FIVE DECADES OF EDUCATION AT REID AVENUE: SOME PERSONAL REFLECTIONS

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University Life as an Undergraduate

To be an undergraduate I had only a fence to cross to enter the Colombo campus of the University of Ceylon the only university in the country in 1956. In fact Peradeniya had been chosen as the location to which the whole University was to be shifted gradually. But the Faculties of Science, Engineering and Medicine were still in Colombo. Those of us from Royal College were surprised to see the foundation stone on the main building of the Campus, now housing the Mathematics Department. It is the foundation stone which was laid in 1921 for Royal College. Even in 1921, the State seems to have acquired buildings of the 'best school' in the island to establish the University College!

The 'rag' was very much unlike those of more recent times. Freshers would be asked to come in white and a few seniors indulged in collecting a rupee or two from the Freshers. Inhuman acts as was witnessed decades later were totally absent. In the first year we had classes till 6 p.m. and on Saturdays as the laboratories had to be used for three batches: Physical Science; Engineering; and Biological sciences . At the end of the first year we sat the General Science Qualifying (GSQ) Examination. Selection to the Faculties of Medicine and Engineering, and to special degree courses in Science were made on the results of the GSQ examination. Courses in Medicine and Engineering began in Year 2. The GSQ examination had three compulsory subjects – Mathematics, Physics and Chemistry or Chemistry, Botany and Zoology. To some of us who did not like the study of Chemistry this was a further hurdle. There were some students who had distinctions in both Mathematics and Physics but never got beyond the first year as they simply could not pass Chemistry. Several years later as a member of the academic staff I took the initiative to break up Mathematics into two subjects as in the case of the AL examination and this allowed three out of four subjects to be taken in the first year thus allowing many students to drop Chemistry.

The Reid Avenue Campus had a small administration office headed by an Assistant Registrar, the Science Library, the Science Faculty and the Engineering Faculty. College House was a hostel and the Campus canteen was a small shed at the location where the Physics building now stands. The Engineering Faculty occupied several temporary buildings at the site where the UCSC now stands. These buildings were later used by the Second Arts Faculty and the Law Faculty. The Physics, Chemistry and Biology Lecture Theatres and the King George's (KG) Hall were used for lectures.

Our Student Union rooms were those adjoining College House. There were many student societies and I was the Secretary of the Mathematics Society in 1960 with Chandra Wickremasinghe as President. We were very much interested in space science as it was during this time that the Russians successfully launched their first Sputnik and the battle for space supremacy between the two super powers began. One of the lectures arranged by our society was by Basil Mendis then a lecturer in Philosophy from Peradeniya who talked on " The Earth is flat, the moon is on the other side of the earth". While our Astronomy guru, the Mr. Douglas Amarasekera thought this was nonsense, three hundred undergraduates and the media crowded the Chemistry Lecture Theatre, some seated on the windows, to listen to Basil, who through his eloquent oratory more or less "convinced" the audience. Next day the office bearers of the Mathematics Society had to bear the fury of Mr. Amarasekera while the newspapers carried banner headlines. We were also influenced by the arrival of Arthur C. Clarke to Sri Lanka in the mid-fifties.

The Students Union social and dance, and the pirith and dane' of the Buddhist Brotherhood were important annual events which gave us ample opportunities to engage in extra-curricular activities and show our leadership qualities without having to resort to violence. Students did what they thought was correct and never had to seek advice from outsiders or even those who had left the campus a few years back. During our undergraduate days we did not encounter Proctors or Marshals.

Many came to the Campus on bicycles. We had to beware of the policemen who would charge us for riding a bicycle without lights, without a reflector, for doubling or for riding abreast. None of these are even considered an offence today!

Those of us who were selected for the special degree sat the final exam in 1961. This

was the only examination after the General Science Qualifying (GSQ) examination sat in 1958 and we were tested on three years work in eight papers running without a break except for the Sunday. Unlike today, there was hardly any study leave and definitely no breaks in between papers. Our papers and answer scripts were sent to the UK for moderation and results came a few months later. Almost all of our external examiners came from Britain, continuing the traditional links with Britain that were established when the Colombo University College was a branch of the University of London. In my opinion, the over-reliance on Britain and the British system of education has had its drawbacks. Even today some departments follow some practices which have been discarded by the British many decades ago.

After Graduation

After the finals we all applied for teaching jobs through the Ministry of Education and I was given a post at Ananda College from May 1961. I taught Physics and Mathematics to the GCE OL and University Entrance classes in the Sinhala medium as by then the medium of instruction had changed. I could continue only for two months as the University offered me a post of Assistant Lecturer from July when the new batch of students arrived. I had to reluctantly leave Ananda. Normally the Mathematics Department appointed new graduates as temporary lecturers immediately after graduation and often only one of them was made a Probationary Assistant Lecturer after one year of employment. Senior staff did the first year lectures and in the first year of employment staff were given mostly second year general degree lectures and the marking of tutorials.

However, due to the acute shortage of staff at that time, I was made a Probationary Assistant Lecturer in October 1961 almost immediately after my results and was also given the task of taking first year Algebra for both the Physical and Engineering batches. The department was in a crisis with Prof. C. J. Eliezer leaving without much notice and Mr. P. Kanagasabapathy from Peradeniya acting as Head of the Department. This resulted in the younger staff including myself becoming much more involved in the departmental administration than in other departments. The department that existed at Peradeniya to service the Arts Faculty was expanded to cater to the new second Science Faculty.

During the two years I spent as an Assistant Lecturer I took a keen interest in Astronomy, teaching the subject and conducting astronomical observations using the departmental telescope. I also began writing a book in Sinhala - Mulika Tharaka Vidyawa, which included star maps which would help a local star gazer. I managed to get a publisher who agreed to publish the book at no cost to me. The book was published in 1965. After joining the department, I found that I had not come to the end of studies but to the beginning of another long journey of research leading to the necessary qualifications for promotions. The tradition was to go to the UK and there were some who had preferred to go to Cambridge to do the Tripos which was a first degree. I was keen on following my friend and teacher Wimal Epasinghe who was already at Imperial College studying Mathematical Physics. I followed suit without difficulty as Prof. Eliezer was known to Prof. Abdus Salam, the Head of the Department at Imperial College. Prof. Salam who later won the Nobel Prize for Physics had a high regard for Sri Lankan Mathematicians. Prof. Salam visited the University of Colombo in 1986 and a plaque commemorating this event was unveiled at the entrance to the main building now occupied by the Mathematics Department. I did the Diploma of Imperial College in the Academic Year 63/64 and moved on to University College for my Ph.D. in Elementary Particle Physics. Just before I left for the UK, one of our staff had been called back from study leave after three years even though he needed just a few months more to complete his Ph.D. Thus I was very keen on completing my research work without delay and returned to the island with my Ph.D. in December 1966. The university system provided travel, fees and paid leave for study abroad for a Ph.D. and the salary of an Assistant Lecturer amounting In 1965, I had the opportunity of attending the Boulder Summer School in the USA and traveled there by US Military Air Transport as my department in London had a research grant from the US Army. I was able to travel 25,000 miles within the US mainly by Grayhound bus on a 99 day $99 unlimited travel plan. I still remember Prof. Sudarshan a well known Physicist from the Syracuse University telling me that we Ceylonese are making a very big mistake in going to the UK for higher studies ignoring the USA where there were ample opportunities. Looking back, I fully agree with him and this tradition of ours has in fact adversely affected the development of Science & Technology in the country. Majority of Indians used to go to the USA and in my opinion this factor is one reason for the advances in Information Technology that India has made today. The first Sri lankan graduate to obtain a Research Assistantship and leave for the USA was a brilliant Mathematics graduate Prof. Jeeva Satchithanandan, who joined the university of Pittsburg in 1972. He performed so well that his professor wrote to me and asked me to recommend other brilliant students of mine. This I did and very soon there were many graduates from Colombo in the USA, a trend that has now expanded to almost all major Universities in the USA, thus fulfilling Prof. Sudharshan's wish. One such student is Prof. L.S.R. Wijewardena who is at Cincinnati.

Immediately on my return to the country, the new Head of Department, Mr. Douglas Amarasekera wanted me to report to the Department at Peradeniya. As my father had expired a few weeks earlier, I asked for time and agreed to work two to three days of the week at Peradeniya and the rest at Colombo. In mid 1967 a new University act was introduced. The single University of Ceylon was to be split into two, one called the University of Ceylon and the other the University of Colombo. We at Colombo opposed this move as we strongly believed that we had an equal right to the name, status and assets of the parent university. A strike by staff, students and non-academic staff supported even by the then Vice- Chancellor of Colombo Prof. O.H.de.A. Wijesekera, was the result. After much agitation, the assets were equally distributed and the two new Universities were called the University of Ceylon, Peradeniya and the University of Ceylon, Colombo with equal status. The Science Teachers of Colombo formed the Science Teachers Association and took a lead in this battle. I was the founder Secretary of this association.

By this time, Swabasha educated students were entering Universities. A decision of the Faculty of Science to insist that every student shall follow the English Medium classes in addition to the Swabasha classes (which we considered optional in spite of rules to the contrary) made us produce graduates who could communicate in English and be fit for any type of local or overseas employment. Those who came in with little or no skills in English benefited much from following the course in both media and before long picked up sufficient proficiency in English to switch over completely to the English medium classes in the second year. As our staff are recruited mostly from our own graduates, this helped us to continue recruiting staff who were proficient in English. This is the situation even today in the UCSC and the Science Faculty unlike in some of the other faculties and universities. The benefits of this have been many. Our students too are able to obtain immediate employment and move up the corporate ladder fast. In a very competitive environment where private educational institutions have appeared in numbers, we have been able to maintain a high standard and be the major IT centre of the country. Thus it is very clear that such a procedure of introducing English medium teaching in all faculties is an urgent need.

In the late sixties, several of our staff left to take up Professorships at other Universities. Once again the junior staff ran the department. Prof. Epasinghe became Professor at Vidyodaya University at the age of 31. Having assumed duties he soon realised the need to produce statisticians and commenced a Postgraduate Diploma in Applied Statistics. I enrolled as a student of the first batch. Until then Statistics was more the territory of the Economists who had a full paper or two for their special degree as an option. Prof. Epasinghe and his colleagues at Vidyodaya University were also instrumental in introducing Mathematics as a major component of study for the Biological Sciences degree course.

While in the UK I had the opportunity to learn computer programming and use this for my research work. I used the early ICL computers at the Universities of London and Manchester and at the Atomic Energy Research Centre at Harwell. We first used punched paper tape and then punched cards. On my return, I realised the importance of teaching Computer Programming to my colleagues and students. **In 1967, I commenced teaching FORTRAN Programming to a group of enthusiastic teachers and students.** We were fortunate in Dr. A.N.S. Kulasinghe then Chairman of the State Engineering Corporation allowing us free computer time to run our programs on their main frame. Later on, the Census and Statistics Department too allowed us free use of their main frame computer as we were not in a position to purchase our own computer. Some of the Science graduates of Colombo were already on the programming staff of these organisations as well as other pioneering computer installations and they formed the core group of Programmers who later took up positions as Data Processing Managers in various large installations. They also formed the nucleus of the Computer Society of Sri Lanka formed in 1976.

Having worked in the field of High Energy Particle Physics, it was no easy task to continue research due to the lack of a critical mass of researchers, journals and most importantly data from the experimental groups working in this rapidly changing field. The newly formed International Centre for Theoretical Physics (ICTP) headed by Nobel Laureate Prof. Abdus Salam came to my rescue at this stage. The ICTP was set up to provide Third World Scientists the opportunity of working with fellow researchers at Trieste, Italy with all the necessary facilities. I received scholarships to work at the ICTP in 1969 and again in 1971. This helped me to publish several papers and this in turn helped me obtain a merit promotion to the grade of Senior Lecturer and also in obtaining an Associate Membership tenable at the ICTP for three months a year for three years.

As a young member of the Department of Mathematics, my colleagues and I had a hand in developing the department and also in having close contact with our students. I recall the initiative we took to introduce a series of lectures on the Two Cultures so as to expose the Science students to the world of Culture and Literature. Eminent speakers such as Martin Wickremasinghe, Dr. A.W. Adikaram, addressed

well attended seminars. The Science Students Union too invited eminent personalities including politicians of all hues to speak to packed audiences and there was tolerance and peace. No meeting was disrupted and physical assault was not resorted to counter verbally expressed opinions. We all enjoyed the intellectual battles fought using words and ideas rather than fists and bricks which is the unfortunate situation today. However, a few years later a recital by Ustad Khan a very famous Sitarist from India who performed at the New Arts Theatre was disturbed while performing, by a group of students who wanted free admission.

This caused a temporary halt to the performance for the artist to recover from the shock. Having then gained admission, they did not appreciate the type of music. They remained noisy for some time and left the hall even before the performance was over. As the organiser I had to go backstage and reassure the great musician who said that he had never experienced such a situation. This type of behaviour has inhibited us from organising such events or inviting eminent guest speakers.

University Reforms

In 1970, a new government came to power and Prof. B.A. Abeywickrema became the Vice Chancellor (VC) at Colombo. He appointed me as Deputy Proctor and later as Proctor. During the tenure of the previous Vice-Chancellor, Mr. Walvin Silva, the Marshals were given much power and the student community did not respect the Marshals very much. I took the initiative to appoint Student Marshals, selecting the winner and the loser at elections to the post of President of the several student societies that existed for subjects such as Economics and History. I thereby managed to rope in students from the two major rival groups. Later on, we developed a new set of rules for student discipline and also changed the designation of Proctor to that of Senior Student Counsellor. The duties of Marshals were changed to that of assisting the Student Counsellors. Large notice boards were erected and posters were allowed on them with the approval of the Student Counsellor. We got involved in many student welfare activities such as a shramadana to clear the whole of the race course area which then belonged to the campus. I was also appointed as the President of the Arts Council and a set of musical instruments was purchased with funds donated by the VC. I was supported in my work by senior staff such as Prof. Ediriweera Sarathchandra who encouraged me by saying that the Arts Council needed someone dynamic to lead it. As Senior Student Counsellor, I found that most of the student problems arose due to misinformation or lack of information. Thus I initiated a newsletter Sarasavi Puvath to provide official information to the student community. I was also closely associated with all extracurricular activities of the university as I felt that this was essential if one was to be a successful Student Counsellor.

The insurgency of April 1971 made the new government think afresh about the aspirations of the youth and one aspect they looked at was University reforms. A committee headed by Dr. Osmund Jayaratne of the Physics Department was appointed to look into University reforms and I was its youngest member at the age of 32. The establishment of a single university with several campuses, elevation of the Technical Colleges at Maradana and Katubedda to University status and the rationalisation of courses were some of the major recommendations. There were many objections and as I was away in Trieste, the other members bore the brunt of the criticism. A new Universities Act was passed and came into effect in February 1972.

The Vidyodaya and Vidyalankara campuses had been converted into "re- habilitation" camp to house the thousands of arrested youth after the insurgency and the Campuses functioned in temporary premises elsewhere. The Heads of the Science Faculty at Vidyodaya campus were very much opposed to the new act and refused to take up the appointment of Dean. However, they did not want just anybody to be Dean and they requested me to be their Dean! I accepted the Challenge and became the Dean of the Faculty of Science at Vidyodaya campus from February 1972 having obtained a temporary release from the Colombo campus. My first task as Dean was to shift the faculty which was operating from temporary buildings at Thurstan College back to the campus. New Buildings for the faculty designed by the well known architect Bevis Bawa were under construction and was separate from the re-habilitation camp. I negotiated with the contractor, Mr. Tudawa to take over the new buildings, room by room as they were completed and moved my own Dean's office to the first room of the first building completed. Thereafter, I moved the whole Faculty, department by department to the Chemistry building which was the first to be completed. I recall with gratitude the active support I received from the entire Faculty, both students and staff.

I had to later take over as the new Campus President. The task of commencing classes for all Faculties at the Gangodawila campus and running the Vidyodaya Campus of the single University was now my responsibility. I left for ICTP Trieste in October 1973 on leave and resigned from the post of President in November while in Italy. During my short stay at Vidyodaya I was able to re-establish the campus at Gangodawila, initiate an expansion of hostel facilities, improve academic programs, provide training opportunities to academic staff and fill a large number of vacancies including Chairs. It is unfortunate to note that these very same requirements exist in all universities even today.

Curriculum Reforms

The Department of Mathematics at Colombo too recognised the importance of Statistics about the same time Prof. Epasinghe did so at Vidyodaya. In 1968 the need for the establishment of a centre to undertake statistical work was simultaneously requested by me from Mathematics, Dr. Lakshman Yapa from Geography and Prof. H.V.J. Fernando from Forensic Medicine. The then Vice-Chancellor appointed a Senate sub-committee to look into this and appointed Prof. Fernando as Chairman. Dr. Yapa and I were too junior to be even in the Senate and were not part of the committee. However, Prof. Fernando recommended the establishment of a Statistical Unit for the whole University attached to the Department of Mathematics. Thus began

the process of developing not only Statistics but also Computing at Colombo. Credit must be given to Prof. Fernando who saw where the development would best take place. Thus a tradition of providing support to the whole university from a single unit was established. At a Senate Meeting in 1968, it was also decided that training programmes and other activities could be conducted by the unit to earn funds which could be utilised to develop the unit. This decision paved the way for the Statistical Consultancy and Data Processing Service (SCADPS) and the creation of a separate ledger account for its income.

The post of Professor was advertised in due course. I was selected out of the several applicants and was appointed Professor and Head in December 1973. I assumed duties on 1st January 1974.

During the Tenure of Prof. Gangadharan as the Head, the Department had requested a Lecturer under the British Council administered Exchange Programme to replace the only staff member with a Ph.D. degree in Statistics - Dr. Dayananda who left the country. Dr. Roger Stern from the Department of Applied Statistics of the University of Reading, U.K. arrived in the last Quarter of 1973 to a department in turmoil without a Head. He was even requested by the Dean to be Head, which he very politely refused. He had no work as such and Dr. Roger Stern being one of the most active academics I have met, did not waste his time. He studied the status of Statistics Education and its use in the country and identified the training and consultancy needs. When I came back to the department in 1974 as Head, Roger was there to meet me with his plans. Together we began to implement his proposals and thus began the long standing Reading-Colombo link. Unlike other exchange staff Dr. Roger Stern came from a tenured position at Reading University and was keen on returning after two years although he could have stayed for four years. However, he saw the benefits of a departmental link and recommended Ian Wilson, another colleague for the balance two years. Ian helped us launch the MSc programme in Statistics in 1977, the first of its kind in Sri Lanka. Once he left in 1977, we benefited from short term visits by staff of Reading University who took some of the courses and trained their counterparts. In parallel, our staff were sent for split-Ph.D. degrees to Reading University and thus a departmental link was established with very modest funding from the British Government. Equipment was also provided. Initially we received an HP 9825 "computer" and many BBC microcomputers, which were very different from the now familiar PC. This could be identified as the initial thrust towards the development of Computing at Colombo University.

The single University established in 1972 was now working on new courses and one initiative introduced in both Colombo and Vidyodaya was the Development Studies degree programme that replaced the General Arts degree at these two campuses. This new course had a Foundation year with Mathematics, General Science, and English as some of the subjects. This was followed by three more years of study in employment oriented job -streams such as Statistical Services, Fisheries and Tourism. There were also separate degree level courses in Taxation, Estate Management, Valuation and Education. These courses were formulated in consultation with the state agencies and the private sector but unfortunately the very agencies which spoke of a demand refused to employ the graduates when they were produced. A classic example was the 700 students admitted for a BEd course to produce teachers. These students were told, even before they graduated, by the very Ministry of Education which wanted them trained, that they would not be absorbed as teachers. My view at that time was that, politicians did not want those coming out of universities employed as teachers! A similar fate awaited those who opted for some of the other courses.

I had contributed towards the planning of the Development Studies Course and took a personal interest in the Statistical Services job stream. I was therefore determined to ensure its success. The Mathematics Department at Colombo assumed the responsibility of handling this job stream, and our staff including Dr. Roger Stern delivered lectures in the programme. Computing was a major component and there were practicals and project work. One such project was the study of the student reaction to the course itself and resulted in a joint paper published by a student, a staff member and myself. The student was Indralal de Silva, who having equipped himself with a Ph.D. is now a Professor of Demography at the Colombo University. Other students who followed this course

include Dr. Lakshman Dissanayake also of the Demography Department and Mr. ST Nandasara of the UCSC who now has an extensive knowledge of IT. It is a pity that such an initiative had to be abandoned after a few years as the tendency was to move back towards the old structure of the Faculty of Arts. The new Government of 1977 would have nothing to do with whatever initiatives (political or otherwise) that were taken during the previous regime, and thus ended this exercise on university reforms.

With the re-establishment of the University of Colombo in 1979 and the return of the traditional courses, we continued to provide support to other Faculties. The Mathematics Department conducted the first year Mathematics course to the Arts Faculty and also conducted computing courses to the final year students in the special degree programmes in Economics, Sociology and Geography. Having taught the introductory Mathematics course for Arts students I realised that this type of course should be delivered by an experienced teacher and not by a recent special degree graduate. I found the ideal lecturer in Mr. C.M. Weeraratne who was an excellent Mathematics teacher at Ananda College. Although he was not a graduate he was appointed as a Visiting Instructor and did an excellent job in making the students understand and appreciate the beauty and value of Mathematics.

As was the case with the Statistical Unit, the Colombo Campus took the initiative to set up a Demographic Training and Research Unit (DTRU) in the seventies. I was a member of its Advisory Council at its inception. The idea came from Prof. Laksiri Jayasuriya the then Dean of Arts but the first Director was Prof. A.D.V. de S. Indraratna. The funds came from the UNFPA and this contributed to the major difference between the DTRU and the Statistical Unit. UN funding was lavish unlike the British funding received by the Statistical Unit and catered to international consultancies and training. Neither the donor nor the recipient was interested in institutional linkages leading to sustainability after the end of donor funding. Fortunately, some of the younger staff have kept the DTRU going and recently they have been able to obtain departmental status. In contrast the British Council funding for Statistics resulted in a link between Colombo and Reading which has a history of over 25 years of collaboration, even after the modest foreign funding ceased.

In 1976, the then Government requested the Vice-Chancellor of the single University, to acquire the Sri Palee Institute of Fine Arts established by Mr. Wilmot A. Perera. I was the Chairman of a Committee appointed to make recommendations. Our recommendation was to make this excellent site for aesthetic education the nucleus of the Institute of Aesthetic Studies which already existed as part of the single university at two locations in Colombo. This recommendation was implemented but the staff were reluctant to operate from Horana as most of them had their "private practice" in Colombo. The site then became one of the many affiliated University Colleges with no success. Today this institution has become the Sri Palee Campus of the Colombo University catering to 60 students following a specially designed degree course in Aesthetics. I was glad to have had the opportunity of serving in the Board of Management of this Campus more than 20 years after my first involvement with Sri Palee.

I was elected Dean of the Faculty of Science at Colombo in 1975, succeeding Prof. T de S. Mutukumarana. I continued as Head of the Department of Mathematics as well for some time. In mid 1978 Prof. P. W. Epasinghe joined us from Vidyodaya, and he took over the responsibility of being the Head of the Department of Mathematics. Colombo Campus has had no new buildings since the inception of the University of Ceylon in 1942 except for the New Arts Theatre built in 1963 to cater to the new Arts Faculty and the Biology Building built in 1976. The latter was a result of a decision of Heads, on an initiative of Prof. Raja Fonseka of the Botany Department, to pool the funds allocated for extensions to existing buildings for the construction of a larger building of a permanent nature.

The New Universities act of 1978

In January 1979, with the introduction of the new Universities Act of 1978, the University of Colombo was established. As Dean, I worked with the new Vice- Chancellor, Prof. Stanley Wijesundera on a building programme for the Faculty. A UNESCO workshop had already identified the requirements and divided the Colombo Campus into zones, one for administration, one for Arts and Law and one for Science. Architects were selected for each zone and new buildings were planned for Chemistry, Physics and Biology. Each department agreed to shift to other locations as needed to demolish the temporary structures and in this spirit the Physics Department was housed in the new biology building. The Mathematics Department including the Statistical Unit was to occupy the main building and no new building was planned for them. The foundation for the five storied Chemistry building was laid in late 1979.

The Faculty of Science took the initiative to introduce a course unit system in the late seventies. After a series of workshops, the course structure and the corresponding examination scheme was agreed on, approved by the Faculty and Senate and introduced with effect from 1979. I must record here the invaluable assistance I received from the Heads of Departments

and the academic staff, and particularly from Prof. K.D. Arudpragasam, then Professor of Zoology. This changed the existing 1+2 General and 1+3 Special Degree programmes to a 2+1 General and 2+2 Special Degree programmes. The third year general course consisted of 9 course modules and gave much flexibility. There was a possibility of taking all nine modules from Chemistry. Subsequently in 1985, the very popular Management Unit was introduced as a third year option to all Science students on the recommendation of a faculty sub-committee headed by me. This sub-committee sought the views of the private sector extensively, before designing the course.

Other academic involvements

With the formation of the Republic in 1972, several progressive university academics began a programme to provide university education to trade union members who for various reasons, mostly economic, had no opportunities for higher education. The Government recognised this effort and a programme of Workers' Education that began in the early seventies, in an ad-hoc manner at Colombo and Peradeniya was given the status of an Institute of Workers' Education (IWE) in 1975 with the publication of a Gazette notification. As a member of World University Service (WUS) Sri Lanka, I was associated with this activity. Prof. Osmund Jayaratne who headed the organisation before it became an Institute was to be the Founder Director. As ill health prevented him from doing so, I was requested to be the first Acting Director of IWE. In this capacity, it fell on me to establish the IWE and organise its administration and academic programmes including the rules and regulations for the award of diplomas and degrees in Labour Education.

I became the President of Section E of the Sri Lanka Association for the Advancement of Science in 1978. In my Presidential Address in December, I was critical of the way New-Mathematics was introduced to the school curriculum and of the University admission system that was tied to the GCE AL examination where many students were resorting to tuition. I proposed a two tier admission system and although this is considered suitable by many, no person or government has yet had the courage to introduce such a scheme. The nearest we have come to is the introduction of a Common General Paper in year 2000. In late 1979 I went on sabbatical leave and devoted much time and effort to the study of university admissions systems the world over. As Dean/Science of the University of Colombo, I was responsible for the holding of practical examinations for the GCE AL Examination of the University of London for students from Sri Lanka and the Republic of Maldives who sat the examination in Colombo.

Computer Education

In 1980 the Statistical Unit obtained a mini computer on rent to undertake a major Statistical Consultancy Project. This machine was replaced in 1981 by a Data General Mini Computer with funds coming from the Netherlands University Fund for International Coorperation (NUFFIC), the University Grants Commission (UGC), the annual Grant to the University and the earnings of the Statistical Unit. This Computer was extensively used for teaching and consultancy work which included a major network analysis project for the International Telecommunication Union and the processing of University admissions for the UGC. In 1982, we also received our first BBC Microcomputer an eight bit machine running structured Basic. The machine was developed by the British Broadcasting Corporation for their Computer Literacy Programme introduced at low cost, with colour, sound and data storage on audio cassettes and floppy disks. This machine provided many possibilities and I volunteered to assist the Commissioner of Elections and Rupavahini to help them with the processing and release of the results of the 1982 Presidential Elections using the machine. On our proposal being accepted after several demonstrations, we air lifted three more computers and floppy drives. These arrived on the morning of the

elections and the software was developed till then on the single machine we had with an audio cassette drive. The release of results was completed with great satisfaction and the whole country knew of us. This led to our equipping a laboratory with 30 BBC computers which were networked to a file server. Eighteen years later we are still providing this service in a much improved manner to the Commissioner of Elections and to the media including Rupavahini and the Internet.

In 1982 the Statistical Unit launched three certificate programs held during the weekends, two using the Data General machine and the other using the BBC lab. These six month programmes introduced computing to many who were able to thereafter embark on a career in Computing. About this time, the staff of Colombo and Reading together with a statistician from Mauritius developed a statistical package for the BBC called INSTAT. This was extensively used in the Regional College on Statistical and Computing Methods in Data Analysis conducted by the Statistical Unit in 1984.

In 1983 the International Labour Organisation prepared a report on a Computer Policy for Sri Lanka. This recommended that assistance be sought from donors for a study on Computer Education in Sri Lankan Universities. Accordingly, Prof. Colin Reeves of the University of Keele, UK visited Sri Lanka and submitted a comprehensive report. Prof. Stanley Kalpage, who was both the Chairman, UGC and the Secretary/Higher Education accepted the recommendations for implementation, and with support from the British Council launched a programme monitored by the Sri Lanka Inter University Committee for Computing (SLIUCC). Funds were made available for the establishment of a Computer Centre in each

University, training of teachers who could teach the subject of Computing and for several workshops that produced teaching material. Thus began computing at most universities. In the Universities such as Colombo, Peradeniya and Moratuwa where facilities were already available, this programme helped to establish new departments of Computer Science/Engineering and to expand Computing facilities to the whole university.

I revisited the ICTP in Trieste in 1983 and took part in the College on Microprocessors conducted by a team of specialists from the European Nuclear Research Centre (CERN). During this period I made arrangements to hold this College in Colombo as the Asian Regional College on Microprocessors for 70 participants with a 20 member faculty. Together with Prof. Luciano Bertocchi of ICTP, I was able to raise $140,000 required to run the course and handled most of the logistics from the University of Colombo which was designated the organiser.

In late 1983, Dr. Mohan Munesinghe, Energy Advisor to H.E. the President handed me a draft proposal for the establishment of a Computer Training Centre, and the proposal was submitted to the Japanese Government for funding. This was done in early 1984 and I visited Singapore and Japan under the auspices of JICA for further discussions. After several drafts, several missions and much paper work, the Japanese Government agreed to provide Project Type Technical Co-operation to the University of Colombo for the establishment of the Institute of Computer Technology. The Government of Sri Lanka which gave this project priority status provided funds for the Building. The Record of Discussion was signed in March 1987 and the project commenced on 1st April 1987. Eight experts arrived in August 1987 and were housed at the BMICH as the building was not ready. Staff were recruited and sent on training programmes to Japan. On their return, the curriculum was prepared and classes commenced in 1989 for the Postgraduate Diploma in Computer Technology which was meant to convert graduates of other disciplines into IT professionals.

In 1985, the Department of Statistics and Computer Science made a request for assistance to introduce a Masters Degree programme to provide computer professionals already in employment an academic foundation and technical update. This project was accepted by UNESCO for support through the UNDP Country Program. US $ 500,000 was provided for equipment, staff training and visiting staff. A link arrangement with the Department of Computer Science of the University of Wales at Cardiff provided the technical expertise. Very similar to the Colombo- Reading link of the seventies, this link too provided visiting staff who delivered lecturers to the first

batch and trained the counterparts who took over. The project was considered to have had excellent progress and at the mid- term review the budget was doubled to provide for more equipment. The Statistical Unit organised the Course on Statistical Data Analysis in collaboration with the Department of Applied Statistics of the University of Reading from December 1984 to January 1985. On January 1st , the New Department of Statistics and Computer Science (DSCS) was established with the staff of the Statistical Unit forming the core. Dr. Savitri Abeysekera functioned as Head for a very short time and then I moved out of the Mathematics Department to be the next Head of DSCS.

Information and Communications Technologies

In 1984, the Government of Sri Lanka entrusted a committee headed by Dr. Mohan Munesinghe to prepare a Computer Policy for Sri Lanka. I was a member of this committee and our proposals, resulted in the Computer and Information Technology Council (CINTEC) Act No 16 of 1984 and the formation of CINTEC with Dr. Munesinghe as Chairman. With Dr. Munesinghe returning to the USA a few months later, I was entrusted with the task of establishing the Council on an operational footing as its Acting Chairman.

CINTEC established several committees to work on the various recommendations of the Computer Policy Committee (COMPOL) report which contained the initial computer policy of the government. The salient committees were on Law and Computers, Computer Education and the use of Sinhala and Tamil in IT.

My association with CINTEC allowed me to provide programmes to create computer awareness among the public both in the cities and the rural areas.

One initiative was to send a team to the International Olympiad in Informatics. This competition in Computer programming lasting two days of five hours each for those under 20 was promoted by UNESCO. As we had joined the UNESCO Intergovernmental Informatics Programme in 1985 when I represented Sri Lanka at the inaugural meeting, we were duly notified of this initiative. We sent our first team in 1992 but our first win was a Bronze in 1993. In 1994 we won a silver and in 1995 a Gold. The tally in eleven years upto now is two golds, five silvers and ten bronzes. This as well as the South East Asia Region Computer Confederation (SEARCC) International software competition to which a team is sent annually by the Computer Society of Sri Lanka has not only provided an opportunity for our youth to compete internationally but also to show to the world at large their capabilities. The winners at these competitions have been able to obtain scholarships for further study in Computer Science at prestigious universities in the USA. A national competition, Sri Lanka National Olympiad in Informatics (SLNOI) was launched a few years back

so as to prepare rural children for these competitions. The University of Colombo has contributed much to the success of this programme by providing the necessary training to our national pool.

International Recognition for computing at Colombo

The Institute of Computer Technology (ICT) was established in 1987 on a proposal made by Dr. Munasinghe as Chairman, CINTEC. The ICT soon became the base that provided the necessary infrastructure for a rapid development of the University of Colombo as an internationally recognised IT Centre. The powers and its administrative structure of the ICT were determined by the ICT Ordinance No. 02 of 1987 which provided much flexibility in administrative and financial matters. Managed by a Board of Management (BOM) the ICT could receive funds direct from the UGC and be audited separately from the main University. On a decision of the BOM, the building and equipment was insured and thus the damage caused from two bomb blasts in the vicinity could be repaired under insurance cover. The staff too, both academic and non-academic worked as a team with devotion and purpose. Bureaucracy was minimal and the Institute was kept clean and to international standards. This flexibility helped the ICT to establish its own consultancy arm the Computing Services Centre (CSC) in 1991, on the approval of the University Council. This allowed the ICT to utilise the human as well as material resources of the ICT as well as the Department of Statistics and Computer Science (DSCS) of the University to provide a consultancy and training service to the outside world. The funds thus generated were utilised to supplement the almost negligible equipment grant received from the UGC and also meet part of the cost of utilities. In addition, this scheme allowed our staff to undertake assignments after hours as part of the CSC rather than undertake individual consultancies as is the case with some of the other academics. At a time when IT professionals are earning six digit salaries, this scheme provided a way of compensating for the relatively low

salaries paid to our staff and thus minimising the brain drain. This also resulted in activity at the ICT round the clock on all seven days of the week.

The teaching programs of the ICT expanded from the original full time Postgraduate Diploma to commence three certificate courses and a part-time Postgraduate Diploma. Simultaneously the CSC introduced a large number of short courses to meet the ever increasing demand for state of the art training programmes in IT.

The University of Colombo has always worked in collaboration with other universities and our support to establish and develop the Lankan Educational and Research Network (LEARN) initiated by the University of Moratuwa was one good example. This commenced with a store and forward e-mail facility operated by Dr. Abhaya Induruwa and his staff at Moratuwa. One of the key staff members in this effort was Dr. Gihan Dias who was pursuing his Postgraduate studies in USA. A recent grant from the Swedish International Development Agency (Sida) has allowed us to improve the internet connectivity and inter university communications. This is a vital resource for the whole university community and it is important that this is further improved in a truly co-operative manner so as to reap the benefits of e-learning including video conferencing, remote learning and access to the vast international resource of knowledge.

In 1993, JICA provided support for the ICT to conduct a Third country Training Programme in IT for the benefit of 20 participants from the region. This six week residential course was conducted by the ICT at the ICT building with its own staff and equipment and was funded by JICA. The rationale was that it was much more expensive for the Japanese Government to conduct such a course in Japan and an institute such as the ICT established with Japanese Government funds should be equipped to do so. This course specialising in Systems Analysis and Design Methodologies was conducted for five years and was then replaced by a Course in Software Engineering in 1998 to be conducted for five years from then. In 1997 the ICT negotiated with the Republic of Maldives to conduct a one year Diploma programme on IT for their governmental staff with the sponsorship of the Commonwealth Secretariat and the World Bank. Two representatives from the Kingdom of Bhutan too followed this course in addition to 31 from the Maldives. In 1997, JICA presented its President's Award to the author for his contribution towards international co-operation. This was followed by the presentation of the JICA President's Award for the best Project given to the ICT in 1999 for its Third Country Training Programme.

In late 1998, an application was made by the ICT to Sida for supporting ICT/DSCS staff to obtain postgraduate qualifications. The Asian Development Bank sponsored

Science and Technology programme had already agreed to fund some but there was a need for more. At the same time a request to improve the LEARN network was also made. These projects were accepted with the Ph.D. programme being extended to several universities. The overall project is being administered at the Sri Lanka end by the ICT.

Considering the issue of gradate unemployment, the major cause is not the fault of the student but of the system. Authorities have given in to pressure to admit more and more students to universities to cater to the ever increasing numbers sitting and qualifying at the GCE AL examination which is not a university admission test. It is the end of the Secondary School Examination. The easy way to create places for increasing Student numbers was to expand the Arts based Faculties and provide these students with a type of education which was meant to produce the limited number of graduates needed during our colonial past. We are still continuing with a very British system that existed decades ago. Most countries including Britain have changed their educational system but we are still very reluctant to make changes to our educational system. Some initiatives have been taken and the proposed educational reforms have provided some very important solutions.

Today's graduate needs to fit into current requirements and also should be ready to adapt to the future needs. The state sector is not necessarily the major employer now and the private sector looks for different attributes. Furthermore, there is also a need for communication skills and IT skills. This is different from the skills in software development needed by the IT industry. Even professionals such as Lawyers, Accountants and Doctors need IT skills. Thus these skills have to be acquired by the undergraduates. The provision of such skills should lie primarily with the respective faculties with advice being sought and received from the IT specialists. This was in fact partly achieved in the seventies with the Development Studies degree programme but as stated earlier, the whole programme was discontinued. The Campus network is now nearing completion. The proposed allocation of state funds to the value of Rs. 1 Billion in year 2001, which has been declared as the Year of IT Education, should be utilised to provide these facilities so as to make every graduate skilled in IT or at least computer literate. This would in turn change the attitudes of all undergraduates and make them use their stay at the University more meaningfully than at present.

The need for IT graduates made us explore ways and means of producing the large numbers needed. The traditional universities had no resources or even the space to produce thousands overnight but their own graduates were assured of employment. On the other hand the private sector programmes had no standard nor any credibility. The solution was to provide a standard curriculum and an acceptable certification. Much funds were being sent overseas for foreign examinations and this too could be retained if a solution could be found. The staff of the UCSC developed an External degree programme of three years duration leading to a Bachelor of Information Technology (BIT) which was made deliberately different from internal courses so as to avoid direct competition. As is the case of all external degrees, the curriculum, the examinations and the award of certificates and degrees is the responsibility of the UCSC with the approval of the Senate of the University of Colombo while the provision of training is left to others with also the possibility of self study. This initiative would, over the next few years provide the manpower required by the expanding IT industry

while at the same time providing employment opportunities to many of our educated youth.

The New Millennium

The arrival of the IT revolution was not at all clear in 1950 nor in the next few decades. However, it is clear that Information and Communication Technologies which has already pervaded almost all disciplines would dominate the next century together with other new technologies such as bio technology and nano technology. Hybrid disciplines such as bio-informatics would also dominate. The gradual development of computing at Colombo University culminating with the establishment of UCSC in 2002 with its expertise and equipment bringing it to the level of an internationally recognised Centre of Excellence, has allowed us to meet the changing future needs of these technologies. Such a Centre of Excellence cannot live on its past and needs to be always ready for future developments. Accordingly, a Multi Media Training, Research and Development Centre and several other initiatives such as e- Learning have been launched in the new Millenium.

The success of the BIT program immediately attracted donor assistance to provide for learning resources to the thousands of external students registered for this programme. This was indeed a win win situation where a quality degree recognised by the industry was offered by the university of Colombo with the curriculum developed by the highly qualified staff of the UCSC while the students who were unable to enter university or enter the high demand courses in Computing could aspire to be an IT graduate. The learning resources however were scarce at the beginning but with the use of the web and the national TV, these improved. With three year's of experience behind us, the UCSC with the able support of Sida and JICA are now embarking on introducing e-Learning resources including a Learning Management System (LMS) for the thousands of BIT students. It was heartening to know that already, final year students are applying for employment in the IT industry and are being identified as very suitable for the industry.

Conclusion

I have attempted to record from my personal recollection some of the important events which have taken place in the field of education during the last fifty years. Some aspects have not been considered at length due to lack of space but will be elaborated in an expanded work, to be published in the near future. I hope that this article will help the reader in utilising our past experiences towards evolving a long term plan for human resources development to meet the changing needs of the nation.

I have retained my substantive post at the University of Colombo commencing from my first appointment in 1961 in spite of my major responsibilities at Vidyodaya Campus (1972-73) and at CINTEC (1985-1992 and 1994-2000). I believe that I have been able to contribute much to the development of the University of Colombo while at the same time expanding my own horizons and experience. The decision to retain my post at Colombo University and my membership and active interest in professional associations has helped me to withstand pressures from others outside the University system and retain my independence. This has helped me to acquire a balanced attitude towards developmental issues.

Throughout my university career, I have maintained a policy of not undertaking any private consultancies and channelling all such activities through the university, thus helping the development of university facilities and creating an additional source of income for all staff. This has resulted in the collective development of our resources for the benefit of all.

I have also looked at the University as a whole and contributed to the overall development of the University in whatever way I could. The considerable achievements made by all of us at the University of Colombo during the past were the result of hard work, co-operation, support for genuine initiatives of those who took independent decisions purely on merit and above all their sincere intentions to contribute to the progress of the nation.

In conclusion, I wish to thank our past Vice-Chancellor, Prof. Savitri Goonesekere for the encouragement she gave me to write this in the year 2000 for the Millennium Issue of the University of Colombo Review. As there was a delay in publishing, I was requested by the editors to bring the paper up to date and thus this is a version that includes more recent developments up to the end of 2004. I also wish to record my appreciation of many who have associated with me during the past to make our efforts at the University of Colombo meaningful and effective. The next five decades would certainly be very different from the last five, but there are many lessons that we have learnt that would help the future generations to overcome the challenges of their time. May this contribution be of some help to those who would care to look back before re-inventing the wheel.