

Parakrama Sagara

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Discovery of the identity of Parakrama sagara, *Koththabaddhanijjara* of the Culavamsa, was highlighted in a presentation at the British Council on November 5, 2002, and this discovery is described in a chapter in the book *Water Heritage of Sri Lanka*, launched recently. It was explained that the proposed Moragahakande reservoir upstream of Elahera, if constructed, will be a disaster even worse than Lunugamvehera in the southern area. The canal taking off from Moragahakande was earlier called the North Central Province or NCP canal but has recently been renamed the Upper Elahera canal. It passes through the bed of the ancient Parakrama sagara, described in the Culavamsa as *Koththabaddhanijjara*, and if constructed it will cause a plethora of problems, including perpetual conflict over water, and destruction of cultural heritage.

In the late 1980s I had the opportunity to work with Dr. Joseph Needham as a British Council scholar at the Needham Research Institute (NRI) Cambridge. My work was mainly to research some sources of his great work *Science and Civilization in China*, (SCC) especially Vol. 4, Part 3, Section 28 (f) Hydraulic Engineering (II). The highlight of this research work was acceptance by Dr. Needham of my ecosystems approach towards an understanding of the ancient irrigation works in Sri Lanka. He wrote to me later: "My treatment of the subject can be improved upon, and I am counting on you to do it".

If he were still with us, Dr. Needham would be very excited by the discovery of the identity of Parakrama sagara. It is the reservoir created by Parakrama Bahu I (1153-1186), who raised the Elahera anicut, built some eleven centuries earlier by Vasabha (65-109), and strengthened the bund of the Elahera - Minneriya canal from Elahera to Konduruwewa. In the words of three intrepid British surveyors, Adams, Churchill and Bailey, who investigated the area in 1855, it was a "series of lagoons" joined by short lengths of canal, that was called Parakrama sagara. These are their very words:

"To conduct the water of the Ambanganga to Minneriya, and to divert the streams falling from this range of hills, this wonderful embankment, which extended, without intermission, for 24 miles was constructed. Its height as before mentioned, varies from 40 to 90 feet, but taking its average at 60 feet, it must have contained more than 3,800,000 cubic yards of earth work which, with the masonry, would have cost, at the present rate of labour, not less than L200,000. This only includes the works from Elahera to Konduruwewa. The range of hills to which we have alluded, are at some places, at a distance of several miles from the

embankment, and the ground, intervening between it and their base, being flat, or rising with an almost imperceptible slope, was submerged. In other places the small spurs of the hills approached so near the embankment, as to form a series of canals connecting the lagoons, which the receding hills enclosed. Of these lagoons, the largest was that at the stone bund across the river, where the hills form a large amphitheatre, eight others, connected by as many canals, covered the intervening space above the embankment,

or to the achievements in the more ancient and vastly more extensive Chinese civilization. (SCC, page 368). However, there was just one item lacking in our history, (which was well documented in Chinese history) namely, evidence of the development of locks for overcoming differences in levels in navigating long canals, such as that between Elahera and Minneriya, said to be about 60 ft.

But, the evidence for the use of the Parakrama sagara for navigation, is in fact

is worthy of remark, that there is no other tree near it at all approaching it in size, and it is evidently a tree of very great age. We have found the traditions regarding the canal so consistent throughout, that we cannot help laying some stress on this legend, for we have the most satisfactory proof, from the size of the embankment, that the line from Konduruwewa to Ellehara was navigable. This tree stands at the end of the second large lagoon, and near it are the foundations of some building on the embankment, which

large lagoon, along the base of which the embankment extends for two miles, when the natural high land approaches, and forms, with it, a canal, which extends half a mile to the Kottapitiya Oya, which has breached the bank.....

On regaining the embankment, we found that it gradually increased in size till it averaged, for many miles, 80 feet in height. For nearly three miles we found it without a breach, and it was evident, from the absence of jungle immediately above it, that in the wet season a considerable quantity of water collects along it. Here the lagoon must have been very extensive as the base of the hills is four or five miles from the embankment. A little further on we found it breached, in two places, by a considerable stream, the Keerewanaheena Ella, which rises in the Konduruwewa range"....

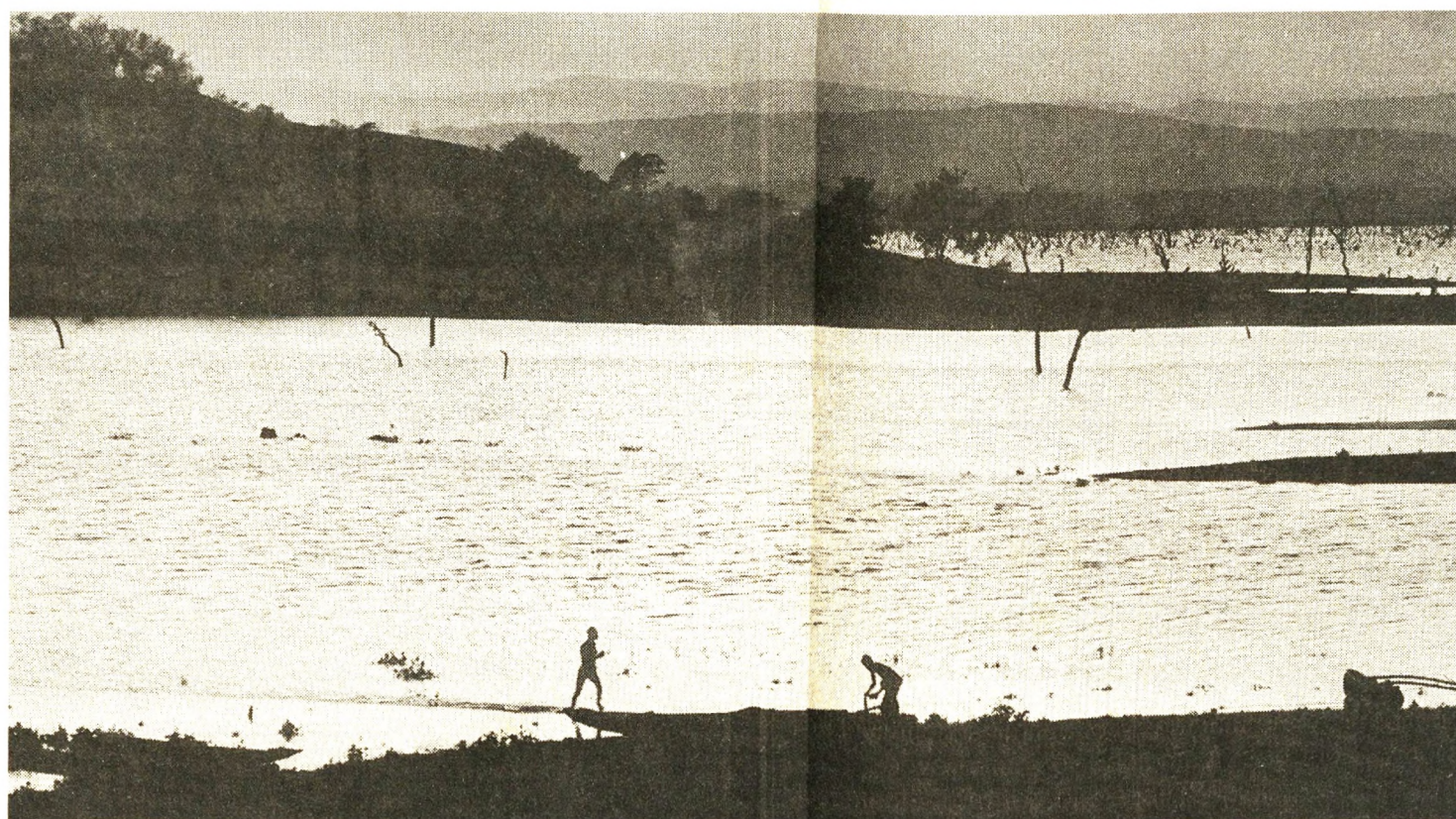
The surveyors' report also describes what could have been at least one such ancient lock, in the form of a canal 30 ft. wide, cut in solid rock; and there must have been others. These have to be investigated without delay by archaeologists and engineers.

The three surveyors concluded their report with the following remarks:

"The excellent state of repair in which we found the embankment from Elehara to Konduruwewa, suggests to us the feasibility of restoring these works to their former state but we do not think that any benefit would arise from the repair of the canal from Konduruwewa to Minneriya, as the waste water would naturally fall over the spill-water, into the Talawatura, and so into that lake, and the canal which we traced, can only have been formed in order to complete the line of navigation. We are not in a position to speak with any degree of certainty as to the practicability, or otherwise, of repairing the line from Minneriya to Gantalawa.

To revert to the first part of the work. The Dam across the Ambanganga could easily be rebuilt; and the repair of the fourteen important breaches which occur in the entire line of embankment present no serious engineering difficulties. A natural bed of rock having in every instance been selected for the spill-water, their restoration would be comparative!, easy.

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Polonnaruwa Parakrama Samudra (Nibal Franando Studio Times)

between Elehara and Konduruwewa".

It is known that the waterway from Elahera to the sea near Trincomalee had been used for navigation from the time of Aggabodhi II, (608 - 618) who built Kantalai weva, and that Parakrama Bahu consolidated this system with the development of Parakrama sagara. The three British surveyors had investigated the area in 1855, and prepared a meticulous record of their investigations, which was submitted to the Governor, Sir Henry Ward. The governor had then inspected the site himself and incorporated the surveyors' report in his Minutes and Collected papers, later published in the Ceylon Almanac, 1857. R L Brohier republished these in Vol. I of his magnum opus *Ancient Irrigation Works in Ceylon*, published in 1934. Unfortunately, these notes were not studied by modern irrigation engineers, so that the ancient Parakrama sagara remained unknown until very recently.

During my research at the NRI, Dr. Needham confirmed that he considered the ancient irrigation works in Ceylon to be in many ways more comprehensive and superi-

found in the 1855 report of the three British surveyors, extracts from which are as follows: "Two considerable streams, the Kongatoo Oya, and Kiangegalle Ella, which were once checked by the embankment, have breached it; the first at Konduruwewa about half a mile, and the second at about two miles from the village of Elehara. At about a mile and a half from the last breach, stands a gigantic Tamarind tree, on the top of the embankment.

This tree which measures 26 feet 2 inches in circumference, is called the Orubenda Siembalagaha. Tradition has it, that boats stopping there on their transit up and down the canal, were fastened, and the natives point out some scars near its root, which they say are the marks of chains and ropes. It

was, at this point, about 90 feet high.

In consequence of the high lands approaching the embankment, a canal extends for a mile into the next lagoon, which begins at a spot where the Hirettia Oya enters it, and after flowing along the embankment for a short distance, breaches it, and flows down to the river. About half a mile further on, it is again breached by the Bakamoonoo Ella. From this point, half a mile of canal leads into another