

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^{1/2} 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. .Tacob 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, Zimmernann, 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