgh stimulated in him an early interest in head injuries. With Dr. B. Ramamurthi he organised the first separate head injury ward in 1967 in the Madras Government General Hospital and managed to bring down the overall mortality of head injuries to 4% in the first 2000 cases, a feat which was equalled at that time by only one other centre, Edinburgh.

His paper on stereotaxic biopsy was the first on this subject in the world published by the Journal of Neurosurgery. His another paper in the Journal of Neurosurgery on growing fractures of the skull is still quoted as being the first attempt to challenge the conventional views on management of this condition.

Almost all the chapters on Head Injury in the first edition of our National Textbook on Neurosurgery were written by),Dr. Kalyanaraman.

Apart from being a good clinician, an excellent surgeon and a popular teacher, one of the greatest qualities of Dr. Kalyanaraman is his ability to fit into a team and carry out all departmental work very smoothly providing inspiring leadership whenever necessary, maintaining excellent personal relations with all colleagues and following the captain of the team as disciplined soldier at all times, Nearly fifty neurosurgical trainees have passed through his hands during his quarter century of professorship at the Madras Institute of Neurology and many of them remember how he used to lend them books and journals, attend to their financial needs by inviting them to participate in his surgical operations in outside clinics and take classes for them at 7.30 A.M on weekdays and on many Sundays. He has been an examiner for M Ch in more than a dozen universities and institutes all over India and many candidates have expressed the view that he always tried to bring out the best in them during the examination.

Another great quality of Dr. Kalyanaraman is his willingness to help juniors. It is not widely known that three out of the present six paid posts of neurosurgical consultants in the Madras Institute of Neurology were created by his initiative when he was the Director. He has stimulated his juniors to do research and three candidates have obtained Ph D under his guidance. He is encouraging his junior colleagues to take special interest in fields like stereotaxic radiosurgery, paediatric neurosurgery, skull base surgery and vascular neurosurgery so that each one of them can make a name in that field and develop it further.

Probably Dr. Kalyanaraman's greatest contribution to neuroscience in particular and medical education in general is his introduction of the concept of Continuing Medical Education in this country. After attending the meeting of the Congress of Neurological Surgeons in Honolulu in 1973 he forcefully pleaded with the NSI executive committees year after year to set apart a day for CME during the Annual Conference. He succeeded only after four years since such a concept had not been heard of in India at that time. He organised the first CME programme in India along with the NSI conference at Pune in 1979. Participants still remember the lively discussions which went on till late in the evening with stalwarts like Prof. Mathai, Prof. Dalal and others. The concept caught like wildfire and today there is hardly any society, college or conference without a number of CME programmes in all branches of medical sciences. He was also the first to print the entire CME lectures as a book and got it sold for Rs. 40/- at the NSI conference at Bangalore another first achievement to his credit. For eight years from the Pune Conference in 1979 to the Varanasi Conference in 1986 he was the CME convenor of NSI. During 1990 he and his colleagues organised 40 CME programmes at Madras to celebrate the 40th anniversary of the Madras Institute of Neurology.

He was Editor of Neurology India for 6 years and increased the frequency of publication of the journal from 4 to 6 times per year. He was also a member of the International Advisory Board of the British Journal of Neurosurgery during its first ten years.

He was the President of the Neurological Society of India in 1987. His presidential oration at Hyderabad on 'stereotaxic surgery -past,present and future', foretold many of the advances which are now current practice. He is now the ruling President of the Indian Society for Stereotactic and Functional Neurosurgery. He was the Vice President of the Asian Australian Society of Neurosurgeons from 1987 to 1991.

He retired from Tamil Nadu government service in 1992 at the age of 58 years. Immediately he started organising a teaching department at Apollo Hospitals, Madras. Within two years he got recognition from the National Board of Examinations to train candidates. At present he is the Head of the Department of Neurosurgery at Apollo Hospitals, Madras. The average number of neurosurgical patients on any given day there, is about 60 and there are nine full time consultant neurosurgeons and fourteen other surgical staff in that department making it one of the biggest neurosurgical departments in the private sector in this country today-a phenomenal growth indeed in just six years ! As

the convenor of the Madras Neuro Club he is still organising fortnightly clinical and journal club meetings of all the neurologists and neurosurgeons at Madras.

In spite of his busy fifteen hour work schedule even at the age of 65 years, he still manages to continue his extracurricular activities. A past president of the Rotary Club of Madras West and an active Rotarian for 30 years, he periodically attends free medical camps and epilepsy camps organised by the Rotary Club.

A deeply religious person, he has climbed up the Tirupathi hills by foot more than twenty times. He is the Managing Trustee of Sri Kanchi Kamakoti Sankaracharya Swamigal Bikshavandana Trust and also the Treasurer of the Madras Neuro Trust. However his greatest pleasure even now is to sit in his personal library at 10 p.m and browse through his enormous collection of books on literature and fiction. His favourite authors include Agatha Christie, Arthur Hailey, Jeffrey Archer and Sidney Sheldon. His is probably one of the largest private neurosurgical libraries in the country and is partly housed in the Appollo Hospital for the benefit of the postgraduates.

His wife Pattammal has been a source of constant support and strength to him. Like many neurosurgical wives she says that the longest periods she spends with him are when she accompanies him for conferences in India and abroad. It is a great satisfaction to him that his son has taken up a career in surgical neurology and his daughter has taken up a career in medical neurology.

**Prof. Shyamal Sen.**

**MD, FRCB FICB FIAN**

**President, Neurological Society of India 1988.**

You can imagine the Social and Medical milieu in the years of the Second World War, as I was admitted to the Medical College, Bengal exactly in 1939 and passed out in 1945: those were times when one had to spend full six years for qualifying as a Medical Graduate - Bachelor of Medicine just M. B. The teachers were still Britishers in majority.

The Medical College, Bengal had a great tradition of being the first ever medical college in India and overseas professors and clinicians fondly used to refer to this college as the Premier Institution of the East, founded in 1835. People from all over the state of undivided Bengal and the Eastern states like Nepal, Bhutan, Sikkim, Burma (Myanmar), in addition to people from all other states would come to Calcutta and flock in the Medical College, Bengal, either for studies or for treatment.

During the war years, there was deterioration of services in all fields of human activity and sense of value and creeping competition - an usual fall out of World War situation.

The hospital was neat and clean, still disciplined during the foreign rule :Majority of teachers and clinicians were still from overseas. We had the fortune of just having an Indian principal of the College and Superintendent of the Medical College Hospitals. Lt. Col. J. C. De was a superb gentleman, a soft spoken but firm administrator and a strict disciplinarian, supervising efficiently, in both hospital work and teaching set up in the College. He would quietly step in one of the back benches of a general class, watch with interest the shuffling steps of the unaware late coming students and the punctuality of the teachers' entry in the class. He would carefully listen to the stereotyped lecture of a rather poor grade teacher, make notes of his deficiencies would call him in his office and discuss improvement in teaching methods. He would sometimes shoot out a technical question during the class and supervised teacher would fumble to answer his sharp penetrating question. He would be seen queuing up in the outpatient's line for a bottle of medicine (of course free of cost), to assess the amount of delay in registering the name of patient and his disposal after getting his "bottle". There was crowding in OPDs but a disciplined approach to attention and care of the patient clinical wards were so neat and clean that one could not afford to be untidy. The visiting physician would come and start teaching clinics exactly at 8.30 A.M. The students must come about half an hour early and get ready for the cases to be discussed, the presenter of the case must have case notes spick and span. In the evening students were taken by a Registrar and it was here that one got the feel of 'hand-on-patients'.

Neurology cases for a student was a nightmare for presentation, both for case taking as well as in examination. Higher function and speech were so problematic and then came 12 pairs of cranial nerves,-it was a job to remember them, to test for their integrity, and then the rest of it - we had no neurology teacher and in retrospect I realise not all of them liked to teach neurology.

We had a very able teacher in the person of Prof. M. N. De the first Indian Professor, as Head of the Department of Medicine, who spent some time at the Queen Square. He was Prof. and Head, Dept. of Pathology, at the Medical College after his Membership of Royal College of Physicians, London and a great teacher in pathology for that, a pathologist of supreme esteem leaving behind him a pathology Museum, which was a pride in the country. Soon he got an opening as professor of Medicine, when the last English Professor of Medicine Lt Col. Kelly retired in 1938.

Professor De was a superb teacher whose clinical teaching as well as didactic lecture was unique and legendary, a class in which I had never the privilege of calling roles before the class started, which was my duty as the class Assistant to Prof. De. In the British system in those years (1939-1945), the first boy in a competitive test in Medicine (theory, clinical, practical and oral) was designated as class Assistant. who was also awarded a Medallion, a seat on the dias and the overall monitoring of classes held in Medicine. Prof. De forbade me to call roll of students who never failed to attend Dr. Moni De's Class. The lecture hall was packed to its capacity, students from all clinical classes and a large number from the other non Govt. Medical College thronged the class room. Nobody ever thought of missing the class, so no roll call was necessary.

He excelled in teaching neurology, having a glimpse of Queen Square tradition in early 30s. He gave demonstration in clinical neurology and taught the patho-physiological as well as anatomical basis of clinical neurology. I had to copy his extensive notes on Motor Neuron Disease, Parkinson's Disease, Peripheral Neuropathies and Multiple Sclerosis on the black board before and after the lecture, for the benefit of rest of the class. My foundation in Neurology "had a philip start". I learnt the basis of upper Jackson's concept of epilepsy as a sudden excessive, transient electrical discharge in the brain as its basis. Prof. De's exposition of Parkinson's Disease was so dramatic and expressive that one remembers his demonstration of stance and gait to-day which left a permanent impression of an advanced subject with Parkinson's Disease. Sciatica was known but cervical spondylosis was not. Use of ophthalmoscope was not in vogue to clinicians, it was relegated to an ophthalmological consult- Hypertensive and diabetic retinopathy was more discussed than papilloedema. I remember the clinical features of spastic paralpogia was more discussed but myelography was done seldom as contrast media (thorotrast) was fairly toxic - spinal cord compression was rarely addressed and majority of cases were designated as of syphilitic origin. Tabes dorsalis was however a pet case for demonstration encountered both in ward clinic as well as an examination case.

During early clinical training in Neurology there was no accredited neurologist available. The visiting psychiatrist who happened to have an MRCP was designated neuro-psychiatrist and sometimes acted as neurological consultant. The general medical specialists or internists took the major part of training of neurology to undergraduates and to certain extent to post-graduates viz. the postgraduate students in general medicine. preparing for their MD in General Medicine. There was no specialization course or degree of the University for the would be neurologists.

During the years in early fifties which I spent in the Dept. of Pathology as a junior teacher, I was assigned the teaching of special pathology of brain and the spinal cord. I got interested in neurosciences at its grass-root level. We had a beautiful pathological museum and indeed there was a fine collection of specimens in it. As I was preparing for my MD (General Medicine) I started studying the specimens and was impressed with the clinico-pathological correlation of the neuro-specimens - the strokes, brain abscesses, brain tumour, spinal cord tumour, specimen of tabes dorsalis, syringomyelia. various congenital abnormalities etc. I continued my interest in Neurosciences when I was Resident Physician and an epidemic of encephalitis broke out (JBE) in some of the districts of Bengal, viz. Burdwan, Bankura and purulia. I collected about 500 cases and wrote a paper, showing my interest in neurosciences. It was in 1959 that Government of west Bengal thought of sending somebody for formal training in Neurology and picked me up for the same. I was sent on a study leave in UK and the National hospital for Neurology and Neurosurgery at queen Square, London was selected for training in Neurology for 3 months.

### **Training at Queen square - an Institution par excellence with tradition and heritage of British Neurology:**

On January 04, 1916, I entered the main gate of the Hospital and one Mr. Campbell the doorman, short but knowledgeable man immediately escorted me to the Dean's office. There I met Miss Payne, the Dean's secretary and the Dean, Dr. Michael Kremmer. The first clinical session was with Dr. John Marshall, the then reader in Neurology,

university of London. It was a treat!. First the letter from the GP was read out; a short discussion in the way of question and answer from the gathered students was conducted. Right from the age and gender of the Patient the presenting symptoms and a few questions to the patient, a provisional diagnosis was reached in about 5 minutes time; this was which Dr. Marshall told us a historical diagnosis; a brief clinical examination was conducted to confirm the impression derived from the historical background and the diagnosis was confirmed; rather the investigation done was revealed which finally confirmed the diagnosis arrived at a historical level-usually 4 cases were taken for 2 hours outpatients clinic and one long case for indoor clinic. I used to take notes profusely; I collected 279 cases in this way in 3 months time. (I still have the notebook and have preserved it as a treasure). Later while I was attached to Dr. Denis Williams, a visiting consultant from St. George's Medical school told me- "Sen, when I have put my pen down I have made up my mind; if I haven't, I'll never make it". So tremendous was his self confidence in history taking - I thought it was an over-statement but at this mature age, I thought how much right he was ! I must admit passing through Queen Square gate one imbibes tremendous confidence in clinical diagnostic acumen in neurology. I met giants in contemporary Neurology in London, Sir Francis Walshe, Dr. Carmichael, Dr. McDonald Critchley with his flourish, the soft spoken Dr. Nevin and Dr. Ms. Dimsdale, Dr. William Goody, the Neuro-philosopher, Dr. Russel Brain (then Sir and latterly Lord), Dr. Purdon-Martin, Dr. Roger Gilliat, always busy with his EMG machine and eager to demonstrate the dive-bomber effect of EMG from muscles of patients with myotonic dystrophy. I met William McKissock who demonstrated, to me his "magic" with stereotaxic brain surgery of Parkinson's disease, stopping the tremor instantaneously with his lesion while I held the trembling hand of the unanesthetised patient coming to rest.

I met also the next generation, Dr. P.K. Thomas (the muscleman- to-be), Dr. Zilkha, Dr. Jelenik, Dr. Pamela Fullerton (later de'Quesne) from both the hospitals during training was organised viz. the National Hospital and the Maida Vale Hospital. I met the EEG man Dr. Cobb, (from Queens Square). Dr. Denis Hill and Dr. Driver from the Kings'College, Maudsley group; I learnt EMG from Dr. Bawens a Belgian born doctor later a naturalised Britisher at the St. Thomas Medical School and my EEG at a combined course at the National and Maudsley for 6 weeks.

The period spent at the Queen Square and Maida Vale Hospital will always remain a cherished memory where a neurologist was born out of an internist by a process of metamorphosis, like a Shudra by birth is changed to a Brahmin after the 'Sacred thread' ceremony. The basic change was a change in attitude to neurology following the long established and esteemed Queen Square tradition. I met many of my future colleagues like Drs. Arjundas, K. Jagannathan, K. S. Mani and others while at Queen Square.

A brief period of serving as SHO jointly under Dr. Sir Russel the legendary neurologist and Mr. Valentine Logue an outstanding neurosurgeon at the Maida Vale Hospital, was just a great experience. Sir Russel, after I got closer to him, one day asked me whether I knew Dr. Wadia of Bombay, when I answered in the negative, he asked me to meet him at the earliest when I returned to India. Meet I did and ever since remained great friends.

I wouldn't go into details of my hospital training in neurology in UK; this included the Haywards Health Hospital of Neurology and Neurosurgery (Sussex) - said to be "abode" of Queen Square Hospital during the war years; here I met my life-long friend Dr. K. K. Sinha the legendary Neurologist of Ranchi, who, you must believe me; was the Registrar in Neurosurgery and taught me, how to drill a skull hole to drain subdural haematoma. At the Midland Centre of Neurology and Neurosurgery I met Dr. Bickerstaff who was then working on his book, 'Examination of the Nervous System.' He was satisfied with the level of my training and relied on me for his letters to the doctors regarding the referred cases. I spent about 6 months with the Neurosurgeon Mr. Hamiltan who told me that a neurosurgeon is a fully trained neurologist who did some cutting also. He told me once that I could still change my line and go for neurosurgery, because after all how I would carry on with the vast number of untreatable neurological cases and depend on epilepsy myasthenia gravis

only for treatable disease. He was obviously talking on a light vein, "you cannot dedicate your life time on these two diseases alone" - and "you still need surgeons to help you in treating them".

The Edinburgh training was reassuring and I had no problem after having passed through the rigours of the Queen Square. There I met personalities like Dr. Slater (teacher of all Scottish Neurologists of his time) Dr. J.A. Simpson who later held chair at Glasgow University, Dr. Stanton and others. It was an enjoyable session at the Anatomy Department of the Royal Infirmary Edinburgh, where I revised my neuroanatomy cutting through a human brain under the guidance of Dr. Romanis, the Chief of Anatomy there and his able deputy Dr. Pollinski.

Back home in Jan 1963 I joined my own Medical College as Assistant Professor, Dept of Medicine and was given an OPD, separating Neurology from so-called (Neuro) Psychiatric OPD. I was also given the assignment of delivering didactic lectures in Neurology to the undergraduates. Apparently, though the Govt. sent me for training in Neurology, it was not prepared to undertake establishing a Neurology Unit or a separate Neurology Dept. yet. It took me about seven years before the Govt's acceptance of my proposal of creating a combined Neurology and Neurosurgery Dept., with a common administrative head; accordingly sanction was obtained from the Govt. for an independent Department of Neurology with Medical and Surgical divisions. I assumed as the Head of the combined department with two Neurophysicians and two neurosurgeons (of visiting rank and having academic assignment), two RMOs one for Neurology and one for Neurosurgery and two medical officers one for each division. The equipments were acquired gradually and ours was first combined Dept of Neurology to be established in an undergraduate medical college and second dept, in the State, the first being situated in the Institute of Post-graduate Medical Education and research, Calcutta established earlier by late Dr. T. K. Ghosh in 1950. It took Govt. about two decades to establish the second Department of Neurology in the State of West Bengal. One wonders why this delay in the development of Neurosciences in the State; the reasons are many; Interest in neurology in post-independent Medical Colleges did not develop, first due to lack of neuro tradition in the state, secondly glamour of cardiology with newer therapeutic horizons lack of interest in the teacher who taught neurology and thirdly institutional negligence. The main obstacle, in having a few ideal Neurocentres was the lack of insight in the required fabric of a neurocentre. The conflict of professional and academic life, crudely the division into the so-called practising and non-practising personnel, the spirit of development of a department rather than one's own career, the lack of political will of having the clinical material and investigational facilities as well, the proper men behind the machine and lack of a coordinated and organised approach-all contributed to one aspired goal, an efficient and viable neurocentre which was to be achieved.

So, when, I came back with a governmental authority of being seconded to neurology, I saw that my Chief Prof. J. C. Banerjee an outstanding clinician saturated with interest in Cardiology, I felt dismayed, but took a serious oath, God willing, I shall train at least a dozen internists Neurology so that Neurology would get its due status in my state. I started taking special classes in Neurology for the post-graduates and gradually a trend of taking up neurology as a career was developed and talented boys started turning up. Then, the DM in Neurology was ushered in the University College of Medicine and Neurology with its only citadel at IPGME & R came down at the undergraduate college level of course with facility of teaching of post-graduates as well. We have now more than 50 trained neurologists in the state, all the teaching institutions in the metropolis having independent Neurosciences division. It was time that Neurology developed in the teaching colleges outside the Metropolis in the so-called Mofussil towns, as well as in privately managed non-teaching hospitals.

### **Neurology for Internists/General physician**

More than 25 years back, it occurred to me that though NSI branched out from the parent body, the Association of Physicians of there. was need for the general physicians to be exposed to current trends and opinions in

Neurosciences. I, was therefore, involved in contributing more and more neurological sessions in API forum. This they appreciated in the API and I was elected as the first ever Neurologist president of API. Later, I felt that an Indian college of physicians was already overdue in the lines of Royal colleges of physicians in UK and ex-colonies like Canada, Australia, New Zealand and American college of physicians. Again I was instrumental with my able and wise physician colleagues, establishing the Indian College of physicians within the fold of APL, and was elected the Founder president of the College about a decade ago.

Regarding developing superspecialities in Neurosciences, I have always cherished the dream of starting one in "Sleep Medicine,' and one in Autonomic Nervous System Disorders. It was possible to start a sleep Unit under the aegis of Swami Abhedanand's Neurology clinic, in Vivekananda Institute of Medical Sciences – Ramakrishna mission Seva Pratishtan, in Calcutta. It could not develop or thrive because of lack of interest amongst the staff, to devote time on sleep research.

With early difficulties an Indian Autonomic society has been ushered in. Continuing as Founder president of the society for the last four years, the Presidentship has now passed into the able hand of my colleague, Dr G. Arjundas of Chennai whose devoted and inspired service will hopefully lead the Society to a bright and successful future

### **NSI Annual Conferences and development of Neuro Units**

The activities, academic and organisational of NSI have a profound influence on its regional member states. Each year the various topics of work presented at the Annual conferences reflected the on-going research activities in the country and each region and centres would update knowledge as well as imbibe activities not covered in their own region. This inspiring and catalyst influence of the Annual conferences go a long way in development of Neurosciences in the country. In addition, the practice of inviting international luminaries in neurosciences who are important figures in their own discipline also has an outstanding contribution in the development of the science in Indian context.

The Decade of the Brain which started in 1990 also had a tremendous influence on the development of neuroscience in the country and its regional centres.

### **Development of Neurosciences in Eastern India**

An outline of development of neurosciences in Eastern Region has already been published in the souvenir of the 11th Annual Conference of Association of Neuroscientists of Eastern India (ANEI) held at Ranchi last year. The initiative of its formation was jointly taken by Dr. K. K. Sinha and me about a decade back and when it came into existence officially into 1994, I was the Founder and first President and Dr. K. K. Sinha its Founder Secretary. He has carefully nurtured this baby in its infancy and still carries on with the same during its adolescence. The outstanding contribution of Dr. Sinha is his bringing out Annual Volumes captioned as "Advances in Clinical Neurosciences" edited jointly by him and his able Colleague, Dr. Prakash Chandra, a fine Neuro surgeon of Ranchi. This annual volume has been a prestige publication of ANEI and contains updated review articles on current topics from the pens of National and International experts on the subject. The volume is popular with all neuroscientists of the country and is read with great interest by post-graduates and DM & DNB candidates with great enthusiasm – a tribute to the editors. The ANEI Annual Conferences also are now important events in the country in which neuroscientists from all over the country participate and are comparable to the Annual events of the NSI and IAN the newly formed Indian Academy of Neurology. The mouthpiece of ANEI, Journal of Association of Neuroscientists of India (JANEI) is now on its third year of publication under the able and efficient' editorship of Prof. Ambar Chakravorty, the outstanding Neurologist of the third generation in the state. Incidentally, he

is one of the best, if not the best of my students so far trained in Neurology here, and one who had a finishing touch in his training in UK under Dr. JMS Pierce of Hull Royal Infirmary.

### **Neurosciences in West Bengal**

The entire decade of fifties had 'the Neurologist' of West Bengal in the person of late Prof TK Ghosh who was Professor Director of the Dept. of Neurology at the Institute of post-graduate Medical Education and Research at the SSKM Hospital. He reigned supreme in the real sense of the word and was Founder of the Bangur Institute of Neurology which was included in the SSKM group of Hospitals of IPGME & R. He was the pioneer and later doyen of Neurology in the state and I would like to term him as Pioneer of Bengal Neurology rather than the first generation which may be reserved for us.

Thus, in early sixties we were 6 neurologists (leaving late Dr. T. K. Ghosh alone), I Dr. MB Bhattacharjee, Dr. B. Raychowdhury, late Dr. T. K. Chowdhury, Dr. Anupam Dasgupta and Dr. p. K Basu. All of them held academic grade of Professor and acted as Heads of the Dept. in their active service with the west Bengal Govt. A few words regarding my contemporary colleagues will not be out of place here. In 1963, the Association of Physicians of India had its APICON' 63 in Calcutta, where the NSI separated out from API. But I met the Seniors in NSI, like Dr. Baldev Singh, Prof. Jacob Chandy, Drs. B. Ramamurthi, Edie Bharucha, Gajendra Singh, NH Wadia, A. D. Desai and others. 1965 NSI had its Annual Conference at Calcutta, where Dr. T. K. Ghosh, the seniormost in this area, was chairman and Dr. Ramen Chatterjee was President & secretary respectively of the organising Committee. Dr. Asok Bagchi, a performing Neurosurgeon of great skill and great promise was to be seen everywhere. His sociable nature and aggressive but charming personality made him very prominent in the Society. He became President, Editor of (Neurology, India) and the Society's Historian and has been a great friend of me throughout the 4 decades thereafter. We were five neurophysicians in the 2nd generation in Calcutta early 60s onward while late Prof. T. K. Ghosh reigned as the Monarch for about a decade in the fifties. They were all trained abroad and contributed immediately in developing fields of Neurology. All of them later headed departments (see Table 2) and contributed in the training of future generation of Neuro-scientists in West Bengal, younger neurosurgeons like Dr. Benoy Gopal Chakravarty was also highly qualified and settled in UK in a different perspective. Prof. R. N. Roy and Durga Roychowdhury Dr. Wasek headed departments, Dr. Roy in the post-graduate Institute and the rest in the Undergraduate Departments.

It is a nice thing that the majority of the present day neurologists have been my students, in undergraduate, Post-graduate or post-doctoral phase of their training. I have the satisfaction that though it was not

possible for offering them latest equipments in neuroscience practice, they are trained fairly adequately and represent a fine band of second generation neurologists, comparable to their counterparts in any part of the country and elsewhere. I look forward to their success, in medical care, medical teaching and medical research ushering in the modernity of the 21st century. I bless them in the name of Almighty and wish them all success!!

### **The National Neuro-science Centre**

The latest venture in updating neurosciences in the state is inauguration of a National Neurosciences Centre (NNC) based at the Peerless General Hospital, a general hospital spread in about 5 acres of land in lush green surroundings with 5 lakes around at the outskirts of the city at "Panchasayar" (5 lakes) Garia, Calcutta. It has adequate modernised facilities of a General Hospital. This is being directed by Dr.

RP Sengupta (well known Neurosurgeon in the NSI circle), and eminent consultant neurosurgeons from New Castle, UK, as the Director and 2 visiting surgeons Dr. Abhijit Guha from Toronto, Canada and Dr. C. N. Sen from New York (USA).

The total staff include me as senior consultant and two full-time Neurologists and Neurosurgeons viz. Dr. Tapas Kumar Banerjee and D. Chowdhury, Dr. A. K. Roy and Partha Bishnu, respectively. The administration will be jointly under the Neurosciences foundation of UK and the Peerless General Hospital.

Table 1 shows the early development and pioneers of neurosciences in the eastern region of India and Table 2 shows earlier development and 2nd generation of Neuroscientists in different Neurosciences centres in Bengal.

### Concluding Remarks

As requested I have given my impression and reminiscences in an autobiographic style presentation stressing the social and medical milieu, the training I had in neurosciences, my teachers and contemporaries and the delay and difficulty in bringing up neuroscience centre at my place. I could have given further details particularly in setting up ideal neurocentre here but space forbids me doing that way. I may not have fully succeeded but still I feel the posterity will find some interest in

knowing the feelings of a senior citizen vis-a-vis Neurology in Bengal, regarding development and history of Neurosciences here]

Talking of learning neurosciences, I may quote..Much have I learned from my teachers, more from my colleague, una f.o\* my students more than from them all.', (Babyloniin falmid 2nd Century).

Table - 1  
Early Development : ,The pioneers'

	Assam	Bihar	Orissa	West Bengal
Early days (anecdotal)	1979	1942 Richard Johnson	1965 Dr. Sanatan Rath	1941 Dr. P. C. Sanyal Gen.Surgeonwith Neuro bias
		Archibold Leigh		
Unit		A.R Chowdhury BC Kakoty	Davis Psychosurg 1958 Dr. R.Prasad	Dr. T. K. Ghosh Dr. R.N. Chatterjee Dr. Asok Bagchi

Table – 2  
2<sup>nd</sup> Generation of Neuroscientists

Assam		Bihar		Orissa
K. V. Mathai (invited by Assam Govt.) Dr. Zakir Hussa Dr. S. Sharma	Neuro surgeon	Dr R Prasad Dr N P Sinha Dr Ramesh Chandra Dr H R R Verma Dr H P Narayan	Neuro surgeon	Dr S Rath Dr B S Das Dr B N Acharya Neuro surgeon

Dr Mrs. A Mahapatra Dr A Kayal Dr Borah	Neuro Physician	Dr K K Sinha Dr A K Sinha	Neuro Physician	Dr G C Mitra Dr R V Sahu	Neuro Physician

**Prof S. N. Bhagawati.**

**President, Neurological Society of India 1989-1991.**

Born on 17th December, 1928, I had primary and secondary schooling in Bombay and participated in the Quit India Movement of 1942 and was jailed for a week as young lad of 13.

After having done the premedical at Elphinstone College joined Seth G. S. Medical College in 1947. From early age I had great fascination for medical profession as it allowed one the freedom of practice, enabling one to serve the people the way he liked. I had a bright scholastic career and graduated in 1952, bagging Lord Sandhurst Gold Medal for Pathology. During this period I was actively involved in student movement and was the leader behind establishment of a cooperative store at the Medical College. I was always fascinated by surgery, possibly the influence of having known a great surgeon like Dr. A. V. Baliga. I took up the registration for M. S. in General surgery and did the first house job with Dr. Ram Ginde. The dedication of Dr. Ginde to his profession, his clinical acumen, his operative skill, his untiring enthusiasm, his pursuit of excellence and the compassion for the patients made a deep impression on me and I decided to take up the challenging career of Neurosurgery. That was the time when we had to operate on general surgical cases in the morning followed by neurosurgical cases which often went on till midnight. This pioneering work of Dr. Ginde was rewarding and satisfying though that meant hard work for me for nearly 18 hours a day.

I was lucky in having subsequent house job with Dr. Katrak and Dr. Dholakia in Orthopaedics and with Dr. S. G. Joshi in ENT department. Though they were giving honorary services to the institution, their devotion to their duties, their desire to teach and affection for their patients was overwhelming. Subsequently I joined as Registrar in Surgery and worked with Dr. K. G. Munsif and Dr. A. V. Baliga, surgeons of great repute and erudite teachers. Work with these giants created an everlasting impression on me and I became more determined to take up Neurosurgery, a challenging speciality that was just being introduced in the country, I was ready to put in any amount of hard work that was necessary to become a proficient neurosurgeon and serve our people. The joy that one got in treating these poor patients at the KEM Hospital, the innocent patients who always remained grateful to you can never be compared with that from treating affluent people who often felt that they had "bought" your services. The joy one experienced in seeing a sick child recover to normality or a despondent wife lit up with hopes of a normal life with a husband who went home after a successful treatment for brain tumour was exhilarating.

It was in September of 1956, after having obtained M. S. in Gen Surgery of the Bombay University, I thought of going abroad for further training in neurosurgery. I had initially planned to go to Montreal Neurological Institute, then mecca of neurosurgery and work with Drs. Penfield and Cone. Whilst awaiting Dr. Ginde's return from abroad, knowing that Dr. H. M. Dastur was being trained in U. K, I enquired him as to how good a training programme he was having. To my great surprise I received a reply offering me the job of a Senior House Surgeon at the Atkinson Morley's Hospital, a branch of St. George's Hospital, London that housed the departments of Neurosurgery, Neurology and Psychiatry.

I immediately accepted the offer ascertaining from Mr. Wylie McKissock that it was not necessary for me to have FRCS for my full training in neurosurgery - M. S. of Bombay University was a good enough academic qualification for me. This was really a turning point in my career as this was an excellent training centre that dealt with nearly 2000 neurosurgical patients a year. Those were the days when one had to rely mainly on air study - ventriculography or pneumo-encephalography to localise the tumour. Arteriography was used mainly to investigate cases of subarachnoid haemorrhage by direct carotid or vertebral punctures. It began to be used for detection of neoplasms only towards the end of my training. We had world's best neuro-radiologists at our institution- Dr. James Bull and Mr. McKissock himself. It was then obvious that the neurosurgeon had to be a good neuro-radiologist to be able to locate the tumour and

perform craniotomy at the right place. This training for over 4 years stood me in good stead subsequently on my return to the country in 1962. Correct interpretation of air study helped both Dr. H. M. Dastur and me in having hardly any wrong exposure.

During this period I was exposed to a lot of cases of subarachnoid haemorrhage. One used to have over 500 cases of SAH admitted to the institution per annum and nearly 250 cases of aneurysm were operated upon. The institution was a major contributor for the Cooperative Study on Aneurysms that were conducted then. A trial on the management of intracerebral haematomas was also conducted then. This had shown that evacuation of these haematomas was of no value in comatose patients and that surgery was worthwhile only when the haematoma was acting as a space occupying lesion. Evacuation of cerebellar haematoma, however, was almost mandatory unless very small in size. Continuation of this practice has stood the test of time and unnecessary surgery on many of these hypertensive haemorrhages is being avoided in most of the centres in the country.

I was involved in the setting up of stereotaxic surgery in 1958 by Mr. Walsh at the Atkinson's Morley's Hospital with the use of Leksell's frame. A fair number of patients with Parkinson's disease were subjected to pallidotomy to start with and thalamotomy of VL nucleus subsequently as the latter seemed to be more effective in controlling contralateral tremors. On my return to Bombay, I continued the practice of stereotaxic surgery, doing thalamotomies for Parkinson's Disease from 1963 onwards. This received a further fillip when commonwealth team visited Madras and Bombay to develop stereotaxic surgery in 1964. This was the time when I could arrange with an engineer working with my brother to go to Madras to Dr. Ramamurthi's set up, have the detailed drawings of Leksell's frame and have it duplicated at a meagre cost of Rs. 10,000/- only. Over the course of next few years these frames were supplied at cost to seven centres of the country, thus promoting the practice of stereotaxic surgery. People were so appreciative of this effort that they almost labelled it as "Bhagwati frame".

After finishing my training in London towards the end of 1960, I had the opportunity to work as a Research fellow in paediatric Neurosurgery at Children's Memorial Hospital, Chicago from January 1961 to June 1962. This interest was kindled by Mr. Kenneth Till, consultant neurosurgeon from Hospital for Sick Children at Great Ormond Street. Mr. Till used to come to A. M. H. once a week. This was another area of interest that I developed further on my return to the country when I had a long liaison with Dr. P. M. Udani at the J. J. Group of Hospitals in doing both routine paediatric neurosurgery as well as a lot of academic work on neurotuberculosis with him and Dr. Darab K. Dastur.

On return to Bombay in July of 1962, I was fortunate in getting an attachment to the Bombay Hospital as a full-time honorary consultant and as Honorary Asst. Prof. of Neurosurgery at the Grant Medical College and J. J. Group of Hospitals from October of 1962. I took up this type of attachment at the Bombay Hospital as I was convinced that this was the only way one could develop the speciality in the institution. This was a symbiotic process whereby both the consultant and the institution progressed further. I was quite in favour of this type of attachment even though it precluded me from getting attachments to other private institutions. As a student at KEM Hospital, I had seen how well Tata Memorial Hospital for Cancer had developed with all their surgeons practicing only at that institution. I took up the appointment as the J. J. Group of Hospitals, a teaching institution to wet my academic appetite. This meant that I would spend several hours every morning at the J. J. Hospital and then spend the afternoon and evenings to see and treat the patients at Bombay Hospital. This system of an honorary attachment at a teaching institution with a practising private attachment had been working well for several decades in Bombay.

When I returned to Bombay, we were only 3 practising neurosurgeons besides Dr. Ginde and Dr. H. M. Dastur as a full time Professor at KEM Hospital. Dr. Gajendra Singh had started work at J. J. hospital after a brief training at CMC Vellore in 1958 and Dr. V. G. Daftary similarly at Nair Hospital in 1959 after a brief stint at Newcastle. Dr. H. M. Dastur had

established himself as a proficient neurosurgeon by then with a reasonably good support from a well established neurology unit headed by Dr. E. P. Bharucha. The neurosurgical unit at J. J. Hospital was considered almost as a surgical arm of well run neurology unit of Dr: N. H. Wadia till Dr. Ginde was appointed with a second neurosurgical unit in mid 1961. Dr. V. S. Dave was appointed as Hon. Asst. Prof of Neurosurgery at the same time as I was. The work continued to increase with referrals from all over the state and soon 45 neurological beds were found to be inadequate. Therefore head injury patients were treated in general surgical beds unless they required intensive neurosurgical care.

Soon a dedicated operation theatre was allotted and the units started operating on alternate days.

Neurotuberculosis was very prevalent then with intracranial tuberculomas forming almost 20% -25%vo of all space occupying lesions. Tubercular meningitis with its disastrous manifestation was very common in children and one used to see a lot of cases lying in a comatose decerebrate state in the paediatric wards. The autopsy studies carried out by Dr. Darab Dastur on this children had shown the-occurrence of thick basal exudate, ischemic changes in the territory of vessels encased by the exudate, varying degree of hydrocealus and multiple tuberculomas. The exudate often blocked the basar cistems and prevented the CSF from circulating over the cerebral cortex; at times the exudate prevented the absorption of the CSF by the arachnoid villi; exudate at times blocked the foramina of Luschka and Majendie with dilatation of fourth ventricle also. These autopsy findings and manifestations of raised intracranial pressure prompted us to perform ventriculography on these patients. Those in whom CSF was under pressure had insertion of ventriculo-atrial shunt with beneficial results. Shunt could be inserted even when the disease was active. This work was initially reported by me in the Journal of Neurosurgery and the world Congress of Neurosurgery in 1967' Soon it caught on and insertion of shunt became a common, procedure in most of the centres of the country. Many of these children showed improvement in hemiparesis, speech and vision after shunt insertion. ventriculo-atrial shunt was abandoned in seventies in favour of ventriculoperitoneal shunt as shunt infection, septicemia, pulmonary embolism and hypertension were frequent complication. Also one needed to lengthen VA shunts with the growth of the child.

with the advent of CT Scanner, one could study the morphology and pathophysiology of neurotuberculosis better. Many of the tuberculomas could be diagnosed on imaging and could be treated purely medically. They could be monitored more readily both clinically as well as by imaging and surgery was required only when raised intracranial pressure. impending loss of vision or doubtful or mistaken diagnosis were present. A paper on this was presented to the International Society for Paediatric Surgery in 1989 and this approach was popularised.

Then came the CT disappearing lesions which were thought to be tiny tuberculomas to start with. However, as majority of them tended to disappear on their own within 6-8 weeks, the notion was popularised that they should be treated only with antiepileptics to start with. Subsequent work at CMC Vellore showed that most of them were of infective origin, mostly a result of neurocysticercosis. With the advent of MRI in 1990,a cysticercal lesion could be identified more easily and most of these lesions now are treated only with antiepileptics.

I had started the use of magnifying loop nearly 40 years ago and have encouraged several people to do so. This magnification of the tissues has always been useful in the dissection of tumours of vital neuro-vascular structures. This has enabled me to have total excision of even huge acoustic nerve tumours ever since I began my career here. Surgical microscope was obtained in early eighties, soon after Drs. Pia and Grote conducted their workshops in Delhi and Bombay and its use was encouraged both at the Bombay Hospital and J. J. Hospitals. C arm TV was made available and transphenoidal surgery was commenced in mid eighties. Anterior cervical microdissectomies and anterior fusion were also introduced then.

I have believed in spreading education, in updating the knowledge of both the postgraduate students as well as consultants and have organized several Continuing Medical Education (CME) programmes since early eighties. I had the first CME with Drs. Pia and Grote in 1980, with Prof Samii, Dr. Sengupta and Dr. Bates in 1982 and subsequently with Drs. Sengupta, Willian Sweet and Gholkar. A real insight into skull base surgery approaches became possible when Drs. Samii and subsequently Drs. Laligam Sekhar and Chandra Sen spent sometime with us. To promote it further Skull Base Surgery Society was inducted in 1995 and registered in 1997. Its first annual conference was held in Delhi from 25th to 27th September of this year.

Having had a special interest in paediatric neurosurgery, I became a member of International Society for Paediatric Neurosurgery (ISPN) in 1974 and have presented papers on congenital AAD, shunts and shunt problems in tubercular meningitis, medical treatment of intracranial tuberculomas, management of optic pathway gliomas and brainstem gliomas. In October 1989, I was the Organising Chairman of its annual meeting that was held in Bombay soon after the World Congress in Delhi got over. This well organised meeting acted as an impetus to start the Indian Society for Paediatric Neurosurgery the same year and since then every year, a one day meeting is held. Subjects that have been covered are craniopharyngioma, infra-tentorial tumours, supratentorial tumours, spinal dysraphism, cranio-cerebral trauma and craniofacial surgery. CME programmes sponsored by ISPN, WHNS Trust (India) and Bombay Hospital have been organised in 1992, 1994 and 1996 at the Bombay Hospital with a guest international faculty each time. Now a 3 year CME programmes has been organised to cover the whole subject of paediatric neurosurgery, the first part having been organised in November of 1997 and the second part will be held in Calcutta towards the end of October 1998. With this interest that one has shown in organising these teaching programmes and the scientific contribution made over the years, I was elected President of the International society for paediatric Neurosurgery in 1996. This year three of our young neurosurgeons received full scholarship to attend the annual meeting in Sidney, Australia. These activities have acted as a stimulus to quite a few people to practise mainly paediatric neurosurgery. First unit of its kind is now established at Bai Jerbai Wadia Hospital for Children.

Though a fair amount of stereotactic surgery was practised in sixties and seventies when thalamotomies, amygdalotomies, hypothalamotomy, cingulotomy, etc. were practised, there was a lull with the advent of L. Dopa. CT guided stereotaxic surgery was used mainly to have biopsies of deep seated lesions or lesions located in eloquent areas. Now there is a resurgence of pallidotomy and thalamotomy and a month ago we have ventured to implant 'Deep Brain Stimulating Electrodes', in STN (Sub thalamic nucleus) for Parkinson's Disease in patients in whom the disease has progressed despite L. Dopa, who have a lot of "on and off, phenomena, who have marked drug induced dyskinesia and who are markedly disabled during the off period.

Possibly because the Neurological Society of India had relatively few members for many years, same persons continued as office bearers of the society for several terms for nearly two decades. The office bearers were nominated by the Executive Committee and approved by voice vote by the General Body. It was only after the annual meeting at Poona in 1977 that the democratic process of inviting applications for the vacant posts and election by ballot has come into being. This has led to a greater participation by members in the affairs of the Society. Both during my tenure as treasurer in 1978- 1980 and Secretary in 1981 - 1983 of the Society further encouragement was given to the postgraduates to participate in the annual conferences, utilising the Travelling Fellowships and Visiting Fellowships. Unfortunately, of late this enthusiasm is on the wane. I was fortunate in being the President of NSI in 1989 when the world congresses of Neurosurgery and Neurology were held in India in Delhi. The hosting of these conferences was an eye opener to the neurosurgeons from abroad - they were astounded by our organising abilities, our hospitality and the academic content of our contribution. Also we were able to save a fair amount of money which has been deposited in WFNS Trust (India) and XVI world congress of Neurology Trust. The fund of WFNS Trust (India) is being utilised to organise CMEs in the country so that maximum number of people can derive benefit from the same. Almost half a dozen CMEs are now

organised with its help every year. Besides starting Dr. Ginde Oration at the NSI, I have also got a similar oration organised to commemorate Dr. Ginde's contribution at the Bombay Hospital. Every year a neurosurgeon of international repute is invited to deliver the oration. Thereafter for 1 r/Z days live demonstration of intricate surgical procedures is held. Nearly 80-90 neurosurgeons from all over the country attend it.

Bombay seems to have maintained its position as a pace setter in medicine. Most of the institutions, barring a few public hospitals, have their own CT Scanner, MRI Scanners and DSA machines with capabilities of good interventional radiology. Hinduja Hospital has had Gamma Knife For over 18 months; Jaslok Hospital and Bombay Hospital will be having linear accelerators and X knife in the next few months. Surgery for epilepsy, subdural mapping, etc. is to start both at Hinduja Hospital and Bombay Hospital in the near future. Dr. Darab Dastur has maintained his academic interest and is the Director, Department of Neuropathology and Applied Biology Research unit at the Bombay Hospital which continues to have good academic output. There certainly has been a tremendous progress in neurosciences in the city of Bombay in the last 30 years.

president, Neurological Society of India 1992.

1963 January was my first introduction, to the Neurological society of India at Calcutta. The occasion was the Annual meeting of the Association of physicians of India with whom the Neurological society of India used to meet earlier. Just a few months before the Indo-china War had taken place and the usual December, 62 meeting had been postponed to Jan '63. If memory serves me right barely 25 people attended the NSI meeting. The late Dr. Baldev Singh presided. There was some talk on the delay in Dr. Baldev Singh achieving the presidentship though he was a founding member. All this was however very civil without any acrimony or mention even in the GBM. The very young Dr. Ramamurthi came to where I and Dr. Taori were standing and introduced himself. Even then he was a famous face and we were for a few seconds quite shocked before I held out my hand to shake his proffered hand and introduced myself. It was a remarkable experience to meet this small community of neuroscientists. If I remember correctly the people there were Dr Baldev Singh, Dr Jacob Chandy, Dr. B. RamaMurthy. Dr R G Ginde, Dr. R. N. Chatterji, Dr. Asoke Bagchi, Dr. R. N. Roy, Dr. S. pathak, Dr. V. Viramni, Dr. P. N. Tandon (it was a first meeting also), Dr. E. P. Bharucha, Dr. N. H. Wadia, Dr. Arjun Dass. Dr. T. K. Ghosh and Dr. Gajendra Sinha. Dr. Baldev Singh in his presidential oration dealt with experimental aspects which then were awesome to my young eyes. Papers were leisurely read with no time pressure as there was more time available than papers' Discussions were extended and educative. The social programmes in the evenings were hilarious with alcohol flowing like water' During the banquet which had many of the legends of then Indian Medical world, after vain attempts to dance eventually crawled to their chairs and were carried to the buses and cars. The other memorable thing was the dinner packets -given to us during departure after the conference ended at the railway station by the organizers supplemented by a surreptitiously handed over bottle of Solan No. whisky bottle wrapped.

in Statesman of the same day, which gave us intellectual, gastronomic and spiritual support during the long train journey to Vellore.

The next annual meeting which happened to be the last A. P. I. with which N. S. I. met was held at Patiala. (Jan 1964) I did not attend. It was the awful cold which made it famous. Dr. Mathai fell ill due to the cold. Anyway it was a cold farewell to A. P. I. by NSI for the last time.

The 1964 ( Dec) meeting was held at Bombay very likely at Matusri Hall. A sea change had taken place in the proceedings. Large number of papers had come and the attendance was close to 100, as there were large number of delegates who were not members of N. S. I. The memorable thing was a paper read by the late Prof. Satyanand which was the last paper before lunch on one of the days. The session was chaired by Dr. B. K. Anand who was President that year. I was sitting in the front row as the late Dr. Baldev Singh had made me sit by his side at the beginning of the session talking about Vellore. Dr. Satyanand was, if I remember correctly, talking of models of human behaviour which had little to interest the audience. After the customary time ended, Dr. Anand pressed the red bulb which was the only one. Most of the audience left as soon as he started talking. I suddenly realized that the entire audience was Dr. Baldev Singh and I. The podium had Dr. B. K. Anand and Dr. Satyanand. After another 5 minutes Dr. Anand started putting the light on and off. I breathed a sigh of relief as this was no more a subtle warning of end of time. After that what Dr. Satyanand did was to take my breath away. He didn't pause while talking, put a hand in his coat pocket, taking out a kerchief and screwed out the bulb out of its socket and put it in his pocket. He went on talking as if nothing had happened' By that time Dr. Baldev Singh had started to fidget and I of course was dying to run out of the hall. It is then that Dr. B. K. Anand got up from his chair and in very strong Punjabi asked him to stop, threatening to leave the hall. It is only then that the paper ended.

In 1979. I was elected Treasurer of N. S. I. The following 6 years, the first 3 as Treasurer followed by Secretary of N. S. I. were important years for me. The first thing I did was to regularize the roster of members. I noticed large number of members who had not paid dues for years or even attended meetings of N. S. I. It was a painful task as several were senior members. Some were my seniors at A. I. I. M. S. My last warning was a trifle ominous and harsh. Two responses I still remember. "How can you write such a letter to an ex president", the other was from an old teacher "I have no money to pay the old dues, I should have ,resigned earlier." The latter also told Anjali, my wife, that I was too strict, but I must continue to be so even if it affects those who are near and dear, was the late Dr. B. K. Bachhawat who was probably the last of the old style Gurus who taught by example starting from laboratory to home.

The large scale amendments to the constitution of N. S. I. were first undertaken by me during the Vellore NSI meeting. I was advised by everyone that I better be careful as there were too many seniors who would chew me up piece by piece. I was somewhat naughty in my strategy. I put up the proposal to the General body meeting on the day of the banquet. I also allowed discussions to go on and on Thus insignificant points were discussed ad nauseum till it was time for the banquet which had been organised for all participants. By the time everyone was so tired. they just approved the bulk of the new proposals and N. S. I had a good constitution and bye laws. Decision making by tiring participants is something I had learnt from Dr. V. Ramalingaswami, the then Director of A.I. I. M. S. I did put it to good use. consensus by exhaustion I feel is always the best.

The international congress of Neurological surgery in 1989 was heady days full of exhausting work. what was unique was the support of many' I must mention Dr. B. Ramamurhti and Dr. P. N. Tandon specially as they had such implicit faith in me that it forced me to rise ,come up to their expectation. Much of the hard work for the International congresses was done by us from Neurosurgery which made it easy for the Secretary's of Neurology and Epilepsy Congresses. I was somewhat peeved at the lack of public acknowledgement for this but anyways Dr. Baldev Singh and Dr. K. S. Mani made up for my disappointment by personally thanking me.

My election as vice president of N. S. I. at Chandigarh was a controversial one. I have never spoken about it. However it is absolutely true that I broke no rule or convention. Contrary to popular belief this did not polarized neurologists and neurosurgeons I am personally aware of many in either group who readily told me that they voted against or for me .I have repeatedly said that commitment to the Neurological Society should be the sole guiding force- Talking about different group is much like the currently caste based politics being practised at the national level .

As I look back to my long association from 1963 to date, through every role - associate member to President. I think ours is a remarkable Society. Its diversity is its strength. Its the commonality which binds. Small measures of competition or even envy are good as they improve relationships. Subspecialization and formation of new groups or societies are a part of growth and development. What is important is not to forget the mother society. Neurology or neurosurgery or any other speciality e.g. Neuropathology, Neuro-anaesthesia, Neuro radiology etc. can never develop singly on their own. NSI is the only forum where all can meet. Even with differences, small jealousies and occasional heated exchanges, our family must remain together for survival and growth. I look forward to glorious days as we enter the next millennium.

#### **Editor's note :**

Initially I thought that I would cut the controversial statements in this very readable paper. But then I decided that it was best left unedited except for some minor correction in the language and style. As one of the very bold and affirmative surgeons with total commitment to all the work assigned to him, some of the actions and words of Prof. Banerji tend to be quite controversial. He has explained himself his knack of getting the 'consensus by exhausting' others which automatically would bring on bitter controversy-Well, after the decisions are made.

The secretaries of the World Congresses of Neurology and Epilepsy may have different view points than that of Prof. Banerji. Unfortunately, Prof, K. Srinivasan's paper is no match for this spicy paper and hence the other side of the story is left unsaid.

Prof. A. K. Banerji (born on 24 Nov 1935) was an Associate Professor of Neurosurgery when I was at AIIMS. He is a brilliant teacher, meticulous surgeon. hard task master but above all a wonderful person once you come to know him closely. He is now the Director of Vidyasagar Institute Mental Health and Neurosciences, New Delhi. Probably in a near future VIMHANS will give a running battle to NIMHANS.

K. R. Nair'

**Prof. Sanatan Rath.**

**President, Neurological Society of India 1994.**

K. R. NAIR

I had been to Cuttack for delivering the third Prof. R. N. Chatterji Oration at the 12th Annual Conference of the Association of Neuroscientists of Eastern India ( 10 and 11 Oct 1998) when I could meet a large number of my old friends and Dr. P. N. Tandon. He came to deliver Prof. T. K. Ghosh oration. Despite a lot of effort I just could not get the biographical sketches of some of the past Presidents of NSI and Dr. Tandon also agreed that the task was not at all easy. Indeed I am sorry that I could not get the write up from people like prof. Sriramachary. There are many other neuroscientists in India who contributed significantly to the growth of the NSI Somewhere the line had to be marked and I know that this would certainly create some ill will. But Prof. Tandon agreed with me that even this much would be a taxing job.

It was bit surprising for me to know that Dr. Sanathan Rath did not get any of my previous letters. I gave him no choice other than to sit down and write up as much as possible on 10th Oct night. He obliged to my request and I collected some more information from the Souvenir published during the 12th Annual Conference of ANEI.

Dr. Sanathan Rath was born on 25th July 1934 and passed his MBBS (Utkal) in 1957, MS (Surgery) from Patna in 1962, MS Neurosurgery from CMC Vellore in 1965. He joined as an Assistant professor of Neurosurgery in SCB. Medical Colleges, Cuttack in May 1965. He continued to work in the same College as Associate Professor (Jan 1968- May 1970), Professor and Head (May 1970) till he became the Director of Medical Education in Orissa in 1991. Now he is working as the Director of Clinical services and senior consultant Neurosurgeon in a private hospital (Ideal Clinic, Cuttack).

When he joined in SCB Medical College, Cuttack he started his unit under the Dept of General Surgery. He became an instant success as patients from all places of Orissa and from near by states like Bihar, Madhya Pradesh and even West Bengal approached him. He was fortunate to get Dr. B. S. Das as his assistant in 1968. Dr. Das left as Associate Professor and Head of Neurosurgery at VSS Medical College, Burla, Sambalpur. (Dr. Das left this place also to become the Professor and Head of NIMHANS, Bangalore in 1981.

When Dr. Rath began his work in SCB Medical College he started a combined Neurology-Neurosurgery unit. In a wise manner he taught the physicians of his college the relevance of these subjects which led to greater awareness of neurological problems in Orissa medical circle. He could procure the necessary instruments not only for neurosurgery but also for neurology. It was a sheer surprise that he could get a CT Scan in 1981 earlier than in Calcutta. In Trivandrum we got a CT scan unit only in 1983 at Sree Chitra Thirunal Centre (though almost every process of buying a CT Scan in Trivandrum Medical College was over in 1982 itself. Thanks to our radiology colleagues in Trivandrum who effectively sabotaged our request at the final phase).

Prof. Rath has done quite significant work to elevate the standard of neurosciences in Orissa. He had further training with Prof. Gillingham at Edinburgh. He has done collaborative work with Prof. J. P. Das in Canada and with the Dept of Zoological Endocrinology of Utkal University. He was elected the President of NSI in 1994.

He is still very active as a neurosurgeon and an academician. He was the President of ANEI in 1995.

## **Brief sketch of my life**

To recall and recount events and episodes from the rich mosaic of memories of bygone period of one's life, is a daunting task. Hence I crave the indulgence of the reader if the narrative appears fragmented and disorganised. I fervently hope that it would be a tapestry with many coloured threads and designs.

## **Childhood**

I, Mandavilli Gourie-Devi, eldest of 5 children was born on 13 December 1938 in Anakapalle Andhra Pradesh, a small bustling town 25 km south of Visakhapatnam famous for Jaggery and guava fruits. Girls in Arya Vysya community were usually married young. I was blessed with educated parents, grandfather and uncle (famous Korukonda family) who actively took part in freedom struggle and also in social activities Hence I enjoyed unfettered freedom to pursue studies and could realize my full potential, cherished desires and dreams. As the child of engineer in All India Radio, a job which entailed frequent transfers, I had an unique opportunity of obtaining school education in different cities in the country, in learning different languages and absorbing the varied hues of diversity from Trichy and Madras in South. Delhi and Jullundur in North, and Calcutta and Guwahati in East. This childhood experience enabled quick adaptation to the local milieu in later professional life.

In the high school at Madras and Intermediate Sciences at Ankapalle, I had secured first rank Inspired by maternal uncle's dedicated service to the poor with pulmonary tuberculosis, I entered medical profession in 1956. Andhra Medical College, King George Hospital and the ladies' hostel became my home for the next 6 years.

## **Medical Education**

Having bagged gold medals and prizes in pharmacology, pathology, medicine and declared as the best outgoing student, I opted for postgraduate course in pathology, as I had been awarded the prize for pathology by Andhra Medical College and gold medal by Andhra University. In a couple of weeks, I changed my field under protest and with regret, to internal medicine under the strong influence of the then professor of medicine, Dr. Kodandaramaiah and Dr. Raghunathan and my own father who argued that since I was awarded the coveted prize in Medicine, I should become a physician. The love for pathology remained with me for long and 11 years later I had the fulfillment of being exposed to muscle and nerve pathology at New Castle General Hospital, New Castle upon Tyne and Royal Free Hospital, London, respectively.

After pursuing the course for a couple of months at Andhra Medical College, I moved to All India Institute of Medical Sciences, New Delhi in July 1962 as I was successful in getting admission to the same course at this prestigious institute. The rigorous and taxing clinical work and academic schedule, long hours of work, the excellent bed side clinics and the strict discipline of Dr. K. L. Wig, Professor of Medicine and the integrated learning methods were the brick and mortar for my firm grounding in medicine.

Interest in Neurology

During this period from 1962 to 1964 while pursuing MD course in Internal medicine, I was fortunate to have been taught clinical neurology by Dr. James H. Austin, Visiting Professor in Neurology, who is known for signal contributions to the field metachromatic leucodystrophy. My interest in neurology was kindled and further fortified when Dr. Baldev Singh, father of Neurology, called affectionately as "Papa Neuron", joined as Professor of Neurology in 1965. I left the department of medicine and joined as registrar in Neurology in 1965 and subsequently pursued DM Course in Neurology (1966-1968) under the tutelage of Prof. Baldev Singh. Dr. Virmani stimulated my interest in muscle disorders and epilepsy. Prof. P. N. Tondon and Dr. A. K. Banerjee were a strong force teaching and training us in Neurosurgery. Under their influence at one stage, I even seriously considered doing M. Ch Neurosurgery, which mercifully I did not pursue. Prof. Baldev Singh was much more than a teacher to me, he was my mentor, and philosopher who instilled courage and determination in my moments of despair and dejection not only during this period, but for years to come, when I would unburden my problems and seek his guidance.

## **Professional Career**

It was a proud moment when I completed DM in Neurology in 1968 as the first batch of DM students and left the portals of All India Institute of Medical Sciences to find my future as Assistant Professor of Neurology, Osmania Medical College, Hyderabad. Working with Prof. M. Veeraraghava Reddy, Dr. B. Dayananda Rao and Dr. D. Raja Reddy of Neurosurgery department and Dr. Kakaria Subba Rao, Department of Radiology, as a multidisciplinary team was an enriching experience. Two important publications, both appearing in Indian literature for the first time were Vein of Galen Malformation and lumbar canal stenosis. During this period from 1968 to 1970 at Hyderabad, I could continue research in

cortisol metabolism in intracranial hypertension at the National Institute of Nutrition(NIN). My interest in cortisol metabolism was based on the research work I had done earlier during DM course determining alteration of cortisol metabolism in clinical and experimental epilepsy. Dr. C. Gopalan, Director of NIN, almost made me choose a career of scientist and join NIN. It was a "narrow escape" and perhaps the deep interest in clinical neurology prevented this step. I did have interest in Neuroendocrinology and even procured placement in a laboratory in USA, which had pioneered work in cortisol metabolism. Unfortunately or fortunately (?) my application to National Institute of Health fellowship was rejected by Indian Council of Medical Research and thus interest in neuroendocrinology was nipped in the bud and I remained a clinical neurologist. We had the pleasure of organising the 19th Annual Conference of the Neurological Society of India at Hyderabad in 1969, a very successful event. The organisational skills of Dr. Dayananda Rao amazed me and as is my habit, I made copious notes which became handy when I assumed the responsibility of organising secretary of 29th Annual Conference of Neurological Society of India in 1979. at Bangalore.

Very soon a feeling of restlessness and isolation from my parents prompted me to return to Delhi in 1970 as Consultant Neurologist (Central Government Health Scheme) to Safdarjang Hospital. The department of Neurology was established by Prof. Janaki in 1960's and after she moved to GB Pant Hospital, Dr. Nigam was manning the department for a brief period. As the only neurologist working under the administrative control of head of department of medicine who was averse to development of superspecialities, to develop Neurology was indeed a daunting task with even a less helpful medical superintendent. It was a constant struggle, day-to-day battle for survival, to get inpatient beds, house staff to work in the department, to run EEG and EMG services, to face enormous hardships to get secretarial assistance and be on call duty everyday for the next seven years.

Dr. B. Sankaran, famous Orthopedic surgeon, assuming the office of Medical Superintendent dramatically changed the scenario to one of enthusiastic anticipation of rapid development of Neurology, Reasonable outpatient and inpatient services were established and medical and technical staff were also provided. Dr. Sriramachari, Director of Institute of

Pathology, ICMR, located in the Safdarjang Hospital Campus, was a source of inspiration, encouragement and my conscience keeper. With his support research work was initiated in the areas of muscular dystrophy, neuropathy in leprosy and osteomalacia induced by antiepileptic drugs.

I was lucky to have inherited an EMG machine, a foresight of previous dynamic Medical Superintendent, Dr. R. D. Iyer. In the early 70s, electromyography was at its infancy in India, with only a few neurologists notably Dr. Irani (now Dr. (Mrs) Wadia) in Bombay, Dr. Taori in Vellore, Dr. Chopra in Chandigarh, Dr. Naunihal Singh at Delhi interested in this field. Equipped only with theoretical knowledge about electromyography and absolutely no practical experience of the techniques, I took it as a challenge and started using the machine. I gained confidence in using the techniques for diagnosis and thereafter ventured to systematically study neuropathy in chronic renal failure, leprosy and Guillain-Barre Syndrome. The concept of averaging had not yet been introduced, therefore for the sensory conduction studies photographic superimposition was done with the camera provided along with the equipment and latency and amplitude measurements determined from the negatives or prints. This EMG machine had no facility for recording the graphs and hence all salient observations were photographed. For speedy reporting of results, instead of depending on the hospital photographer, a small dark room adjoining the EMG laboratory was established and one senior EEG technician who was a good photographer took over this responsibility.

An interesting paper by J. N. Davis on a simple technique of phrenic nerve conduction attracted my attention and I evaluated its usefulness in predicting ventilatory failure in Guillain-Barre Syndrome. with great hesitation and trepidation I presented this work at the Third Asian and oceanian congress of Neurology at Bombay in 1971 and never expected the considerable appreciation by Prof. John N. Walton and Prof. P. K. Thomas. This acquaintance facilitated the award of common wealth Medical Fellowship two year later. To supplement clinical and electrophysiological studies of peripheral neuropathy, I also learnt „teased fibre" techniques under the able guidance of Dr. M. C. Vaidya, professor of Anatomy, AIIMS who had a creep abiding interest in leprosy. This collaboration resulted in our work on single fibre studies in leprosy neuropathy and EEG changes in Leprosy. I established close liason with leprosarium at Shahadra, Delhi and JALMA, Agra and used to regularly give lectures on leprosy neuropathy to medical officers and trainees in leprosy.

with major neurological facilities being available across the road at AIIMS with many of my teachers at helm of affairs, it was an uphill task for me to give an identity to neurological unit at Safdarjang Hospital(SJH). I received unstinted support from my teachers and colleagues at AIIMS. SJH catered mostly to people from lower economic strata and government employees. Interestingly there were no paying wards and SJH boasted of excellent burns ward, neonatology ward (the first of its kind in the country), central Institute of Orthopaedics and rehabilitation services of a high quality, Superspecialities of cardiology, cardiac surgery (Prof- Valiathan was head of the department), paediatric surgery, neurology and neurosurgery were well entrenched. Safdarjung Hospital was affiliated to Delhi university and university college of Medical Sciences (which later shifted to Shahadra) was attached to SJH providing an active academic ambience.

Bed side observations on atrophy of a single upper or lower limb, later labelled as monomelic Amyotrophy, and the preliminary observation on the therapeutic utility of hyaluronidase in management of spinal arachnoiditis at SJH laid the foundation for long term research for the next two, and half decades.

The award of Common Wealth Medical Fellowship in 1973 provided an opportunity to further my research interest in disorders of muscle and peripheral nerves, initially at the Regional Neurological Centre, New Castle upon Tyne and later at Royal Free Hospital, London. In addition to clinical aspects, I acquired further skills in electroneuromyography, histopathology of muscle and nerve, single teased nerve fibre studies. quantitative morphometry and electron-

microscopy of nerve. On return to SJH in 1975 I could continue many of these techniques and usefully apply to clinical problems.

Once again the mood of restlessness overcame as I realised that working in an Institute along with colleague neurologists would be a more appropriate place to develop the area of neuromuscular disorders and electromyography. It was sheer coincidence or providence that during late 1975, offer of Associate Professor from CMC Vellore was made. There were also other possibilities of similar openings at National Institute of Mental Health and Neurosciences, AIIMS and PGI, Chandigarh. The final choice was NIMHANS for professional and personal reasons. Prof. R. M. Varma, Prof. K. S. Mani and Prof. Sriramachari, persuaded me to take up this job.

So I moved to NIMHANS in January 1977 as Associate Professor in Neurology. Before leaving Safdargung Hospital story, with a heavy heart, I must record that the seven years experience, instilled courage and confidence to overcome obstacles in establishing neurological services, developed organisational abilities. I also tasted sweet experience of success. I left behind a department equipped with trained medical and technical manpower, added new EEG and EMG equipments and abundance of goodwill among colleagues of other departments.

### **NIMHANS past, forward and future**

I entered NIMHANS in 1971 at a crucial stage of its development as it had just then in 1974 emerged as an Autonomous integrated institute established through a novel concept of centre-state collaboration and partnership, an institute exemplifying a multidisciplinary approach to mental health and neurosciences, an unique place for interaction of brain and mind sciences and scientists. The earlier divisive centre-state forced many constraints and conflicts underwent a major transformation to create the new vibrant NIMHANS. The aims, ambitions and goals of the Institute were very high and I as a new entrant was literally fed and infused with these concepts by Dr. R. M. Varma, the dynamic founder-director and Prof. K. S. Mani who was mainly responsible for enticing me to join this Institute. Many years later he told me that he anxiously waited outside the committee room where I was being interviewed for selection to the post of Associate Professor in 1976, for the "delivery of the baby". I fondly hope that he is satisfied with the result. Meticulously maintained case records, strict discipline in the outpatient and inpatient neurological services were the great traditions laid by Dr. Mani, who joined the institute, in late 1950s when it was known as All India Institute of Mental Health and established the department from its very inception. He was ably supported in this endeavour by Dr. V. S. Achar, Dr. G. K. Ahuja, Dr. H. S. Swamy and Dr. B. Mruthyunjayanna who were in the faculty for varying periods of time.

An active programme in epilepsy including the multicentre PL-480 project, description of hot water epilepsy, tropical spastic paraplegia and experimental work on Neurolathyrism were the seminal contributions of Dr. Mani. He gave me the task of developing the areas of muscle disorders, peripheral neuropathy and electroneuromyography. There was a 2-channel Medilec machine, which he told me was gathering cobwebs. I set about the task in great earnestness and submitted a project to develop EMG laboratory, with infrastructural facilities including Faraday cage and a new machine. Although budget allocation for the year was finalised, a responsive administrator of the Ministry of Health, Government of India, sanctioned additional grant which enabled purchase of 1500 DISA EMG machine and establishment of laboratory with facilities for diagnosis and research. The procedures for muscle and nerve biopsies were standardised and the neurosurgeons were relieved of this responsibility as I felt that neurologists should take over this function. Prof. D. H. Deshpande and Dr. S. K. Shankar of Department of Neuropathology and later Prof. Sarala Das fully supported the programme on muscle and nerve disorders and very soon special slide sessions for medical neuropathology commenced. NIMHANS is well recognised for its contributions to better understanding of disorders of muscle and nerve.

The training programme for DM in Neurology was started in 1970 with an annual intake of 2 students and after my joining the faculty in 1977 it was increased to 4. With the foresight of Dr. Varma and Dr. Mani, to attract the best talent in the country, the DM course in Neurology was open to both postgraduates in MD (Medicine, Paediatrics) and MBBS, with duration of course being 3 years and 5 years respectively. Very recently in 1998 the annual intake has been increased to six. It is a matter of pride and satisfaction that 70 students completed DM in neurology and many of them have distinguished themselves as good clinicians, teachers and academicians and are occupying coveted positions.

The department in 1977 had faculty members, Dr. K. S. Mani, Dr. H. V. Srinivas, Dr. Swamy and I. With Dr. K. S. Mani opting for voluntary retirement, I had to assume the additional responsibility of head of the department. Very soon Dr. B. P. Mruthunjayanna rejoined the faculty on return from deputation and I was selected for the post of Professor of Neurology in 1979. An year earlier, I was offered the post of Professor at Sree Chitra Tirunal Institute for Medical Sciences and Technology at Trivandrum which I declined with regret, as I was deeply involved in building EMG services at NIMHANS and had also initiated ICMR project on "effect of hyaluronidase in experimental arachnoiditis".

One is always amazed at the twists and turns in life and wonders how choices are made and what life would have been if alternatives were chosen. The faculty strength over the years had increased to present 10 with few earlier faculty members leaving and giving place to new blood - Dr. H. V. Srinivas and Dr. Mruthunjayanna left and Drs. D. Nagaraj, P. Satishchandra, A. B. Taly, M. Veerendrakumar, Anisya Vasant, E. Ratnavalli, Uday Muthane and G. R. Arunodaya joined at different periods. With the faculty members evincing interest in a particular area it has been possible to develop expertise in service and research in areas of epilepsy, neuroinfections, cerebrovascular disorders, movement disorders, electroneuromyography, neuromuscular disorders, behavioural neurology, neuroepidemiology and neurorehabilitation. I had made ' serious efforts to develop paediatric neurology, but unfortunately due to problem in retaining trained faculty, this discipline could not be established at the Institute and the plans to initiate DM in paediatric neurology were also abandoned.

From 12 resident posts in 1979 the number was gradually increased to the present strength of 25, providing opportunity for aspiring students to be trained in neurology. The training programme had also undergone a transformation to include exposure to disciplines of neurosurgery, neuroradiology, neuropathology, psychiatry, neuropsychology and basic neurosciences.

The inpatient facilities increased with addition of paediatric neurology ward, intensive care unit, neuro infections ward, neuro- directors. Dr. G. N. Narayana Reddy and Dr. S. M. Channabasavanna. A comprehensive outpatient, screening, casualty and emergency service block was a major development in clinical services. Regular extension (satellite) providing neurological and psychiatric services to rural areas became a special feature of health care delivery.

I continued to pursue research work in early detection of nerve damage in leprosy by conduction studies of greater auricular nerve and dorsal cutaneous branch of ulnar nerve and assessment of therapeutic efficacy of hyaluronidase in spinal arachnoiditis of tuberculous and non infective aetiology. It is gratifying that this method of treatment has found a place in Brains textbook of Neurology. As we started seeing increasing number of young adults with single limb atrophy, research efforts were also concentrated in this area leading to delineation and description of benign atypical form of motor neurone disease. Dr. T. G. Suresh and Dr. Shankar were my collaborators in this work. Subsequent studies focussed on CT myelographic changes of spinal cord and analytical epidemiological study to determine the risk factors associated with monomelic amyotrophy. International Symposium on Motor Neuron disease in 1984 with participation of a number of experts from India and abroad, including Dr. D. C. Gajdusek, Nobel Laureate was a landmark event. During the last 10 years further work in motor neurone disease was pursued and the focus had been on

cyclophosphamide as a treatment modality and development of experimental models of amyotrophic lateral sclerosis, the latter in collaboration with Dr. T. R. Raju and his team of the Department of Neurophysiology of NIMHANS.

A major outbreak of Japanese Encephalitis in Karnataka in 1979 got me deeply involved in clinical studies and public health education. Dr. Deshpande and Dr. Shankar greatly contributed to pathological dimension of the disease and later Dr. V. Ravi and Dr. Anita Desai of Neurovirology department did seminal work on virological and immunological aspects.

After the extension services of NIMHANS were established on a firm footing, I along with colleagues from Department of Psychiatric Social Work, initiated neuroepidemiological survey in 1982 in Gouribidnur (Kolar District) one of the five identified satellite centres, as it was felt that survey could be harmoniously dovetailed with service. This study aroused considerable interest and Indian Council of Medical Research identified neuroepidemiology as a thrust area of research in 1986 and a task force was set up to initiate multicentre collaborative neuroepidemiological survey. NIMHANS was identified as a centre for study and our group was asked to develop the protocol for survey. I was lucky to have Dr. G. Gururaj (Dept. of Epidemiology), Dr. P. Satishchandra (Department of Neurology) and Dr. K. Subbakrishna (Department of Biostatistics) as co-investigators in the project and we conducted a major survey of more than 1 lakh population in Bangalore urban and rural areas and determined the prevalence and pattern of spectrum of neurological disorders. A manual for neuroepidemiological survey in developing countries was developed and a National Workshop on Neuroepidemiology was also conducted in 1994. This activity initiated a number of studies in the country and in 1997/ in view of the increasing demand, the second edition of the manual was published.

Keeping pace with global trends the discipline of molecular genetics is being established at the institute and work in the area of triplet expansion in myotonic dystrophy has already been done in collaboration with Prof. Brahmachari of Indian Institute of Science, Bangalore (presently the Director of Centre for Biochemical technology, CSIR laboratory, New Delhi) and further studies in Duchenne Muscular Dystrophy are being initiated.

In all the areas of research work as well as in clinical services, the multidisciplinary approach and excellent cooperative and collaborative efforts of clinical and basic science departments have been a crucial and valuable asset. My 110 publications in National and International journals and chapters in books have been the outcome of such endeavours!

I am gratified by the recognition accorded to me for the research contributions and award of a number of orations and "distinguished scientist" awards by Academic bodies of the country. I was elected Fellow of National Academy of Medical Sciences in 1989, Fellow of Andhra Pradesh Akademi of Sciences in 1994 and Fellow of Indian Academy of Neurology in 1996 and President of Neurological Society of India in 1995. I have been able to contribute to development of neurological sciences in India by serving as an expert member of programme advisory committee on Neurobiology, Department of Science and Technology, Department of Biotechnology, Indian Council of Medical Research, National Academy of Medical sciences and very recently of programme Management committee of National Brain Research centre. As an expert member of World Health Organisation, Advisory panel on Neurosciences and Vice-Chairperson of "standards for Neurological Care and Technology Committee" and member of Research Committees on Neuromuscular Diseases, Neuroepidemiology and Tropical Neurology of World Federation of Neurology, I have been able to participate in the endeavours to nurture neurology in global context.

The recent appointment as Director-Vice Chancellor of NIMHANS in September 1997 has provided me an opportunity and a challenge to take the institute to further heights and fulfil the dreams and vision of former directors, Dr. M. V. Govindaswamy, Dr. R. M. Varma, Dr. K. S. Mani, Dr. G. N. Narayana Reddy and Dr. S. M. Channabasavanna.

It is now time to let go and realise that „living being does not form an exception to the great natural harmony which makes things adapt themselves to one another. it breaks no concord, it is neither in contradiction to, nor struggling against general cosmic forces; but far from that, it is a member of the universal concert of things and is only a fragment of the total life of the Universe" (Claude Bernard).

**Prof. K. Srinivasan**

**President, Neurological Society of India 1993.**

**K RAJASEKHARAN NAIR**

I am quite at home in Madurai and Madras - thanks to my freinds Prof. K. Srinivasan and Prof. C. U. Velmulugendran respectively. In almost all CME's conducted by any one of us in Trivandrum, Madras or Madurai. it is almost taken for granted that all three of us would be present as we used to invite each other only by a telephone call. It was a surprise for me that Prof. Srinivasan said that he missed my letters asking him to send me his autobiographical write up. There is a story about the great American writer John Steinbeck. If any letter was kept unopened for couple of days, he considered them that they might be preferably thrown away still unopened. Perhaps KS is a follower of Steinbeck.

We have a lot of things in common which makes our friendship very close. Both of us believe that a sound knowledge of General Medicine is mandatory for the practice of Neurology. Both of us believe that blunt comments are much more useful many times than the very polished smooth comments which mean nothing. Both of us like certain authors immensely. For example both of us like the works of Dr. Oliver Sacks, Dr. Richard Asher, Klawans and others.

Because of the very short notice, KS sent me a very succinct write up about his department. I again rang him up and it was only then I got some information about him. K. Srinivasan was born on 24 Oct. 1934 and had his MBBS and MD (1961) from Stanley Medical College. He did his DM Neurology (1969) from Madras Medical College and Ph D from Mudurai Kamaraj University (1980). He had an year's training in Neurology at the Institute of eurology,London(Sept.1968 Sept.1969).He went on adding his postgraduate degrees like MRCP (Edin & glasgow) 1968, FRCP (1975) and FAMS (1990).

He started his career as Assistant Professor of Medicine in Stanley Medical College (1961-65), Assistant Professor of Neurology (1965-1971), Reader and then Professor of Neurology at Madurai Medical College ( 1971 - 1991). Though a globe trotter, he never liked to leave Madurai. When Prof. K. Jagappathan retired he could have gone to the Institute of Neurology at Madras as the chief. But he managed to stay back in Madurai. Obviously he became the founder and the most popular neurologist in Madurai region. He is equally interested in General Medicine and Neurology. At the fag end of his official career for no fault of his, he fell out of tune with the officialdom and had to move out for a brief period to Coimbatore. Fortunately everything got sorted out soon and he returned to Madurai.

He insists that his neurology residents should have adequate knowledge of general medicine also. There may be the new brands of neurologists who would scorn at this but KS has shown to hi-s students that a hypothyroidism can present with an ataxic syndrome or a cardiac source should be carefully checked for any stroke syndrome.

His studies on cerebral venous thrombosis. cognitive neurology. parietal and frontal syndromes are excellent works. He is an erudite orator'(in fact his Presidential Oration of NSI at Madras was simply superb). a well lead person, difficult examiner. pleasant companion. First class clinician and above all a wonderful friend

**A brief history of the Department of Neurology and  
Neurosurgery, Madurai Medical College  
and Govt. Rajaji Hospital, Madurai.**

Prof. K. SRINIVASAN.

Our hospital is the second largest teaching hospital in Tamil Nadu. Madurai city has a population of more than 1 Million. Being a Temple and textile city it is a major centre of culture and business in Tamil Nadu. Our hospital caters to the need of not only people from Madurai but also from all the nearby districts. Fortunately our department is in the same campus where the other departments like General Medicine, Surgery, Obstetrics and all speciality and superspeciality departments function. Hence there is an easy access for coordinated work providing excellent practical opportunities to the post-graduate students. To a great extent it avoids a lot of red tapism as well.

The combined department was organized initially by Prof. M. Natarajan MS, MCh, FAMS about three decades ago. I took over in 1970. Fortunately this combined department ensures integrated knowledge both in neurology and neurosurgery to the students. Till date 38 M. Ch and 24 DM candidates have successfully taken their training. After my retirement Prof. Gajendran became the chief of the department. Prof. D- Ramasubramonian, MD, DM, Professor of Neurology is now the chief of the Department. I am sure that under his tutelage the Department will grow further.

The department has an excellent staff pattern (3 Additional or Associate Professors, 12 fully qualified Assistant Professors and many junior staff). The Neurology section has all the required facilities like EEG, EMG, Evoked potential etc. under able persons. The Neurosurgery section has daily operation facilities, both elective and emergency. It has all the modern equipments for Stereotaxic surgery, operating microscopes etc. It runs a full time Head Injury service as well. The neuroradiology (with CT and MRI) and neuropathology departments offer very good support to us. We have a well stocked library with all equipments for teaching aids also. Both the departments have access to the physiotherapy wing of the hospital which makes the rehabilitation of the patients easy.

#### **Research programs:**

We have undertaken a series of research activities which earned us a lot of reputation in India and abroad. The main topics we could cover during my tenure are the following.

#### **Prognosis in Coma:**

We could demonstrate that deep coma over 8 hours with absent brain stem reflexes in primary brain injury like strokes head injury or infections would invariably end up fatally. Hypothermia, drug overdose and metabolic causes should be excluded from this group. CNS Plasticity:

We have made some interesting studies regarding the infantile hemiplegia. We have used carotid amygdal test and neuropsychological tests. The shift of speech centre from left to right hemisphere could be demonstrated in left brain lesions of Infantile right hemiplegia. When it happened so, the nonverbal IQ, a function of the right brain suffered to some extent to compensate for the speech centre shift. But in Infantile left hemiplegia the nonverbal IQ is reduced but verbal IQ is not compromised. We could demonstrate two further points. Hemisphere dominance can not be changed by changing handedness. No change in brain function occurred when the patient has paralysis or hypoplasia due to extracerebral causes.

We run a multidisciplinary clinic for cerebral palsy which helps to pick up the various handicaps of these children. Rehabilitative measure if undertaken early would bring out better results.

## **Higher Brain Functions:**

In those patients without dementia or focal neurological deficits, clinical neurology and neuropsychiatry would pick up aphasias, agnosias and amnesias much earlier and in a better manner. Inability to Copy or draw a star, clock face or a cube would expose a right brain dysfunction in hepatic encephalopathy. In ambulant adult without sensory-motor paralysis a passive dependent existence and clumsy behavior can sometimes be explained by a major right or left brain cortical dysfunction. Disconnection syndromes are appreciated by only clinical neurology. In most of these cases MRI or CT would be helpless. MEG and CET studies certainly add academic glamour but are very expensive and not really essential.

## **Other studies**

We have undertaken studies on neurosyphilis, hereditary ataxias, spinal muscular atrophies, muscular dystrophies, spinal dysraphism, tentorial venous sinuses and basal ganglia hypodensity lesions also. These studies have been presented at different conferences.

## **Personal impressions:**

To learn from experience and to gain expertise, we need guidance from better people and i am greatly indebted to the entire teaching staff at Madras and Madurai. Prof. E. P. Barucha and Prof. Noshir Wadia have guided us for scientific neurology practice based on sound internal medicine, for unambiguous presentation, elegant in details with added colour including modern technology. Prof. B. Ramamurthi and Prof. Arjun Das always simplified complex, problems with clear brief and effective arguments.

The heart is made to pump and perfuse organs and the brain to make us walk and talk sensibly, to plan, anticipate and act inhibiting impulsive behaviour. Any test that does not assess these functions also by-passes the diagnosis. Prof. Dennis Williams, Sir Charles Symmonds, Prof. M. C. Donald Critchely and Prof. Fred Plum exposed more challenges in the brain than peripheral nerves and used the neurological kit with knee hammer, pins, and needles only after localising the lesion with analysis of the symptoms and behavioural neurology.

## **Future:**

Considerable enthusiasm has been generated to activate studies in prevention of stroke and quality of survival after stroke and prevention of first and second accidents in Head Trauma, which appear to be more sensible and beneficial to the patient than the high tech costly and uncertain therapeutic exercises in any centre, once irreversible neuronal damage is not prevented.

Cardio thoracic thromboembolic lesions and intracranial vascular lesions are far more common than any significant occlusive carotid vascular disease at the neck. High TGL levels are more common than high cholesterol or low HDL. Diabetes is still a major unconquered metabolic cause of relentless neurological disability. Studies in Indian patients for risk factors are in progress.

For the sake of reliable diagnosis from experienced persons there should be less ego more willingness to refer to other centres for the less common biochemical, histopathological, bacteriological diagnosis.

Constant exposure to Internal Medicine is considered essential for sound neurological practice there is close interaction with Ortho, Anaesthesia, Paediatrics Obstetrics departments to assess and learn the

neurological complications. Progress in neurology has necessitated our desire to learn more of Genetics, immunology and Basic sciences.

Dr. Arjundas hails from a family predominantly interested in commerce. His parents were therefore thrilled by his success at the matriculation (with 100% marks in mathematics) from the Loyola School. In those days students passing with mathematics, physics and chemistry (without biology) could claim entry either into the medical college or the engineering institutes. Accordingly, Dr. Arjundas applied for both and was selected to pursue medicine. It was, then, the summer of 1947 - a heady period!

Entry into the Madras Medical College was preceded by a ceremony: each student, wearing a tie for the occasion, ushered himself into the presence of Dr. P. V. Cherian, the Principal. The famous ENT surgeon, immaculately dressed with his pith hat close by, smiled in welcome and sent the student on his medical career in less than a minute. (Madras Presidency then boasted of three medical colleges: Madras Medical College. Stanley Medical College-earlier the Royapuram Medical School conducting courses for the L. M. courses only, and the King George Hospital and Medical College in Visakhapatnam.

As students from the Madras Medical College and Stanley Medical College studied anatomy and physiology together in the former institute, Dr. Arjundas was able to make enduring friendships at both colleges. He recalls an interesting episode from the preregistration course he had to undergo at the Madras Medical College Professor Verghese, conducting this course started off his talk with the injunction "Ladies and gentlemen, if you will look in your drawers, you will find cockroach within". Lest this be interpreted as a jocular statement, he soon followed it with, "We shall now consider their dissection with a view to understanding the anatomy." Needless to say, shudders replaced the aborted smiles. This, incidentally, was also Dr. Arjundas introduction to co-education.

He does, however confess to being one of the key members of the exclusive B. B. B. (Back Benchers Brotherhood). His activities from this part of the lecture room, however did not prevent him from bagging prizes and scholarships. He shone on the fields as well and represented the college in cricket during all but the last six months of his undergraduate career. He notes with pride that all ten members of the B. B. B. are well settled, 7 of them being professors in Tamil Nadu medical colleges and the remaining three flourishing in private practice. Dr. Arjundas specifically refers to Dr. K. S. Mani as one of that honoured band and points to his international fame resting in part on his work on South Indian paraplegia.

His batch was the first to enter the medical college as free Indians. This, however, did not prevent the British professor of physiology from playing a trick on them. The professor would lick a finger after having dipped a digit into a beaker containing urine from a diabetic patient. He would then call upon the students to prove to themselves that the urine was sweet to taste. Hiding the creeping disgust, each student would dutifully perform as commanded. It was only after the last student had confirmed the taste that the professor would point to the need for observation if the student intended becoming a good clinician by showing that whereas he had dipped his index finger into the beaker he had licked his middle finger! Dr. Arjundas recalls with affection a co-student soon nicknamed 'grandpa' by the rest. This person had graduated in engineering to please his parents and then enrolled in the medical college because that was what he had always wanted to do. Dr. Arjundas recalls the 'mortality rate' in the dissections that formed part of the anatomy practicals varied. The suboccipital triangle occasioned 100% mortality whilst the rectus sheath eliminated just 50%. I do not know how I managed the dissection, which fell to my lot," he says, heaving a sigh. Histology, too, provoked unusual responses. During the examination, the student spent more time holding the slide aloft and studying it by the light that filtered through the windows than with the slide under the microscope. The identification and

description followed recognition of the slide rather than the tissue on it. Like many others, Dr. Arjundas regrets that such wonder provoking experiments as those demonstratin-g the contraction of a muscle, conduction of a nerve or cardiac function were performed perfunctorily on the notoriously difficult-to handle smoked drums. Pharmacology meant sitting at the feet of Dr. Ishwariah and entry into the wards meant the flaunting of the cherished and long awaited stethoscope. (The B-D stethoscope, popular then, cost Rs. 25-00 as compared to the Rs. 500.00 to Rs. 1,000.00 currently paid for the Tycos or Litman versions). But all these paled into insignificance for Dr. Arjundas as the event of his third year in medical college dawned- and almost didn't! In the second week of that December, he toured Ceylon with the rest of his cricket team. He kept thinking of the 21 st when, in advance of the rest of the team, he would hasten back, home. We know nothing about his performances on the field during the tour but cannot help feeling they must have been somewhat below his average. On the day he was to return the team was scheduled to play against the college eleven of the Colombo University. It was only after he had faced the first delivery as the opening batsman that he realised why his mates had bulldozed him into doing so, for Shaftesbury, bowling to him, was one of the fastest the team had ever encountered. Visions of his bride-to-be waiting for him may have floated past his ken as he avoided decapitation and destruction. He still experiences great joy as he recalls being judged out to a catch and how he hastened to the pavillion ere the umpire changed his mind! Return to Madras was followed by a three day wedding, in honour not only of his escape from Shaftesbury's onslaught but also of the fact that he was the sole survivor of the six children born to his parents.

Of the clinics in the wards, Dr. Arjundas recalls the lowliest of the lowly position in which the third year students served. As the clinics were aimed at the fourth and fifth year students, the third yearlings weremerely tolerated. They formed ready targets for all questions on anatomy and physiology and, their ignorace having been demonstrated to the satisfaction of teacher and senior students, were ignored during the rest of the discussions where impressive and unfamiliar words and phrases were used. Dr. Arjundas recalls one exception to this run of clinician- teachers: Dr. Rathnaswamy. He was the first person to show an interest in neurology and his analysis of neurological disorders based on simple' anatomy and physiology helped dispel the traditional fear of the nervous system. Dr. Arjundas credits Dr. Rathnaswamy with having sown the seed that was to flower into a compelling urge to study neurology. Most other teachers considered neurology a 'dreadful subject', useful only in that it served to fail students at the examination.

Another event focussed his interest. On 15 August 1951, Dr. Arjundas' mother suffered a severe stroke. It is salutary to learn that strokes were then diagnosed as thrombotic if the patient survived and hemorrhagic if the patient succumbed. Hemorrhage was suspected in his mother and treatment cosisted of applying ice packs to her head. As Dr. Arjunclas points out, this must have induced reflex hypertension ! Brain edema was not understood and the only diuretic preparation in use was Mersalyl R. His mother survived with total expressive aphasia, some receptive dysphasia and total right hemiplegia.

The third event irrevokably turning him towards neurology was the arrival of Dr. B. Ramamurhti at the Medical College and Hospital and his classes on neurology. Dr. Ramamurthi also started operating and soon demonstrated results in striking contrast to those hitherto seen. (Dr. Arjundas points out that the earlier surgeons had operated under tremendous handicaps. Dr. C. P. V. Menon had tried to develop surgery of pituitary tumours and Dr. Narasimhan that of spinal cord tumours when open ether anaesthesia and spinal anaesthesia were the only means available for keeping the patient quiet on the table). Dr. Arjundas trained for his M. D. in medicine under that stalwart Dr-. K. S. Sanjivi from 1954-1956. He retains great admiration for his teacher and recalls the encouragement and help offered by Dr. Sanjivi when he learnt of Dr. Arjundas intention to study neurology. Dr. Sanjivi wrote to Dr. McDonald Critchley (whom he knew well), recommending this bright youngster. He also wrote to Dr. McRoberts (who had been a colleague at the Madras General Hospital and then in charge of postgraduate training

programmes for overseas students in London) asking him to help Dr. Arjundas. The upshot was that Dr. Arjundas found a ready seat in the training course at the National Hospital at Queen Square upon landing in London in September 1956.

Dr. Arjundas thrilled to the teachings of the giants at Queen Square and Maida Vale: Sir Charles Symonds, Dr. Russell Brain, Dr. Critchley, Dr. Dennis Williams, Dr. Meadows, Dr. McArdle, the imperious and limping Dr. Elkington and Dr. Kramer. He recalls with gratitude the help offered unstintingly at Queen Square. He describes one example. "I wished to study at the library at Queen Square after it closed at 8 p.m. in order to prepare for my M. R. C. P. My residence in the new hostel was bitterly cold and I could not afford to keep it heated whilst the library was centrally heated. When I saw the Dean about this matter, he promptly called the front desk janitor and arranged for me to pick up the keys

when I came in to read at night and leave them with the janitor after I'd finished. I was thus able to study up to 2 a.m. in comfort". In addition to the art of eliciting symptoms and signs and their analysis, Dr. Arjundas learnt applied neuro-anatomy, neurophysiology and specialized investigation. In the winter of 1957 Dr. Arjundas successfully appeared for the M. R. C. P. in Edinburgh and then hastened home consequent to the Suez crisis.

In Madras he resumed his appointment as Honorary Assistant Physician. Once again, Dr. Sanjivi stood by his side and helped launch him in his career. He took Dr. Arjundas aside and said, "Now that you are qualified and have specialised in neurology, I will not see any neurological case in my rooms. I shall send these patients over to you." Dr. Sanjivi was then at the peak of his practice and Dr. Arjundas recalls with gratitude this generous gesture. (Dr. Sanjivi resigned his post at the medical college and hospital soon after due to certain disagreements with the government). Fortunately, the new professor, Dr. R. Subramaniam, 'lall, with a fast gait and a singing laughter" continued to encourage the young neurologist. All patients with neurological disorders were placed under Dr. Arjundas' care. A neurology clinic under his care was started on Saturday afternoon. He was encouraged to attend Dr. Ramamurthi's outpatients where he received a warm welcome. Thus neurology started as a speciality in Madras in 1957.

Up to then, all physicians kept patients with neurological disorders unto themselves. References to the Madras General Hospital were rare and when made, were to the department of neurosurgery, not to the neurologists. Dr. Ramamurthi's brilliance drew not only neurosurgery and neurology references but even psychiatric references and patients with ordinary medical and surgical problems. It was only when Dr. Ramamurthi, in turn, started referring his patients with neurological disorders to Dr. Arjundas that the tide started turning.

On his return from England, Dr. Arjundas gradually effected several changes. First, he got the professor of medicine to agree that clinics in neurology be held separately for the 3rd year students, the 4th year students and the final year students. He then made it the practice for the senior most person to teach the subject instead of relegating the task to a registrar or lecturer. Finally, he got the nursing staff interested in neurological illnesses and set up a unit where seriously ill neurological patients were paid considerably greater attention. He also saw to it that paper work was reduced to the minimum so that doctor and nurse alike had more time to look after the patient.

Whilst in England, Dr. Arjundas had become interested in the work of Dr. H. Smith in Oxford on tuberculous meningitis. He retains that interest and has continued to work on this subject. "His early work on T.B. meningitis (with Drs. R. Subramaniam and B. Ramamurthi; resulted in the paper published in Tubercle in 1961.

Soon after his return, Dr. Arjundas was advised to apply for the post of assistant professor in the department of medicine with request that he be permitted to develop a department of neurology. Imagine his surprise when he was appointed assistant in the department of psychiatry. "Perhaps the government thought that neurology was the same as psychiatry", he muses. Although Dr. Subramaniam advised him to accept the full time job and get himself transferred

rater, Dr. Arjundas decided otherwise, "It was a very close call to becoming involved in government service," he recalls. Around the same time, he received an offer of a job at Duke University in the U. S. He was to practice and teach neurology at a salary of 25,000.00 per annum. He was sorely tempted but his mother's ill health argued against such travel. As he pondered his prospects, once again help came unexpected. At the condolence meeting for the late Dr. Guruswamy Mudaliar, he met the Director of Medical Services, Dr. Thayumanswamy. The latter asked him why he had refused the appointment in psychiatry. Gently, Dr. Arjundas explained that whilst he was fully qualified in neurology, he was not interested in psychiatry and had no experience in that field. The director then asked him if he would be willing to organise the medical services for an oil company. On hearing Dr. Arjundas' willingness to do so, he put in a strong recommendation and Dr. Arjundas got the job against stiff competition. The financial independence thus gained permitted Dr. Arjundas to concentrate on the development of neurology at the Madras General Hospital. He continued in the post of Honorary Assistant professor of Medicine and spent more and more time on setting up neurological facilities and services. It was then that an event occurred that was to set him firmly in the neurological saddle.

Till then, apart from Dr. Ramamurthi Dr. S. T. Narasimhan (L. M. P.) alone was officially recognised as a neuroscientist. Dr. Narasimhan had been trained in the U. S. A. with Dr. Silverman and had brought the first EEG machine to India. He was also the first in India to attempt sphenoidal EEG studies using enamelled needles. "His geniality and bonhomie far outweighed his academic deficiencies". On 22 July 1959, Dr. Narasimhan was appointed Honorary Electroencephalographer to the Government General Hospital in recognition of his services. In November that same year, this jovial pioneer died of a massive myocardial infarction whilst on a holiday.

Dr. Arjundas was then asked to return to England and train in EEG. He did so, working with Drs. Cobb, Dennis Hill and Driver. This training was spread out between the institute at Queen Square and the Maudsley Hospital. It was a bitterly cold winter but Dr. Arjundas found considerable warmth in the renewed friendship with Dr. Balaparameswara Rao (whom he knew from the time Dr. Rao had trained with Dr. Ramamurthi). Dr. Rao was then training with Professor Murray Falconer at Maudsley Hospital. Dr. Arjundas describes an interesting anecdote. "Dr. Balaparameswara acquired the typical charcoal black suit that Englishmen are so fond of, which accentuated his prominence. He was then a strict vegetarian but permitted himself eggs. The Maudsley canteen then was a self service unit and one had to join a queue and partake of the offerings for the day from what was on display. Dr. Balaparameswara Rao could eat nothing from what was offered and was forced to request an omelette which had to be specially prepared for him. He thus had to stand to one side and let those coming after him serve themselves whilst his order was filled. The supervisor in charge watched this for a few days and felt sorry for him. From then onwards as soon as Dr. Balaparameswara Rao joined the queue, she'd sing aloud to the staff in the kitchen 'One omelette' and by the time he reached the service counter, his omelette would be 'waiting for him. Perhaps this hardship had a salutary effect on him for now, he is a strict non-vegetarian."

When he rejoined the Madras Medical College and General Hospital after this stint in EEG, he was appointed Professor of Electro-encephalography. Thus, on 22 July, 1960, he obtained the coveted civil surgeon's rank. He also joined the department of neurosurgery officially having maintained cordial but unofficial connections with it since 1957. The only other senior contemporary who can claim long fellowship

with Dr. Ramamurthi in the department is Dr. Balasubramaniam. Of the latter, Dr. Arjundas says, "Dr. Balasubramaniam had graduated five years ahead of me in our college. I had seen him going to the dais on college days with regular frequency to collect medals and prizes ever since I joined as a student and admired him for his many qualities. As a student we knew him as a walking encyclopaedia. Later, as a surgeon, he was famous for his operative techniques. clinical acumen, impeccable English and unflinching memory. I also cherish his sense of humour, a fund of above-and-below-the-belt stories and sharp wit. Two incidents illustrate his qualities. when he and I travelled to Tokyo to study

stereotaxy, evoked potential recording, stereo EEG recording, integrated EMG etc., he was a strict vegetarian, eschewing eggs as well. After an especially long and tiring day during the course of which we had consumed a meagre breakfast and lunch both of us were ravenously hungry. We repaired to a Japanese hotel in Nagoya and I chose vegetable soup for both of us. No sooner was it served than we set to it and emptied our bowls. I had noticed pieces of meat mixed with the vegetables but did not have the heart to tell Balu, seeing how famished he was, we completed our meal and it was only as we returned to our hotel that I casually mentioned to him that the vegetable soup had, in fact, contained 'eat. H' looked into my eyes, gave me a wink and said, 'That, too was tasty.,, The other event I shall ever recall with admiration occurred on the day he turned 57. He left his room in the Institute, took leave of all his colleagues and retired from the Institute spontaneously without waiting to be served a retirement order. His contributions to neurosurgery, especially to stereotaxy will remain unsurpassed."

. In 1961, the hospital could perform few special investigations for the neurologically ill patients : a) angiogram, ventriculogram and pneumoencephalogram b) myelogram and c) EEG. Angiography was performed with considerable difficulty, one person struggling to hold the patient down whilst the other tried to puncture the carotid artery. Private practice, in those years, revolved around clinical examination, plain xray studies and lumbar punctures. EEG was not easily available.

Being in charge of the EEG lab, he obtained a second unit in 1961. In 1964, he added the Medelec EMG machine and still later, two more EEG units. By 1960 he had already started sphenoidal EEG studies in patients with temporal lobe epilepsy. Following Gastaut's work, he studied epileptics using stimulation techniques, injecting megitimide intravenously. If the seizure was induced, intravenous pentothal was administered to cut off the attacks. After 1964 (when stereotaxic surgery was introduced), almost every patient had stereo EEG studies.

Dr. Arjundas recalls a meeting in the department in 1965 when a crisis was being discussed, "We did not have any EEG paper and there was little prospect of getting any. As various aspects of the problem were being discussed. I suddenly had a brainwave and surprised 'BRM' by saying that I did not need any paper. In fact, I pointed out, I had paper for another ten years. When asked to explain I said that I would henceforth record on the reverse, blank side of old EEG records. This was how we started saving on EEG paper and reduced the bulk that was accumulating in our department. "Dr. Arjundas was then specially interested in temporal lobe epilepsy and epilepsy produced by brain tumours. Although he was in charge of patients with purely neurological disorders. the department was still known as the department of neurosurgery. In 1961. Dr. K. Jagannathan returned after training in Britain and joined Dr. Arjundas as fulltime Assistant Professor. Around 1970, Dr. Arjundas' designation was changed to Honorary Professor of Neurology and Electroencephalography,

Dr. Arjundas' first attendance at the annual conference of the Neurological Society of India was at the joint meeting with the Association of Physicians of India in Madras.(1961) About 25 neuroscientists attended and Dr. Arjundas presented his first paper to the Society on intraspinal compressions. (The first paper he published was on cervical spinalcord compression by arachnoiditis, successfully operated upon by Dr. B. Ramamuthi.) Asked about his own contributions to neurology. Dr. Arjundas turns . modest. "I have not contributed very much. But I have enjoyed every moment of the development of neurology in Madras-my child in a sense. This child was begotten by BRM and nurtured by me and an array of brilliant. highly trained colleagues."

Of the current scene he says, "There has been a geometric progression in the development of the various aspects of the neuro-sciences in India. Naturally, clinical neurology and neurosurgery are best developed. Training in neurology is available in several excellent centres.

I have no hesitation in saying that our boys are more complete neurologists than those trained abroad simply because our boys have to do everything themselves. we need to develop our neurochemistry, neurophysiology and neuropathology."

Looking into the future, he pleads for continuing interaction between neurologists and general medicine and insists that neurological centres must form part of general hospitals. Thus and thus alone can neurology interact with cardiology or the study of diseases of the lung, for example. Isolated neurology institutes will miss out on many interesting neurological problems. He also argues for providing a strong background in general medicine to any candidate intending to specialise in neurology. The current trend towards dilution of training in general medicine to be deplored. He emphasises the role of frequent workshops to update knowledge and enable the practitioner and student to keep up with advances in knowledge, techniques and instrumentation. Such workshops, however must concentrate on the practical aspects, leaving theoretical seminars and discussions to the journals and books. Finally, the youngsters must be helped visit topflight centres in India and abroad so that we continue to infuse the best from everywhere in them.

### **BIODATA OF DR. G. ARIUNDAS**

MD, FRCP Edn, FAMS

Born on 7th September 1929

Honorary Assistant Professor, Department of Medicine, Madras Medical College 1955-1960

Honorary Professor of Neurology, Govt. General Hospital and Madras Medical College. Since 1960

Consultant Neurologist to Southern Railway Hospital, Madras and Kilpauk Medical College Hospital, Madras.

President - Indian Association of Occupational Health.

Chief Investigator for ICMR Scheme on Epilepsy (PL 490)

ICMR Scheme on Peripheral Neuropathy.

Co-Investigator

ICMR Scheme on epilepsy (PI 480)

ICMR Scheme on stroke (PL 480 and WHO)

ICMR Scheme on spinal cord complications in Pott's Disease

Member, World Federation of Neurology Neuromuscular commission

### **Awards**

Ardeshar Dalal Memorial Lectureship

IMA Hyderabad-Memorial Lectureship

### **TEN IMPORTANT PUBLICATIONS OF PROF. G. ARIUNDAS**

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8. Arjundas G, sharmila, Ramamurthi B, and subramanian R, clinical and electroencephalographic correlation in hepatic incepharopathy in 15 cases, The Journal of the Association of physicians of India. 20, 6, 423\_428, 1972
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10. Arjundas G, Usefulness of depth electrodes. Studies in epilepsies. In proceedings of National Seminar on Epilepsy. Bangalore. 75-77. 1975.

Editor's note:

The above write up about prof'. Arjundas was taken from the publication of prof. Sunil landya and Prof. S. Kalyanat'antan. Prof'. Arjundas is still quite active both in the academic field and also in practice. when I requested him to complete his biography till date, he readily agreed and sent me the following write up. Mrs. Arjundas was a pillar of strength for him. Both of them entertained even very junior colleagues at their house. I still remember with fondness that they have lavished their kindness to me even when I was a young DM trainee in New. Delhi His son Dr. Deepak has taken up Neurology and is doing exceptionally well in Stroke research and management. Even now prof. Arjundas is the most active worker in any neurological conference organized in Tamil Nadu.

**K. R. Nair**

### **1983 Onwards - Prof. Arjundas**

1983 was a memorable year in more than one way. My peers blessed me with fellowship of Indian Academy of Medical Sciences where I was honoured with a scroll from the illustrious scientist Prof. Menon.

I was allowed to attend this only, for two hours by Dr. Badrinath who had ordered rest and surgery for my detachment of retina, discovered incidentally during a routine check up. I mention this to indicate the excellence of ophthalmic facilities available in Madras.

After uneventful recovery, I refocussed my clinical interest in strokes. I must thank Dr. C.Vaz, then medical director in E. Merck & Co for this. During NSI Meeting in Vizag he casually asked me whether I would be interested to take research work in stroke, funded by the company.

Both of us were sitting in a seaside restaurant for a cup of tea. Since we had no paper, I got series of paper napkins on which I quickly worked out the possible format of study. This formed the basis of an excellent, satisfying and very productive study for 2 years. A double blind study in the setting of Govt. General Hospital I This is something I never believed was possible. For any successful epoch, nature always creates necessary means.

At that time I had an excellent colleague, Dr. Natarajan. V. There were 2 brilliant MD Postgraduates who had to write a thesis for MD course. I had my classmates who were physicians in General hospital, who were willing to surrender to my control all their strokes, admitted to their unit for next 2 years!

A team was put together with Dr. Natarajan, Dr. Rangarajan.(who unfortunately died in his prime of glioma) Dr. Mani, Neurophysiologist, Physiotherapist, speech therapist, Prof. of Biochemistry and Neuro imaging. Every stroke admitted went through a protocol of examination and gamut of assessments at onset, after 4 weeks and again after 8 weeks. The therapist was double blinded to the drug offered by the company for trial but we expanded the project for lot more information.

Two excellent theses, about 30 papers on various aspects of strokes and follow up, came out of this careful study and the material was

presented at Bali at Ocean Asian Congress of Neurology and at other National International congress, with one invited paper on Intracerebral Hematoma - Indian experience in 1989 at the World Congress of Neurology held in Delhi.

After I have been associated with stroke unit until date. On any particular day we have 20 to 25 strokes under our care, one of the largest stroke units at least in Asia, run by Neurologists. My son Deepak has built up this unit with hard work and has rightfully gained recognition in this field in India and abroad.

There are 1.5 to 2 admissions every calendar day. The patients are seen twice a day by two experienced Neurologists. Several innovations have been set up in therapy, rehabilitation and preventive application. Part of this was presented at Bangalore at NSI meetings in honour of Dr. Baldev Singh. We continue to present various aspects and changing ideas of stroke management even now. The present direction is:

- (1) Targeted preventive treatment in patients at risk including carotid artery endarterectomy, angioplasty.
- (2) Community education in risk factors prevention and prophylaxis.
- (3) Experimentation with neuro protective concepts to prolongs therapeutic window for treating penumbra.
- (3) Try out Thrombolysis in acute ischemic stroke.

The mortality of ischemic stroke is down to 3% in IBI and 7% in ICH giving a mean of 5%.

Good function in both limbs has been possible in T5Vo. Functional recovery of leg only in about 15% and poor recovery only in 10%.

It has also been possible to study those with no definite known risk factors (about 16% in this series) with Trans-sophageal echo for silent right to left shunt; vegetations on valves antiphospholipid syndrome and mitochondrial diseases. Further work on homocysteinemia, protein C and S studies, are being installed and I hope in my limited time left, I will see some completeness of study and treatment of this disease which struck down my mother early in her life.

In the meantime, my official retirement from institute as professor on 30th. Sept 1987 went almost unnoticed. I have been going back to institute on 2 days in a week to teach and take part in scientific meeting and have been honoured by Dr. MGR Medical University, with title of Prof. Emeritus. I continue to take interest in clinical meetings in the Institute

and cherish the love and respect of my students who also have retired after me! ! I have continued to be active in delivering orations and taking part in CME programmes and had the recent honour of delivering the 1998 Udayar oration at SRMC Porur in Dept. of Neuro-sciences.

The one person who moulded my personality, stood behind my successful march in my profession, has been my wife Shobha. What I am today is because of her care, love and devotion to take care of growing family. However I did not get a chance to repay her for all she did for me and whole family because unkind death snatched her away on 19th July 1998. Now I find it is far more difficult to live than to die. Among the mental debris after this catastrophe I am looking for pieces to put together some motivation to go on and prevent another disaster and unbearable pain on my children and grand children.

**President, Neurological Society of India 1977.**

I have very vivid memories of April 1947 and the subsequent few months. One afternoon of that April the post man delivered a packet at my residence which contained a prospectus and application form for admission to the Christian Medical College, Vellore. In fact I had not applied for the prospectus and application form that year. I had not been particularly interested in Medicine when I passed the intermediate examination in 1944. I had taken a B. A. degree in Chemistry main with Physics subsidiary, English language and literature and Malayalam language and literature. In pursuance of my interest in Science I had secured admission for M. Sc. Chemistry in August 1946, in a North Indian University. For an unprecedented and unexpected technical reason my admission to that university had to be cancelled and I ended up working as a demonstrator in Chemistry in a college for a period of six months. The summer of April 1947 was soon over after completing this term of appointment and I was busy, along with my father in planning the next move in my educational advancement. Along with the prospectus and application form was a letter from the principal, Christian Medical College, Vellore, addressed to my father to say that this letter was in reply to a letter that my father had sent to Dr. Ida Scudder in 1944 requesting for information regarding her plans for admitting men students to the M. B. B.S. course at Vellore. At that time my father had received a letter from Vellore to say that they had plans, but was not sure when these plans would materialise and that they would let him know later. My father had forgotten all about this as nothing was heard for some years. I applied for admission to the Christian Medical College, Vellore and was selected in the open merit quota; one of ten men among twenty five women in the 1947 C.M.C., M. B. B. S. class. I considered April 1947 as a month when God guided me and directed me for a special mission and I kept myself open for this mission all through my professional career.

I had the privilege of seeing the birth and development of Neurological Sciences in India; first as a curious onlooker, later as an interested bystander and finally as a player in the game and an actor in the drama. Dr. Jacob Chandy was appointed a member of the teaching staff of the Christian Medical College Vellore in January 1949 while he was still in North America after completing his training at the Montreal Neurological Institute. He spent the initial few months of that year in North America and collected instruments and equipments for his work at Vellore. He arrived in Vellore in May 1949 and started his clinical and teaching work. And that was the beginning of formal Neurological Sciences in India and South East Asia.

My first exposure to clinical neurology was during the latter part of my first clinical year when my batch had two weeks posting to the department of Neurology and Neurosurgery. I immediately liked it because I was able to apply with a mathematical precision my knowledge of anatomy and physiology to clinical medicine. It was also fortunate that during this period I developed a personal and professional attachment to Professor Jacob Chandy. Towards the end of the posting he asked me a question or rather made a statement:- "You are going to be a neurosurgeon - Are'nt you?" I had never looked back since then.

Soon after I completed the M. B. B. S. I worked as a house surgeon in the department for 6 months. The team then consisted of Dr. Jacob Chandy, Dr. Baldev Singh and Dr. Ponnu Isaiiah and I joined them as a house surgeon. Dr. Ponnu Isaiiah was an M. D. in Gynaecology and obstetrics who decided to give up that speciality temporarily. She assisted Dr. Chandy at all operations and looked after the neurology and neurosurgery patients as a clinical assistant. When the regular neurosurgery programme started in 1955 she returned to do fulltime Gynaecology and obstetrics. There was a well equipped operating room

shared between Neurosurgery and Cardiothoracic surgery. Initially each department used the room for two days a week. One day was adjusted between the two on a need basis. As was the general custom of the Medical College, Saturday was used by the departments for teaching rounds, seminars, neuroradiology and neuropathology review of the week, laboratory experimental work etc. Although I was to take up Neurosurgery later during these six months, I spent the entire time learning clinical neurology and the pre and post operative care. I also assisted at neurodiagnostic procedures such as pneumoencephalograms and ventriculograms. I went to the operating room only to see the lesion when exposed. When a frozen section was necessary, I personally took the specimen to the pathology department and got it processed. That was the beginning of my exposure to neuropathology !. In the evenings we worked as two teams. Dr. Baldev Singh and I made the night rounds and later looked at and reported all the E. E. G. s. By about 10 P.M, Dr. Chandy and Dr. Isaiah would have finished the postoperative ventricular punctures, change of dressings if necessary etc. In those days, patients who underwent posterior fossa tumour surgery required 4 hrly ventricular punctures. Urea, Mannitol, Steroids, continuous ventricular drainage and shunts were not available in those days. The four of us would have a cup of coffee in Dr. Chandy's office before we said goodnight. I mentioned all these to point out the fact that the early people had to spend long hours at work, look at every detail of work personally and do things with meticulous care.

A word about my two mentors is not out of place at this point. Professor Jacob Chandy was a good clinician - an astute diagnostician and a brilliant and meticulous surgeon. Professor Baldev Singh was a good theoretician with a sound background in basic sciences. Both had a good inclination for investigative work. Chandy was a good organiser and an able administrator. Baldev Singh put sciences above everything and wanted to the left alone, if possible, in administrative matters. Each recognised the merit of the other and they fitted in like hand in glove. In a way it was loss for Neurological Sciences that they had to part ways in 1954. Prof. Chandy had the greatest and most profound influence on my professional career. I learned a great lot from Prof. Singh also.

My work towards a full academic neurosurgical career was supported by a broad training . I spent 3<sup>1/2</sup> years in general surgery during which time I spent 6 months in Neurosurgery. This gave me ample opportunity to do a wide variety of surgical procedures giving me the confidence in work. Before I started my final training in Neurosurgery I spent another year in medical neurology coupled with neuropathology. In fact I am the first person in India who underwent the formal M. S. (Neurosurgery) programme (later called M. Ch). After completion of my training and certification in Neurosurgery and after being on the faculty of the Christian Medical College Vellore, I took 2 years of leave of absence for research. Much of the research work was in Neuro epidemiology laced with neuropathology and basic investigative work with the National Institute of Neurological Diseases, Bethesda, U. S. A. 1-5 months of this period was spent on the island of Guam being involved with the epidemiological work on Amyotrophic lateral sclerosis and Parkinsonism dementia. This work was done under the guidance of Dr. Leonard T. Kurland. Thus a wide experience in Neurological Sciences (clinical neurology, Neuroepidemiology, Neuropathology, electrophysiology, neuro basic investigative sciences) helped me in modulating and streamlining my approach to clinical and investigative neurosurgery. I used to tell my residents that there are two types of neurosurgeons - short robed and long robed; also qualified as cutting and cutting yet noncutting; also qualified as pragmatic only and philosophical yet pragmatic. In my own career I have seen the wisdom of being a long robed neurosurgeon. The study that I undertook was a multitaceted one, which included clinical neurology, electrophysiology, neuropathology, experimental studies and neurosurgery. My broad training helped me in situations like this. The five year M. Ch programme has an edge over the 2 year programme in this respect.

In my professional career I had three main responsibilities; patient care, teaching and research. 80% of my time was spent on teaching and patient care. Since at the Christian Medical College Vellore, the entire student community (undergraduate and postgraduate) stayed on the campus these two activities could be intertwined effectively. Only

20Va of the time was available for research activities because of the immense pressure of clinical work. In practice an average working day extended to about 12 hours or sometimes more.

The story of the development of Neurological Sciences in India is well known. In this narrative I shall highlight only the small and limited role that I played in this endeavour along with my colleagues at the Christian Medical College, Vellore in particular and my colleagues elsewhere in the country in general.

In the development of clinical neurosciences, it was continuously necessary to update technology and techniques. It was necessary for much of these ideas to be borrowed from developed countries. However they had to be improvised to suit local situations. We were able to do a few things innovatively. One had to get acclimatised to the transition through pneuencephalograms to ventriculograms to angiograms to CT scans to MRI and other diagnostic procedures. The neurosurgen had to get used to operating with or without bipolar cautry, with or without good anaesthetic techniques and monitoring, with and without antioedema measures with and without operating microscope, with and without intra operative ultrasound, CUSA, Laser etc. C. M. C. got an early lead in the introduction of technology because of the generous help of well wishers from outside the country. Many of the then "newer" developments such as epilipsy surgery, shunt surgery, surgery for ischasmic strokes stereotactic studies, microscopic surgery, CT based stereotactic surgery, radiosurgery etc. I was past of a team that spearheaded these developments. The team consisted of Dr. .Jacob Chandy, Dr. Jacob Abraham, Dr. Mathew Chandy, Dr. Thomas Joseph and Dr. V. Rajasekhar'

Much of my time was spent in the treatment of intracranial space occupying lesions. The emphasis was on the use of newer techniques for the total or adequate removal of these tumours in a safe manner, thus reducing mortality and morbidity. Particular emphasis was on acoustic tumours, meningioma and pituitary tumours (intracranial approach) In some other areas I was able to give an early lead in surgery for epilepsy, microneurosurgery, intracranial AVMS and shunts. Surgery for focal epilepsy was practised at Vellore from 1950 onwards as an E. E. G. machine and facilities for intraoperative cortical recordings were available. This expertise was something that we inherited from Dr. Wilder Penfield and Dr. Theodore Rasmussen though Dr. Jacob Chandy. I was fortunate to have had training in microneurosurgery at Zurich in 1912 and was therefore able to introduce it at Vellore in the same year. This enabled us to give a lead in the excision of intracranial AVMS in addition to the intracranial space occupying lesions. Through the courtesy of friends in USA, Pudenz shunt became available at Vellore as early as' 1959 and so also a conventional sterotactic machine in the same year.

Although I had a very satisfactory and productive time in the clinical area, much of my satisfaction came from my being able to impart this knowledge to capable young people. I had been actively associated with the training of neurosurgeons from 1961 to 1986; first as a junior teacher along with Dr. Jacob Chandy and later as a senior teacher in association with Dr. Jacob Abraham. In this venture I was, in some way or other, associated with the training of about 50 neuro surgeons. many of whom headed or are heading major departments of neurosurgery in Medical colleges and in the private sector. In addition to initiating them into the science and aft of neurosurgery I had always indicated to them that my essential role was to teach them to practise neurosurgery as a way of life. They could learn technical expertise without too much of help. I had always indicated to them that I advocated introduction and use of updated technology in the care of patients but had also indicated that technology has value only if it is coupled with compassionate care. They in turn stimulated my thinking processes and work patterns. I also learned many things from them. It was possible to have such interactions because at CMC Vellore the faculty and the residents were in fulltime residence (A recreation of our ancient Gurukula system). Majority of them keep in touch with me and they constitute the greatest treasure that I have.

In the area of research I was able to initiate for the first time in India neuroepidemiological studies. One such was the epidemiological studies in epilepsy starting in 1964. The findings in the community were able to be translated to the treatment and rehabilitation of patient, suffering from epilepsy. Animal studies in the experimental production of focal epilepsy (frontal, temporal and central) and its propagation pathways and the reciprocal relationship of the cortical foci to the; subcortical nuclei were also demonstrated. These findings were translated to the surgical treatment of focal epilepsies particularly temporal lobe epilepsies. In the operative cortical recordings and its value in determining the extent of resection in prognosticating the long term operative "result, were also undertaken in the surgical treatment of complex partial seizures. I continued to be associated with the study of ALS- parkinsonim dementia complex. Christian Medical College, Vellore was the first place in India where Medical and Surgical Neurology and the neurological basic sciences sections were incorporated into the same department. Thus the department of Neurological Science, composed of Neurology, Neurosurgery, Neurochemistry, Neuropathology, Neuroanatomy, Neurophysiology and clinical Neuropsychology. This arrangement helped in promoting neurological research in a considerable way. In fact I was able to guide two students of clinical psychology towards their Ph. D. degree because of this arrangement.

I was on various professional and academic committees of ICMR, NBE, MCI, ISI, LIC, Universities of Madras, Bangalore and Osmania. This enabled me to put in some of my ideas into these organisations. I had served as an examiner to all the universities and autonomous bodies where there is a neurosurgery training programme and this enabled me in collaboration with the other examiners to bring in a uniform pattern of examination.

One area of great satisfaction for me was the opportunity that I got in developing Neurosurgery, Neurology and neurosciences in two of the less developed areas of this region. I helped in the development of Neurosurgery at the Bir Hospital, Kathmandu, Nepal. The initiation of this project was with WHO in 1981. I helped Dr. D. N. Gongal, a senior general surgeon, to do part-time neurosurgery and later this department became a full time neurosurgery unit.

In August 1986, about two months before I was due to retire from Christian Medical College, Vellore, I happened to visit Guwahati. While I was there I visited the Guwahati Medical College where two of the C M C Neurosurgical alumni were working (Dr. B. C. Kakate and Dr. Zakir Hussain) They mentioned to me that they were not able to develop neurosurgery there because of lack of adequate infrastructure. I knew this was correct. The Principal of the Medical college and the Director of Medical Education of the Government of Assam were also present when this conversation took place. I said that I would be willing to spend a month with them and show them how things could be done without a full infrastructure. Soon after I returned to Vellore I received a letter from the Director of Medical Education inviting me to spend a month at the Guwahati Medical College. I must say that the Government of Assam went out of the way to help in the development of Neurosurgery at the Medical College by providing adequate infrastructure and personnel, thus enabling the neurosurgical department to function at a reasonable level. What started out as a month turned out to be four months. I am happy to say that Dr. Kakate and Dr. Hussain are doing well in their work now. At the same time I knew that there were limitations in developing a superspeciality in a government set up.

In the meantime I had retired from the Christian Medical College, Vellore. At this time I had to make a very hard choice. I had offers from well established private hospitals in some of the major cities in the country to serve as consultant neurosurgeon with an attractive remuneration. At the same time, Dr. N. C. Borah a very dynamic and enterprising young medical neurologist was about to start a place exclusively for Neurological sciences. The government of Assam had considered him as an entrepreneur and had granted him a loan from the Industrial Development Corporation of Assam; a totally new concept of starting a medical set up like that of starting a small business or a hotel or something of that nature. He represented to me for my help. I had to make a major decision at that time whether to be yet another neurosurgeon in a big city or help out in a needy area. At that time Guwahati Medical College was the only place where some help was immediately available for neurological and neurosurgical patients from

Assam, the other six states in N. E. India and Eastern Bhutan. I knew that I would develop facilities only upto a point at the Guwahati Medical College. I opted to help Dr. N. C. Borah on the understanding that my position would be advisory and that I would help set the norms and standards of the development and help in evolving a work culture in addition to my normal clinical work. I also said that I should be permitted to leave as soon as the institute became self sufficient. I wanted the institute to be a full time place and also stipulated that part of the earnings should go back into development and for some charity for poor patients. I stayed there for 21 1/2 years and I have never regretted my decision. Dr. N. C. Borah has done a marvellous job in providing this facility for North Eastern India. The institute now has 80 beds for Neurology and Neurosurgery. It has supportive facilities like C. T. Scan, MRI, E. E. G. E M G, Evoked Potentials, Neuro pathology, neuroradiology, neuro intensive care etc. It also provides microneurosurgery and C. T. guided stereotaxic surgery. The Institute is also recently approved for the National Board Examination in Neurology.

I became a full member of the Neurological Society of India in 1959. I had the privilege of being its president in 1971. One small contribution that I gave the society was in taking the initiative in instituting the first oration of the society - Chandy Oration - in the year 1973.

Till about 15 years ago much of the development of clinical neurosciences took place in Medical Colleges. This trend has now changed and the lead has been taken over by private organisations. This is because of their ability to provide updated technological expertise by way of equipment and personnel. However a few of the old institutes which are fulltime have kept up their original lead and stature.

In conclusion let me say that we need to continuously update on the three aspects of our undertaking-clinical work, education and research using newer knowledge and technology. Let us remind ourselves of Aldous Huxley's famous words "Technological progress has merely provided us with more efficient means for going backwards"

Editor's Note :

Prof. K. V Mathai is a gentleman neurosurgeon, always quiet, never flamboyant' Always willing to help others. He was born on 17th Oct. 1926. In addition to his degrees (BA, MBBS, MS in General Surgery, MS in Neurosurgery- the first Indian to get that degree) he has a string of fellowships (FAMS, FACS, FIMSA). When the present day young aggressive Indian neurosurgeons talk loudly about their large series of temporal lobectomies, some times I suggest that they should read the Prof. Mathai's paper on CMC series of more than 100 temporal lobectomies (Mathai KV. Surgery for temporal lobe epilepsy. In Nair. K. R. (Ed) Recent Advances in Epileptology, 1983. Trivandrum Association of Neurologists. Trivandrum)

When he returned from Guwahati instead of settling down in a major city in Kerala, he chose to become a consultant neurosurgeon in a small town (Director and Consultant Neurosurgeon, Muthoot Medical Centre, Kozhenchery, Kerala). When he is called to attend any meeting of the Kerala Chapter of the Neurological Society of India, he would certainly come and attend the entire function.

His present article is as subdued as his personality. He could boast a series of triumphs. I coaxed him to give me a writeup about his experiences in Guam 1950's which he did. In addition to his association with Prof. Kurland he had contacts with Professors. Hirano, Zimmmermann, Dr., David Dunn, Dr Kees van Nuis and others. Part of his early work was presented at the first Oceanian Congress of Neurology at Tokyo in 1962. His work was later published (Mathai. K. V. Amyotrophic Lateral Sclerosis and Parkinsonism Demmentia Complex. Am.J. Trop med 1970; 19: 151-61). When he left the Island of Guam the then Governor of Guam made him an honorary Chamorro through an investiture ceremony.

Though mild mannered Prof. Mathai could take firm stance when needed. The stance which he took at the height of a political interference in CMC Vellore was praiseworthy though he had to suffer a lot of personal inconvenience.

I had often wondered that if Prof. Mathai had a flair for writing he would have written his memorable experiences in Cuam which would have been more interesting than the book written by Dr. Oliver Sacks of USA (The Island of the Colorblind and Cycad Island. Alfred A. Knopf. New York. 1997).

K. R. Nair

## **PROF. K. JAGANNATHAN**

When I asked Prof. K. Jagannathan to send me his autobiographical write up, what I got was a write up in third person singular manner. In a way a lot of people have difficulty to write about themselves. Hence what Dr. K. J, as he is popularly known, has done is understandable.

He was the head of the Institute of Neurology for a long time. I met him initially at an interview some time in 1970 when he selected me for the DM course in his Institute, though I did not join there. Later in the various NSI meetings I have seen him quite active, presenting papers, chairing sessions, giving orations and dancing at the parties. But since 1982 we were together at various meetings, conferences, examinations etc. He is very much friendly and has a very wide circle of admirers and well wishers. After his retirement he continued as Emeritus Professor at Institute of Neurology Madras.

It was during the DM (Neurology), MD (Psychiatry) examinations wd used to enjoy Prof K. J.' s comments. We used to be aggressive and ask all sorts of questions to the candidates. He would sit there smiling at the answers of the students and making pencil sketches. Madras University used to have at times 10 to 12 candidates taking the examination as the examination was conducted at 2 different centres- Vellore and Madras. During board meetings it was difficult to remember who was who to decide regarding the final result. It was then Prof. K. J. 's drawings would become quite handy. He has an uncanny ability to draw the faces of people and that was an easy way by which we could identify the candidates. I have still some of his sketches.

Prof. K. J. is still active in Apollo Hospital, Madras.

**K. R. Nair**

**Dr. K Jagannathan**

**MD, DTM,FRCB FAMS, FIAN, FIMSA.**

**President, Neurological Society of India, 1980.**

Dr. K. Jagannathan (Kanthimathynathan Jagannathan) was born on 11th April 1928 at Sivakasi. Tamil Nadu and had his early education in more than one school, since his father was an Assistant Surgeon, in Madras Medical Service liable for frequent transfers. He had his collegiate education at the American College, Madurai and had his medical education at Stanley Medical College, Madras where he also did the postgraduate course in General Medicine completing the same in 1958. He joined Tamil Nadu Medical Service as an assistant surgeon in 1955 and was working as a tutor in Medicine and dermatology when he qualified for M. D. of the Madras University. Soon after post graduate qualification he was appointed Medical Registrar of the Govt. General Hospital, and Assistant Professor of Medicine as one of the youngest to hold such a post at that time. He was selected as a Colombo Plan Scholar and sent to United Kingdom for training in Neurology and Hospital for Nervous disease, Queen Square, London and Maudsley Hospital, Stoke Mandeville Hospital for paraplegia and Maida Vale Hospital for Nervous diseases, London. When he returned to Madras, he was appointed a tutor in Neurology to work with the Professor Neurosurgery, Madras Medical College and the Professor of Medicine of the same college. He was 'elevated to be the Reader in Neurology in 1964 and Professor of Neurology in 1966 which post he held until his retirement in 1986.

The Department of Neurological Surgery and Neurology was a combined one and he had a long association with the Neurosurgeons of repute like Dr. B. Ramamurthi, Dr. V. Balasubramaniam and Dr. S. Kalyanaraman and had many

projects and research carried out at the Institute of Neurology of Govt. General Hospital (the department of Neurosurgery was transformed and called Institute of Neurology in 1970). The early years of neurology were naturally tied up with the neurosurgeons who came into the speciality in 1950 and had developed a very good awareness of neurological disorders among the doctors in Madras and the country, though the accent was on neurosurgery. There were three centres at the time, one each at Madras, Vellore and Bangalore and these centres were interacting academically having regional meetings with periodic visits to one another. Young doctors were motivated to take up the speciality with very well planned activities in the department of which the Journal Club should be mentioned as a special activity, giving the then current information in the literature in a nutshell with handouts' to the participants.

Medical Neurology was encouraged as a distinct speciality by Dr. B. Ramamurthi the then Professor of Neurosurgery, and Dr. R. Subramaniam Professor of Medicine of the same college. There used to be a regular presentation of neurological cases in the weekly physician's conference on Fridays. This had really put the speciality on firm basis with the medical faculty and the students accepting Neurology as a speciality in Medicine worth practising and not an academic exercise in clinical Medicine as a means to pass examinations alone. The academic activity was grown up gradually and the University started a D. M. course in Neurology in 1965. The first set of specialists came out in 1967. The centre in Madras General Hospital had by then was well known all over the country and attracted patients from all corners of India. The real boost to the development and eminence came in 1961. A British team headed by Dr. Dennis Williams and Mr. Walsh came to Madras sponsored by the British Council, bringing with them the expertise and scope of neurological practice in India. By their visit, stereotaxic surgery became an established sub-speciality in Neurosurgery and the same was actively practised jointly by the neurosurgeons and the neurologists. We started depth recordings from the cerebral hemispheres and later from the cerebellum as well. Many papers were presented both in National and International fora and the centre came to be known as a specialised centre in Neurosciences by W. H. O. It was at this time that the concept of an institute was accepted and through a munificent donation from private Trust in the name of Dr. Lakshminarayanaiah and grant from the Government, the Institute of Neurology came into existence. It was formally declared open by the then President Dr. V. V. Giri. in 1970.

The department of medical neurology was actively engaged in many research Projects, the chief among them being the study of Epilepsy (under a scheme called PL-480 Funds as a part of multicentre study in India,) the Cerebro Vascular Accidents, Peripheral Neuropathy, Motor Neurone Diseases, Tuberculous Meningitis, Behaviour Neurology', Neurological and neuropsychological changes in Head Injury etc. In the course of these projects. the centre acquired EEG, EMG and CT-scan besides authorised departments of neuroradiology, neuropsychology, neuro-ophthalmology, and neurochemistry. The demand for seats in DM (Neurology) became quite high. The State came to have a specialist in practically every Medical College and later practically in every district head-quarters.

One of the major contributions of Medical Neurology from this Institute is the intense clinical research leading to description of new clinical entities of which the Madras Motor Neuron disease gained international recognition. It has been presented and documented at regional, national and international conferences and now accepted as a variant of Motor Neurone Disease. The centre enjoyed the visits of many foreign neurologists neurosurgeons almost round the year and this was a wonderful exposure of Indian Neurology mutually beneficial to the visitors and the local fraternity.

Dr. K. Jagannathan as the Professor of Neurology during this period helped the Institute on a firm footing and the centre and the faculty enjoyed the appreciation and respect of others in the field. Sub-speciality of paediatric neurology was established at this period and the state now boasts of the largest number of paediatric neurologists in the country. Dr. Jagannathan retired in 1986.

### **Social and Medical Milieu in the Period 1950 - 1986.**

Medical Neurology may be considered in its infancy when I took over as Tutor in Neurology under the Professor of Neurosurgery. Pre medical neurological problems were referred to Neurosurgeon at that time even by, Professors and Senior consultants in Medicine. It took some time to make the presence of neurologists felt and took even a little longer to impress them that the speciality, is a viable independent speciality and not an appendage of neurosurgery. Over the next few years in the late sixties, it established and attracted references from all branches of medicine.

The development of medical neurology was well planned and guided by senior physicians and surgeons of whom one should mention the names of Dr. B. Ramamurthi and Dr. R. Subramaniam. Their constant encouragement and their stature in the service made a very important contribution to this development.

Acute Medical neurological problems met in clinical practice were admitted to Special Intensive Care Unit in medical neurology under the neurologists ever since the ICU was created. Work and services done at this Unit under medical neurology was the genesis of a monograph on Cerebrovascular disorders published and well reviewed in Medical Literature.

**Prof. Jacob Abraham.**

**MB, MS (GEN), MS (NEURO) FAMS  
President, Neurological Society of India 1983.**

Part-I \* Some autobiographical notes in relation to the Neurological society.

I was sorely tempted to make the format of this presentation like a question and answer session, for two reasons, one, Q & A does not tax the attention span of the average 20th century homo sapien (read neurologist/neurosurgeon) whose brain capacity of 3750 ml with ten billion neurons and ten trillion bits not counting the cerebellum is more than capable of handling this. Secondly, I could always blame the questioner for some of the awkward, don't sweep under-the-carpet, type answers which may be made to the questions asked. But on more mature reasoning which in the present instance may be synonymous with incipient cerebral arteriosclerosis, I have retained the standard format, guaranteed to be clearly soporific in the extreme. So on to mundaneness, you have been warned.!

I retired from the Department of Neurological Sciences, Christian Medical College & Hospital as Professor of Neurosurgery and Head of the Department in 1991, after 42 years in CMC as a student and staff.

The department was started in 1949 by Dr. Jacob Chandy and it was then called Neurology and Neurosurgery. Subsequently the department's name was changed to Neurological Sciences to accommodate research in basic sciences - Neurochemistry, Neurophysiology and Neuropathology.

**\* Parts II and III : If others of my vintage are moved to write their blunderings for posterity and if I figure among them so be it.**

After completing I. Sc from St. Xavier's College, Calcutta, I joined CMC, Vellore in 1949 for the MBBS Course i.e. 2 years after India became independent. I had the privilege of being in Calcutta not only during the Hindu Muslim riots and the Bengal famine, but during the most heady and vociferous pre-independence coffee house discussions and joyous celebrations of our country gaining independence. The bravest incident which I participated in as my contribution for the independence struggle was whiffing a bit of tear gas from a safe distance, about half a mile away from where the action was! I must say" even that was tearful in the extreme.

CMC was predominantly a Women's College at that time. I don't have to tell you all about the trauma a youthful male initiate to Aesculapius had to endure at the hands of some awesome senior females of the College.

Graduated in 1954, I did Junior House surgeony, six months in Neurosurgery and completed M. S. (Gen. Surgery) in 1959. Passed the M. S. (Neurosurgery) in 1962 and have tried rather unsuccessfully to remain a student all my life.

My first paper presented at an NSI meeting was in 1961. This was in Madras and the Society was 10 years old. The paper was entitled "Trigeminal Neuralgia" (Published in Neurology India in 62). The NSI meetings of those days were an interesting challenge to the Society because the NSI was attached to the Association of Physicians of India. interesting because the NSI was treated like an upstart and the organizers catering to the very large numbers of general physicians, usually relegated the smallest class room to the NSI where all the neuro lectures and business were conducted. It soon became obvious that the NSI had to strike out on its own and so a few years later the NSI started meeting separately.

The decision that NSI would only meet in centres where a Neurology/Neurosurgery department was functioning was a wise and important step, because it helped to boost the morale of the members of the NSI who in many instances were struggling to be recognised in their own institutions. This was also the time when each and every neurologist/neurosurgeon not only had to interpret x-rays themselves, but also do all the neuroradiological procedures. All neurology/neurosurgery residents had to undergo vigorous training in not only doing procedures like pneumoencephalograms, carotid and vertebral angiograms, myelograms, but had to be knowledgeable about the radiological parameters required for the exposure of a film. Obviously no one is advocating that residents of today should "rediscover the wheel", but pointing out that a relatively large chunk of hands-on-learning-process has been lost for ever- may be a good thing too!

Perhaps the most important feature of the NSI of early times was the feeling of comradeship and mutual helpfulness, a feeling that we were all part of a great and wonderful experiment, the success of which was very dear to every member of the Society. Please do not think I am falling into the pernicious mode of speaking of the "good old days", implying, that the present times are inferior. They are obviously different but need not necessarily be less edifying.

Interestingly the research activities that I was involved in during the early period was mainly neurological - Muscular Dystrophy, Stroke and Epilepsy.

My first visit abroad was undertaken in 1964 to Dartmouth Medical College in Hanover, New Hampshire, USA. This was made possible because of the "exchange visitors programme" that was in place between the NSI and Congress of Neurological Surgeons of USA, funded by P. L.480 Funds. During the programme about 15 to 18 senior Neurosurgeons from USA visited various centres in India for a period of one month or so. This was in the 60's and 70's.

It was interesting to see how challenging and informative Tropical Neurosurgery was to the visitors. It was equally enlightening to the hosts when the visitors were able to suggest solutions to problems which seemed ever present (and therefore not worth wasting further thought on). I sincerely wish that exchange programmes for postgraduate students and staff becomes a very important part of training.

My stay at Dartmouth was not to gain further experience in clinical or surgical techniques but to get fully immersed in research methodology. This was a new concept for me. I was getting paid just to think!

Nowadays techniques and technology have bludgeoned and have become so complicated that a dedicated young surgeon would have to spend more time catching up with "tools of the trade", than on research. The individual naturally chooses and the choice will be dictated not only by his inclinations, but also by the academic orientation of his institution.

After returning to CMC I started on a prospective study of stroke cases. About 800 cases were carefully documented and analysed and it was surprising to find that 25-28% of cases were below the age of 40 years. This was highlighted by a symposium on "Strokes in the Young", organised at CMC. This was in 1973. Subsequently this finding was confirmed at other centres. The data on the stroke cases were collected and published as a book. A copy was sent to each of the Medical Colleges having a Neurology Department. Not a single acknowledgement was received, thanks to my colleagues.

Two very positive offshoots of the stroke project were the surgical correction of deformed foot and hand by tendon transfers and muscle slides, and the idea of revascularisation of the brain by the use of the pedicled omental graft. A large number of experiments on monkeys documented the revascularisation potential of the pedicled omentum both to

the brain and spinal cord. After confirmation of this fact the procedure was done in humans. The ICMR awarded the prestigious Basanti Devi Amir Chand Price/Medical Receives in 1984.

I consider my most important contribution for the benefit of the neurosurgical patient was the popularising of the concept of doing a shunting procedure (ventriculo-atrial) prior to tackling a posterior fossa or midline tumour, especially in children. This technique substantially reduced the mortality and morbidity rates associated with such operations at that time. The preliminary report was published in the Journal of Neurosurgery 1962. The use of this technique was considered a great boon, but not anymore. This reminds us that techniques in neurosurgery are constantly changing for the better and what was useful at one time is almost irrelevant now. This is a good example of the saying "Time makes ancient truth uncouth".

The highlight of my association with NSI was when I was elected as its President in 1983. This is the highest recognition that the Society can confer on any of its members. I had the privilege and honour of being selected for this post.

When I look back on my association with the NSI it seems that I received more than what I contributed to it and I will always be indebted.

Prof. M. Veeraraghava Reddy

President, Neurological Society of India 1984.

I have not received his autobiographical write up, though he promised to send it in time. I could corner him during the Sept 1998 Annual Conference of the Indian Academy of Neurology at Hyderabad and get some information about him. He was felicitated during that meeting as he was the first person to introduce medical neurology in Andhra Pradesh.

My colleague Dr. A. S. Girija of Calicut Medical College quietly told me that Prof. Reddy was her DM examiner and she could not recognize him till I introduced her to him. She remembered only Prof. Anil Desai as her examiner as he was the one who terrorized her during her examination. Prof. Reddy was very quiet through out her examination. I told her probably in the end it must have been Prof. Reddy who passed her as I had the opportunity to be a co-examiner with Prof. Anil Desai a few times.

Prof. M. V. R. Reddy was born on 20 Oct 1931 and had his early schooling in Coles Memorial High School in Kurnool. He belonged to a family of prominent politicians of Andhra Pradesh. But he decided to have nothing to do with politics and took up medicine as his career. He got admission in Stanley Medical College and got his MBBS degree in 1959. According to some of his classmates they never suspected that the happy go lucky Dr. Reddy would one day become a pioneer in a medical field. He finished his postgraduation in Internal Medicine from Andhra Medical College, Visakhapatnam.

He had training in neurology at Wisconsin, Mayo Clinic and Queen Square. He did senior Common Wealth Fellowships with Prof. John Walton, Prof. Gilliat and others.

After his training abroad, he returned and started the first medical neurology department in Andhra at Osmania Medical College (1964).

He continued in Osmania Medical College till 1966. Then he moved over to Nizam's Institute of Medical Sciences where he built up another excellent department of Neurology (1976-1983). He became the Director of that Institute eventually (1980-1983). He retired from that post in 1983.

He joined the Neurological Society of India in 1964 and became the President of NSI after two decades of active association (1984). He was the Chairman and the expert of the Neurology division of ICMR for 5 years from 1972-1976, Honorary physician to the President of India from 1982-1997.

Even now he is quite active and the most respected neurologist in Andhra Pradesh. His wife is Mrs. Kamala Reddy.

K. R. Nair

Prof P. N. Tandon

President, Neurological Society of India 1985

Born on 13 August 1928. at Shimla, second of the four sons of Dr. R. N. Tandon and Smt. Saraswati Devi. I received my school education at Delhi. living with my maternal grand parents. The independence movement was gathering momentum and there was an all engulfing spirit of patriotism which provided a sense of patriotism, daring and sacrifice even amongst the school children and adolescents. I still have the vivid memories of attending the "Prabhat Pheries", processions, lectures by the national leaders, the events of 1942, Quit India Movement. This inculcated a keen desire to excel to prove that we Indians were inferior to none. I passed my high school in first division, standing first in the school and seventh in the Delhi Board.

Very early in childhood I had, for reasons not now clear to me, decided to take up medicine as a career. There being no medical college for males in Delhi, I decided to move to Allahabad to live with my parents. There were two medical colleges in the state - at Lucknow and Agra. Having completed Intermediate Examination, standing first in the biology group in the college but achieving only a second division. I successfully competed for admission to both the medical colleges. The obvious choice was to join K G medical College, Lucknow, which had a better standing and reputation.

An unexpected high score in the very first midterm examination in Physiology highest seldom achieved earlier instilled a hope and desire to get to the top. While consistently doing well at all examinations, the first position could only be achieved at the final examination at the end. This made it possible to get a house job in the subject of one's choice which in my case was surgery. Again I am not sure of the motivation behind this choice, except probably that at that time medicine lacked definitive therapy while surgery had well defined indications and chances of cure.

It may be mentioned that I had just graduated to the clinical year (3rd year) when India achieved its independence. That was the time of national rejoicing, a new sense of pride, a hope to be able to carve one's destiny with dignity. This no doubt strengthened the will to succeed, to attain high standards, to work for the country. In every nook and corner of the country one could find leaders, whose sacrifices, dedication, high moral standards and ethical conduct were shining examples to follow. I mention this to reflect the stimulating milieu prevailing in the country in every walk of life. What a contrast from the current frustrating environment when promoting self at all cost has become the guiding force.

Of course poverty, rampant epidemics of infectious diseases, episodic occurrence of famines plagued the people of the country. Outside the major cities, health care services were rather poor or non-existent. To these symbols of shame were added the socio-political and economic consequences of partition. Yet the faith in our leaders, kindled confidence in ourselves, a dominating desire to protect the newly acquired independence and a will to prove worthy of the sacrifices of our leaders prompted the people to accept these challenges with hope and courage.

To come back to oneself, the euphoria of standing first was soon replaced by a realisation that getting the degree was not the end but the beginning of a new struggle. At the very first encounter with the "chief" Surgeon SN Mathur, one was told, "I am not impressed with someone standing first, every year one student does it, but I am interested in how well you do in the task ahead of you."

To come up to the expectations of one's hero thus became the driving force to strive harder and harder even in absence of any words of appreciation from him. Nearly escaping death from meningitis, acquired as a result of attempting mouth-to-mouth breathing to revive a grossly infected patient, ended the year of house-job. This was followed by even a harder year as a postgraduate student, without a job but a determination to complete the course in the shortest possible time. The joy of being the only one from my class to do so that year was cut short by not being selected to the next position - resident surgical officer - while two of those who were senior to me by one year though they failed in the MS examination with me were appointed. Suddenly I feared an end to my ambitions of being a surgeon. Not prone to giving up, I joined the Department of Anatomy as a Senior Demonstrator hoping this would help me prepare for the FRCS examination which was for all practical purposes mandatory if one wished to pursue an academic career. Soon I got an opportunity to move to Irwin Hospital Delhi as a Casualty Medical Officer.

In 1954, government of India invited a WHO team headed by L E. Volodarsky of Oslo, Norway to establish surgery for pulmonary tuberculosis at SJTB Hospital, Delhi. I saw a new opening for my cherished desire to be a thoracic surgeon. I joined as an Assistant Surgeon, at a personal financial loss (due to non-fulfilment of a promise by the Director Health Service Delhi, to safeguard my salary) and soon after turned down the offer of a District Medical Officer position in Madhya Bharat which carried a salary of more than double of my current emoluments.

At that time newer subspecialties like thoracic surgery and cardiac Surgery were being introduced in the country. There were hardly a few in the country - all recently trained abroad. Whether it was the challenge of taking up this difficult task or the glamour attached to it or both I was keen to take it up as the next step. This was the year 1953. Dr. Chandy, Dr. Ramamurthy and Dr. Ginde had already initiated neurosurgery in the country. But I was not yet aware of their work. Dr. Pritam Das who joined the faculty of the Department of Surgery in 1950 was expected to initiate this speciality in the College, having spent sometime with Sir Geoffry Jefferson. But for reasons best known to him he seemed extremely reluctant to take up this challenge. Sadly realising that any worthwhile position as an academic surgeon was not possible without a stamp of FRCS and failure to get any assurance from the authorities for not transferring me from the thoracic surgery unit forced me to resign from my job and leave for England to get the "stamp", which was achieved in shortest possible time.

### ***Switch to Neurosurgery***

After obtaining FRCS, I wished to pursue training in thoracic surgery. My erstwhile chief Dr. Volodarsky, for whom I was like an adopted son, insisted on my coming over to Oslo, where the renowned Prof. Carl Semb (of Semb Thoracoplasty fame) was the Chief. However, Dr. Volodarsky persuaded me to join Dr. Kristian Kristiansen, the neurosurgeon in the same department. with a promise that if I did not like neurosurgery I can go back to thoracic surgery with Prof. Semb. The reason for this advice sounded somewhat bizarre to me at that time but proved to be true. I was told by Dr. Volodarsky, "Dr. Kristiansen is a unique human being, besides being an outstanding neurosurgeon. And since I like you so much that I would like you to be like him. Even if you decide not to pursue neurosurgery, your contact with Kristian would be worth "spending" six months with him." Though not fully convinced at that time I decided to accept the suggestion.

### **At Oslo**

So from the glamorous metropolitan London, I landed in Oslo a small provincial town in February 1957. Whoever heard of my decision to go to Oslo, wondered at the wisdom of my decision. Thinly populated, not yet having fully recovered from the ravages of German occupation, felt like having arrived in wilderness. The monotony of the cold, dark, dull winter days was only relieved by the milky whiteness of snow all around, on the roads, on roof tops and the otherwise barren trees. The most redeeming feature was that I was to live with Dr. Volodarsky and was warmly welcomed by his vast circles of friends, he having no family of his own.

After a memorable meeting at supper with Dr. and Mrs. Kristiansen at their home, who waived off my reservations about embarking on this difficult venture, I was asked to join the department next-day. there were no formalities, bureaucratic hurdles. filling of forms. just an understanding between two friends to adopt a foreigner for training!

Neurosurgery was still part of the Department of Surgery, headed by Prof. Carl Semby sharing with it the offices. the operation theatres and even the wards, though some beds were reserved for neurosurgery in the Neurology Department situated in a separate building at some distance from the Surgery Department. I was deeply concerned about my lack of any prior exposure to neurosurgery, inability to communicate with patients due to language barrier, ignorance about local customs and culture. Of course one could converse with medical colleagues in English, but during the traditional morning conference, the radiology conference. the ward rounds one had to be a silent spectator of the proceedings. Luckily the hospital working hours being from 7.30am to 2 pm left lot of free time to devote to learning both the subject and the language. Soon there were no hurdles in this regard. Realising that on my return home I would not have the services of the allied specialists, I planned to spend my afternoons with the neuropathologist, Prof Wilhelm Harkmark and in EEG laboratory with Prof Birger Kaada. Simultaneously I found enough opportunities to learn neuroradiological procedures and their interpretation from Dr. Zimmer and Dr. Amundsen.

No doubt comparatively a small town, Oslo at that time had many leading lights in neurosciences. Prof Monrad Krohn, an acclaimed leader of European Neurology, a Visiting Professor to Queens Square, London, Author of Clinical Examination of the Nervous System and a large number of persons had recently retired from the University but were regularly seen at meetings and conferences. His successor Prof. Sigvald Refsum, had already acquired international recognition for his delineation of the syndrome of peripheral neuropathy, retinitis pigmentosa, deafness and cerebellar ataxia which is now known as Refsum's disease. Prof. Arne Torkildsen, O.Torkildsen's shunt fame was now a practicing neurosurgeon in the town. Prof Tormod Hauge, who popularised Scheldinger technique for vertebral angiography, was then chief of neurosurgery at the Riks hospital. Norwegian neuroradiologists had acquired international leadership in this field. The Oslo University had a galaxy of famous neuroanatomists of that era. This included Prof. Jan Jansen with his monumental studies on the cerebellum. Prof Alf Brodal whose invaluable legacy-among many other, 'Neurological Anatomy in relation to Clinical medicine'-is still widely read, Prof. Fred Walborg and several others. Prof Birger Kaada whose work on amygdala and hippocampus remains a landmark contribution, was head of the Physiology Department, later to be replaced by his then student Prof. Per Andersen.

Though not located in one institution, there were enough opportunities for me to interact with every one of these leaders. Their warmth of friendliness, ease of approach and modesty were in themselves an unique experience.

When finally the summer arrived suddenly the environment brightened, life sprang all over, one could cast the winter gloom and enjoy the natural beauty which the country abound in. I was happily adjusted and started enjoying my work and life in friendly Norway. In the meanwhile a temporary licence and a paid job was arranged and I for me. I was now a formal member of the neurosurgical team. I had written my first paper, presented it to the Norske Laegeforening (Norwegian Medical Association), partly in Norwegian and initiated work on some others. I was hoping to complete my training in Oslo by the end of 1958 and return home. But Dr. Kristiansen had other ideas. He insisted and arranged that I should go to Montreal to become "as well trained as the three Indian giants" of that time. Reluctantly thus I moved to Montreal, arriving there on New Year's Day 1959. Before leaving Oslo I had already completed a draft of a monograph, "Diagnosis and Surgical Treatment of Severe Head Injury"

#### At Montreal

Montreal Neurological Institute had acquired the status of "Mecca of Neurosciences". Dr. Penfield was still the Chief, Dr. Rasmussen had already returned from Chicago as the Director designate. Dr. Cone and Dr. Elvidge were the two other Senior Neurosurgeons. Dr. Francis McNaughton headed the team of a galaxy of distinguished neurologists - Preston Robb, Rab Rabinowitch, Lloyd Smith, Cosgrove Dr. Herbert Jasper and Dr. KAC Elliot provided the leadership in Neurophysiology, and Neurochemistry respectively. Dr. Donald McRae was the uncrowned king of Neuroradiology. Dr. Brenda Milner was already an acknowledged leader of the new discipline of Neuropsychology. The second line consisted of persons like Gilles Bertrand in Neurosurgery, Peter Gloor in Neurophysiology, Romeo Ethier in neuroradiology amongst others. Those in training represented all parts of the world, John Jane, Phanor Perot, Charles Branch, Cone Peevehouse, Ellis Keener, Floyd Cooper, Jessie Barber (from USA), Jules Hardy, Gordon Thompson, Steward Huestis, Hugh Sampson, (from Canada), Lucien Stapiens (from Poland), Desh Gulati, Vijay Dave and (from India). Tony Tarazi (from Lebanon), were residents in neurosurgery. Drs. Chandy, Ginde and Ramamurthy had preceded us by several years. The earlier trainees at the Institute, who were already heading reputed departments included such distinguished names as Arne Torkildsen, Robert Pudenz, Maitland Baldwin, Joseph Evans, Sean Mullan, Bert Silverstein, Arthur Ward, Claude Bertrand the virtual who-is-who of contemporary neurosurgery. The same could be said of neurophysiologists, neuropathologists and neurochemists. One had the rare opportunity to meet many of these distinguished alumni at the time of Silver Jubilee celebrations of the Institute in 1959.

During my two years stay at the Institute, besides neurosurgery I spent three months in surgical neuropathology with Dr. Cone and six months in EEG with Drs. Jasper and Gloor, and simultaneously as a Teaching Fellow with Dr. McNaughton.

The training programme at MNI was very comprehensive, extremely demanding and poorly paid, just enough to survive. But it was a rewarding experience that brought one in contact with the most distinguished leaders of the speciality and at the same time made one feel as a part of a global family culminating in everlasting friendship.

## Return to India

Notwithstanding several very tempting offers specially from the USA, I had firmly decided to return to India, and pursue my cherished goal of establishing a service for those who needed most. Of course I could not resist spending some time at Oslo on my way home where I arrived in May 1961. During my brief stop-over at Bombay Dr. Ginde made me a very tempting offer to join him at the Bombay Hospital. I had made up my mind not to accept a practicing position, since I was convinced that in the prevailing milieu of our country, working in a practicing job was not conducive to the establishment of a genuinely academic service. I believed that lure of private practice distracted one from academic work as also the service to the poor. I was therefore keen to join the All India Institute of Medical Sciences at Delhi which had recently been established. Even before reaching India I had applied for and was selected for a Pool Officer's position. For a variety of reasons, which I need not detail here, I accepted to work at my Alma Mater, where I was promised a Professorship within six months. I, therefore, joined the Department of Surgery at K. G. Medical College, Lucknow in August 1961. I must confess that the welcome, affection and support I got in my efforts to initiate the first ever academic neurosurgical service in the state, was simply overwhelming. This compensated for the low fellowship money (Rs. 570 p.m. to be precise), and lack of minimum working facilities. As a Pool Officer, Prof S. C. Misra, the Head of the Department of Surgery, provided me independent beds, use of his own operation theatre, and office and regular out-patient facilities. Another person who needs a special mention is Prof B. N. Lall, the Chief of Radiology, who inspite of all constraints opened the doors of his department and provided all support to develop neuro-radiology without which neurosurgery could not begin. There were many others like Dr. Jaiswal of Anaesthesia Department and Dr. K. M. Wahal a fully trained neuropathologist who lightened my burden voluntarily. Prof R. V. Singh, soon after taking over as Principal and Dean of the College, was a great source of strength. Thus within a short time it was possible to establish a reasonable service. No doubt the rich and the powerful would still go to Vellore, Madras or Bombay, but there was no death of trusting patients.

Simultaneously I initiated a number of clinical studies and disproved my other colleagues who warned me that no worthwhile research was possible there. Some of these studies were later published not only in our society journal-Neurology India, but also in international journals.

The promised Professorship was still elusive, but was not a matter of concern to me since I was happy in the progress of my work and the company of my friends. It was only two and a half years later in 1963 that I was finally appointed a Professor. Even though this was a practicing job I voluntarily refrained from doing so. My only regret was that the working facilities remained grossly unsatisfactory inspite of all good will. Dr. Kristiansen who visited me in April 1954, during his visit to Montreal soon after had this to say. "If I had not seen Prakash's patients alive and well with my own eyes I would not believe that, neurosurgery was possible with so little facilities." Another matter of concern to me was that in the brief span I had become the last word in the speciality. There was no one to challenge, there was no one to seek professional advice or help from. No doubt the Government had sanctioned the creation of a 20 bedded independent unit for which I had the honour to perform the "Bhoomi Pujan". I was thus worried about my future development. I still had not given up the hope of moving to AIIMS.

During this time the Departments of Anatomy, Physiology and a reputation for neuroscience research. The posts of Professor of Biochemistry at the All India Institute of Medical Sciences had established Neurology and Neurosurgery were finally advertised and I decided to apply. To my utter surprise I was selected, because Dr. Ramamurthy declined the invitation. It was now a crucial decision for me -my work was progressing satisfactorily at Lucknow though not as well as I would have wished. I was now married and my wife had a permanent faculty position in the college which she loved. AIIMS was still known more for its research activities than clinical service. It did not have its own hospital yet. but the prospect of its acquiring a national stature, the possibility of comprehensive growth of neuroscience, the opportunities for international collaboration, the growing reputation as a potential centre of excellence added to its attraction. Thus, with a very heavy heart at the cost of great sacrifice of my wife (who as it turned out was virtually forced to give up her cherished profession), and the risks involved in starting from a scratch once again. I finally decided to move to Delhi. I must put on record that but for my wife's sacrifice and support I could not have achieved my cherished goals.

## ATAIIMS

I joined AIIMS on 1st March, 1965. The Institute had not yet completed its first decade. However, it was bubbling with activity all around - both physical and intellectual. Its existing faculty was a combination of youth in basic science departments and acknowledged mature clinicians. Dr. K. L. Wig had just taken over from Dr. B.B. Dixit as the Director, while he continued as the Head the Medicine Department. Dr. B. N. B Rao, Dr. N. Gopinath, Dr. K. C. Kandhari, Dr. Parvati Malkani, Dr. L. P. Agarwal and Col. G. C. Tandon were Heads of the departments of Surgery, Cardio-thoracic Surgery, Dermatology, Obstetric and Gynaecology, Ophthalmology, and Anaesthesiology respectively. Drs. L. Chacko, N. H. Keswani, B. K. Anand, RBL Arora, Ramalingaswami, Col. Kalra, were acknowledged leaders in their fields. It was my good fortune that the institute had been able to persuade Dr. Baldev Singh to accept the Chair of Neurology. He had joined a day before me.

Enthusiastic programmes for future development permeated the environment. Hope mingled with desire to excel seemed to be the prevailing spirit. Funds provided by the Rockefeller Foundation made it possible to obtain state-of-art equipments. However, the Institute hospital had not yet been ready for occupation, so the patients were temporarily housed in the Nurse's Hostel. The make shift operation theatres were far from the optimal requirements. As far as neurosurgery was concerned there was not even a full set of the basic instruments required. Yet the demands from the patients and pressure from the authorities to initiate neurosurgical work was incessant. It is no exaggeration to say that we did not have even five essential neurosurgical instruments including a usable Hudson brace, a proper set of rongeurs, even a brain spatula or suction tube, what to speak of a neurosurgical operation table or reliable cautery. of course there was no EEG or common neuroradiological facilities. Just before I joined I was assured that since there were adequate foreign funds available all my requirements will be procured and air- lifted in 6-8 weeks time. But this proved to be like any other administrative promise in the country. Nearly an year elapsed before we could have the bare minimum necessities.

Retrospectively I wonder if it was an unthinking overenthusiasm of a rash young man or the proverbial, "fools rush in where angels dread to tread" or simply an anxiety to prevent one's reputation from being sullied, I ventured to initiate surgery. Dr. Baldev Singh's advice, encouragement and moral support egged me perform the first operation within a month of my initiating the Department. After the initial mixed luck, I was in a short time able to successfully operate upon several patients with cranial and spinal tumours.

let me digress for a moment and describe the neurosurgical scenario at Delhi at that time. When in 1956. Dr. Baldev Singh moved from Vellore to Delhi to start the first neurology-neurosurgery service at the Tirath Ram Shah Charitable Hospital, Dr. Chandy who had earlier planned to join him, was persuaded to stay back. Dr. Baldev Singh had thus to look around for someone to take care of the neurosurgical problems. Col.A. C. Ray from Army Hospital. Lucknow and Dr. R. G. Ginde from Bombay would occasionally come and operate upon some selected cases. Ultimately in 1958, Dr. Vitor Rao joined him on a regular basis and he was simultaneously appointed Junior Honorary Surgeon at the Irwin Hospital (now known as the LNJP Hospital). However, the overall activity was in low-key. In 1962-63, Dr. Arjun Sehgal joined the newly established G. B. Hospital. Soon after the Chinese aggression in 1962, a neurosurgical unit was created at the Army Hospital under Lt. Col. Mahendra Singh. However, the first academic neurosurgical unit came into existence at the AIIMS.

Luckily for me by June 1965, Dr. A. K. Banerji joined the Department and from then on we were jointly able to make rapid strides. Soon we moved to the new hospital and our dedicated operation theatre, with improved facilities. Dr. Brahm Prakash joined as our first postgraduate student. We were able to start a comprehensive teaching and training programme, initiate couple of prospective clinical investigations and increased the repertoire of our diagnostic and surgical services. We were able to organise a couple of national workshops, primarily devoted to neurodiagnostics.

Dr. S. K. Ghosh, who worked with me at Lucknow, moved to the Radiology Department just prior to my arrival. He was assigned the responsibility of providing high quality service in spite of inadequate facilities. It is remarkable that at the time of the Twentieth Anniversary of Department of Neurosurgery and the inauguration of the Institute of Neurology, Madras in 1970, Dr. Ginde, in his guest lecture made the following statement:

"Of all the Centres, only three have developed fully: The Christian Medical college and Hospital at Vellore, The All India Institute of Medical Sciences, New Delhi and the Institute of Neurology, Madras. These three institutions are adequately equipped to enable all types of neuro-diagnostic investigations to be carried out and to cope up with all varieties of neurosurgical problems".

We were fortunate to have available the neuropathology expertise of Dr. Sriramachary, till such time as Dr. Subimal Roy took over this responsibility. Close links were established with the Department of Ophthalmology and ENT to initiate the nuclei of neuro-ophthalmology and neurootology. Soon after completion of his M. Ch., with the help of Prof. Kristiansen, arrangements were made for Brahm Prakash to go to Oslo to broaden the base of his training. He then joined the faculty in 1971. A similar course was followed by Dr. Ravi Bhatia. I take this opportunity to formally record, what I have privately said before, If I was asked to define an ideal team for the department, I could not have dreamt of a better one." Thus by 1974 we were able to establish an enviable,dedicated and loyal team.

We were still constrained in keeping pace with the rapid developments in the field owing to the perpetual shortage of funds for procuring state-of-the- art equipments. Microsurgery, stereotactic surgery, more sophisticated neuroradiological facilities were advancing the frontiers of neurosurgery. Our lucky break came through a contact of Prof. Gopinath in Finance Ministry, who prompted us to apply for a SIDA (Swedish International Development Agency) grant, which we ultimately received. This helped us in enhancing and upgrading both our diagnostic and thereapeutic facilities. We were also able to establish the first CT and microneurosurgical facilities in the country.

Around 1972,it was felt that the strengths in various neuroscience disciplines at the Institute had individually acquired high standards. It was therefore proposed to establish a full-fledged Neurosciences Centre. With usual bureaucratic delays finally in 1975, only the clinical component of our proposal (along with a similar one for cardiac sciences) was approved. I was appointed its Chief (A detailed history of the establishment of this Centre is soon to be published separately). The Centre as it exists now is housed in a seven story building with 180 nuerology, neurosurgery beds including 30 for intensive care. There are four fully equipped operation theatres. In addition there are independent Departments of Neuroanaesthesia and Neuroradiology and a Chair each for Neuropathology and Neurochemistry.

Prof. A. K. Banerji succeeded me as the Chief of the Centre in 1988. Currently Prof. M. C. Maheshwari is the Chief. Since my superannuation in 1990 the Centre has continued to grow in its facilities and all its functions. Prof. V. S. Mehta is the Head of the Department of Neurosurgery. Just to illustrate in the year 199'1, 2731 neurosurgical operations were performed, consisting of 66 I brain tumours, 151 intracranial aneurysms, 55 spinal tumours, 166 lumbar disc and 146 cervical discremovals, 122 operations for tracheal plexus and other peripherai nerve injuries and 341 CSF diversion operations. Stereotactic surgery, epilepsy surgery and surgery for stroke is now carried out by dedicated teams. MRI & MRS services are provided by a fully equipped facility. A Gamma-Knife is fully functional. So is a SPECT Interventional neuroradiology is practised routinely.

My association with the Centre remains uninterrupted purely for my academic interests. Initially as a Bhatnagar Fellow for five years (1990-95). I, alongwith Prof. Gomthi Gopinath continued ongoing research on experimental neural transplantation. As an Emeritis Professor of the Department I have the pleasure of being associated with the academic activities of the Department. However, on superannuation I voluntarily decided to give up professional work and devote myself to research and academic activities. In adition, I have been involved in a variety of science promotion activities through the various Academies of Science and Advisory Committees of scientific departments and councils. The Centre now has outstanding faculty in all its constituent departments and continues to march ahead. Though not dministratively linked with the Centre it is gratifying to note that the neuroscience activity in the parent departments of Anatomy. Physiology and Biochemistry continues to be of high quality.

### **My association with the Neurological Society of India**

For the first time I attended the annual meeting of the Society in January 1962, at Calcutta I was admitted to the Society at that time. It was then still a rather small society, meeting jointly with the Association of Physicians of India. In 1972,I was unanimously elected Secretary of the Society in which capacity I served till 1977. During this period we initiated the

CME programme as an annual feature at the Society meeting, travel grants for postgraduate students to attend the annual meeting, travelling fellowship to visit other neurosurgical Centres in India. Several awards were also established. During these years Dr. Ramamurthi and I took up the responsibility of bringing out a Textbook of Neurosurgery, which has recently been revised. Prof Maheshwari and I also brought out a monograph Neurology India 25 Years containing abstracts of all the papers published in Neurology India. In 1984 I was elected Vice-President and in 1985 its President. In between for three years (1979-1981) I served as the Editor of Neurology India. It has been gratifying to watch the growth of the Society during these years.

### **Other opportunities to serve the cause of neurosciences**

As a member of the expert group on neurosciences of ICMR, besides reviewing and monitoring research projects, it was possible to evolve some multicentric studies like "Epidemiology of Spontaneous Subarachnoid Haemorrhage" and "Head Injuries", as also "Stroke in Young". Later first as a member and then as Chairman of the Programme Advisory Committee on Neurobiology and Animal Behaviour of the Department of Science and Technology it was possible to steer the establishment of several national facilities a chronobiology unit at Madras, the National Neural Transplant Unit and the Human Foetal Repository at AIIMS, New Delhi, a Brain-bank and the Neuroinformatic Centre at NIMHANS, Bangalore, a Primate Behaviour Laboratory at CDRI, Lucknow. Five yearly courses on Neurobiology for clinical postgraduates were organized and four monographs, "Lectures in Neurobiology" were published.

with the creation of the Department of Biotechnology ten years ago, a Steering Committee on Neurobiology was established. I was invited to be first its member and soon afterwards its chairman. Among the several programmes organised under its aegis are a Brain storming Session in 1990, national seminars on neuroimmunology, neurotoxicology, neural network and neuromodelling. An NMR facility was established at AIIMS, jointly supported by DST, BT, ICMR, AIIMS. Amongst the two dozen major research projects, supported under the programme there were several which evolved as a result of discussions in the Committee. These include a multi-group programme on developmental neurobiology at AIIMS, a programme on neurogenetics at TIFR, a multi institutional programme on platelet receptors as markers of neurological and psychiatric disorders.

only recently with the help and co-operation of the members of the Steering committee it has been possible to get the approval of the Government (Department of Biotechnology) to establish a National Brain Research centre to commemorate the Golden Jubilee of our Independence. I consider it a real privilege to be invited to be the chairman of the Management Advisory Committee of this Centre.

During the period I was Secretary and later vice president of the Indian National Science Academy. I was able to initiate bilateral programmes on Developmental Neurobiology and Neural transplant in collaboration with the then USSR Academy in 1984. I organised a national workshop on Nutrition and Brain which was subsequently published as an Academy monograph.

**M. SAMBASIVAN**

**President , Neurological Society of India 1996.**

I was born in an orthodox Brahmin family on May 1 st 1936, the birth star being Pooram (Poorvaphalguni) Pooram star is considered very auspicious for men- 'Pooram Pirantha Purushan' (Poorvaphalgunau jatha purushah),May be the hard work and the confluence of horoscopic powers have done well and I could achieve what I could!

As a little boy I used to see my father reciting mantras and just by listening, I too could do it and no wonder the Vedas are called Srutis. My father used to wake up at 4 am and walked about the veranda mumbling Prathasmaranam for 30 minutes. Then he had the morning ablutions and bath followed by Sandhyavandanam, agnihotram and then Suryanamskar. Then he did the Devapooja and at 10.30 am he took his breakfast cum lunch. At 11 am he would go to the Law Courts, as he was a practicing Lawyer. He would return home by 4 p.m. and had milk and sweets. Then he would see his clients till 6 p.m. and would be back doing Sandhyavandanam and agnihotram. His dinner consisted of milk and fruits and would retire to bed by 10 p.m. For pooja and his personal needs he insisted on milking the cow and would not allow anyone to wash his clothes. So self-dependent he was he could manage till late in his life. He openly pronounced the truth that at least some did not like him. But in the courts and amongst his colleagues he was admired as "truthful". He always carried a small pocket 'Bhagavat Geeta' book, which he would read to himself whenever time permitted. My mother was at his heels and did everything in anticipation. Of course, she gave him rocklike support. My aunt and my mother would tell me stories from Bhagavatha and Ramayana as often as possible. So my childhood was very much influenced by these events. My father wanted me and my brothers to learn Sanskrit and exposed us to the books, but I got the best out of them as I persisted with them. I used to tell my father what I learnt in the course of the week and on Sundays he used to take me to the Zoo or Aquarium. So my interest in nature was kindled very early. My father used to walk with long strides and I had to run to keep pace with him. He never asked me to read school texts or do home work, but knew that it would be complete and I had to keep up that confidence. I was initiated into Vedas and I could Chant Houtram etc. even as a 10yr old lad. Now in retrospect, I realise that these exercises improved my receptivity, recognition and recall capacity. In the evenings I was allowed to go to the nearby Library for reading extracurricular material and this did help in widening my vision. In the mornings at 5 a.m. I used to go to the nearby Gymkhana and I learnt Yogasanas, ground exercises and wrestling. So my mental and physical capacities were given ideal opportunities to develop. I doubt whether these circumstances are available to the present day youngsters.

My school education went off well and I passed the English School- leaving certificate with top marks in Physics, Chemistry and Biology. I was also awarded a prize for this at the annual School Day celebrations. I passed with second rank in the school and then joined for Intermediate at University Second Grade College. I had taken the second group in which the subjects were Physics, Chemistry and Biology, as for the second language, I chose Sanskrit. I had my liking for nature study and my idea to take up Medical career also prompted me to take up second group. In the college I did well, joined the debating society and got some prizes. I also represented the college for basketball tournament. The final examination was over and I passed with First Class and Distinction in physics, Chemistry, and Biology. So the stage was set for me to apply for admission to Medical college. But my Father thought otherwise. He wanted me to go for Sanskrit Literature and told me not to apply for Medical Course. So I joined for B.Sc. at University College taking Chemistry as main subject and Zoology as subsidiary. I had my second language sanskrit. I was also elected secretary of chemistry Association and it was an interesting year. I passed the B.Sc. Examination with First Rank in the university for Chemistry

Main and Zoology subsidiary. During the period I was an active participant in National Cadet Corps and passed the B certificate examination.

Again, I wanted to apply for the medical course and now my father agreed on condition that I would continue my Sanskrit studies, which I am continuing even today, with his blessings. So I joined the Medical College Trivandrum in July 1955.

My N C C training inculcated discipline, planning ability and work execution and me mature. I remember an incident at the annual training camp, by which we got the Best Platoon award. All of us had our uniforms equally starched and ironed. had our haircuts done similarly, boots and web belts similarly polished and presented ourselves at the parade ground. We became the cynosure of all eyes and our performance in drill and other tests were adjudged the best.

At Medical College the studies progressed well and as I was a B.Sc. in Chemistry I was exempted from appearing for organic chemistry. I utilised the time in learning Anatomy and did some extra dissections. In the weekly tests I scored good marks in Anatomy as well as Physiology. At the end of first N4BBS when the results came I stood first in the class. Couple of incidents remains fresh in my memory. Once I was dissecting the internal ear. I was so engrossed in the dissection that I did not know the Professor was standing behind me. He patted me on my back and I got up with a start. He congratulated me on the dissection and later got it mounted in the Museum. During the final Physiology examination the experiment I got was "effect of Ca on the heart muscle". I had prepared the frog's heart with the Symes cannula in and perfused the heart. The recordings were made on the smoked drum and I was ready. The external examiner came and asked me how I did it so fast? He suspected some mischief and asked me to repeat the experiment in his presence. I did it again. The examiner asked me what I demonstrated and I replied 'Calcium rigour'. Tell me another rigour? I replied 'heart rigour'. Tell me another rigour? I replied Rigour Mortis. No more questions were asked and later my Professor just congratulated me.

Meanwhile, Medical NCC was started and I was appointed Sergeant Major. Another period in NCC was interesting indeed. I did all my exams well and in 1958 December we were to go for a camp at 92 field Ambulance at Ahmedabad. Many questioned my prudence and told me that I was squandering my time with NCC. Yet, I did go on and passed the C Certificate examination. By now I was a Senior Under Officer and I got the chance to lead the Kerala contingent of NCC at the Republic Day Parade at New Delhi. Even now I look back with nostalgia the parade and the salute to the then prime Minister Jawaharlal Nehru.

I was also the secretary of the social service association. We organised weekly visits to the coastal areas and gave medical help to the poor. All sample medicines were collected and more got from medical representatives and some we purchased from the funds we raised. It used to be very eventful with the final year students and doctors diagnosing new cases and doing minor operations also. we conducted benefit performances and raised more funds. we also conducted a nursery school for the indigent children and gave noon food also.

As I was very much interested in Neurosciences .I did explore avenues to study it more. I did dissection of the Human Brain at least four times. In my final year period I saw prof. Ramamurthi draining a Cerebellar Abscess and later Prof. R. M. Varma exploring the pituitary. Prof. Mahadevan Pillai visited us and I also saw him doing a carotid angiogram.

The final MBBS Examination was over and I was the best outgoing student in 1959 winning six gold medals. I won two medals for Obstetrics and Gynaecology and for Surgery. Best outgoing student's medal and two medals for scoring the highest marks from 1st to final MBBS put together.

Those days we had to do internship and a year of house surgeoncy. we got Rs. 75 as stipend for House Surgeon. I used to remain in the hospital for long hours and helped the anaesthetist with Lumbar puncture for giving spinal anaesthesia. I could perfect the technique for doing LPs. I learnt to pass endotracheal tube and could manage anaesthesia fairly well. I went to help the thoracic surgeon so that I could see first hand thoracotomy. The general surgeons used to tackle head injuries and I used to be there also to see. The exposures I got was simply great the like of which I think anybody can get today.

After my House Surgeoncy I was selected by the public Service Commission as a tutor in General surgery in 1962 and I joined the Trivandrum Medical college as Assistant to Prof. R Kesavan Nair and Assistant RMO of the hospital. Meanwhile, Prof. Raman Nair of Paediatric Surgery gave me plenty of opportunities to work on Congenital Hydrocephalus, Myelomeningocele etc. We used fine infant feeding tube and did VP shunts. Meanwhile, sophisticated shunt systems were available abroad and ventriculo atrial shunts were the fashion. Now we all know that primary choice site for shunt is peritoneum and up shunt is the procedure of choice. I learned to pass catheters up the aorta, inferior vena cava and so on. on one occasion the catheter got stuck in the mouth of a lumbar vein and I was able to get an excellent picture of vertebral venous plexus. In fact that was my first publication. There was an experimental lab set up which was in doldrums. Prof. Raman Nair got it in shape and got it running. I could make use of it and learned vascular anastomosis and Nerve suture. Two visiting professors from US Dr. Wharton Young (Young Sac fame) a Neuroanatomist ND Robert Grennel a Neuropharmacologist did give me advice and exposed me to experimental techniques. These efforts in the 1962 period did stand in good stead in later years. I had also received encouragement from Radiology department and I could do angiogram any time. Even in the absence of appropriate Seldinger set with makeshift cannulas I could puncture the femoral artery and pass a polyethylene tube up into aorta. So I could demonstrate renal artery stenosis and aneurysm of Aorta. Carotid angiogram or femoral angiogram was very easy and I had helped many postgraduates with such pictures in their theses. This exposure again was very helpful in the years to come.

In October 1962 an announcement came in the papers that the primary FRCS examination would be held in Calcutta in March 1963 and applications were invited. I applied to the Royal College of Surgeons England and remitted the fees also. Later on the Chinese conflict occurred and it was doubted whether the examinations would take place. I wrote to the Royal college but they informed that the examinations would be held as scheduled. With necessary preparations I went to Calcutta appeared for the examination. I was the only candidate who passed from Kerala. Out of over 200 candidates only 18 passed. Afterwards, I got a letter from Royal college congratulating me and giving me a hint that I was being allotted to Sir Clement Price Thomas who would offer me a placement in London. Dr. R. J. Last also wrote to me offering help and accommodation facilities. I thanked them and told them that I was doing my Postgraduate course in Surgery and would be free to move to London only in March 1964 and requested the same facilities even later, They replied in the affirmative and I was happy.

But in February 1964 I passed my M.S. general surgery examination and Professor Thangavelu, the then principal, knowing my interest in Neurosurgery told me that a seat for M.S. Neurosurgery was available at Christian Medical college, Vellore and advised me to join the course. with the rosy prospects beckoning me to England to make the choice was difficult. Yet, I opted to go to Vellore for my training in Neurosurgery, inspite of many advising me not to take up Neurosurgery, particularly as the mortality rate was very high and the results were poor. I did not go to England to appear for the final FRCS. And as providence willed I got the FRCS conferred in 1990! Strange are ways of God.

I joined CMC hospital Vellore for my training in Neurosurgery under Professor Jacob Chandy. I had not seen professor Chandy but had an image of him as a strict disciplinarian and a man of few words. There were many problems that followed as regards my service and deputation benefits. Less said the better. I left my wife who was in the final stages of

pregnancy at her father place to face the situation alone. In Vellore, I was given accommodation at MIQ and I started in right earnest. one week passed and I got the information that a boy was born. That is Mahesh. my first son.

As I went to the hospital it was about 6 p.m. and I met Dr. Banerji and Goodwin Newton. Mr. Rajagopal was the departmental secretary. Next day I met Professor K. v. Mathai who impressed me as a gentleman. I met Professor Jacob Abraham in the theatre and he impressed me as a person of depth and erudition. Dr'. G. M. Taori who was the Neurologist was found to be very affable and most helpful. professor Jacob Chandy was not in station and he came a few days later. I was sent from the wards to meet him. Dr. Chandy was pacing in the office with Rajagopalan at his heels taking some notes. An awful silence prevailed and I was ushered in to his mighty presence. I did not know what to speak and was dumb. Then I heard his booming voice 'so you are the new resident. And I don't want to hear an1, complaints about you. Neurosurgery demands full attention and you shall not slacken at any time. If a case is admitted at midnight you must complete the work before dawn. There are textbooks, but the patients are your book and learn from them. we are here to guide you" Dr. Harold Voris Visiting Neurosurgeon from US joined him and both laughed and the atmosphere eased a bit. Dr. Chandy, patted me and dismissed me from the office. whenever Dr. Chandy was in station there was perceptible difference 'You know Dr. Chandy is there.' He would come for rounds and all the assistants and residents would have to face a barrage of questions. often, I used to be the target for the questions. I learned a lot. With my earlier experience in arterial punctures, doing carotid angiogram or retrograde brachial angio was an easy affair. After the last examination I came to know that daily reports would go to Prof. Chandy about every resident as to his abilities. How L P was done. how many misses. How the angio was done and so on. I was lucky in that only good reports went to him. Thus a stage came when seniors would direct "if L p is difficult call Sam, or if the arterial puncture is difficult call Sam". That way all the seniors developed a confidence in me. That made me work more diligently. Later on I used to assist Dr. Chandy for the private cases. He would put his finger in, pull out a meningioma put in a big. Cottonoid in and tell me 'you control the bleeding' and get out. With my heart in my mouth and sweat trickling on the back I would get the haemostasis achieved. Then he would peep into the theatre and ask .everything OK' and go to the office. That kind of faith reposed in me made me do surgery with confidence and stood in good stead all my life. I used to reach the wards at 7.30 a.m. and go to the OR. Even though I was staying in the Harley Street in the hospital campus I could not find time to go home for lunch. It used to be brought to the office. By the time ward rounds were over it used to be late and some emergency would crop up.

So I used to be in the hospital even for 72hrs at a stretch! My wife would say your son may not recognise you as you go away before he wakes up and come back after he has slept. I don't know whether that kind of hectic schedule exists in any Neuro department today. As there' are more residents and assistants today the work gets divided. In my final year of training after Professor Mathai, I was the most senior and so I used to be called for consultations, taking classes and so on. I was known a fast surgeon and rapid evacuation of subdural haematoma etc. became common. Unconscious patients becoming conscious at the end of the procedure lent me the 'fame'. Any surgeon could have done the procedure, but it happened luckily for me. Before the final examination it was customary to get two months of study period . As I was alone in my batch and after Mathai there was none else, I used to be called upon to help the juniors and attend to all emergencies. So the 'study period' got attenuated. But, I gained a lot of practical experience.

Then came the final examination. I did well. I do not know what transpired between Prof. Jacob Chandy and the other examiners (Prof. B. Ramamurthi, R. Ginde and R. M. Varma). Yet, I found that I was being bombarded with questions continuously. The surgery – operation on an anterior third ventricular tumour - went of well. This tumour was masquerading as a pituitary tumour, but, turned out to be an ependymoma. The clinical and afternoon Viva Voce went on. At last, an angiogram was shown. It was a case of Aneurysm of Great Vein of Galen with hydrocephalus. I diagnosed it and discussed it. And the examiners gave a big smile and I was dismissed. In those days possibly that was the first case of Aneurysm of Great Vein of Galen demonstrated angiographically.

Later, I came to know that I was given distinction. Dr. Chandy had wagered 'if Sam did not answer a question fail him, but if he answers all, give him D'. I am glad I stood up to the expectations of Dr. Chandy. My period spent in the Department of Neurological Sciences at CMC Vellore flashes back in my memory, as did the daffodils of Wordsworth.

After my M.S. in Neurosurgery I wrote a letter to Dr.Thangvelu about my successful completion of the course. In two days I received a telegram urging me to join Medical College Trivandrum immediately. So I came and joined the Trivandrum Medical College as an Assistant Professor of Neurosurgery. I had to face many service problems, organisational difficulties and had tough time convincing doctors about good results of Neurosurgical procedures. I started in April 1966 and had only two beds in the unit and I was working under the first Surgical unit headed by the Director and Professor of Surgery. Cases started coming in and those too very sick or unconscious cases and investigating facilities were close to impossibility or non existent. Struggle was great, but incessant. I had no assistants, but the general surgery postgraduates came to my help. I had no operation days, but in the afternoons after the main list was over I would procure theatre facilities and a willing anaesthetist would help. There were times when I had to do cases under local anaesthesia. Even clipping of aneurysms was done under local anaesthesia. Times have changed now.

One day I was called in to see a comatose patient in the Medical Wards and he was being treated as a cerebral thrombosis. He was 50 years old. I did an angiogram and found a large subdural haematoma. I proposed surgery, but the relatives wanted a day to settle his LIC papers and wanted to arrange for his funeral! Next day, I was given permission to operate. The patient was having stertorous breathing and extensor spasms. Yet, I went ahead, passed an endotracheal tube sucked out the secretions and did a burr hole under local anaesthesia. The subdural was a solid one and I had to raise a flap and removed the haematoma. I closed up the scalp wound and to every- one's surprise (there was a big audience) the patient's respiration was better, and the secretions had come down. Patient was sent to the Post operation ward - a -general ward where all post op cases were kept. No intensive card ward! I stayed with the patient holding on to his drip flowing hand and next morning he was conscious and talking. There was a steady stream of doctors and all by- standers of every patient. So a good result in a comatose case brought 'fame' and confidence.

Now, more cases were being referred from all over. The workload increased and my wife remarked "CMC was better". All head injuries were referred to me and everyday there used to be at least three night calls. I had neither telephone nor a vehicle. So I used to find it extremely difficult to go about. At last, a telephone connection was given and the hospital ambulance came to take me to the hospital. In the hospital and in the neighborhood I was named as The 'He Buffalo'. (The He Buffalo is the vehicle of Lord Yama the God of Death) As the cases referred to me were mostly cases in deep coma it was not possible to salvage all of them. Angiographic studies done in such cases gave a help in diagnosis but all of them did not survive and the Angiogram was nicknamed 'anthiogram', a last rite!. People even said that unless a burr hole was made the dying patients did not get admission into Hell or Heaven! Udaunted, I proceeded and the Neurosurgery department became independent, all service problems solved, my deputation benefits were given and at last people began recognising Neurosurgery. The beds allotted increased to 25 and separate operation days were fixed. I could get any case readied for emergency operations in less than 30 minutes. Autoclaved craniotomy sets, burrhole sets and laminectomy sets were available. More assistants were posted. With shift duty systems 24 coverage of casualty services was possible. A concentrated effort to identify cases of subarachnoid haemorrhage was started and in one year 18 cases of IC aneurysms were diagnosed. So in 1968, a collaborative work for study of Aneurysms and subarachnoid haemorrhage was started with ICMR support. This study later on proved that this problem is common in India, refuting the earlier concepts.

In 1969 there was a proposal for starting a centre to commemorate the 60th Birthday of Sri Chitra Tirunal Maharaja of Travancore. I got involved and after a lot of efforts and planning with a small amount of g lakhs of Rupees the project

started. The foundation stone was laid in 1971 by the then Governor Sri Viswanathan. The contributions from the Royal Family increased and with efforts of well wishers the construction was completed and on the 60th Birthday of His Highness Chitra Tirunal, the building was inaugurated by the Governor Sri Viswanathan in 1972 exactly one year after the foundation stone was laid. Even though the new Building was to house the speciality departments, destiny took a turn and the Sri Chitra Tirunal Medical centre was born. I was one of the initial signatories of the constitution along with Dr. C. M. Francis, Dr. K.R. Warrier and Dr. K.N. Pai. Winds of change blew and this centre became an autonomous institute - Sri Chitra Tirunal Institute of Medical Science and Technology. This is now an institute of National importance, and I am glad I could do something for it in the initial stages.

I continued with my set up in the Medical College and the post graduate course in Neurosurgery was started in 1979. This effort paid its dividends and all the Medical colleges in Kerala are manned by the post-graduates trained by me. Besides the work on aneurysms other studies on Posterior 3rd ventricular tumours, Unilateral proptosis, Brain Abscess, Pulsed Electro magnetic energy in the management of cerebral oedema, and others were done and published. In 1979 the annual conference of the Neurological Society of India was held in Trivandrum and I was the organising secretary.

Meanwhile, I had served in the Expert Committee of ICMR, Standardisation committee of Bureau of Indian Standards and such other committees. I also became the Postgraduate Examiner in almost all the centres. I was able to attend all the professional society meetings in India and also abroad. Since 1971 with my participation in the 2<sup>nd</sup> European congress at Praha I could participate in International meetings. I was given membership in the congress of Neurological Surgeons and AANS in 1968. Almost every year I did attend one international meeting or another. I was indeed fortunate in that The Government of Kerala deputed me to participate in the various meetings abroad. By this, I was able to establish contacts with the leaders of the profession like Charles Drake and Ghazi Yasargil. I could help younger Neuroscientists to go abroad through help from such magnates. I could also get some Aneurysm Clips and such instruments also as gifts, which I did use in the management of poor patients.

I was an ardent Equestrian and used to go for riding in the mornings. The Horses were from the Mounted Police and I did well with them, that I could do jumping, tent Pegging and other exercises. But, all that ended up with a jarring note in August 1972, when I had a fall and sustained fracture of both bones of right forearm" it required internal fixation, and Dr. Natarajan did it at Madras. With the immobilised right hand I learned to write with my left hand and could do many jobs with left hand, including venipuncture. But, I said good bye to riding.

Meanwhile, my family became bigger and I was blessed with a second son, Kumar. I continued my Sanskrit studies I maintained my contacts with the temple and did officiate as Thanthri on all special occasions. Later, in 1973 a baby daughter also was born. My second son and daughter did not want to take medical course. Kumar is an MBA and my daughter a social scientist, M.A with second rank of Pune University. She is happily married to Shivkumar a mechanical engineer.

In Munich International meeting recognition was given to me ( 1981) and our work on Pineal Region Tumours was accepted for publication in Modern Neurosurgery. I was also a special lecturer in the symposium on 'Antibiotic of Choice in Intracranial infections. 'In 1985, at the Toronto meeting I became a member of the Neuro Trauma committee. It was at this meeting where I had to wage a lone but successful battle well supported by Professor B. Ramamurthi to bid for WFNS meeting The 1989 meeting was held in New Delhi. By dint of merit the WFNS and IEA meeting also were held at New Delhi in 1989. It was a signal honour, which came to the Neuroscientists of India, and I am very happy it occurred during my tenure as Secretary of NSI.

I am member of NSI since 1966 and served the society as an executive committee member from 1974 to 1977. In 1978, the annual conference of NSI was held in Trivandrum and I was the organising secretary ably supported by my assistants, SKR Nair, Sanal Kumar, Jayakumar and others. In 1983 at the Annual conference at Madurai, I was elected secretary of NSI which I continued till 1990. Soon after my assumption as secretary the 'Newsletter' was started as bimonthly publication. This was circulated to all the members of NSI through which excellent rapport could be maintained. The feedback received was good. I am glad the successive secretaries have maintained its publication. The societies documents such as Registration certificate and others were not found in the files. Contacting my predecessors did not yield any result. Possibly they were lost irretrievably. Our Income Tax returns also were not being filed regularly and this deficiency also had to be cleared. So I went to Bombay where the Society was registered as charitable trust. The charity commissioner's office raised many queries and objections and all were cleared. At this juncture, the effort taken by P. L. Bharucha is gratefully remembered. All the necessary papers were filed with the Income Tax Department and everything was cleared. We also got the 80-G exemption certificate.

It was a Herculean task, but it did take place. At every annual conference the Treasurer V K Kak used to come with all the papers and we opened the NSI office at the venue. We could collect all subscriptions and the defaulters' list almost became extinct. Somehow this pattern got discontinued and now we see defaulters' list. The efforts at WFNS continued and I was the Scientific Program Director at the 9th meeting at New Delhi. I also became a member of the residents, award committee. I was also Deputy Chairman of the Neurotraumatology committee till 1997. In 1997 I was also elected unanimously as the Second Vice President of WFNS. This tenure will be over in 2001, at the 12th WFNS meeting at Sydney.

I was the Vice President of NSI in 1995 at the New Delhi meeting and became President of Neurological Society of India in 1996. I was glad to be the President as it held all the affection and goodwill of all the members of NSI. My tenure as the president was uneventful. The presidential oration given at Calcutta was well received and again I was glad to chair the Annual General Body meeting and then hand over my charge to Dr. Sarala Das. Having reached the pinnacle of joy as president and fulfilment of happiness I was happier still to hand over charge to my successor. Now, as a past President I can relax and see the further growth of the society. But, I continue as vice president of WFNS till 2001. Time and tide waits for none. It goes on relentlessly, may be there could be periods of gloom to be enlivened by floods of brightness. As Shelley puts it 'If winter comes can spring be far behind'.

To the younger colleagues let me tell that nothing can replace hard persistent effort. With all the doldrums of consumer protection and related problems never ditch your colleague nor paint him/her in bad light. Keep all records complete and well preserved. Be humble and never boast. Keep in touch with the newer developments. Success will be yours.

#### **Editor's Note :**

Prof. M. Sambasivan is an unusually gifted person with many talents. As an undergraduate and postgraduate student he was known not only as brilliant student but also as a keen sportsman, equestrian, officer in National Cadet Corps etc. He is in first in the Kerala Medical Education Service to get qualified in any super speciality. He is a great organiser and can coax people to get anything in academics and or in organisational field. He was responsible along with Prof. M. Thankavelu for initial spadework of Sree Chitira Tirunal Institute for Medical Science and Technology, Trivandrum. His studies on intracranial aneurysms, created a great interest in the neurological circles. He is now working at Cosmopolitan Hospital, Trivandrum.

Prof. Sarala Das.

MD, PhD.

President, Neurological Societies of India 1997.

It was an unique sight during my early childhood, which left a lasting impression in my mind, when i saw many residents of a small village named thoripaju gathered at a place to receive us (my father and me) on a fine evening. I was about three years old and as a child, I could understand that most of them were anxiously waiting to consult my father regarding their health problems. My father' (late Dr. Sreedhar Mohanty) was a doctor working in the Government Hospital at phulbani, a small town in orissa and used to be the only physician providing treating facility to ail the people living in and around the town. often, I used to accompany him during his visits to the adjoinin-u villages and seeing the respect and gratitude of people for a doctor, I developed a strong desire in my mind to take up medical profession, when I would grow up. with such imaginative ideas and determination, I continued my studies with sincerity and enthusiasn and completed my basic training of M.B.B.S from S.C.B. N medical College Cuttack in the year 1960. I enjoyed a happy childhood with a congenial atmosphere at home and a successful career at school. The natural beauty of hills and rivers in small towns of orissa provided a serene atmosphere for my studies. Even though I had my education in schools and colleges which were not of national repute, I did have the opportunity of being taught by teachers committed to their profession. I actively participated in extracurricular activities like drama, music, painting and other organisational events which, I feel, influenced in developing my personality.

After completion of rotating internship in medical college, I got married to Dr. Bhabani Sankar Das who happened to be my classmate during M.B.B.S. career. Subsequently we lived with my father-in-law and mother-in-law and I had to take up the household responsibilities as a housewife. I decided to take up the post graduate course in pathology instead of any other clinical subject to avoid odd time duties. Nevertheless I always had a liking for this subject. My in laws and my husband extended their wholehearted support when I wanted to pursue my postgraduate studies further. My mother played a key role in this regard by looking after my daughter while I completed my M.D. in Pathology and Bacteriology from K. G. Medical College, Lucknow in 1965. Known for maintaining a high standard of teaching and training, the department of pathology at K. G. Medical College offered me a suitable ground where I could acquire the basic knowledge required to build up my career as a pathologist. It was here that I learnt how best to set up laboratories in our country with limited finance and minimum equipments adopting innovative methods. During the same period Dr. Das completed his M.S. in general surgery from K. G. Medical College and both of us returned to Cuttack to start our new career.

I joined at S.C.B. Medical College, Cuttack as a demonstrator of pathology and enjoyed my assignment of teaching undergraduate and postgraduate students in addition to assisting Professor A.M" Tripathy in reporting histopathology slides. I developed a liking for the subject (histopathology) and intended to have further training in a specialized branch of pathology. At the suggestion of Dr. N.C. Nayak, the then Professor of pathology at A.I.I.M.S., New Delhi, I contacted Dr. S. Sriramachari, the Director of Indian Registry of Pathology, I.C.M.R., New Delhi, who was a neuropathologist and was the honorary professor of neuropathology at A.I.I.M S. and expressed my intention of getting trained in neuropathology under his supervision. At the same time Dr. Das was planning to undertake M.Ch course in neurosugery. we thought, it would be quite beneficial for both of us to take up the neurosciences speciality in building up of our future career.

My initiation into neuropathology started when, availing I.C.M.R research fellowship. I joined I.R.P. to undergo training in neuropathology and work in the research project on Duchenne muscular dystrophy under the guidance of Dr. Sriramachari. Subsequently my husband and children joined me and I completed Ph.D from Delhi University working on biophysical and histochemical aspects of brain tumours.

When I look back, I cannot believe as to how I could leave my ten month old son with my mother and proceed to Delhi for higher studies.

Whether it was my determination to become a neuropathologist or foolishness to satisfy my ego is difficult to comprehend. However, once all of us were together life became much easier and meaningful.

During my training period. I had the opportunity of being associated with very senior neurosurgeons and neurologists of our country. Professor Baldev Singh, Professor P.N. Tandon, professor A. K. Banerjee, Professor Vimla Virmani and professor Ramamurthy were amongst those who encouraged me and extended help in undertaking my Ph.D-work. I had access to the neurosurgery operation theatre at A.I.I.M.S. and I used to collect fresh tumour material for study. This enriched my clinical acumen. I received full co-operation and help from my husband, who was then registrar and post graduate student in neurosurgery, in carrying out my thesis work. Greater was the contribution of my mother who relieved me of all my household burden so that I could do justice to my research work.

Dr. Sriramachari, my guide, who laid the foundation stone for me in this speciality, greatly influenced me in building up of my future career. Apart from theory, I learnt from him the practical aspects of neuropathological techniques. I started to study of muscle biopsy by employing special enzyme histochemical techniques on cryo- stat sections, a facility not available at any other centre in the country during that time. Never did I realise that this initial work on muscle would be the main subject of interest and research in the latter part of my career. It was Dr. Chari, from whom I learnt how to be meticulous, honest and methodical while undertaking any research work. I also had the privilege of acquiring working knowledge in photography (gross and microscopic) and essential requirements in research and teaching.

When I was working at I.R.P., Dr. D. K. Dastur was the seniormost neuropathologist in the country and heading the division of neuropathology at J.J. Hospital, Bombay. Apart from this centre hardly there was any other institution where the speciality was established. Subsequently in 1970s, Dr. Sarasabharathi started the neuropathology department in the Institute of Neurology at Madras. During the same period Dr. Subimal Roy started organising neuropathology division in the department of pathology at A.I.I.M.S., New Delhi.

With lots of hope and ambition to set up a good neuropathology laboratory and provide satisfactory diagnostic service in my state, I returned to Cuttack and joined as a faculty in the department of pathology in 1971. By then Dr. Das on his return from A.I.I.M.S. had joined as Assistant Professor of neurosurgery in the medical college. For a period of ten long years, I tried my best to introduce and establish the speciality service in the department. Even though diagnostic service in neuropathology could be provided, I was not able to utilise my expertise to its full extent. However, in the home front, I could spend more time with my family members especially children and enjoyed looking after their studies.

In 1974, I got an opportunity to work at different neurological centres in U.K. for a period of one year under the Commonwealth fellowship programme. To start with I worked at the department of neuropathology under the supervision of Professor B.E. Tomlinson at the Institute of Neurology, New Castle upon Tyne. As I had a liking to pursue work on muscle disorders, I undertook a small project on Duchenne muscular dystrophy (DMD) to prove or disprove the "Sick" motor neurone concept in DMD postulated by McComas and associates in 1971-72. I could also study interesting neuropathological material in the department collected and filed over the years. I had the privilege of working with

Professor Bradley from whom I could learn the investigative procedures employed in studying nerve and muscle biopsies. The slide seminars conducted every week by Dr. Bradley were educative while the clinopathological conferences taken up by Professor Tomlinson were very interesting and informative. It was during my training period at U.K., I realised that, for a neuropathologist, acquiring basic knowledge in neurology and neurosurgery is very important. Subsequently I visited two other neuropathology centres, one at Royal Infirmary Edinburgh and the other at the National Institute of Neurology, Queen square, London. Professor Malony at Edinburgh and Professor Black Wood at Queen Square London were kind enough to provide me autopsy slides of several interesting cases to study. The experience which I acquired, working at these three neurological centres of excellence in UK, further enriched my knowledge in the speciality and moulded my further career. It was possible to work with commitment during the fellowship period because I was living with my family during my stay at U.K. Dr. Das was visiting different neurosurgical centres in U.K. under Commonwealth fellowship programme during the same year while my children were studying in the local schools in U.K.

Until 1981 I did not have much scope of pursuing neuropathology especially myopathology. at cuttack except for providing routine diagnostic service in the speciality. To add to my frustration, i was asked 6y the Government authorities to proceed to Medical college, Burla as a faculty in microbiology despite my training and -expertise in neuropathology for thirteen years. The situation was such that I had to take a decision to leave the service honourably and change my place of work. Dr. Das was not in a better situation either. perhaps, at such a critical moment, the Almighty came to our rescue. My husband got the job of Professor of Neurosurgery at NIMHANS, Bangalore and within a short period I was appointed Professor of Neuropathology ar. the same institute. Thus we started\_a new chapter in ourlife. my this time my family commitments have been minimised. My daughter was married in 1980 and continued her post graduate studies in orissa while my son was studying in IX standard.

when I joined NIMHANS as professor and head of the department of neuropathology, I had the responsibility of reorganising the existing laboratory set up by my senior colleagues earlier. Dr. D. H. Deshpande was my predecessor who had laid down a good infrastructure and started the teaching programme in neuropathology for post graduate students of neurosurgery and neurology. In addition to diagnostic service manpower development and research were the other important functions to be taken care of. Dr. s. K. Shankar and Dr. Vasudev Rao were the two faculty members who were running the department. with their active co-operation and dedicated service I was able to start my work with full vigour. while appearing in the interview for the post of professor of Neuropathology, I had expressed my intention of setting up a good laboratory for diagnosis and research of muscle disorders in the department since such a facility was not available elsewhere in the country. I started my newly assigned job with expectations and apprehension. N1MHANS provided an ideal base for undertaking academic activities and I received full co-operation from the faculty of neurosurgery, neurology and other allied departments in this regard. Dr. G. N. Narayan Reddy, the Director of the Institute was very considerate and extended timely help. Needless to say that by interacting with Dr. B. S. Das, professor of neurosurgery and Dr. Gourie-Devi, professor of neurology, the academic activities and diagnostic service could be further augmented.

By 1983 we were able to provide satisfactory diagnostic service to patients having neuromuscular disorders using the latest techniques like enzyme histochemistry and electron microscopy. Professor Gourie-Devi was interested in myology and hence with her co-operation, it was easy for us to develop myopathology as a part of neuropathology. I was fortunate to get Mrs. N. Gayathri as a research scholar in my research project on muscle disorder who was very sincere and dedicated. It was her untiring efforts which helped in standardising the techniques used in myopathology. Subsequently she learnt electron microscopic techniques which were also important in study of muscle diseases. In course of time, working on neuromuscular disorders in infacy and childhood, she got Ph.D degree in neuropathology. Referral biopsies were received from centres other than NIMHANS at Bangalore and from other parts of the country.

especially South India, for expert opinion. Post graduate students of neurology and neurosurgery were offered short term training courses in neuropathology. Students from other institutions regularly came for such training during their post graduation tenure. With a view to develop neuropathology diagnostic service in different medical colleges short term training was also provided to faculty of pathology coming from colleges where neurosurgery and neurology units were existing.

In our department each of us identified different areas for research. I got interested in stroke in young and pathology of head injury and analysed the available autopsy material this was in addition to my main field of work in muscle disorders which I pursued through out my career. Dr. Shankar studied degenerative diseases, C. J. disease and infections of C.N.S. Dr. Rao was interested in tumours of C.N.S. and other miscellaneous conditions. Dr. Y. Ramamohan was in charge of electron microscopy and offered diagnostic and research facility to research workers of NIMFIANS and other institutions as well. His interest was in basic sciences and pursued study of retina and its neural connectivity, especially in fro-e. With the help of administrative authority we could expand . the department by increasing the staff strength, acquiring new equipments and undertaking research projects. In the mean time Dr. Shankar was trying to start a "Brain Bank" at our centre where valuable neuropathological material can be collected and stored (fresh without fixative) for future research to be utilised by any scientist in the country to understand the pathogenesis of neurological disorders. He succeeded in getting a research grant through D.S.T. project, the finance being provided by D.S.T, D.B.T, & I.C.M.R. We have now a "Human Brain Repository" at NIMHANS. the only one of its kind in India. Thus with active participation of all the faculty members and technical staff of the department, our department of neuropathology at present is in a comfortable position to offer diagnostic service, research and training facility in the field of neuropathology.

I admit, with gratitude, the co-operation extended to us by most of the neurologists and neurosurgeons in the country to bring our department to the present status. The rapport which I developed with most members of Neurological Society of India during the period of my stay at NIMHANS, helped me in being elected to the post of Vice President of the society in 1996. NIMHANS provided the necessary infrastructure for me to have an eventful career and I hope I have contributed my share for the development of the department and institution.

I left NIMHANS in March 1998 following superannuation and came back to my native town, Cuttack. Both of my children who had ungrudgingly permitted me to pursue my career are married and well settled: My son, a paediatric surgeon, is working at Bangalore and daughter, a psychologist lives with her husband and children at Hyderabad. The life style will change and I shall not get an equivalent academic atmosphere as in NIMHANS. But my husband and I take this event as a happy 'home coming'. The medical college at Cuttack offers neurosurgical and neurological services while practioners in these specialities also provide treating facility to patients. But I intend to set up a small laboratory to facilitate diagnostic service in neuropathology. Dr. Das is busy in providing neurosurgical service to patients of Orissa. He hopes to organise a better set up in the private sector which can offer reasonably satisfactory treatment facility to neurosurgical patients.

In my life I have always carried the pleasant memories of the past. The odd circumstances I had passed through had always turned out to be blessings in disguise. We belong to the class of "fortunate lot" on this earth and I feel, it is our ardent duty to give to the society something more than what we have got. Whether my share of contribution is significant or not will be judged by the society.

**A Neurologist at large.**

**Prof. K. RAJASEKHARAN NAIR**

**M.D, FRCB FIAN, FICP.**

**President, Neurological Society of India 1999.**

### **Missing the bus**

It seems that I tend to miss almost always pleasant occasions in my life. I returned from USA after a holiday on 7th July 1998. I had no idea why almost everybody whom I met at Trivandrum Airport congratulated me warmly without really telling me the reason. I was groggy because of the severe jet lag and hence I did not enquire the reason for the exuberant welcome I had. Only the next day when I went to Cosmopolitan Hospital, Trivandrum, I was told that I was selected as the Best Doctor in the State for the year 1998 by the Government of Kerala and the award, citation and a cash prize of Rs. 10,000/- were ceremoniously given to my Hospital in my absence and all the local papers were full of write ups about it. The spate of felicitations and dinners following my arrival were useful for me as my wife remained with my daughter for another month in USA and cooking food by myself was nor a job which I relished.

In fact the same sort of incident occurred when I was elected as the Vice - President of the Neurological Society of India in 1997 at Jaipur. I could not attend the session though every arrangement was made there. ' By a trick played by a private airline I was stranded in Trivandrum Airport without getting a connection to Jaipur. I felt really apologetic but could do nothing other than formally writing to each and every member regarding my absence.

I could perhaps narrate a lot more similar examples but then such is the way of life in the lives of most of us. I was taught fairly early in life to take these mishaps in my stride and to keep a smiling face. It is difficult but then there are no better alternatives.

### **Training in Trivandrum**

I was born on 9th Dec. 1940 (I used to wish that I was born in Jan.1941 ) in Trivandrum. By that time my father (Prof. Dr. Suranad Kunjan Pillai) was already known as one of the important Malayalam writers and the most respected scholar in English, Sanskrit and Malayalam in Kerala. (He was the only Keralite who passed MA in all these languages with honours from Madras University in early 1930's).

My entire educational career was sort of overshadowed by his achievements. When I scored high marks in my school the comment from teachers was a predictable one: "Don't you know that your dad was the State Rank holder?." I used to write Malayalam skits and short stories even as a school student. Of course their comment was always: "Well is that all? Your dad published a poetry collection and couple of novels before he joined the college. Don't you know that they were prescribed as text books for school by the time he became a College student?."

In fact by the time I reached my college my entire ambition to become a writer in Malayalam evaporated as by then I knew that I would be always under his great shadow. Fortunately for me I got admission in Trivandrum Medical College (At that time getting admission in a Medical College was the best recognition a student could have. I was the University rank holder for my B.Sc Degree in 1959). Though I was very keen to pursue my literary career I kept it hidden from every one. What ever I wrote (I continued to publish fairly successful short stories and couple of novels) was under various pseudonyms which no one recognised

anyway.

Trivandrum Medical College is the oldest Medical College in Kerala (started in 1951, incidentally the same year of the beginning of the Neurological Society of India also) and I belonged to the 1960 batch.

We had the great luck to have some very unusual teachers both Indian as well as foreign. Prof. Young (of Anatomy) Prof. Grenell (of Pharmacology), the surgeon, Prof. Raghavachari, the physician, Prof. Anathachary (both from Madras) were our teachers. But right from the beginning I was a disciple of a crazy genius, Prof. G. K. Warrier the physician who was interested in Neurology.

I should add some odd facets of this great man. He was trained by great British Neurologists during his stay in UK for his MRCP. Most of the time he was under the influence of the drugs (he was addicted to a lot of them) but it was a sheer surprise that he could function as a brilliant doctor, spot diagnostician, preceptor of facts, sifter of unwanted data, theoretician, deep thinker, ethanolic, musician, writer, Kathakali exponent and my God! what else. I had the luck later in my life to be with better known neurologists both in India and UK but with total honesty I feel that he surpassed them all in his clinical acumen. His ability to spot diagnosis was legendary and I picked up the knack of this technique which came so useful for me all through my life. After my MBBS and MD in General Medicine I joined in Trivandrum Medical college as a tutor in Medicine (equivalent to the present lecturer) and got promoted as Assistant Professor of Medicine (1970).

It was in mid 1960's post-graduate courses in various medical disciplines were started in selected centres in India. The very idea itself was new, teachers were few, and none had any concrete idea of a structured course. Though there were few teachers well trained in these subjects in excellent centres, many others had only scanty training for brief periods in obscure hospitals in UK or USA. In fact the very concept of such postgraduate courses was an anathema for many foreign scientists. I still remember that there was a vitriolic comment in a very respected American Journal against such an experiment. But the first batch of the DIWMCh candidates came out by late 1960's.

All India Institute of Medical Sciences

Though I got admission to DM Neurology at Madras Medical college in 1970, I did not join there (I still remember that it was Dr. K. Jagannathan who interviewed me. I was the only one selected at that time there). Instead I appeared for the selection at All India Institute of Medical Sciences, New Delhi after a few months where also I was the only one who got admission among the many other candidates appeared at that time. I chose AIIMS because of its halo of great respectability provided by none other than Prof. Baldev Singh. Only after joining there I came to know that he had already moved out to Neurophysiology and that he was basically and truly a great research worker more than a clinician.

The New Delhi life was really alien to me but I could get adjusted to that - Thanks to my teachers Prof. S. N. Pathak, Dr. Vimla Virmani, Dr. Nonihal Singh and Dr. P. C. Gupta (who appeared once for DM Neurology examination in vain) and my seniors like Dr. Katpal, Dr. Stalin Ganji and Dr. Sumra (the only one who passed DM among them). The plethora of clinical material which I had already seen in a miffusil medical college like in Trivandrum was found racking there but the keenness to probe into the pathogenesis and biochemistry of the neurological illnesses fascinated me.

The plight of the postgraduate students caught between the warring teachers in the Institute during that time was terrible. Further it was revolting to me to see the animal experiments conducted in the Dept but then I had no way of escaping the routine there. Adding to the strain of a very tight and demanding educational programme was the financial and social difficulties I caused to my family. My wife had to bear the entire work of raising my kids who shared the

miseries of my Delhi life. (I got married in 1966 immediately after my house surgeoncy and had already two children by the time I finished my MD Medicine course in Trivandrum).

I was the first in the Institute to pass DM Neurology exam just after 2 years. It was because I was on deputation from the Kerala state service and. I was given just 2 years leave and nothing more. I had very little choice but to pass the examination and leave Delhi for ever. Every other DM candidate in the Institute prior to me was allowed to take the exam only after three and half to four years. Prof. Pathak and Dr. Virmani fortunately allowed me to take the exam after 2 years but it was not an easy job. I still remember Prof. Pathak asking me to analyze the animal data pertaining to the intracranial pressure monitoring just 3 weeks before the exam and how I managed to wriggle out of it. I must thank Dr. Vimla Virmani for all the kindness she showered on me.

Fortunately the clinical examination was easy for me. At the end of Grand viva (Institute had in those days 2 day practical exam even if there was only one candidate, the first day for clinical and the investigations and the second day for Grand viva), one of the external examiners (Prof. N. H. Wadia of Bombay and Prof. G. Arjun Das of Madras) asked me a naughty question: "Dr. Nair, your clinical approach is excellent. Where did you pick it up?"

I had two options - either to tell a pleasing untruth or plain truth. Knowing fully well that I had already crossed the rubicon, I thought I would tell the plain truth "Sir, I learned a lot of theory and investigative neurology here. But I learned clinical neurology from a person whom you may not know. His name is Dr. G. K. Warriar". I could see the faces of my teachers darken across the table. Institute examinations in those days were peculiar in that all the faculty members would sit during the examination though only the examiners would ask the questions. Dr. Wadia asked "Who is this Warriar?". Prof. Baldev Singh saved the day for me: "Dr. Nair, Do you know that Warriar was my first house physician in Neurology in Vellore?".

Even today I still congratulate myself to have told the truth at that time which would have been fatal to me. After the result Dr. Pathak and Dr. Virmani called me and urged me to take up a faculty post at the Institute. There was acute scarcity of teachers in the Dept of Neurology then as Dr. Nonihal Singh and Dr. P. C. Gupta had already left the place leaving only Prof. Pathak and Dr. Virmani to run the department. But the only wish I had was to leave Delhi for ever. Without committing anything I left Delhi the very next day. Had I chosen a job there, probably I would have been still in service there, uprooted, unsettled and ambitious and fighting with some one or other. Malayalees are a peculiar lot, never happy till they return to Kerala.

### **Calicut Days**

Fate plays odd tricks with everyone. I had managed to get a placement immediately after my DM examination for further training in Copenhagen, Denmark (at that time it was the Mecca for electrophysiology training). When I asked for an extension of the leave to the Principal of Calicut Medical College, what I got was a severe warning to return immediately after examination and a threat to throw me out of service if not obeyed. Further he wrote to the Director of AIIMS that as per the bond which I executed to the Govt. of Kerala, I must rejoin service immediately after the examination.

My Calicut days began unceremoniously (May 1973). My designation was changed as Assistant Professor of Neurology from Assistant Professor of Medicine. With the help of Prof. G. K. Warriar, I could start a small medical neurology Unit with 8 beds in Calicut Medical College (1973 May), the first in Malabar region.

In all the Medical colleges in India the superspeciality departments were under the parent departments of medicine or surgery. we had no equipments. But in two years I could get an EEG and a 2 channel EMG machine. The radiology sessions were killing. we were allotted just 2 morning sessions in a week to do the direct puncture carotid angiograms, pneumoencephalograms or myelograms. In this time we had to do as many investigations as possible. It just seems unreal to me now, but we could do 3 or 4 angios, one or two PEGs and a myelogram per session. There was no one else to whom I could discuss these studies. my assistant was a provisional tutor from the Dept. of Medicine who was trained by me to do the myelograms and PEGs.

Perhaps our postgraduates of the present day have no idea of the difficulty we had for these investigations. if we suspected a posterior. fossa lesion and the carotid angio would either be normal or at best might show a hydrocephalus which would mean nothing. we had to do a fractional PEG and an autotomogram and both were to say the least very painful.

My colleague neurosurgeons in Calicut were Dr. C. A. Rajan to start with and later on Dr. K. M. John. Both were very considerate and decent surgeons. But the one who followed Dr. John was a bit too difficult to deal with. The patients admitted in the medical neurology side with suspected posterior fossa lesions requiring ventriculograms kept delayed for weeks on end by him. I was forced to devise our own technique for doing ventriculograms ourselves without a burr hole etc. Though I felt proud. when our paper on the easy technique of ventriculography came in print (Nair K. R. and Kutty K.M. Needle trephination of Skull for conray ventriculography. Ind. J. Radiology. 1977:3 I -35), now I know how crude and traumatic that procedure was as far as the patients were concerned. But then there was no other way to pick up the lesions in the posterior fossa or intraventricular sites.

I should make a passing mention about my colleagues in Calicut Medical College. As per the Indian Medical council the minimum requirement to become a superspeciality teacher was either two year training or DM or MCh Degree in the subject. Hence a few of my colleagues who were interested in Neurology could not get into superspecialitying cadre. Prof. G. K. warrier had already become the Director-professor and Head of the Dept. of Medicine at calicut Medical college. In fact he should be given the credit of introducing Neurology in Kerala. I have already mentioned about his great clinical acumen. Dr. M. G. Sahadevan, Dr. C.B.C. Warriar and Dr. P. K. Abdul Ghafoor were the other physicians interested in Neurology. Dr. Ghafoor was the first person in Kerala State to be appointed tutor in Neurology as he took his MRCP with Neurology as his special subject. But he thought that Neurology had no scope in Kerala then and became an Associate Professor of Medicine. He was the Founder President of Muslim Education Society which tried to uplift the status of Muslim Women. By the time joined in Calicut Medical College he resigned from the Government service because of political intervention. Dr. M. G. Sahadevan is a very versatile teacher - clinician but missed his chance to become the first Professor of Neurology in Kerala because of a personal animosity with one of Kingmaker chiefs of Medicine in Trivandrum Medical College. Dr. C.B.C. Warriar had also some training in Neurology and he was quite fond of cerebrovascular diseases. Excepting Dr. Sahadevan the others are no more. I must give credit to the pioneering work done by these physicians. They could have made my life difficult but instead they were so helpful to me in organizing my department.

There were a series of neurosurgeons posted in Calicut during my tenure in Calicut (1973-1978) Dr. C.A. Rajan, Dr. K.M. John, Dr. K.M. Pisharoti and Dr. S. K. Ramachandran Nair. Dr. C. A. Rajan is very friendly in nature and was of immense help in my initial days at Calicut. He had a tiff with the administration and was transferred to Kottayam Medical College from where Dr. K. M. John was shifted to Calicut. Dr. John was known as 'studious'sllrgeon, very courteous, able and dexterous in the theatre. I could start a weekly combined neurosurgery session with him in Calicut. Soon Dr. John took voluntary retirement and joined in a private hospital. Dr. S. K. Ramachandran Nair came to Calicut after a short interval. Till he got transferred back to Trivandrum he was' in Calicut.

Treating dozens of neurologically sick patients every day left us with precious little time for any research work. But then I had an inkling that the so called statistically oriented research work was bit impossible in our "one man unit", seeing all the patients, writing the case sheets, discharge summaries, documentation of physical findings etc. But fortunately we had plenty of unsolved problems not even discussed even once in my DM days.

Some of them were very peculiar. The girl who limped to my room one day with a loose foot hanging by the skin to her ankle and hobbling on the bare ends of her tibia and fibula was a shock to see. She was sent to me from a nearby Leprosy Centre to check why she did not improve on dapson. What I found in her was a bilaterally symmetrical pure sensory neuropathy. It was confirmed by nerve conduction studies as well. In a short while I could collect a few more similar cases. When I presented this material at the Chandigarh Conference of NSI in 1976, a collective gasp emanated when the photograph of the girl's foot was shown. My papers on acrodystrophic neuropathy (Neurology India 1976; 24: 94-96, Excerpta Medical 1977; 420: 296-7, J. Assoc. Phys. Ind. 1978; 26: 347-351) gave me confidence that collecting our own clinical material itself would be rewarding enough-enough even to be get a position as an official delegate of the Neurological Society of India at the World Congress of Neurology (Amsterdam 1977).

This was followed by a paper about a small group of patients with clinically definite Multiple sclerosis which also drew adequate attention. In fact that paper is being quoted even now as it is one of the initial papers on MS from South India (Nair K. R., Sahasranamam K.V. Multiple Sclerosis in Malabar J. Assoc. Phys. Ind 1978; 26: 889-893). Even single case reports if adequately documented would be relevant. Our papers on 'Transient ocular bobbing in brain stem encephalitis' (J. Assoc. Phys Ind 1977 : 25: 573-575) and 'isolated brainstem abscess' (Neurology India 1977; 25: 189-190) demonstrated this point. Slowly my colleagues began to accept the concept of superspeciality services.

By that time there were already more than 5 of us in neurosciences in Kerala and we thought that we should form a small group. Sometime in 1976 all of us met in my home at Calicut to form a society which we named as 'KINS' - Kerala Institute of Neuroscientists. Dr. Sambasivan, Dr. S. K. Ramachandran Nair, Dr. Sreekumar, Dr. Vasudeva Iyer and I were the members. Dr. Jacob Chandy who by then retired to Kerala also joined us to grace the occasion. We were able to shoulder the responsibility and conduct an annual meeting of the Neurological Society of India in Trivandrum (1978). Fortunately for us the 1978, NSI conference turned out to be a grand success.

In Nov. 1978, I had two letters one informing me that I was selected for the Commonwealth Scholarship for further training in Neurology under senior teachers like Prof. Simpson of Glasgow, Prof. John Walton of New Castle upon Tyne etc and another letter from the University of Garyounis, Benghazi, Libya asking me to organize a Department of Neurology and to head the same.

I was in a dilemma how to combine these but fortunately the University of Garyounis agreed to sponsor me for the training if I could break this training in 3 months sessions each time so that I could complete the 12 month training, if I joined the University immediately.

I wrote to the Commonwealth Fellowship authorities who were willing for the same so long as the financial commitments were borne by the Garyounis University. Despite all the severe warning from my colleagues against Libya, I accepted this combined offer and mercifully both of them turned out excellently. I could not complete all the 12 month course of Commonwealth fellowship thus. The treatment I had from UK was pleasant. I wanted to learn a lot more about electrophysiology including single fibre EMG, which was a craze during that time. Soon my interest in sfEMG waned and the youngman Dr. Andrew Weiss who was doing it remarked that my lack of interest in sfEMG was shared by his boss, Prof. Simpson also.

My period in Benghazi was useful in another way as well. This was the place where I could set up my second Neurology unit. I could organize an excellent teaching facility in Neurology in that University which was later converted into a National reference centre for Neurology in Libya. My three year stint in that place gained me a lot of friends in UK, Libya, Poland and Yugoslavia (almost all my assistants in neurology there were from these two countries). Some of the senior Indian doctors like Dr. B. S. Singhal, Dr. G. S. Sainani (Bombay-Previous editor of J' Assoc.Phys. India) Dr. Malhotra (Nephrologist of AIIMS, New Delhi) used to come to that place as Visiting Professors and many other senior Indian Medical teachers like Dr. Suri (hematologist from AIIMS), Dr. Maheswan (Chest Physician from Aligarh Muslim University), Dr. Bhargava (of Bikaner who did a lot of work on Porphyria in India) were working in that place. I must concede that I had a wonderful time in Benghazi. Further I could publish a series of papers about Neurology in Libya in their journal After three years I was called back to head the Dept of Neurology at Trivandrum Medical College.

### **Back to Trivandrum**

when I returned to Trivandrum Medical college (1982) I was posted Professor and Head of the Dept. as one of my colleague had left the Dept. for a lucrative job in USA. As soon as he took up the job in Trivandrum, he too returned from USA. The ensuing confusion of transfers back and forth from Calicut to Trivandrum for both of us lasted for some time.

The Dept. of Neurology at Trivandrum Medical college was started (1971-2) one year earlier than that of Calicut Medical college. But when I joined there, it was in moribund shape as the physician who was given the temporary charge during the absence of my colleague grandiosely gave away the beds and other facilities allotted to Neurology to other new specialities. What I inherited was just 6 beds in the male side and 4 beds in female side and an old EEG lab with a dilapidated machine. I had to prove myself in the new surrounding. With the help of a lot of my friends in the Medical college administration, the Government and the University of Kerala, within an year I could establish a full-fledged department with 20 beds, a new ward for strokes and a few new equipments. I went after the files for sanctioning the DM course in Neurology and the first batch of DM course was started in 1983. Since then we did not look back as our academic work progressed steadily and gradually. By 1987 I was promoted the Director-professor of Neurology, the highest academic position a medical teacher could achieve in Kerala. Though another promotion as Principal of a Medical College was thrust on me, luckily I relinquished that administrative job. We concentrated on our academic, teaching and research jobs which gave us a lot of recognition both from different parts of India and abroad. My own candidates by then have already established as good clinician teacher which gave me a lot of satisfaction.

### **Neurology at large**

Right from the beginning of my career I knew that I had to be conversant with everything in neurology - no matter whether it was cerebrovascular disease, cognitive neurology, demyelinating syndromes or molecular neurology for teaching and routine practice. The business of Jack of all trades leaves very much to be desired but then there was no choice. In fact I started my career with a lot of interest in cognitive neurology (Our paper on speech dysfunction was the first of its kind in India. Nair K. R., Virmani V. Speech and Language dysfunction in hemiplegics. Ind. J. Med. Research. 1973; 16: 1395-1403) Out of sheer necessity I had to study paediatric neurology, degenerative diseases, neurovirology, neurochemistry, genetics, geriatric neurology etc for teaching my PGs. The series of CMEs we have conducted in Trivandrum (so far we have conducted 30 CMEs, a few of them were national in nature) actually taught us a lot of new ideas in different subsections of neurology. Gradually as the staff strength of my department grew I could afford to spend a little more time to a subject which I really liked - The movement disorders. It was pleasant to interact with those with similar interest from different parts of India and abroad.

But it was my hobby which brought me a lot of friends. My interest in history of Medicine was an inherited affair and soon I found that it could become an all consummative interest. My books Charcot and his pupils, Despots, Diseases Doctors and the Destiny of Mankind etc had very unexpected rave reviews in very snobbish journals. Another one on semantics equally earned a lot of credit (Topics in Neurosemantics). Perhaps after some time my important hard core neurology papers will be forgotten but these books may be remembered. Such is the stuff fame imade of.

## Neurological Society of India

The first time I went for the NSI was in 1912 for the Lucknow Conference. The paper which I sent for the session was the Speech and Language dysfunction in Hemiplegics. Surprisingly that was in the first session of the Conference. (The first paper was by N.H. Wadia titled is there SMON in India?") Fortunately my presentation went off fairly well. Since that session I have been attending almost all annual conferences of the NSI excepting a few occasions.

However I remember distinctly right from the 1972 session onwards that there were a few neurologists who were keen to form a separate society for the medical neurologists. The idea gradually became more and more strong as years went by. By 1991 at the Manipal conference the idea germinated as the Indian Academy of Neurology. An interim executive committee was formed with Dr. Krishnamoorthy Srinivas, Dr. J. S. Chopra and a few others. The formal elections took place later on, when Dr. J. S. Chopra as the President and Dr. C. U. Velmurugendran as Secretary were returned. Dr. Anupam Das Gupta who succeeded Dr. Chopra could not attend the Delhi and Chandigarh sessions of IAN. I was elected as the Vice President after Dr. Anupam Das Gupta. In the absence of Dr. Das Gupta I had to function as acting president for the

Chandigarh session in 1995. My term as President of IAN for the year 1996 was very pleasant as Dr. Velmurugendran continued as Secretary. My presidential oration at the Indian Academy of Neurology in 1996 at Bangalore was titled "The travails of an Indian Neurologist,,. In that lecture I covered my research work spanned over a period from 1970 to 1996.

Though the neurologists formed our separate society a large number of us were quite unhappy to part with our previous colleagues. We decided that we would actively continue in both the organizations and contribute as much as possible. It is with this idea that I have contested for the election for the vice President of NSI. I was really pleased at the great support I had from the neurosurgeons and neurologists from all over India. I would be taking over the office from Prof. V. K. Kak at the 47th Annual Conference of NSI at my home town, Trivandrum.

## Retirement

Kerala is the only State in India where the retirement age is still 55 years, though life expectancy in Kerala has already crossed 71 years. When I retired from the Medical College service in 1996 April, it was a pleasant affair for me. My own students Dr. Rani Nair and Dr. Shaji Prabhakaran succeeded me as Professors of Neurology at Trivandrum and the other candidates like Dr. James Jose, Dr. Thomas Iype and others took up various faculty positions in other Colleges. Dr. Madhusoodanan was my tutor at Trivandrum till he got his promotion as Assistant professor of Neurology at Kottayam Medical College. I am sure that they will gear up their departments to greater heights.

I still maintain very close contacts with the Medical College Hospital though working in a Private Hospital where my colleagues are my old friends from Trivandrum Medical College Hospital itself. My neurosurgical colleague even now is Prof'. Sambasivan with whom I have worked since my postgraduate days.

Unashamedly I am an Indian first and foremost and then a Malayali. I happen to belong to one of the first few batches of fully Indian trained neurologists. Though I had the luck of further training abroad also, I still feel that what I learned from

my small place is far more worthy. What I highlighted all through my career was our own clinical material from Kerala which gave us a lot of recognition not only in India but also outside India. (Total number of papers published 123, Total number of books published.9)

I am indeed proud that I have had lavish support from all over India for projecting only our material without chanting every half a minute the work done in Yale University, Mayo Clinic, Vancouver or London. I was surprised to see that I had wholehearted support from my colleagues from all over India when I contested for election to both Indian Academy of Neurology and Neurological Society of India. With total humbleness and humility I still hold on to the view that what is far more important in India, is the work done in India itself. Perhaps others may not agree with me. That is why I quote (and insist others also to quote) K. Srinivasan for cerebral venous thrombosis, Chopra or Devika Nag for neurotoxicology, Sambasivan for subarachnoid hemorrhage, Mohandas, Kalyanbratha Bhattacharya, Asha Kishore or Madhuri Behari for movement disorders, Velmurugendran for cognitive neurology, K. S. Mani or Sathischandra for reflex epilepsies, N. H. Wadia for craniovertebral anomalies, K. Jaganathan for Madras pattern motor neuron disease, Tandon or Dastur for neurotuberculosis, Ambar Chakravarty for autonomic failure, B. Ramamoorthy for stereotaxic surgery, Virmani or Pravina Shah for psycho-social aspects of epilepsy etc.

### **Content to breathe my native air**

Long back during my postgraduate training period in 1966 there was a period when we had no stipend or financial support from the Government. Three of us decided to go to UK for our MRCP so much so that we would be getting jobs as well during our training period. Within a month of applying all of us got job offers from UK (then it was so, either in UK or USA).

I was skeptical to abandon my MD course in Trivandrum so I went to my dad to find out his opinion. He as usual was in his library before a heap of books. When he was told about my dilemma, he said very quietly "Yes. You may go. Since you are our only son, your mother will be worried. That does not matter. I will console her. But then you should know something very definite. If you are good, people and honours will come to you. If you are not, you will go after them. Decide what you want first and then come back and tell me." All three of us were shocked to hear that. One of them asked me when we reached back our hostel: "How do you think that MRCP will come to you if you do not go to UK?" Knowing that my dad already refused professorship in Linguistics in UK and USSR and remained in Trivandrum itself to complete his magnum opus, the Malayalam Lexicon, I thought that I would continue my studies in Trivandrum. I am not sorry that I did so. (He died in 1995 at the age of 85 leaving ablaze of glory, honoured as the greatest scholar Kerala has ever produced). Incidentally I received honorary MRCP and FRCP for the work which I did in Trivandrum itself.

He taught me something more which I could never copy in my life. He taught me to have an "Ana sakthi", Nira' hankara, and "Nir ma mathuam". They are difficult to practise - but he showed me quietly that they can be done. To my knowledge he is the only one who got his 'Padmasree' and D.Litt degrees from different Universities by post without moving out of Trivandrum to receive them from the authorities.

He again taught me a few lines of a great poet:

Happy the man whose wish and care

    a ferv paternal acres bound

Content to breathe his native air

    in his own ground

His words guide me even now.



## **Hoechst Marion Roussel.**

Hoechst Marion Roussel is one of the largest pharmaceutical organizations in the world. It was formed in July 1995, when Marion Merrell Dow, one of America's largest pharmaceutical companies, was acquired by the Hoechst-Roussel team (which had joined forces earlier).

All three constituents of this newly formed megacorporation have distinguished histories and share a passion for marketing products of original research.

Hoechst, which began manufacturing pharmaceuticals in 1883, spends more than US\$ 1 billion annually on pharmaceutical research. Its first product was the first truly safe and effective antipyretic, antipyrine. Other early milestones include the development and production of tuberculin in 1892; diphtheria and tetanus antitoxins in 1894 and 1897; Novocain in 1905; and Salvarsan (arsphenamine, the first effective treatment for syphilis) in 1910. In 1923, Hoechst produced the first insulin in Europe in collaboration with its discoverers. It has since been in the vanguard of diabetes research and development, producing crystalline insulin in the 1930s; Orinase (tolbutamide) in the 1950s; Daonil (Glibenclamide) in the 1960s and Amaryl (glimepiride), a new oral hypoglycemic in 1996. Therapeutic areas of concentration today include treatments for disorders of the central nervous system infectious diseases, metabolic disorders, rheumatology and cardiovascular disorders..

In 1920, Dr. Gaston Roussel of France started a company to produce Hemostyl, a hemo-therapeutic drug. Other companies soon followed, with subsidiaries all across Europe and South America. By 1961. Roussel Uclaf was one of the largest groups in the world. In 1968. Roussel Uclaf and Hoechst concluded an agreement under which their research activities would be coordinated or integrated. This cooperation culminated in 1974 in the acquisition by Hoechst of a majority share in Roussel Uclaf. Today Roussel Uclaf is intensively involved in the areas of anti infectives,

hormones and antihormones, and has the reputation of being a specialist in antibiotic therapy. Recent successful market launches include cefotaxime, a third-generation cephalosporin ( 1981), and roxithromycin, a macrolide antibiotic ( 1987).

Marion Merrell Dow's roots go back to 1828, when William S. Merrell opened a drugstore in Cincinnati, Ohio. He began to manufacture salicylic acid and other pharmaceutical products. Within 30 years, his company's product list included the largest range of medicines in America. In 1981 the company evolved into Merrell Dow Pharmaceuticals, a subsidiary of The Dow Chemical Company. In 1989 the company merged with Marion Laboratories, one of the world's most dynamic pharmaceutical companies. Today, its major product offerings include the Cardizem (diltiazem) family of cardiovascular products. Telfast (fexofenadine) family of non-sedating allergy treatments; Carafate (sucralfate) anti-ulcer products; Nicoderm (nicotine transdermal system) smoking cessation aids. The company's research activities focus on the central nervous system; cerebrovascular and acute neurological disorders: immunological and metabolic disorders; oncology and infectious diseases.

Simultaneously with the creation of Hoechst Marion Roussel the Hoechst Group restructured itself to concentrate more effectively on its three core competencies - pharmaceuticals, crop protection and industrial chemicals - and to expand these activities so as to become a world leader in each. With the marketing expertise of three global giants, combined with a keenness for research and impeccable reputations, Hoechst Marion Roussel is well on its way to achieving these goals. Research and production facilities worldwide are being rationalized to trim overlaps and optimize on resources. Says Jean-Pierre Godard, Chairman of Roussel Uclaf. "We shall be developing new drugs more quickly and marketing established products even more cost-effectively."

Which is good news for patients the world over.

I am indeed thankful to M/s Hoechst Marion Roussel who readily agreed to sponsor this publication as a souvenir of the 47th Annual conference of the Neurological Society of India.

**K. R. Nair**