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Ray in a different 'plane'

D L O MENDIS

Ray and I became special friends at the time I was working in the Ministry of Planning and Economic Affairs between December 1969 and December 1978. That friendship grew with the passage of time, but at the time of his passing away, my wife and I were far away in USA, and he could communicate with us only in a spiritual dimension.

Inevitably we recalled the statement hanging outside the door of his 'den' situated above his large garage, accessed by a flight of steep steps: "Old flyers never die, they just go to another plane".

That was a perfect introduction to the beautiful drawings in his den, of the nineteen flying machines he invented and built in the garage below, and flew until private flying was banned on account of the LTTE some years ago. I once telephoned ACM Roshan Goonetilake who was keen to meet him and me but that never happened due partly to Ray's ill health. I cannot help thinking that Ray would have met Roshan's father late ACM Harry Goonetilake, who was my classmate and close friend from schooldays.

This obituary appreciation will start from my earliest Planning Ministry days, after the aborted 1971 youth insurrection, when there were two rather different technology issues that brought Ray and me so close together. It will discuss issues some of which may sound out of place to some readers but I know Ray would have approved.

First, as I recall he had developed a small four-wheel-drive off-road vehicle that could be useful for counter insurgency work. But it never went into production, although it had unusual features including its jazzed up appearance, quite unlike his well known Landmaster tiller that had a plain-Jane appearance compared to more costly Japanese two wheeled tractors in a later day and age. Nevertheless as is well known the Landmaster was a best-seller in many parts of the world. Ray himself told us how he once gave a lecture at the Harvard Business School in the presence of the famous inventor Buckminster Fuller, who had asked him whether the Landmaster had mechanized agriculture, or had it mechanized the buffalo? Ray, with characteristic modesty says "I was floored!"

Titled "A refreshing new dimension in agriculture - Reaching for the Sun" this story is included in the Preface in the Proceedings volume of the Pugwash Workshop on Learning from Ancient Hydraulic Civilizations to Combat Climate Change.

That Workshop was held to honour Ambassador Jayantha Dhanapala on his election as the twelfth President of the Pugwash Conferences on Science and World Affairs for 2007-2012, a high honour indeed. It may be mentioned in passing that the first Pugwash President was Bertrand Russell when the Pugwash conferences started in 1957, following publication of the Russell-Einstein manifesto against war in 1955.

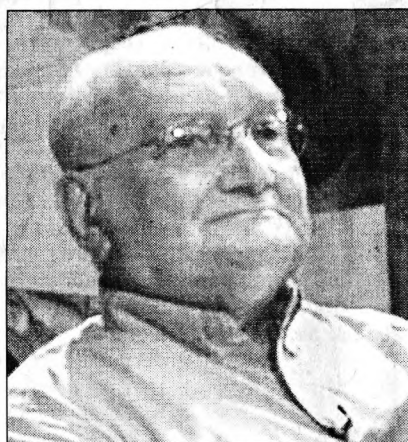
Second, a technology issue of special interest to Ray was the organization of village blacksmiths in the Divisional Development Council (DDC) Light Engineering Industrial Co-operatives, in the Regional Development Division of the Ministry of Planning. This unique endeavour began in the Kotmale DRO's Division where a most unusual public servant, W A Jayasinghe, had started what was initially a phenomenal success.

Ray, as others have eulogized, was a hands-on engineer (and farmer) who had even served an apprenticeship in his youth with a village blacksmith. Hence he really appreciated the motivation of this public officer who sincerely felt for these traditional craftsmen who were at the mercy of middlemen, since they supplied the scrap iron and steel, and charcoal for firing, and marketed the products, mainly agricultural tools and implements in villages and towns.

With the organization of the production co-operative, the scrap iron and steel inputs were purchased from both the private sector (Gampola scrap yards for example) and the public sector, where the Railway department at Ratmalana was a major supplier. Ray's interest

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brought in a new dimension into the whole concept. He explained that the blacksmith's method of deciding the temperature of the heated item of scrap iron and steel, on the basis of colour, was extremely scientific. He gave us a copy of the temperature colour chart used in forging Bethlehem steel, at that time the largest manufacturer of steel in the USA, and showed how it perfectly matched the blacksmith's empirical judgment based on experience. To those who were in Professor Mylva-



Ray Wijewardena

ganam's first year Physics class in the University of Ceylon, his story of the 'potato pyrometer' may come to mind.

This was about a Technician who would slice a potato and stick a piece on a spike which he would plunge into the furnace and quickly pull it out. By examining the extent of the baking of the potato slice he would decide when to release the load of molten steel. The high-tech electric pyrometer was not used at all! Ray loved this story!

Another renowned engineer should be mentioned here, the late T S Jinasena, who drove up to Kotmale in the early days, in his famous MG TC sports car, and fully supported the Blacksmiths' co-operative project. As a result of Ray's and his encouragement a group of Blacksmiths were invited to visit the Faculty of Engineering in Peradeniya where Professor Ranjit de Silva discussed with them the metallurgy of iron and steel. Likewise groups of engineering students from Per-

adeniya visited Kotmale and learned something about the traditional technology of the village blacksmith from the practitioners themselves. An item of information exchanged in this process of 'learning from each other', that I learned and cannot forget, was that the blacksmith knew that railway spring blades were easier to work when heated, than the smaller bus spring blades. Ranjit de Silva explained that the large railway spring blade was easier to work because it was phosphorous steel,

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while the smaller lorry blade was harder as it was manganese steel.

All this was possible because the DDC Light Engineering Industrial co-operative had succeeded in breaking in on the supply of pruning knives, mammoties, digging forks, and other agricultural implements and tools to the neighbouring estates, which previously were imported from far away Sheffield. Supporting the blacksmiths, Ray drew attention to the regional differences in the shape and size of the traditional udella, and the harmony between blacksmiths and farmers, as against the one size fits all approach of the imported Chillington mamoty. He said this harmony was with the 'agro-climatic and socio-economic environment' that is common knowledge among actual users of the udella.

Ray, who took up an FAO appointment in Malaysia at this time had always admired A N S Kulasinghe's achievements in the restricted confines of the public sector, especially his Research and Development in engineering. Ray saw a lack of engineering R&D to support the DDC program which was an important and meaningful, if unorthodox, step in the new development effort after the tragedy of the aborted JVP youth insurrection. He sent me air-letters from Malaysia relating to the DDC program in which he tactfully advised us that the Kotmale type success should not be taken for granted in other areas.

He suggested that a long term plan for progressive development of traditional technology was necessary, to be promoted by engineers, and supported by administrators of the likes of Jayasinghe (however rare). Towards this end, he proposed that a Technology Development Centre should be set up in the vicinity of Kandy, since the Agriculture department was located in near-by Peradeniya, and the Tea Research Institute was in Talawakelle not too far away. As for technologies used in the coconut and rubber industries (the CRI and the TRI) these came very much to attention later. Not only did he propose this but he sent me a draft proposal to apply for foreign funding for the TDC. At this time, the Chairman of the Peoples

Bank, Hector Abhayavardena, (who thankfully is still with us), was on the board of Directors of the Industrial Development Board, where I was the Planning Ministry representative. He drew attention to the need for an Engineering R&D Centre between the CISIR which did excellent bench scale research, and the IDB that was responsible for promoting industrial development. His idea was that the engineering R&D done by A N S Kulasinghe and his teams of creative engineers in the State Engineering Corporation should be transferred to set up the NERD Centre.

Eventually, Ray's proposal together with Hector's suggestion got me started on a cabinet paper to set up the National Engineering Research and Development Centre. It was natural for Ray to be on the Board of Directors, on his return from the UN in Malaysia and Nigeria. It would have been ideal if he could have found time to be the Chairman, since Kulasinghe was no longer available. Understandably, this was not to be.

In the late 1980's a proposal was made to publish a series of books on the *History of Engineering in Sri Lanka*, in the Institution of Engineers, to honour individual engineers who had contributed to national development. One of the first names that came up was that of Ray Wijewardena, but he gave the Institution of Engineers a very firm 'No' to this suggestion. Nevertheless I did not give up, and kept on reminding him that writing his Memoirs was something he owed posterity! I wore down his resistance little by little, and he would send me email messages from time to time about his life's experiences. The big break ultimately came only after the LTTE was finally defeated in May 2009. Ray immediately agreed that there should be a transfer of technology from the unique research-based development on his 'Kohomba' coconut estate at Kakka-palliya, near Chilaw, as the basis for development in the liberated Vanni. Many important persons visited Kohomba estate and there was every possibility of a successful technology transfer to the Vanni.

This was the basis for the part of the Preface in the Pugwash Workshop Proceedings volume mentioned above, which Ray heartily approved of.

Ray gave the matter serious thought in discussions, even though his health was declining (or perhaps because of this). Last year, he asked me to introduce him to our renowned jurist Judge C G Weeramantry, which I promptly did. Later

he informed me that he had met and discussed the subject with Dr Weeramantry and would be acting on his advice.

There have been Obituary appreciations for Ray, which mention his many achievements in various fields of human endeavour. I am conscious of the fact that I am in a unique position in this regard, which is why I describe him simply as a Renaissance man and a modern Leonardo da Vinci. It is appropriate at this juncture to mention his beloved wife Seela who was the perfect companion who looked after him lovingly to the last days of his long life, perhaps even neglecting her own health in the process. They harmonized perfectly, especially in music with such instruments as the violin, the piano and the harp. One can well imagine Ray playing a celestial harp somewhere in the sky above, where he loved to roam in his own hand built flying machines...

To supplement this Appreciation the first of what he described as his 'Experiences' is annexed, going back to 1932, that he sent to us on email. I know that versions of this story have been written by others, but this is Ray's own version.

All this and more will be included in a Commemoration volume for Ray Wijewardena as part of the Science and Civilization in Sri Lanka series, located in the Institute of Fundamental Studies, Kandy. Any and every person who wishes to contribute to this forthcoming volume is invited to get in touch with the Director, Professor C B Disanayake. In conclusion it is appropriate to quote the first paragraph of his "A refreshing new dimension in agriculture - Reaching for the Sun" referred to above.

Ancient wisdom. Those of us with the privilege of a pirivena grounding to our education in Sri Lanka will recall being taught the four 'elements' of life in Ahpo, Thayjo, Vahyo, Patavi... The Pali word Patavi represented the 'solid' or 'earth' state,.... While Thayjo represented the state of 'heat,' or 'energy', or 'fire'.... Ahpo represented the 'liquid' state or 'water', while Vahyo represented 'air' or the 'gaseous' state. All these 'states' or elements being reversible as heat is reduced... The vapour reverting to liquid and in turn to the solid state as heat (or energy) diminishes. Central to them all being 'heat, energy, fire, ('thayjo')... the Sun itself.

How very right the ancient Egyptians were in their worship of the Sun-God RA as the giver of all life? How very right the Zoroastrians are in their worship of the Sun and Fire as fundamental to existence."