Malaria Saga

challenge & response

Saga & response

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Contents

Foreword

Sri Lanka has down the ages served as a beacon in the Indian Ocean attracting the attention of people of various walks of life. From fortune seeker to mystic and from royalty to the intrepid adventurer, they have favoured this fabled isle, rich in natural beauty and wealth, with a high degree of civilization and a deep culture. The treasures this land yields in the form of precious gems and pearls are today outshone by a treasure that traverses a major portion of Sri Lanka — the Mahaweli Ganga. International attention has been drawn to the remarkable attempt to capture the waters of this mighty river in a gigantic attempt to bring peace, prosperity and economic stability to the people of this land.

With the frenzied activities in the major headworks projects coming to a close, we can take pride in the fact that all these giant construction works are being completed within a remarkably short span of time — a feat rarely equalled even internationally. Sri Lanka remembers with gratitude the numerous friendly countries and international agencies which responded readily to the call for assistance and gave the impetus to forge ahead with the task of rebuilding Sri Lanka's economy. The international community responded magnanimously to the call for aid, so much so,that no other third world country can boast of receiving so much encouragement and cooperation for a single development project.

Although the major part of the assistance went into the construction of the large reservoirs, downstream development received the undivided attention of the policy makers and planners.

Against the backdrop of the massive structures is the human drama in which the Mahaweli settler is the main actor. The trauma of being uprooted from one's familiar surroundings and having to settle down in a new unfamiliar environment is a psychological upheaval that the new settler has to undergo. To alleviate the mental and physical stress of these pioneers, the Mahaweli Management has spared no pains to make their new homes as pleasant and safe as possible. In this commendable attempt the assistance extended to the Mahaweli Management by the various donor countries and multilateral Agencies cannot go unrecorded. In this respect the assistance received from the UNICEF needs special mention.

Realising the importance of providing adequate services to the new settler, a social service package has been launched under the auspices of the UNICEF. This includes both Health Care and Community Development and covers a variety of activities. Training of health volunteers and other community leaders in nutrition and health care, the establishment and augmentation of day care and village health centres, immunization of children and

mothers against prevalent diseases, ensuring improved water and sanitational facilities are some of the numerous services funded and activated by the UNICEF. In addition, assistance in the form of equipment, supplies and training facilities for para medics are provided by UNICEF in reinforcing the Referral Health system. The active participation of UNICEF has in no small way ensured the creation of a healthy generation of Mahaweli settlers.

The development of the downstream areas involving nearly 900,000 acres in the Dry Zone, will ultimately result in the resettlement of over a million people.This massive transmigration of people will no doubt involve upheavals equal in magnitude. These pioneers will not only have to tame the virgin land but in doing so, also evolve a fresh way of life-culturally and economically superior to the one they had known before.

The success of the project will ultimatey be judged not by the massive structures but by the success of the pioneering settlers in creating a self supporting, happy and contented society. "The Mahaweli Saga" is an unique and laudable attempt to record this human story. Much has been written on the construction, engineering and economic aspects of the Mahaweli programme, but attempts to record the human story are few and far apart. "The Mahaweli Saga" will be the "Odyssey" of the Mahaweli settler — a Saga of heroic sacrifice, courage, skill and labour of a people who ventured boldly to conquer the wilderness in an unequalled attempt to create a new civilization out of the old order.

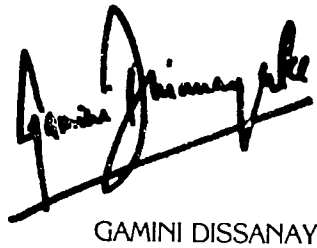
The settlers who converge on the newly developed Mahaweli areas are a conglomerate of people coming from various backgrounds. The relocated populace are not just the poorest of the poor, but more significantly, they include those who have sacrificed their traditional land holdings in the face of development. History records that the Sinhala peasantry in the hill country was deprived of their traditional land to make way to the British Planter, forcing them to live in small pockets of land interspersed among the plantations. Nevertheless, it must be recorded with gratitude, it is the same peasantry that saved and nurtured the traditional values and customs of our people.

Today, these very same people are being uprooted, making way for development. This time,however, it happens voluntarily and it is done with a deep sense of patriotism and love towards their fellow country men. If the Mahaweli settlement scheme is a means of mitigating the historical injustice done to our peasantry, then "The Mahaweli Saga" is a dedication to these noble men and women who willingly

consented to be uprooted from their familiar, well established way of life, to face the challenges of living in new environments strange and sometimes hostile. To these giants of the Sinhala peasantry should we bow our heads in humility and gratitude in an acknowledgement of their sacrifice.

In funding this publication of "The Mahaweli Saga", UNICEF has contributed significantly towards recording the Mahaweli drama which is now being enacted, for posterity. Credit must also be given to the four men behind this historical document, without whose tireless efforts and research the Saga would not have been presented — Professor J. B. Dissanayake of the Department of Sinhala, University of Colombo, Professor C. M. Madduma Bandara of the Department of Geography, University of Peradeniya, Dr. Abhaya Attanayake, himself a former University Don, and now directly involved in the Mahaweli Development Programme, as the Director, of its Planning and Monitoring Unit, and Mr. B. H. Hemapriya, a writer who has been closely associated with the Mahaweli Project almost from its inception.

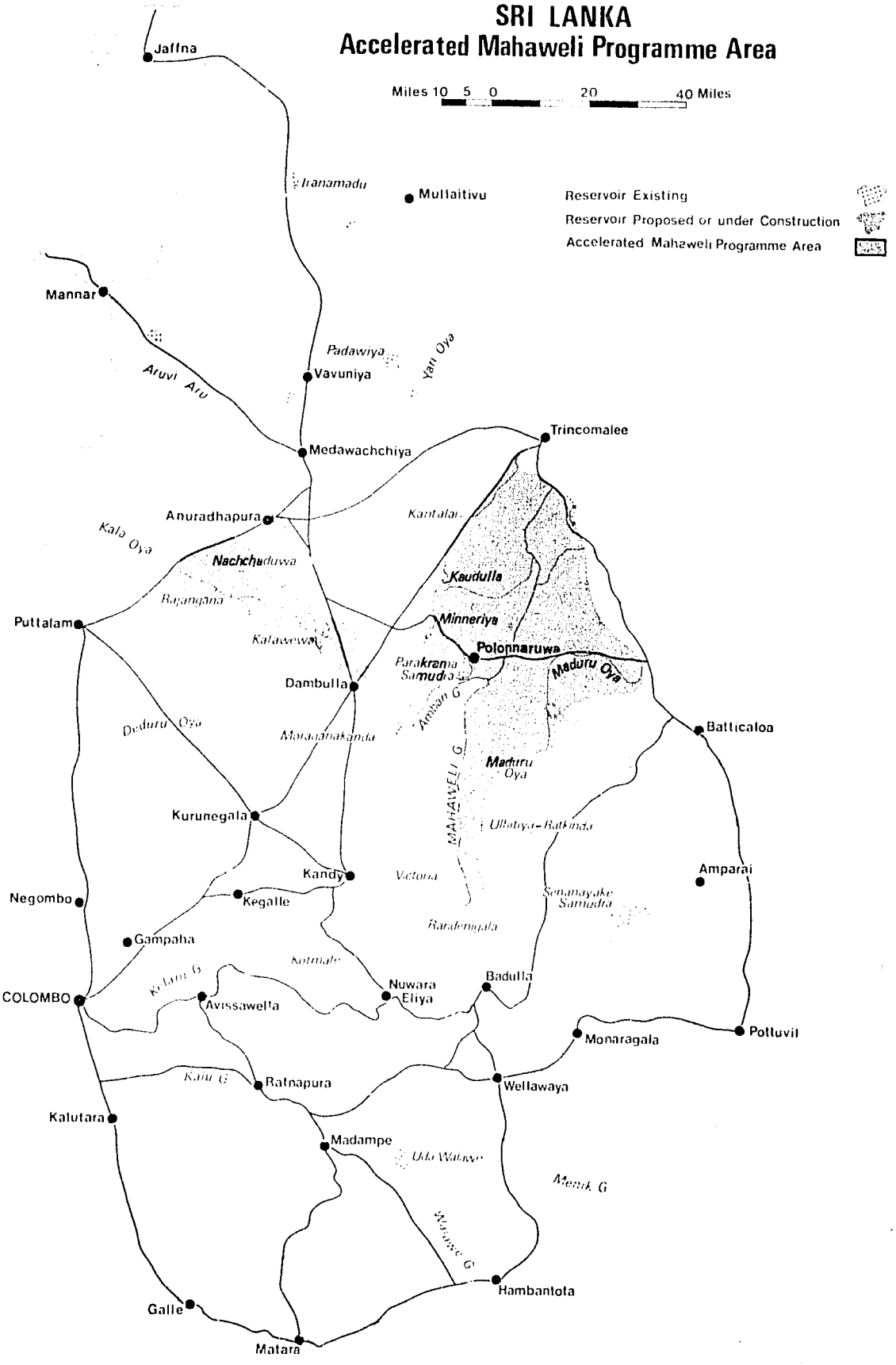
The vision of our leaders who conceptualised the Mahaweli project was to reawaken the cultural ethos and establish a new civilization not only where modern technology blends with the traditional values, but where there will be a blending of cultures and peoples laying the foundation for the creation of a unified Sri Lanka. Their aspirations are to establish a society economically viable, rich in culture and tradition. This has always been a dream of our rulers and that dream is now being realised. The Mahaweli Development Programme has brought these grandiose ideals within our reach, thanks to the generous support of the international community and the dedication, sacrifice and hard work of our people.



GAMINI DISSANAYAKE
Minister of Lands & Land Development
and
Mahaweli Development

April 12, 1985

As it is today, the Mahaweli Ganga is not just one river but a composite and polygenetic drainage system. It has grown as a parasite, at the expense of other rivers, by beheading, capturing and tapping their headwaters and diverting to itself the major discharge of a large area.


SRI LANKA
Accelerated Mahaweli Programme Area
Miles 10 5 0 20 40 Miles
Reservoir Existing
Reservoir Proposed or under Construction
Accelerated Mahaweli Programme Area
Jaffna
Iranamadu
Mullaitivu
Mannar
Aruvi Aru
Padawiya
Vavuniya
Yan Oya
Trincomalee
Medawachchiya
Anuradhapura
Kantalai
Kala Oya
Nachchaduwa
Rajangana
Kaudulla
Minneriya
Puttalam
Kalawewa
Polonnaruwa
Parakrama Samudra
Maduru Oya
Dambulla
Amban G
Batticaloa
Deduru Oya
Moragahakanda
Maduru Oya
MAHAWELI G
Kurunegala
Ulhitiya-Ratkinda
Amparai
Kandy
Victoria
Negombo
Kegalle
Senanayake Samudra
Gampaha
Randenigala
Kotmale
Kelani G
Nuwara Eliya
Badulla
COLOMBO
Avissawella
Monaragala
Potluvil
Kalu G
Ratnapura
Wellawaya
Kalutara
Madampe
Uda Walawe
Menik G
Hambantota
Galle
Matara

The Mahaweli

Sri Lanka, the Island republic in the Indian Ocean was well known among travellers, both from the west and from the east from ancient times for its scenic beauty, precious stones and hospitality of its people. Thus in the fourteenth century Marignolli, the papal envoy to China was able to summarise some of his impressions vividly.*

> *"Now the paradise is a place that really exists upon the earth, surrounded by the ocean sea in the regions of the orient on the otherside of Columbine India and over against the mountains of Seyllan: and from Seyllan to paradise is a distance of forty Italian leagues; so that 'tis said that the sound of the waters falling from the fountains of paradise is heard there.... on that very high mountains perhaps after paradise the highest mountains on the face of the earth some indeed think that the paradise itself exists".*

On a similar vein, Bernard Shaw, on his death bed expressed his desire to be born again in Sri Lanka if the doctrine of rebirth was a reality.

In this enchanting Island in the sun, the Mahaweli Ganga forms the largest and the longest river system (Map. 1). The 'Maha Ganga' or the 'Great River' as it was known in ancient times played a vital role in the cultural and historical evolution of Sri Lanka. In several respects, Mahaweli for Sri Lanka was what the Nile was for Egypt and Ganges for India. Thus, Ptolemy, the great map-maker of the fifth century, inadvertently marked Mahaweli Ganga as 'Ganges' on his map of Taprobane — as the Island was then known.

The upper Mahaweli basin which drains almost the entire hill country is well known for its scenic beauty and mist laden hills. Some of the most picturesque water-falls in the country, such as Ramboda and Dunhinda form part of the Mahaweli river system.

The River System

The Mahaweli Ganga, Sri Lanka's longest river* originates in the Hatton plateau at an altitude of around 1,350 metres above sea level. The Dik Oya (Hatton Ganga) the headstream of the Mahaweli flows in a straight course upto Giniqathena, passing through the wettest area of the Island, where the annual rainfall often exceeds 5000 mm. The river abruptly changes direction near Giniqathena, forming an elbow bend and then settles on a relatively straight course again up to Getambe. On this stretch, the Kotmale Oya which originates at an altitude of around 2700 metres in the central mountain massif joins the main river. The rapid gradient of the Kotmale Oya and the large volume of water it carries has provided it with a high hydropower potential. Thus, the first large reservoir on the Mahaweli cascade is constructed at Kadadora an ancient village close to Gampola.

After Getambe, the river winds its way around the city of Kandy and swings sharply into the picturesque Dumbara Valley through a series of deep ravines and gorges. The major diversion structure on Mahaweli, completed in 1976 is located in this stretch at Polgolla.

The Dumbara Valley which extends from Polgolla to Minipe is now an active amphitheatre of the drama of the on-going Accelerated Mahaweli Programme. It is across this segment of the river that two of the largest reservoirs in Sri Lanka, namely, Victoria and Randenigala are constructed. A few major tributaties of the river, such as Hulu Ganga, Uma Oya, Badulu Oya and Loggal Oya join the main stream in this stretch.

Some of the first attempts made by ancient Sinhala kings to divert the waters of the Mahaweli Ganga could still be observed at the original Minipe Yoda Ela or Yaka Bandi Ela near Yakundawa.**

The Minipe Yoda Ela that runs parallel to the main Mahaweli used the waters of both the Mahaweli and those streams hurling down the Dumbangala (Knuckles) range.

The Amban Ganga forms the main left bank tributary of the Mahaweli Ganga. The Amban Ganga drainage system which comprises of streams such as Nalanda Oya, Kalu Ganga, Sudu Ganga and Teligam Oya were used for irrigation from ancient times. The Kingdom of Polonnaruwa which was centred near the confluence of Amban Ganga and Mahaweli Ganga derived much of its prosperity from the waters of Amban Ganga. In the past the lower reaches of the river were used for navigation.

The Mahaweli Ganga below the confluence of Amban Ganga shows significant changes in its course and behaviour. It begins to meander on the broad flood plains forming extensive marshy tracts.

The marshes and villu of the lower Mahaweli exhibit ecosystems with their own characteristic fauna and flora. The river in fact, develops distributaries to

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* Elsie Cooke — University of Ceylon.

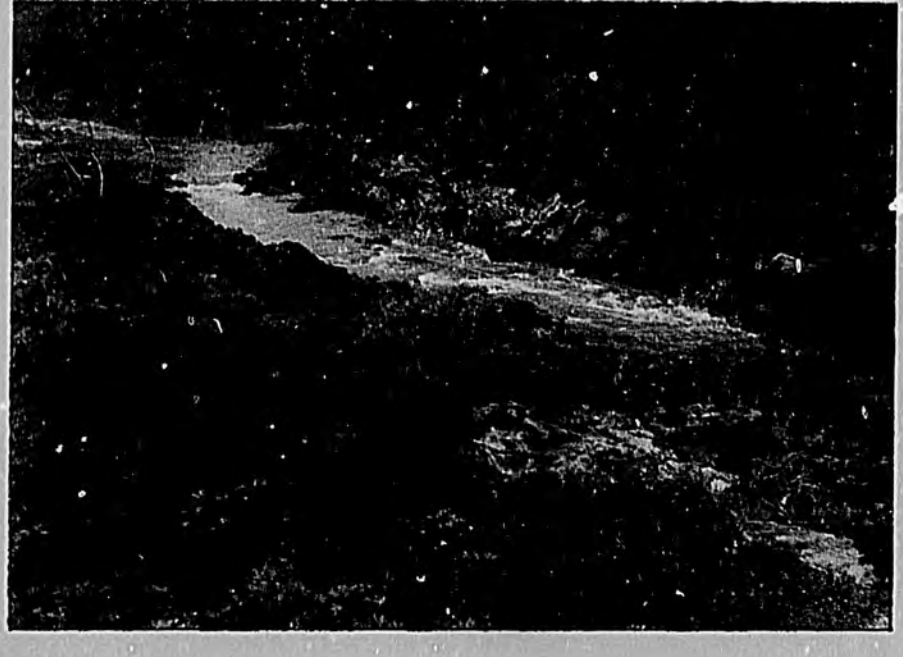
* The Mahaweli Ganga from its source to its estuary is 335 km long and is longer than the combined length of any other two rivers of the Island. Thus the second longest river in the Island — the Malvatu Oya is only 164 km long and the Yan Oya which comes third is only 141 km long.

** This went across the main stem of the Mahaweli is believed to have been constructed using the labour of the Yakkas — an aboriginal tribe living in the Mahiyangana area.

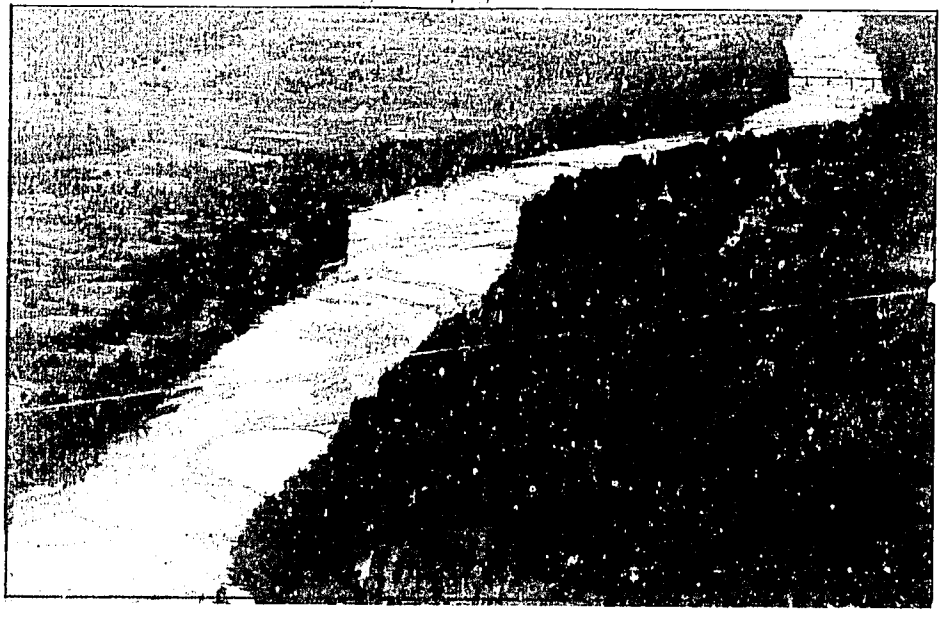
The Kotmale Oya flowing through the Kotmale Valley

Cascading waters: The Dunhinda Falls and Ramboda Falls

Rushing through the Getambe gorge



The Mahaweli as she courses through Mahiyangana



form deltaic conditions before debouching itself into the Koddiyar Bay on the east coast near Trincomalee.

Evolution and Natural History

The unusual length of the river, in comparison with other rivers in the Island, and its winding journey through the hill country has led to much speculation among earth scientists on its evolution and natural history. The elbow bends and the misfit valleys with their anomalous stream channels and river terraces have all been used as supporting evidence for a polycyclic origin of the Mahaweli drainage system.

The ideas expressed on the natural evolution of the Mahaweli converge on the point that the present drainage system was developed out of several early river basins that drained the hill country in the distant geological past. In the words of Kularatnam (1962):

*"As it is today, the Mahaweli Ganga is not just one river but a composite and polygenetic drainage system. It has grown as a parasite, at the expense of other rivers, by beheading, capturing and sapping them and diverting to itself the rainfall discharge of a large area"**

Downstream, below Manampitiya, the changes of the course of the Mahaweli, on its sweeping flood plain, would have been frequent. There is evidence that the course of the river has changed even during historical times. An analysis of aerial photographs indicates that the river has changed its course after the construction of the famed Somawathiye dagoba in the second century B.C. Historical chronicles indicate that the dagoba was on the right bank of Mahaweli. It is now seen at a considerable distance from the left bank.

* *K. Kularatnam, University Review 1962.*

Ecology and Resources

As most other natural systems, the Mahaweli river system has evolved over long periods of geological history and gradually adjusted itself to its natural state. It has obviously developed some form of equilibrium, where its component parts function in co-ordination and harmony.

The wettest months in the upper catchment of the Mahaweli system, above Polgolla, are the driest months in the lower basin of the Dry Zone. Therefore, the harnessing of upper Mahaweli water to irrigate the Dry Zone lowlands was one of the main water resource utilization strategies from ancient times.

As Strange (1909) noted:

> *"The Mahaweli Ganga is* **the** *river of Ceylon; its discharge is much larger than that of any other river in the Island, but what is probably of the greatest advantage, it is of considerable amount throughout the year, as the catchment is visited by both the South West and North East Monsoons".**

The forest cover in the upper catchment of the Mahaweli has been progressively cleared since the middle of the last

* *W. L. Strange quoted by D. S. Senanayake in Agriculture & Patriotism — 1935.*

century to open out tea and other plantations. Soil erosion, siltation of river channels and the frequent occurrence of floods resulted from the denudation of the upper Mahaweli catchment.

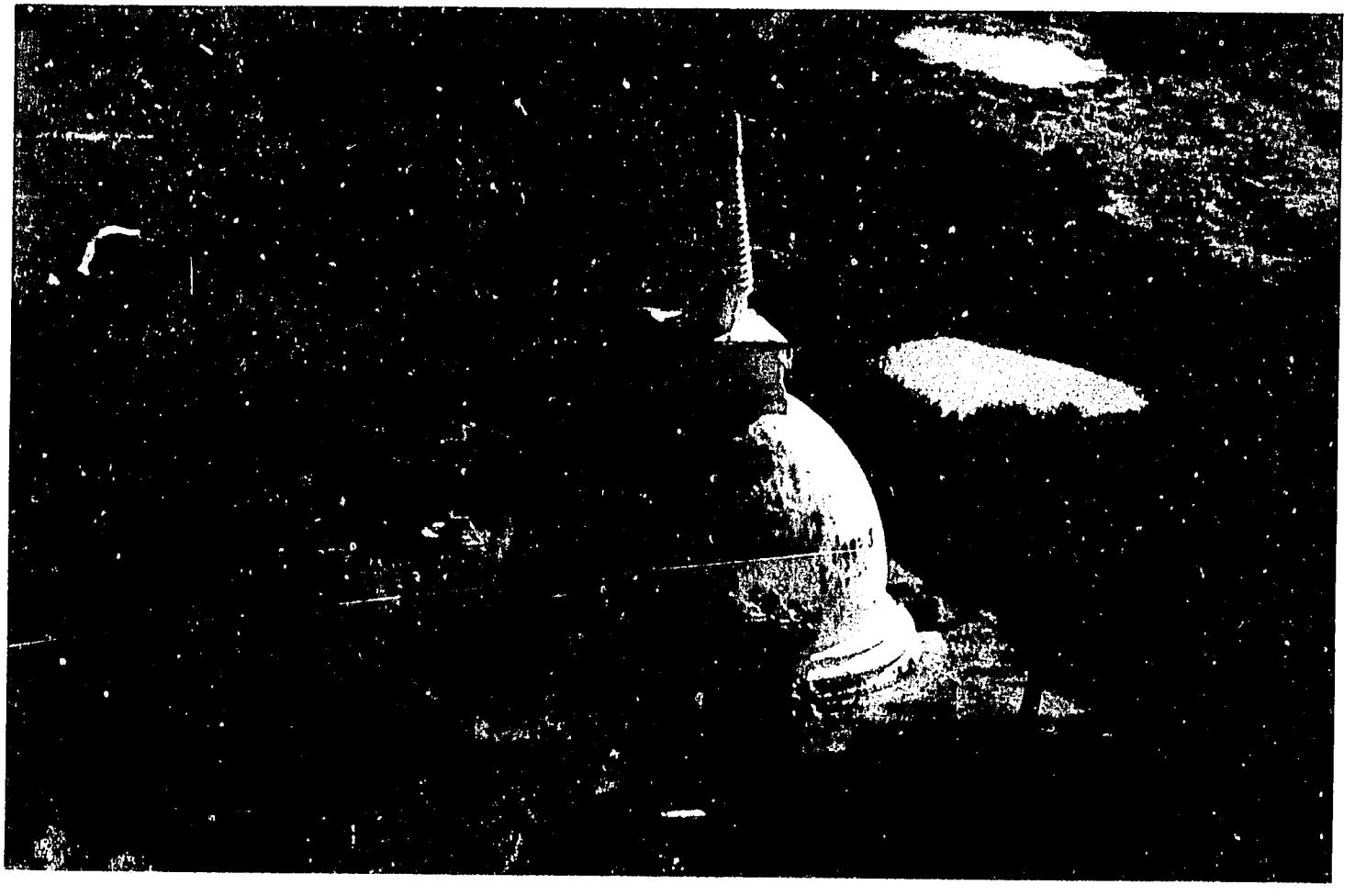
Mahaweli and the Sinhala Heartland

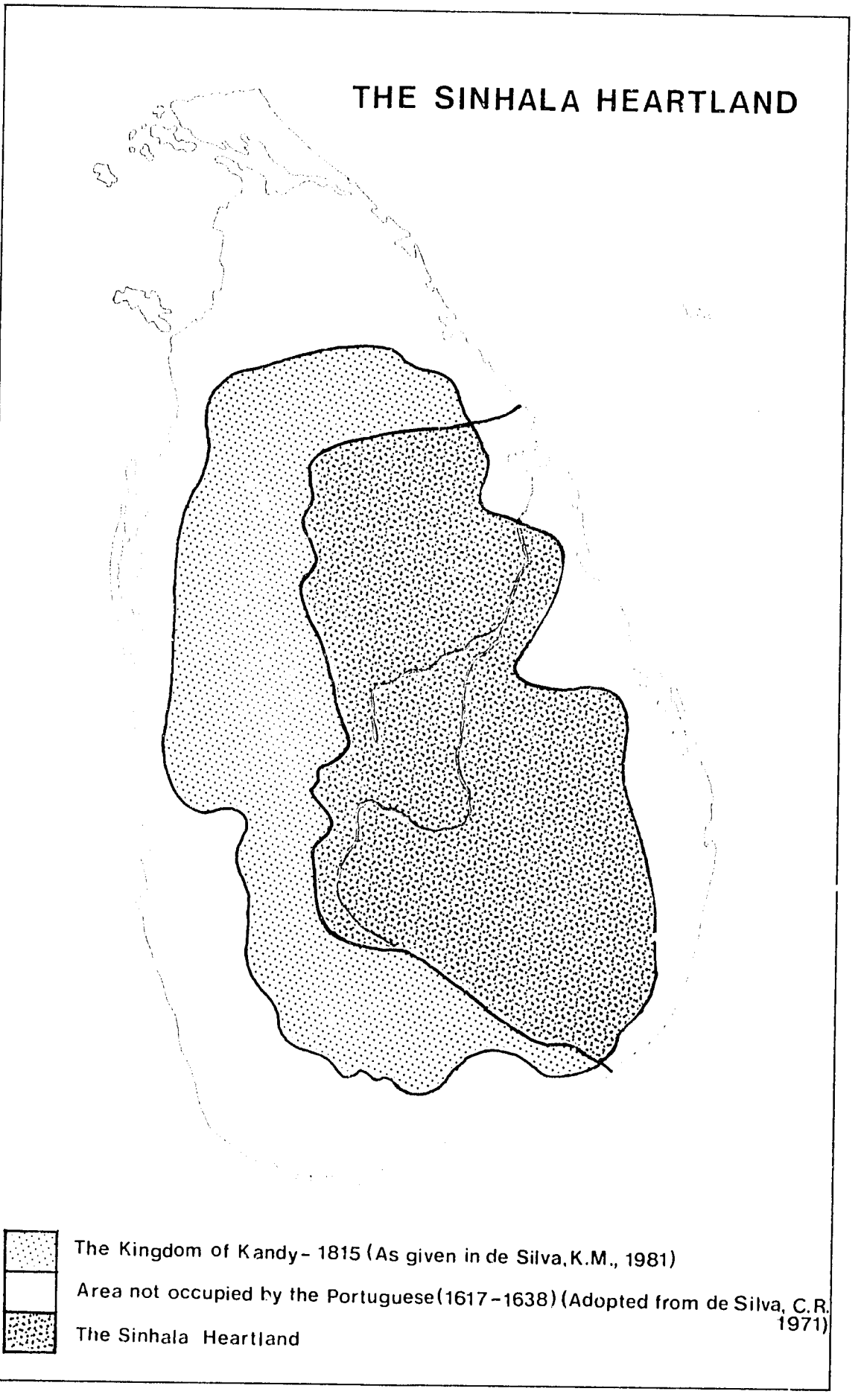
Apart from enriching the lands through which it flowed, the Mahaweli Ganga also played a significant role in national defence and security. An examination of the geographical position of the Mahaweli Ganga, indicates that it is located in the centre of the Sinhala Heartland, or that part of the Island which resisted the invasions of the western naval super-powers for several centuries (Map. 2). There is hardly any doubt that the Mahaweli (jala durga) with its forest cover (vana durga) and rugged hilly terrain (giri durga) played a vital role in shaping the history of Sri Lanka and determining the destiny of her people.

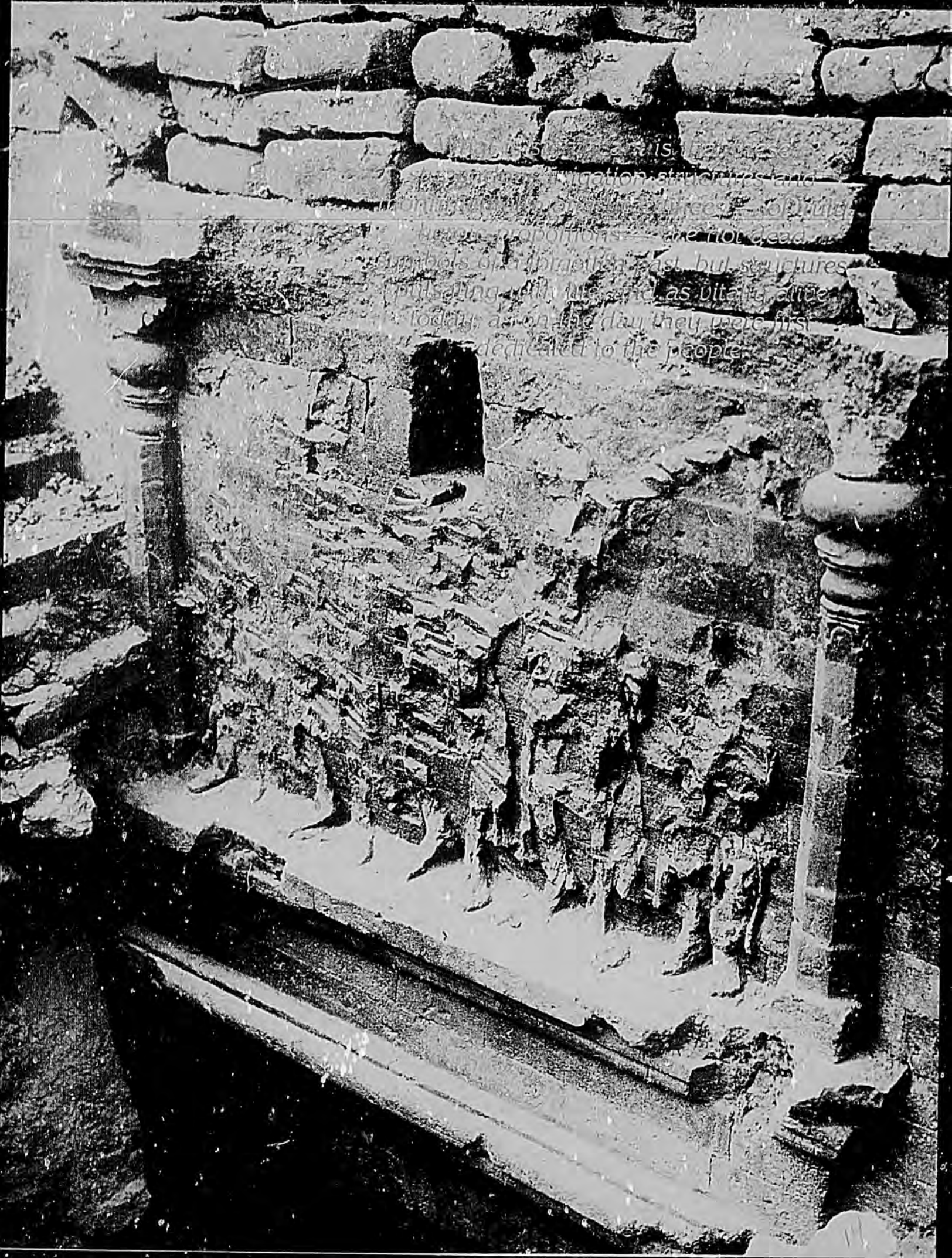
Since early periods of history the Mahaweli provided irrigation waters to bring prosperity to areas such as Minipe and Polonnaruwa. This is clearly indicated by the Minipe slab inscription that stands on the left bank of Mahaweli.

The winding path of the river around the hill capital of Kandy stood in the way of many a foreign invader. The gorges at Lewella, Gannoruwa and Rantembe provided veritable death traps for enemies unfamiliar with the course of the Mahaweli. Sri Lanka's dependence on the Mahaweli Ganga for its resources was so great, that it is not surprising that its waters were made sacred by the inhabitants of Kandy as exemplified by the **Diya Kepima** 'water cutting ceremony' connected with the Dalada Perahera — the great pageant of the Temple of the Tooth Relic in Kandy.

Somawathiya — once on the right bank of the Mahaweli




THE SINHALA HEARTLAND
The Kingdom of Kandy- 1815 (As given in de Silva, K.M., 1981)
Area not occupied by the Portuguese (1617-1638) (Adopted from de Silva, C.R. 1971)
The Sinhala Heartland



The ancient chronicle of Sri Lanka, the **MAHAVAMSA** dramatises the landing of Vijaya by coinciding it with the solemn event of the passing away of Gautama Buddha in India

Hydraulic Heritage

The eternal struggle against rivers provides the backdrop to the colourful story of the Sri Lankan people. Indeed, if history is viewed from a fatalistic standpoint, the Sri Lankan people are seen battling the raw, elemental power of rivers from the very beginning. They founded settlements in this country from the sixth century bC by harnessing rivers. That odyssey continues to this day.

As the curtain unfolds over the stage of modern Sri Lanka, two and a half millennia since the founding of the Sri Lankan nation, our people can be seen locked in combat, teeth and nail, with the mightiest of our rivers ..... the Mahaweli.

Our ancient chronicles record that the Aryan prince Vijaya, the eponymous hero kind of the Sinhalese, on landing in Sri Lanka in circa 543 BC, worked his way up a river, the Malwatu Oya* to found the first Aryan settlement in this country.

Riparian colonies up the flat Dry Zone plains and later higher up along the valleys ideal for rice cultivation provided the locale for the earliest Sinhalese to grapple with rivers and bend them to their use for irrigated agriculture. The elemental force of river flow was the whetstone against which the earliest Sinhalese sharpened their wits.

It is said that a people, just like an individual, are curious about their ancestry, and the endeavours of their forebears. This derives from a search for identity. Historians have for a long time been preoccupied with the task of seeking the antecedants of the early Sinhalese.

They have now ascertained that the ancestors of the present day Sinhalese migrated to Sri Lanka from the Aryanised Indo Gangetic plains.

Having established Tambapanni — their first settlement by the Malwatu Oya, Vijaya and his companions who were familiar with monsoonal climate, which is alternately dry and wet in the same year, directed themselves to devising a system of agriculture to suit the ecology of their new surroundings. Such a system required that they did not depend too heavily on the seasonal rainfall for their agriculture.

Rice was the staple food of the lands from which they migrated, and they were aware that wet footed coarse grains like paddy throve under irrigation. Happily, these early Aryan settlers possessed a knowledge of basic irrigation, to convey water along excavated canals to paddies, located way out from the source of water supply.

Finding themselves circumscribed by the limits of their first settlement at Tambapanni the settlers ventured out going upstream along the Malwatu Oya to found Anuradhagama. They then founded Upatissagama on the Kanadara Oya — a tributary of the Malwatu Oya; Uruwela in the deltaic area of the Kala Oya; Vijithanagara by the Mahaweli near the present Polonnaruwa; Digavapi by the Gal Oya in the east coast and Magama by the Kirindi Oya, in the deep south.

Historians are also of the view that settled agricultural life and the use of iron weapons and implements, including the plough were introduced to this country by the original Sinhalese. The introduction of the plough, equipped with a sharp cutting edge and the application of draught cattle to the plough, together with the extension of the land cultivable by irrigation, would have resulted in rice production gaining by leaps and bounds in a country which hitherto depended on rain-fed and chena cultivation.

These early settlers, to begin with, settled in areas where the rainfall was not too heavy and the forests not too dense, partly because such land lay close to where they originally debarked, and also because the terrain lent itself admirably for irrigation.

The early Sinhalese probably made use of the labour of the local inhabitants who were predominantly Yakkas, for clearing of forests, construction of irrigation works and tilling the fields. Some early irrigation works yet retain allusions to Yakka workmanship. In course of time, having provided them leadership, the Sinhalese fused with these people forming one composite community.

A hardcore of Yakkas who resisted assimilation probably retreated into the deeper recesses of the island's forest and rock fastnesses; and perhaps with the effluxion of time the jungles adopted and sustained them.

The Nagas, another local clan, with a culture somewhat more advanced than that of the Yakkas held out against the invading Sinhalese and maintained their identity longer. Over the passage of time they too integrated with the Sinhalese. A Naga cult has persisted strongly in irrigation engineering, and Naga prefixes and suffixes have occured in names of later Sinhalese royalty and common folk alike.

There is a school of thought that the many-headed cobra symbol that turns up invariably on ancient irrigation structures was the insignia of a Naga line of royalty well-versed in the hydraulic arts and sciences or was the totem of a Naga tribe skilled in hydraulic engineering.

The early Sinhalese, who were familiar with oligarchical forms of government, which obtained in the Indus Valley societies instinctively opted for rule by chiefs. This soon led to their adoption of a

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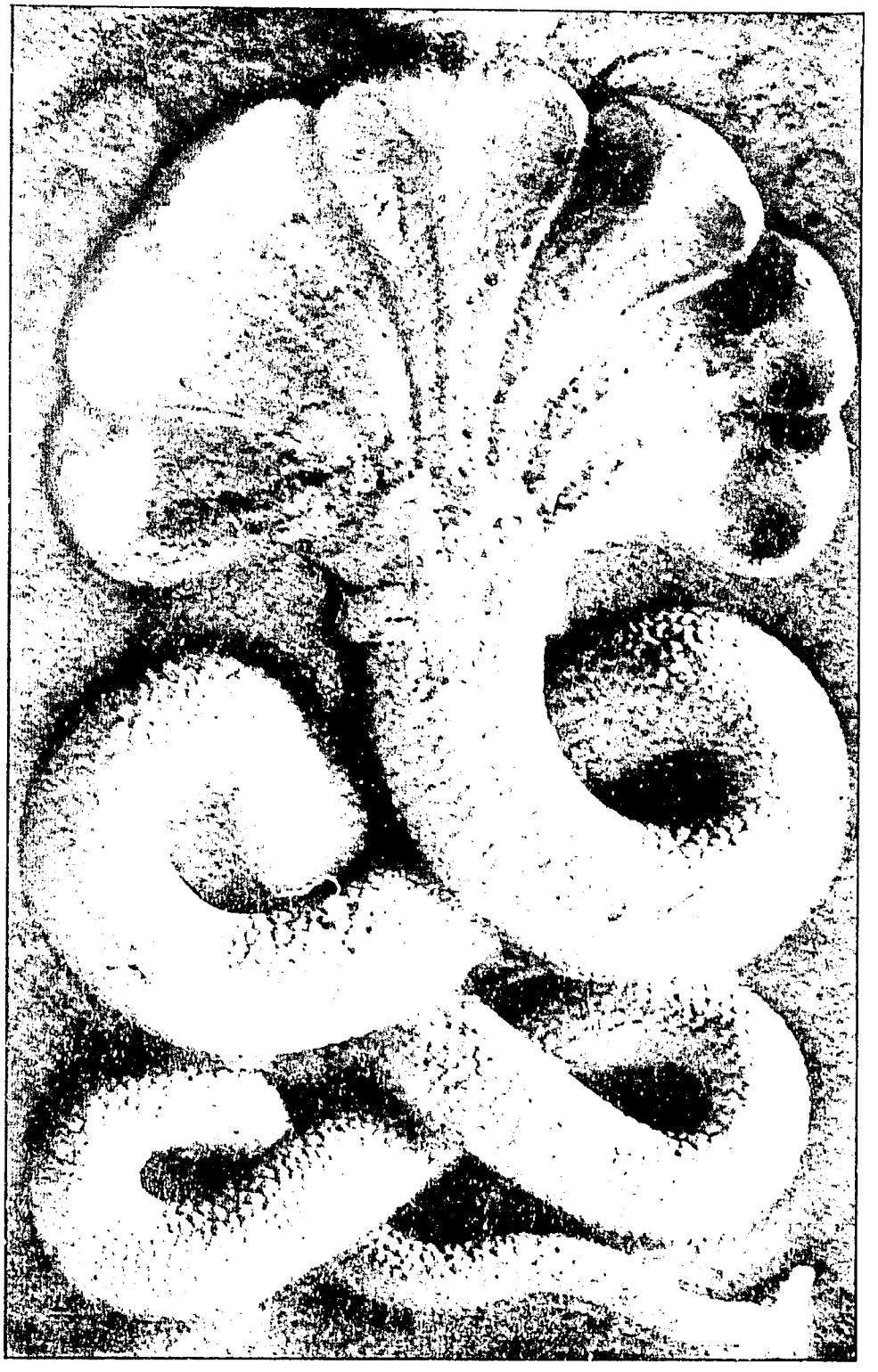
** The Malwatu Oya known as Kadamba Nadi, in the Pali chronicles is also called Aruvi Aru. It is Sri Lanka's second longest river, 164 kms.*

A Naga guardstone



monarchical system of Government.

The king was held to be the lord of the soil but each settler was entitled to a landholding sufficient for his wants. This did not prevent anyone with resources bringing larger extents of land under cultivation. It was in the interests of the king to encourage such development, as this also contributed to revenue. Such enterprise by individuals would have entailed their construction of irrigation works. Such persons were entitled to charge water rates — which were collected in produce.

A frontier-spirit obviously urged the early Sinhalese settlers on. As their numbers grew they fanned out to other river basins to stake out new lots and to pitch new homesteads.

Starting with the application of their rudimentary knowledge of the art of irrigation the early Sinhalese built small weirs and anicuts to convey water into canals and thereafter progressively sharpened their skills to construct reservoirs or tanks.

It is believed that the first tanks, though small, were constructed in the sixth and fifth century BC., at Anuradhagama — afterwards known as Anuradhapura — which was the capital of the Sinhalese kingdom for over 1000 years from 437 BC. The first historically identifiable reservoir is the Abhaya wewa, later known as the Basawakkulama in Anuradhapura, credited to king Pandukabhaya (457-367 BC) though a reservoir is also referred to, during the reign of his father — King Panduvasdeva (574 — 504 BC). The Tissawewa, also in Anuradhapura built during the reign of king Devanampiya-tissa (250 — 210 BC) is another ancient reservoir.

Nothing bigger than village tanks was attempted by the early Sinhalese kings, to start with. Most of the smaller tanks were

privately-owned.

Just as settled irrigated agriculture had a deep going impact on the economic and social development of the early Sinhalese, so also the introduction of Buddhism to Sri Lanka in the third century BC, during the reign of Devanampiyatissa was to have a profound influence on their cultural growth.

The Sinhalese believe that the Buddha himself, from his death bed, exhorted the king of the Gods to protect them and their country, predicting that Buddhism would flourish in Sri Lanka. Accordingly, the Sinhalese conceive of themselves as the chosen guardians of Buddhism: that their destiny had willed it so. This link between the Sinhalese, Sri Lanka and Buddhism exercises a profound influence on Sri Lanka, running through the warp and weft of her cultural fabric, giving the country a distinct identity.

The rapid spread of Buddhism strengthened the links of friendship between Sri Lanka and Mauryan India and other neighbouring Buddhist states. Buddhism served to unify the country culturally. This in turn strengthend the process of political unification.

The Dravidian influence over Sri Lanka has been a constant factor. As to when the the Dravidians set foot on this country's soil is not conclusively known, though it is agreed that they started coming in from early times, first as immigrants interested in trade and later as invaders.

The Dravidian connection, the physical reality of the proximity of predominantly Dravidian territory across the seas to the north of the Island, compounded by the presence of people of Dravidian extraction living in the northern coastal strip of the Island has markedly influenced the chemistry of politics in Sri Lanka.

The arrival of the Arahat Mahinda — a line drawing by a modern artist

K. M. de Silva states that:

> *"With the rise of three Hindu powers in South India — the Pandyas, Pallavas and Colas — in the fifth and sixth centuries AD, ethnic and religious antagonisms bedevilled relations between them and the Sinhalese invaders. These Dravidian states were militantly Hindu in religious outlook and evinced no intention of eliminating Buddhist influence in South India. In time South Indian Buddhism was all but wiped out by this aggressive Hinduism and as a result one supremely important religio-cultural link between South India and the Sinhalese kingdom was severed. Besides, the antipathy of these South Indian states to Sri Lanka, eventually reflected by the prospect of loot, was now for the first time sharpened by religious zeal and ethnic pride..... the Tamil settlements in the island became sources of support for South Indian invaders, the mercenaries a veritable fifth column....." There was nevertheless, for long periods, harmonious social relations between the Sinhalese and Tamils, and strong cultural and religious ties...."*

An interesting upshot of the advent of Buddhism was the compulsive desire of the Buddhists to record meritorious events in inscriptions. From the third century BC., a considerable volume of evidence of irrigation works executed and constructions inaugurated, have been marked in stone inscriptions.

By the second century BC, inscriptions reveal that it was already becoming the fashion to donate tanks and grant irrigation channels to Buddhist monasteries. The donations of land to monasteries was an earlier practice, but the donation of irrigation works, which enhanced the value of the land enormously, is a measure of the royal patronage extended to Buddhist institutions. The practice of monarch, noble and plebeian to gift immovable and movable property to the Buddhist Maha Sangha has persisted to this day, as it is taken for granted that the Maha Sangha does not have any other means of sustenance except from public munificence.

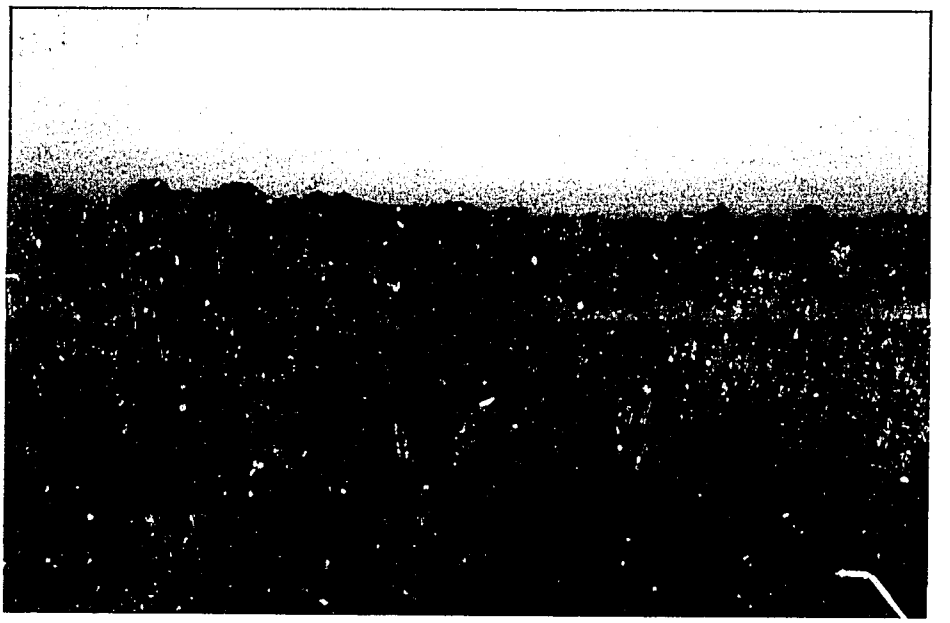
By the first century BC, the village tank was an established feature of the Dry Zone and the Sinhalese had spread over the whole length and breadth of the plains.

King Vasabha (67-111 AD) was the first of the great tank-building Sinhalese kings, best known for the construction of the Alahara canal, which took off from a dam across the Amban Ganga, the main tributary of the Mahaweli. The successful construction of this canal meant that by the first century AD., the Sinhalese had developed a high degree of instrumental accuracy, in contouring and levelling, and mastered the art and science of damming large rivers.

The first century AD., which marked the beginning of the organised development of the Dry Zone under irrigation works of larger magnitude would not only have necessitated larger scale development of labour but greater sophistication in the methods of construction. Clearly, such works were beyond the resources of individuals but possible only with resources of the state.

With the passage of time, irrigation water became a precious commodity which was bought and sold. The owner of the means of irrigation bought the water and retailed it to the cultivator. It may be recalled that there was private ownership of small tanks. In order to gather merit the king and certain owners of village tanks **(VAPI HAMIKAS)** gifted the irrigation water chargeable, to the Sangha. It was unusual for the king to gift an irrigation

Sunset scene near the Village Tank, Devahuwa.



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* K. M. de Silva — ***A History of Sri Lanka***, 1981, pp. 21.

work with the headworks to the Sangha. The king exercised his right to own the headworks, jealously. This served to enhance his authority.

Accordingly, the Sinhala state had to have a huge well-spread bureaucracy to operate and maintain the irrigation system and collect the revenue that legitimately accrued to it from the sale of water.

At times, the irrigation water was moved over and across large distances, far and away from the headworks. Communications in regard to definite dates of water issue and timely repairs to major irrigation structures would have been an important function of the irrigation bureaucracy. The bureaucracy would have ensured that precious irrigation water was not wasted, and any releases were both timely and paid for by the end user.

A socially desirable result of the linking of tanks, canals and fields into a close network was that it made for a cohesive agricultural community, easy to govern.

In as much as the whole community was alive to the paramountcy of the irrigation network, which conveyed the life-giving irrigation water, it became the social duty of each village to safeguard and upkeep the irrigation structures, with voluntary labour. If the irrigation water was centrally governed and belonged to the king, the king had the power to commandeer free labour for maintenance and repair work. Such labour was readily forthcoming, and on occasion, even paid for, depending on the value of the work involved.

In his monumental work **SCIENCE & CIVILIZATION IN CHINA** the Cambridge scholar *Joseph Needham* referring to interesting and special devices of the Sinhalese engineers states:

"Already in the first century AD, they (the Sinhalese engineers) understood the principle of the oblique weir and had their anicuts traversing the stream at angles never more than 45° to the line of current flow, thus guarding against shocks that might dislodge the masonry. Only later, when better stone work with hydraulic cement on rock foundations could be used, did they transgress this rule. The outer layers of anicut stones also had raised lips of mouldings so that each course was set tined in position not only by its own weight but by the difficulty of forcing it forward by pressure from behind. Wootz steel tools were used in the dressing. The height of dam spillways were adjusted by removable pillars which would hold up with boarding an extra depth of water if larger retention was desired. Sluices were well understood, as grooved stone abutments remain to testify. The inside surfaces of reservoir abutments were faced with ripple bands, i.e. stone revetments of pitched work to prevent wave-erosion and some of the greater tanks had submerged bunds which acted as wave-breaking groynes. But perhaps the most striking invention was the intake-towers or valve-towers ***(Bisokotuwa)*** *which were fitted in the reservoirs, perhaps from the second century BC., onwards, certainly from the second century AD. These were built of close-fitting cyclopean masonry, half in and half out of the bund, so that the water spilled down within their walls and left the tank by double horizontal sluice-tunnels or culverts* ***(horowiva, sorowiva)*** *contrived at the base of the embankment. In this way silt- and-scum-free water could be obtained, and at the same time the pressure-head was so reduced as to render the out-flow controllable. How the heights of the sluice-towers were anciently adjusted is not exactly known, but the larger reservoirs seem to have had three or four of different heights, while other traces suggest that the tops could be raised or lowered by detachable woodwork or fireclay rings. Finally, the Sinhalese engineers were not without their charts, though hardly any have survived. We possess however a rare map of the Elahera anicut and canal leaving the Amban Ganga, with a contribution from the Kalu Ganga, by way of the Yodie-bendi-ela (one of those canals planned to arrive at anicuts), and making its way across a number of tributaries in the usual manner towards the great Minneriya-weewa....."*

There were three major nuclei of irrigation enterprise in early medieval and medieval Sri Lanka based on parallel river systems. These laid the basis for the unique Sinhala hydraulic civilization. The main nuclear areas of this civilization lay in the Malwatu Kala Oya complex, the Amban Ganga — Mahaweli complex and the Walawe — Kirindi Oya complex. These areas were the nerve centres of the Sinhala heartland.

The material splendour engendered by these nuclear areas led to the efflorescence of the Anuradhapura, Polonnāruva and Magama-Tissamaharama civilizations whose colossal irrigation works, monastic art and architecture have endured to this day, forming a cherished part of the heritage of mankind.

Vasabha's reign represents a period of expansion of Anuradhapura where the majority of his irrigation works were located.

King Mahasena's reign (276-303 AD) was marked by decisive measures to harness the waters of the Mahaweli and the Amban Ganga. King Mahasena came to grips with the main stem of the mighty Mahaweli by the construction of the

Pabbatanta canal which took off from Kalinga Nuwara and flowed eastwards, towards Dimbulagala.

The next Sinhala monarch to carve a niche for himself in the annals of hydraulic engineering was Dhatusena (455-473 AD) immortalised for his achievements in freeing the country of South Indian invaders, for constructing the Kalawewa, the Jaya Ganga — giant canal to convey water from it to the city tanks complex of Anuradhapura and the Yodawewa in Mannar, among other feats.

Joseph Needham has described the Yodawewa as:

> *"A most grandiose conception.... the culmination of Ceylonese hydraulics..... an artificial lake with a six and a half mile embankment on three sides of a square, sited on a sloping plain and not in a river valley at all"*

The most impressive achievement of Dhatusena was the Kalawewa — an immense work which would have involved enormous labour resources. The reservoir has an embankment nearly four miles long. The embankment rises at certain points to nearly forty feet.

Apart from providing irrigation to land under it, the waters of Kalawewa were led through the Jayaganga — a major canal which meandered fifty-four miles to service the city tanks of Anuradhapura, **enroute** feeding a system of minor and village tanks.

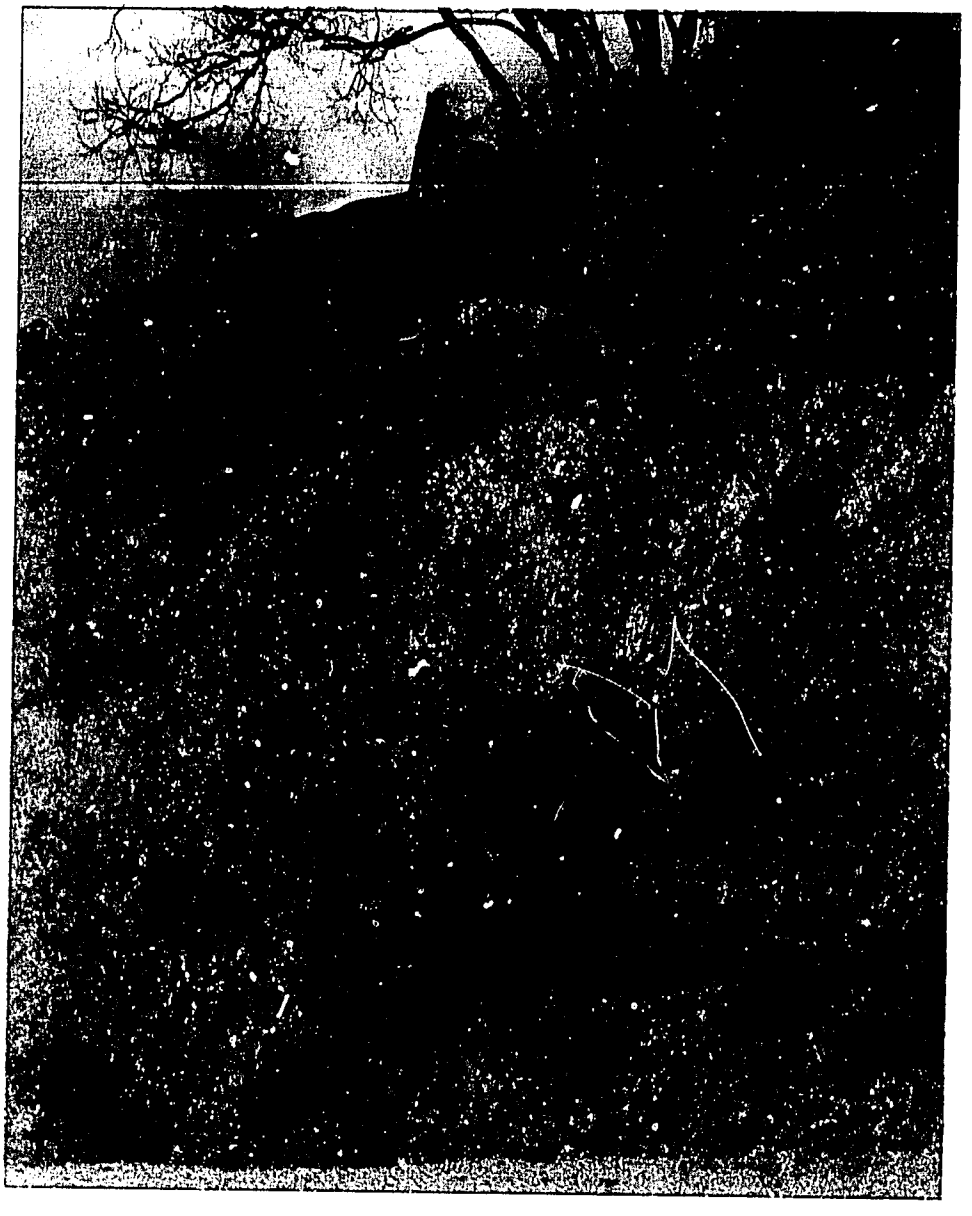
The Jaya Ganga has an amazingly shallow gradient, falling no more than six inches to the mile in its first seventeen miles.

The **Culavamsa** referring to Dhatusena's reign in detail credits him with the construction of a weir across the Mahaweli and states that he "created fields which were permanently watered". This is thought to be a reference to the extention of the Pabbatanta canal built earlier by Mahasena.

Agbo I (575-608 AD) is credited with the Minipe anicut across the main stem of the Mahaweli and the canal on the left bank of the river which was no more than seventeen miles as first laid out. Agbo II (608-618 AD) is credited with the construction of Gamtala wewa and Giritale. The Giritale is situated between Minneriya and Polonnaruva. Gamtala wewa, in the Trincomalee District is one of the largest reservoirs in Sri Lanka.

Kalawewa — the gift of King Dhatusena

not even a little water that comes from the rain must flow into the ocean without being made useful to man." Parakrama Bahu I



The Nachchaduva reservoir built by Moggallana II led to water deficiencies in the Anuradhapura city tanks, the solution of which posed a problem which was ingeniously resolved by Mahinda II (777-797 AD) by tapping the Demada Oya — a tributary of the Amban Ganga, in the adjacent river basin. The water of this stream which would have normally drained into the Polonnaruva District were thus siphoned off into the Kala Wewatu Oya complex[1]

Between the seventh and tenth century AD the political centre of gravity of the island had begun to swing towards Polonnaruva from Anuradhapura, on account of the large scale development made possible by the abundant source of water of the Mahaweli basin. Gökanna port (modern Trincomalee) not Mantota (Mannar) was the more important, and commercial relations expanded with China, apart from other countries of South-east Asia, with whom Sri Lanka had traditional ties.

By the tenth century a substantial part of the Dry Zone was under irrigation projects of various sizes, ranging from those on a monumental scale to minor works. The agricultural surplus these works made possible was invested on religious and public utility institutions. These provided for social contentment. Sri Lanka's neighbours were envious of her progress.

The maintenance of the major irrigation works by them was the sole responsibility of the state and a department to which this work was entrusted viz. dolos-maha-vatan- "the office of the twelve great reservoirs" finds mention in inscriptions of the tenth century. There is reference to an officer known as Wa Vajarama — superintendent of reservoirs. Officials entrusted with the duty of issuing water from the reservoirs for the second cultivation were entitled to certain dues from the owners of the fields.

Economy in water use, water management practices and adherence to cultivation calendars were ensured; those who did not observe such regulations faced deterrent punishment as warned by the Kendavattavana inscription of Dappula IV (924-935 AD).

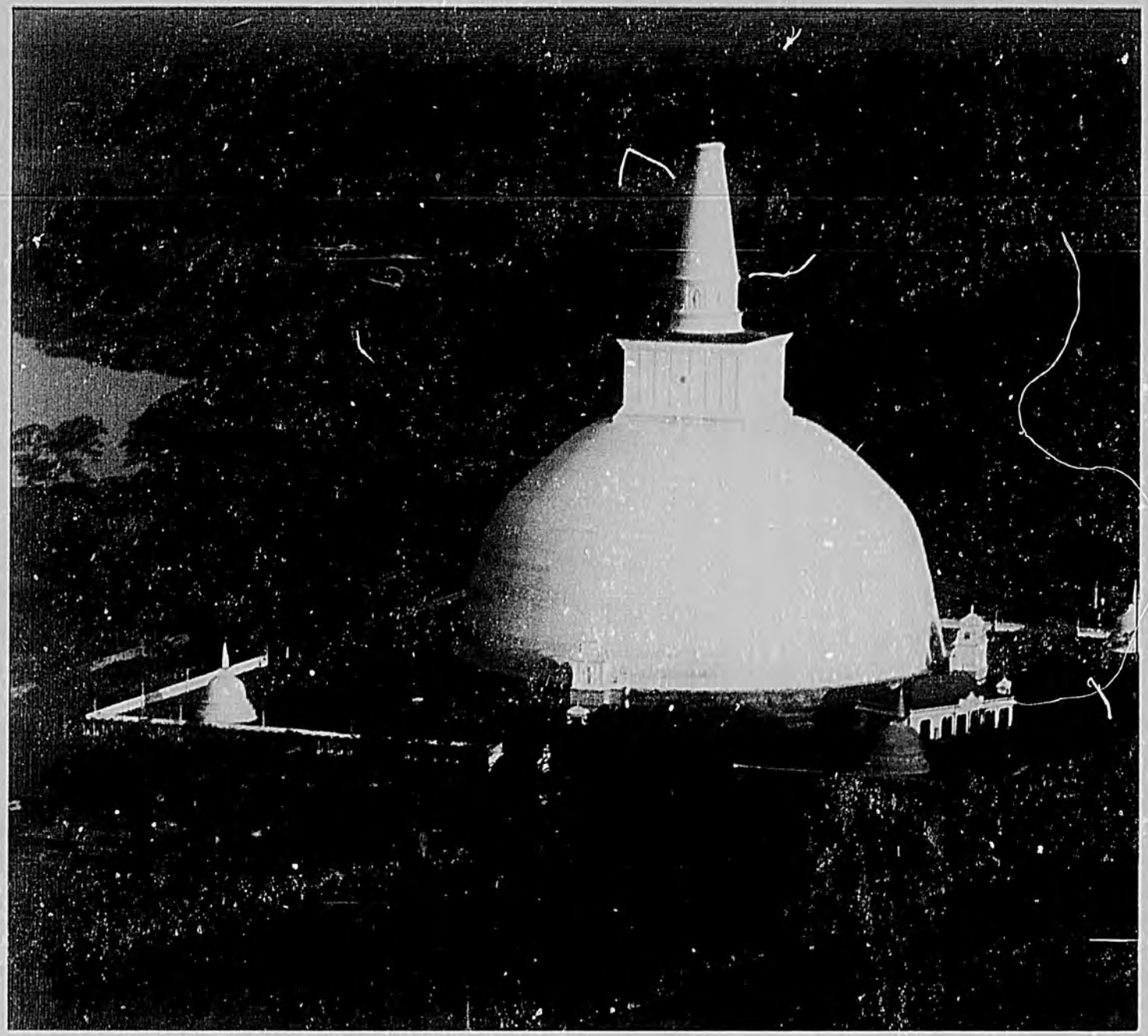
It was however after Parakrama Bahu I (1153-1186 AD) that Sri Lanka reached the highwater mark in irrigation engineering and the country justified its claim to be known as the Granary of the East.

Though his irrigation works and foreign exploits are enough to immortalise Parakrama Bahu I, he is somehow best known for his famous utterance underlining the optimisation of land and water resources.

"In the realm that is subject to me there are, apart from many strips of country where the harvest flourishes mainly by rain water, but few fields which are dependent on rivers with permanent flow or on great reservoirs. Also by many mountains, by thick jungle, and by widespread swamps my kingdom is much straitened. Truly in such a country not even a little water that comes from the rain must flow into the ocean without being made useful to man. Except at the mines where there are precious stones, gold and the like, in all other places the laying out of fields must be taken in hand."[*]

King Parakrama Bahu is reputed to have constructed or restored 165 dams, 3910

[*] *Culavamsa.*



Messages from the past — Ruwanveliseya Dagoba and Basawakkulama Tank

canals, 163 major tanks and 2376 minor tanks — a fantastic achievement! His masterpiece the Parakrama Samudraya — the Sea of Parakrama — is appropriately named! The bund of this massive work is eight and a half miles long and forty feet high.

Like all other kings who made a mark in feats of hydraulic engineering Parakrama Bahu, too, tangled with the Mahaweli.

He built a dam across the Mahaweli at a point slightly upstream of the island known as Kalinga Nuwara, to take a canal — the **Aciravati**, also known as the Kalinga Yoda Ela, which flowed west and northwards, while the **Gomati** canal flowed eastwards, towards Dimbulagala and probably terminated in the Maduru Oya.

Within ten years of the death of Parakrama Bahu I, the Sinhala kingdom of the Rajarata began to crumble under a succession of civil wars and external attacks, and by the end of the thirteenth century the glory of the Rajarata was but a memory and the vast and complex irrigation system, the greatest acheivement of the Sinhala people passed into ruin and desolation.

Learned tomes have been written on the collapse of the Rajarata civilization. It was these regions that saw the efflorescence of Sinhala culture and produced its most venerated shrines.

It was the transfer of hydraulic engineering technology to monastic art that gave rise to these monumental edifices which vied with the Pyramids of Egypt and the temple of Babylon.

"The reasons that led to the collapse of the ancient hydraulic civilization represents an academic area where many imaginations have wandered (Murphy, 1957). The climatic change, malaria, impoverishment of soil, foreign invasions and famine represent only some of the reasons attributed to this historical catastrophe. Paranavitana (1960), the veteran archaeologist and historian of Sri Lanka, believed that the breakdown of the efficient

irrigation management system was a result of the debilitation or annihilation of the **Kulinas** *— the nobility who possessed the irrigation expertise by the invading forces has acted as the immediate cause for the collapse of the hydraulic civilization. While some scholars (Farmer 1957) attributed this to a combination of factors, others (Roberts 1971) thought that a 'push pull' mechanism was operative in the disintegration of the Dry Zone Civilization. Although these ideas differ greatly they all indicate the ecological fragility of a civilization based on irrigation systems. As Toynbee pointed out, 'at various times and places, recalcitrant Nature, once broken in by human heroism, has broken loose again because later generations have ceased for some reason to keep up the constant exertions required of them in order to maintain the mastery which had been won for them by the pioneers'. With the exception of one geographer (Murphy 1957) hardly any environmental scientists seem to have entered this fascinating interdisciplinary debate. It still remains an area where there is much scope for study and research in environmental history.*

*Many characteristics of contemporary Sinhalese culture have their roots and origins in the ancient hydraulic civilization of the Dry Zone. Although the capitals have shifted, centres of population have moved, and the European naval powers have ruled the Island in the recent periods of history, Sinhalese people have retained some elements of their hydraulic culture and carried them wherever they migrated."**

Abandoning the Rajarata the Sinhalese retreated to the hilly regions, and before long, the matted canopy of the lurking jungle consigned the glory of the Rajarata to limbo. Only the turrets of the mighty dagobas defiantly stabbed the skyline and remained to draw attention to the past glory of the Rajarata heartland.

Today what is significant is that the stupendous irrigation works of the Rajarata have, by and large, been restored — thanks to enlightened British Administrators who rediscovered them and commenced their restoration

This restoration was however carried out with patriotic zeal by Sri Lanka's first Prime Minister the late D. S. Senanayake. He launched such work from the time he became Minister of Agriculture and Lands in 1935.

The late D. S. Senanayake's government, and subsequent governments happily gave utmost priority not only to the restoration of the irrigation works but also to the restoration and preservation of Sri Lanka's monumental monastic edifices.

What is significant is that these stupendous irrigation structures and monumental monastic edifices — of truly heroic proportions — are not dead symbols of a forgotten past but structures pulsating with life, and as vitally alive today, as in the day they were first dedicated to the people.

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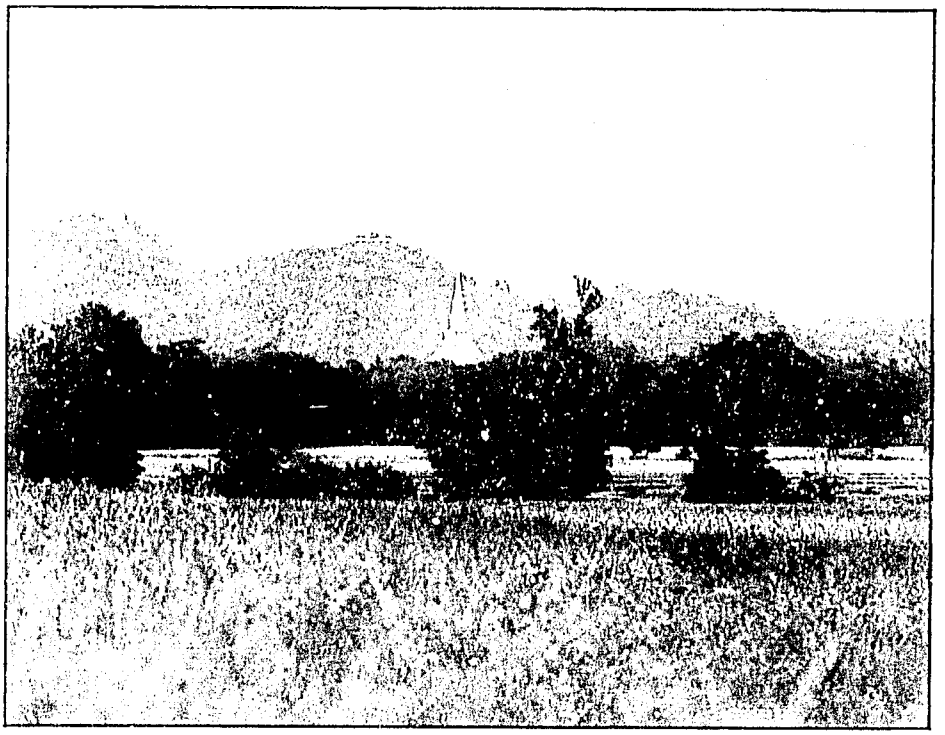
* *A Summary of the Address of Prof. Madduma Bandara to the Climatology Hydrology colloquium of the University of Tsukuba, Japan, on* **WATER AND LIFE IN THE DRY ZONE OF SRI LANKA** *— 24th September 1982.*

The organization of chains of tanks into cascade systems within natural drainage basins, thereby bringing a considerable degree of interdependency between villages, indicates well coordinated land and resource management

The old order

The Mahaweli Development Area in the Dry Zone being the cradle of an ancient civilization, had its own pattern of human settlements as far back as twenty centuries. Subsequent to the collapse of this civilization most of these settlements gradually disintegrated and dispersed. Nevertheless, some scattered settlements in the form of **purana** villages, withstood all vicissitudes and have survived to the present day to tell the story of a great civilization.

In addition to **purana** villages, some 'new villages' of more recent origin often bordering the main roads and usually occupied by encroachers from different parts of the country, became part of the Dry Zone settlement mosaic. The state-aided settlement schemes formed the next major settlement type in the pre-Mahaweli cultural landscape of the Dry Zone, with a few urban centres often associated with the settlements.It is on the network of these **purana** villages, new villages and settlement schemes that the modern Mahaweli settlements are superimposed. In this process many **purana** villages and settlement schemes had to be absorbed and integrated into the new Mahaweli settlements. On the other hand, Mahaweli settlement planners had much to learn from both **purana** villages and from the experience of older settlement schemes.



The spirit of the village — paddy field and Buddhist Dagoba

Purana villages

The Purana villages centred on village irrigation tanks have continued to remain the most important type of rural settlement in the Dry Zone. It is true that most present day **purana** villages represent some veritable pockets of poverty in Sri Lanka. They are often affected by droughts, malaria and by the breakdown of the traditional resource management systems in the wake of modernization and agrarian change. As Farmer (1957) wondered, it is even difficult to believe how the ancestors of these feeble inhabitants of the present day **purana** villages were responsible for these stupendous irrigation works of the past. On the other hand, **purana** villages represent real mines of information on traditional Sinhala culture and social anthropology. Nevertheless, although Sri Lanka has made much progress in discovering Sri Lanka's past through archaeological excavations, much remains to be done in digging into the **purana** village settlement system to understand the depths of the Sinhala hydraulic culture.

As Brohier vividly expressed it :

> *"In Ceylon time cannot state, nor can usage wither: tank would appear to be synonymous with 'village' implying thereby that one section of the ancient population was composed of a number of agricultural republics, each of which had a tank and a paddy field below it."**

These agricultural republics are in fact timetested phenomena, and, their inhabitants though reduced to economic weaklings of a modern economy preserved their cultural heritage amidst waves of foreign invasions and domination.

Although on the surface a **purana** village appears just another form of human settlement, its beauty lies in the fine harmony that it exhibits in its spatial and social organization. An examination of the spatial organization of **purana** villages, (Tennakoon, 1974) reveals that there exists a high degree of regularity in the land use structure of most villages. Thus five land use zones could be identified in the **purana** village system, namely, **Wewa,**

* *R. L. Brohier*

A time to relax — village women bathe at the tank

tank, **purana vela**, old field, **akkara vela**, field blocks, **vanāta**, parkland, and **mūkalāna**, forest. The main axis running through all these zones is represented by the ephemeral streams which enter the tank and pass through the paddy fields. The forest cover with the characteristic fauna and flora where it exists, serves to separate one settlement from another. The shift cultivation is still practised in the forested zone. The forested zone also functions as a source of firewood, timber and animal fodder.

The tank formed the most vital element of each **purana** village system. The name of the village itself was often derived from the tank. Although the major function of the tank was irrigation, it had a large number of other functions.

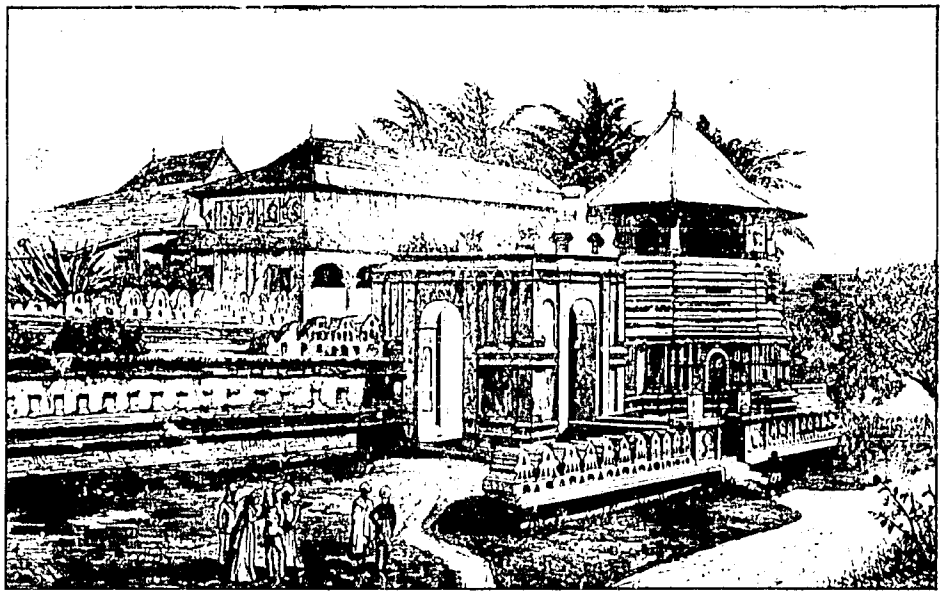
It was a source of fresh water fish, a place for washing, bathing and water sport and a source of flowers for religious observances.

Harvest from the waters — Maduru Oya

The tank also served to maintain high groundwater levels in its vicinity, thereby providing some 'oasis effect' in the surrounding area. Over a period of time the tanks develop their own ecosystems with their aquatic plants, fish and bird life. The organization of chains of tanks into cascade systems (Madduma Bandara, 1984) within natural drainage basins, thereby bringing a considerable degree of interdependency between villages, indicates well coordinated land and resource management. A host of traditional rites and rituals such as **mutti mangalle**, and **pooja vedi**, associated with the tank are still practised in most parts of the dry zone.

Ancient cities

Traditionally the Sinhalese were predominantly village dwellers. Nevertheless, they were able to build



The Dalada Maligawa
— Temple of the Tooth Relic.
A drawing from the
Illustrated London News
mid 19th Century

Image of the Seated Buddha, Gal Vihare, Polonnaruwa.

Sunset at Anuradhapura

some of the finest cities, seldom found anywhere in the old world. In Sri Lanka, it is interesting to note that a number of these cities such as Anuradhapura, Polonnaruva, Kandy and Gampola came up in the basin of the Mahaweli Ganga or its present development area. Anuradhapura which grew on the banks of Malvatu Oya remained the capital of Sri Lanka for over ten centuries, a record hardly surpassed by any other ancient city.

The most conspicuous feature of these cities is that they all had a strong hydraulic base. Anuradhapura was served by three city tanks namely, Abhayawewa, Tissawewa and Nuwarawewa. What remains from this great city today clearly indicates a highly advanced form of human civilization which may even provide many lessons for modern metropolises. The highly advanced sewage disposal system is just one specific example. Polonnaruva served by the great tank of Parakrama Samudra fed by the Amban Ganga also had similarly advanced city characteristics.

Apart from the sophisticated architectural features, another conspicuous characteristic of these cities was their spiritual base. The existence of a large number of Buddhist monuments in the form of dagobas, and monasteries reflect this vividly. The discovery of large complexes of **Padānagara** or meditation halls in these cities indicates a social and spiritual dimension that could be hardly observed in modern cities. It was evidently an urban society that got its priorities correct and attained a high degree of mental peace and happiness and social contentment.

Similarly, cities that grew on the banks of the Mahaweli in the hill country derived much of their prosperity from the river. Their security to a large extent depended on it, and a host of rites and rituals related to the river, have developed over the

centuries. The last Sinhala capital city of Kandy epitomised the ethos of city life in Sri Lanka.

Settlement Schemes

State aided settlement began to change the traditional pattern of rural settlement in the Dry Zone, particularly since the 1930s. By 1953 there were some 30 peasant settlements which ranged from minor schemes with less than 50 settler-families to giants like Minneriya and Gal Oya, with around ten thousand families. The highest density of settlement was in the North Central Province.

The socio-economic environment in settlement schemes was significantly different from that of the **purana** village settlements. Unlike in the villages, settlers in the settlements represented a mixture of people from different parts of the country, who had varied backgrounds and who often belonged to different caste groups. This was in marked contrast with the social cohesion of the original villages. The resultant heterogeneity led to tensions impeding the evolution of a stable social organization.

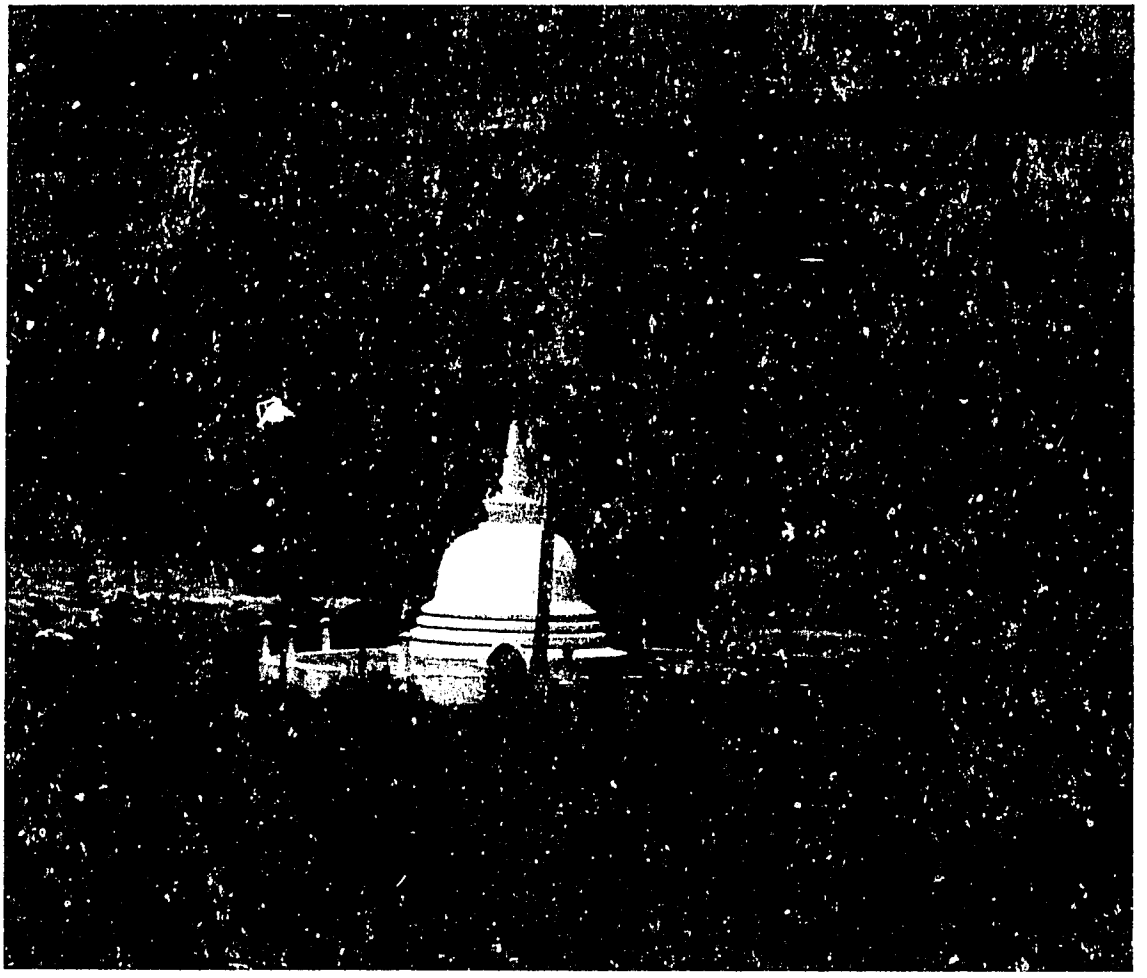
Not much attention has been paid to the physical planning of settlements and service centres. The most common type of human settlements was a 'ribbon type' development along the roads and irrigation canals. Many short-comings in the settlement schemes, such as poor social amenities, inefficient water management, lack of community participation in development and management contributed to bringing a low reputation to most settlement schemes. Many settlements thus gradually became dens of discontentment, vice, and poverty, and fell far short of the laudable expectations of their creators.

The base for rural conquest — a settler home

It should be mentioned that village expansion schemes affected more parts of the dry zone than settlement schemes. By 1953 some 309,000 acres of land had been alienated by the State to villagers. This led to a disintegration of the village settlement and the spread of homesteads to roadsides and places accessible by vehicular transport. The villagers who were used to living in clustered houses thus became accustomed to live in larger blocks of land, often located on highlands away from the tank bunds. These expanded village settlements often took the form of 'new villages' emerging along the main roads. The only difference was the link that existed between the expanded village and the old village where it did not completely disappear.

The introduction of Mahaweli settlements, in many areas overshadowed all these existing settlements, the **purana** villages, expanded villages, new villages and settlement schemes, bringing a new dimension to the planning of human settlements.

Symbol of rural solace — village temple at Matale



Monks and peasants of the Mahaweli

From time immemorial, quietly flowed the Mahaweli, enriching not only the lush green valleys of Kotmale and Dumbara, and the sylvan plains of the Eastern Province but also the simple pastoral life of the Sinhalese. Among the many generations of peasants who drew sustenance from the Great River were those who retreated from the Rajarata, the King's Country, after the fall of the great hydraulic civilization.

With the taming of the Mahaweli, which will usher in a new era in the history of Sri Lanka — the Mahaweli Era — some of the people of the Kotmale and Dumbara valleys will be resettled in the Rajarata where they will, it is hoped, in the words of the Minister of Mahaweli Development, "respond to the ancient civilization which flourished in the Rajarata and reawaken to their cultural ethos." This translocation which will dramatize a saga of human sacrifice and challenge implies, among other things, the rediscovery and the re-creation of the rich cultural traditions that the people cherished for generations in their original pastoral setting by the Mahaweli.

Two of the most salient features that gave traditional Sinhala culture its unique identity were its agrarian texture and Buddhist perspective. In the ancient hydraulic civilization of the Rajarata, these traditions centred around the tank and the **dagoba**, and in the valleys of the Mahaweli around the temple, **Pansala**, and the threshing floor, **Kamata**. While the threshing floor nurtured the customs and rituals of their agrarian life, the temples moulded the system of values that underlie their entire cultural milieu. Traditional Sinhala culture was, in essence, a synthesis of a harmonious interaction between the monk and the peasant.

In the traditional Sinhala villages of the Kotmale and Dumbara Valleys the temple was located on the most vantage point: either in the centre, amidst paddy fields, or in the highest plateau overlooking the village. Within its boundaries were the usual adjuncts: the **vehera**, hemispherical mound enshrining the relics, **vihāre**, shrine that houses the Buddha images, **bōdhi**, the original tree which provided shade to the Buddha when he attained Enlightenment, **āvāse**, living quarters of the resident monks, **gantāra kuluna**, bell-tower, and the **bana maduva**, sermon hall. Just as the **bana maduva** had four doors each facing one of the four directions, symbolically signifying that it was open for monks and men of all quarters, the temple was the centre where people of all walks of life met for purposes both spiritual and mundane.

In the first place, the temple was the sacred land where the Sinhalese performed **pin**, acts of merit, which were meant to ensure a better life in this world and the next. At the temple, they offered flowers, meditating on the impermanence of life. Everything changes,they would contemplate, as does the beautiful flowers that wither in no time. Here they lighted oil-lamps meditating on the philosophical value of the Buddha's teachings, which would dispel ignorance as does the light that dispels the darkness around. They sat in the shade of the spreading **bodhi** tree, reciting Pali stanzas, individually and in chorus, filling the air with sound and rhythm and their hearts with piety and serene joy. They offered **dane**, alms, to the monks and showed by example, rather than by precept, that they could lessen their attachment to worldly possessions, in their effort to end suffering in the world.

At the temple, the monks delivered **bana**, sermons, on how to lead a richer life for the good of the many. They chanted pirith benedictory verses in Pali, to protect the faithful from danger and evil, and confer blessings on their general well-being. The

visit to the temple was not complete without the visit to the **avase** where the monks would personally discuss matters of spiritual interest with the devotees. The monks were, thus, the spiritual guides of the peasants.

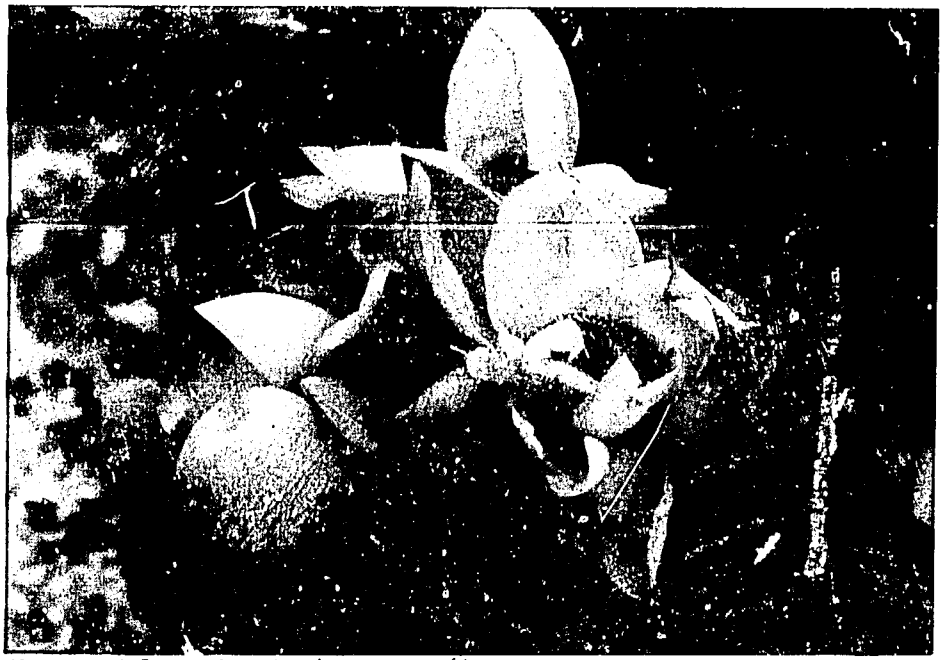
The temple was the main source which transmitted to the village the spiritual and ethical message of Buddhism. The most important medium used for this purpose was art — a medium that was comprehensible to the peasant. In the temple one finds thus a perfect synthesis of all the forms of art in the service of man.

The temple attended to some of the mundane needs of the villager as well, such as those relating to birth, death and so on. The expectant mother sought the blessings of the monk for the safe delivery of the child. The monks would recite special pirith the **Angulimala Sutta,** to confer blessings on her and give her moral strength.

The initiation of the child into the alphabet, **akuru kiyavima,** an important ritual in the life of a man, was usually conducted by the monk. In fact, the first alphabet that the child learnt at the temple was known as **pansal hodiya,** temple-alphabet, and the first booklets he was made to read and commit to memory were those of Buddhism, **Nam Potha,** Book of Names, which lists the names of all the important temples of the country, **Magul Lakuna,** Book of Auspicious Symbols, which lists the auspicious marks on the Buddha's body; **Budda Gajjaya,** a highly Sanskritized poem in honour of the Buddha, and **Sakaskada,** a booklet composed in a single sentence describing the life-story of the Buddha.

It was the temple that fostered the traditional arts and crafts of the village.

The performance of some religious rituals required the services of traditional



Flowers with flowers: Learning the message of impermanence

"Ata Sil" – a retreat on the Full Moon Day

Temple worship — a sustenance of tradition

musicians and dancers. Temple music, **hevisi,** for example, had to be played daily at **teva** services in the larger temples known as **Raja Maha Vihara,** built and patronized by the Kandyan kings. On **poya** days, determined by the movement of the moon, **Poya hevisi** was performed. The **pancha turya nada,** the music that emanated from the traditional musical instruments played in chorus, was considered by the faithful an offering to the Buddha, **sabda puja** sound-offerings. In addition, temple music was an important medium of traditional communication in the village.

Men of traditional families who excelled in the art of Kandyan dancing were also looked after by the temple, in return for their services, which were needed in times of festivals and ceremonies.

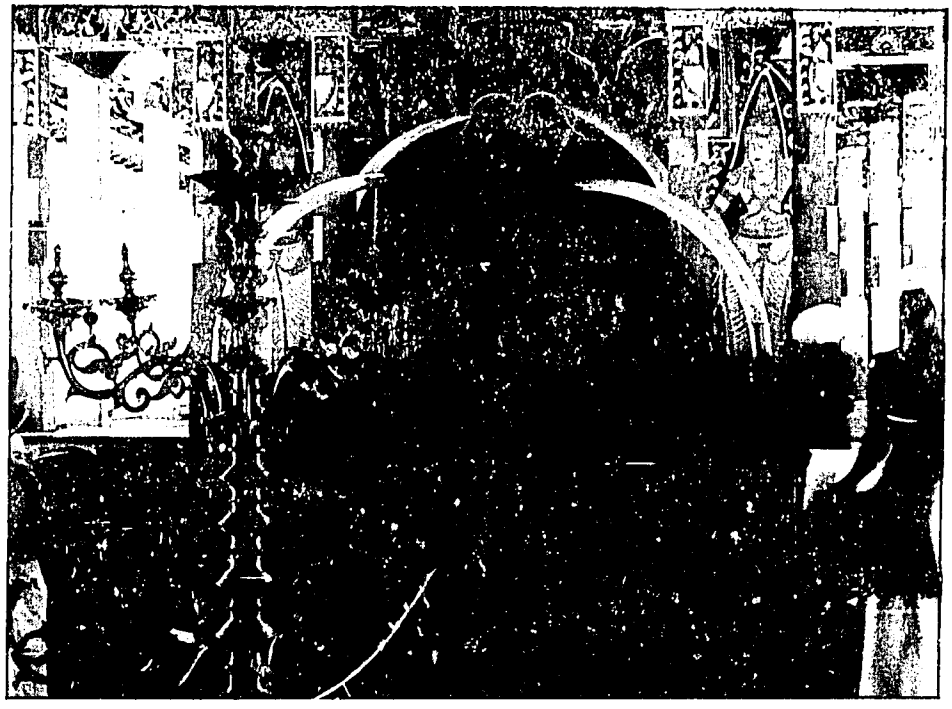
Sinhalese peasants showed great respect for the temple and the monks. Being a sacred area, they conducted themselves in a disciplined manner at the temple.

If the temple was the sacred land from a purely Buddhist point of view, the threshing floor, was sacred from a folk-religious perspective. It was sacred because it belonged to the Buddha and the **deviyo** gods.

Many are rites and rituals performed at the **kamata,** specially during the harvesting season, to ensure better productivity.

The peasant approached the **Kamata** with the same respect and regard that he had for the temple. Footwear and umbrellas were forbidden to be used at the site. Special words came to be used. Cows and buffaloes were used for threshing the paddy and were referred to as **ambanuvo** rather than as **harak,** a word used for them in other profane activities. Their dung, **goma,** came to be called **gom pas.** Food brought to the site was known as **muttettuva.** Paddy seeds

Entrance to the sanctum of the Dalada Maligawa
— Temple of the Tooth Relic



before they were taken to the granary was **baeta.** The ordinary winnow, **kulla,** was referred to as **yatura,** literally, key. Numeral words such as **eka,** one and **namaya,** nine, were replaced by **labayi,** plenitude, and **ata honday,** eight is good, respectively. For, odd numbers were considered potent with danger and thus harmful to the sanctity of the place.

The cultural traditions of the Sinhala village in The Kotmale and Dumbara Valleys, as in other parts of the country, were thus the outcome of a harmonious synthesis between the temple and the threshing floor, the two sacred landmarks of the village, where monks and peasants interacted to evolve a system of ideals, values and attitudes that were to characterize the Sinhala ethos.

"Buddha Pooja"
— offerings of milk rice from a new harvest

The village's concern for others, however, did not stop with human beings for the Sinhala peasant believed that human beings are not the only species of beings that inherited this earth. There are myriads of other beings, small and big, who enjoy an equal right to its resources and possessions. The place of animals, in the world-view of the Sinhala peasant, characterizes a unique Sinhala ethos.

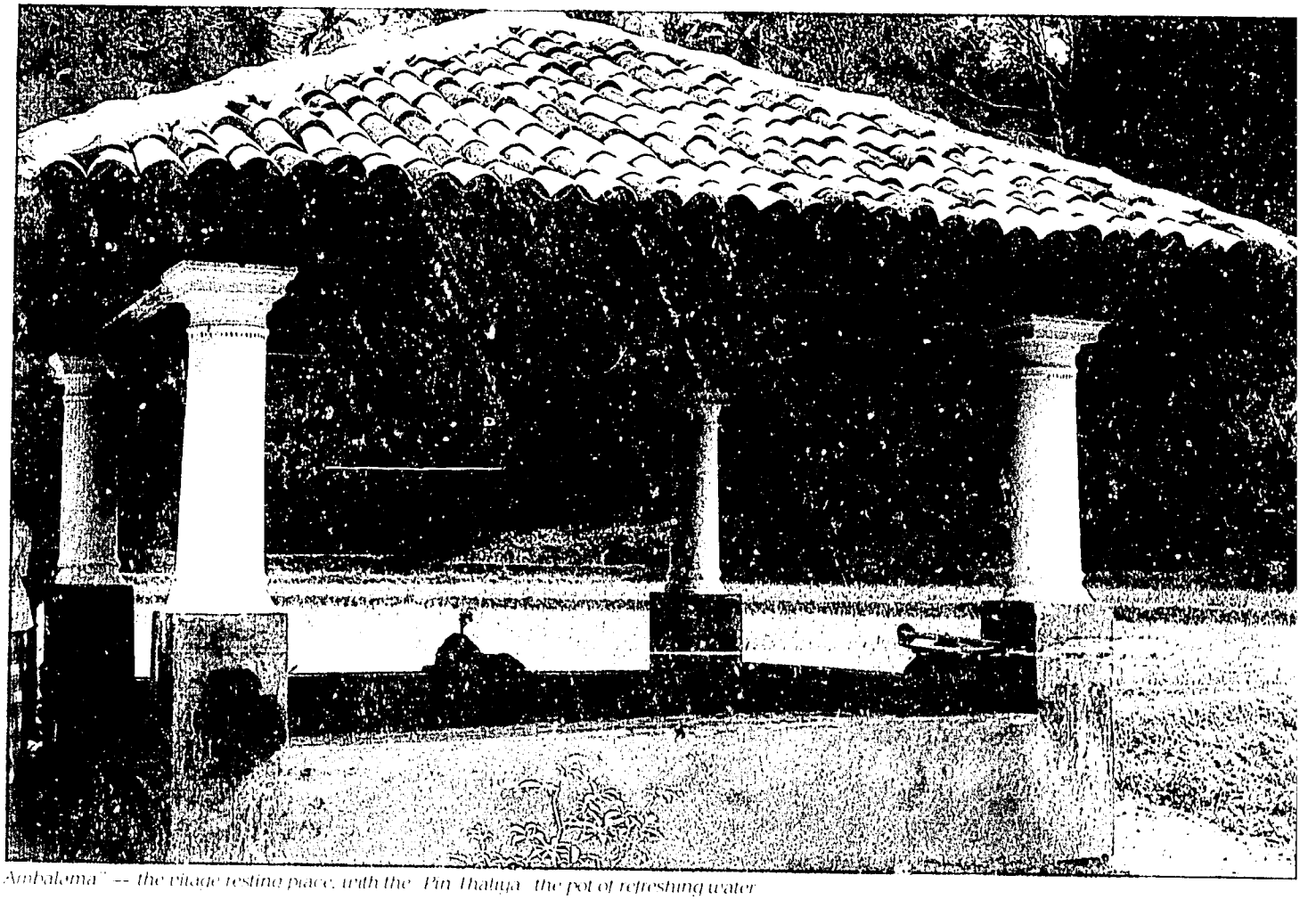
Laying bare the roots

The monk and the peasant, interacting on each other, brought into being a gamut of customs and habits, rites and rituals, that characterize the traditional Sinhala village in the valleys of the Mahaweli. Underlying this cultural milieu is a system of values and attitudes that derived its spirit and essence from the philosophy of the Buddha. It is this system of values that moulded the peasant's outlook on life. Despite the changes in their specific manifestations, these values and attitudes remained, in essence unchanged. The re-creation of this traditional culture in the new settlements of the Rajarata involve, thus, the rediscovery and revival of the system of values that may be identified as characterizing the Sinhala ethos.

Human ideals form the basis on which values are formulated not only in Buddhist philosophy but in other great religions as well. Among the best humane ideals that have been cherished and nurtured by the Sinhalese is their love for humanity. In the traditional Sinhala village, man was considered crucial and was placed above everything else–riches and worldly possessions. Human labour was thus one of the greatest resources of mankind and how this was utilized in the Sinhala village exemplifies the value attached to this ideal. Money, which plays an important role in contemporary society, was relegated to an inferior position. As Knox put it *"Riches are not here valued, nor make any the more honourable."*

In the Sinhala village, there were at least five different ways in which human labour was used and exchanged. First, there was the system, of **attam**, exchange of mutual labour, in which one's labour was paid by labour itself. For example, a farmer would work in another's field with the hope that the other would, in return, work in his field. In thatching roofs of houses, the system of **attam** was followed.

Bringing the "Ambula" — the noon meal at the field



Ambalama -- *the village resting place, with the* 'Pin Thaliya' *the pot of refreshing water*

Second was the system of **muttettu**, exchange of food for labour. The owner of the paddy field, if he was an officer of the state or a member of the landowning elite, would provide food, **muttettu**, for those who work in his fields.

Thirdly, there was the system of **bulat** bedi in which peasants work in the field of another who is physically incapacitated. The need was communicated to the other farmers by the sick man's wife who offers a handful of betel as a token of her gratitude. The farmer who was incapacitated was not expected to work for the others in return for their labour.

The fourth system was that of **pēru** in which labour was offered in lieu of service. A farmer would work in the field belonging to the village smith in return for the services the smith would render in producing the tools and implements needed for the farmer, such as the plough, sickle, and mammoties etc.

Finally, farmers would use their labour for **pin**, merit. The fields belonging to the temple were worked on this basis. As a result these fields came to be known as **pin kumbura**, pin kanatiya, or **pin arava**, merit-field. It is noteworthy that in the traditional village, not only agricultural activities but many other activities that required human labour were organised on the basis of **pin**. Roads were cut, bridges were built, wells were dug, **ambalam**, way-side rests, were erected, **paentāli** water pots for the benefit of the weary traveller were placed beside the **ambalam**, with only a simple objective in mind — that of acquiring **pin**. In fact, the road that was cut by communal labour was called **pin pāra**, merit road, and the water pot for the traveller, **pin paen tāliya** merit-water-pot.

Even the village professionals such as the

Reading a horoscope -- the astrological life chart written on "ola" leaf.

Greetings with betel: A visit to the village physician

"Panduru" — never a fee, coins are tokens of respect.

veda mahattaya, native physician, the **gurunnanse,** teacher, the **nakati,** astrologer gave their services more for humane reasons than for money. The **veda mahattaya** was given only a handful of betel but this money was not called **kuli** or **gastu,** fees or charges, but only **panduru,** offerings. **Panduru,** it may be noted here, was also the term by which monetary offerings to gods was denoted. The teacher was paid some **guru panduru** in return for his services, but on many an occasion, it was substituted by offerings in kind, such as rice and vegetables. Strong was the belief among these professionals that if money was taken for their services, the effectiveness of their performance would indeed lessen.

Money was thus one of the least concerns in traditional villages. In their system of values, service took precedence over money and other material possessions.

Out of the peasant's love for humanity came his deep concern for others — both human beings and animals. In the Sinhala village, where agricultural activities were organized mainly on the availability and distribution of water, its proper and efficient utilization depended on all farmers acting as a single team.

This concern for fellow human beings manifested itself in other areas of village

activity. When a villager was sick in bed, almost the entire village was at his service.

The villager's concern for others, however, did not stop with human beigns for the Sinhala peasant believed that human beings are not the only species of beings that inherited this earth. There are myriads of other beings, small and big, who enjoy an equal claim to its vast resources and possessions. The place of animals, in the world-view of the Sinhala peasant, characterizes a uniquely Sinhala ethos.

To think and act as if the animals have been created for the use of man was contradictory to the Sinhala system of values. Human beings and animlas, both being children of Mother Earth, have thus to live in harmony and co-existence.

Love and respect for the bull is part of the rural tradition

The Sinhala villager's attiude towards the **gavayo,** a category of bovine animals that include cows, bulls and buffaloes, is an excellent example of his concern for animals. His endearment for the cow comes not so much from a religious conviction, such as that of the 'sacred cow' in Hinduism, but from his gratitude to an animal who has shared his sorrows and joys in a lifelong journey through **Samsara.** The possession of these animals were considered a wealth, **gava sampat.**

The peasant regarded his cow, for instance, as if she were an intimate member of his family.

In fact, all agricultural work involving the tilling of ground was suspended on the full-moon day because it would have involved the killing of many small worms and insects in the field, even though unintentionally, on a day of such religious significance.

In some traditional villages in the Dumbara valley, buffaloes and other draft animals were given a rest every other day, and this was called, in folk idiom, **haetapum arinava,** allowed to rest. Even on working days, the animal is allowed to wander about, during the meal-times of the peasants. In still other villages, a separate small paddy field was cultivated solely for the benefit of the cattle, where they were allowed to help themselves. Such alms for cattle were called **go dane.** Cattle who were used for threshing the paddy in the **Kamata** invariably fed on a certain amount of the corn while engaged in this task. The farmer never prevented his cattle from feeding off his corn. For he knew that **'kole haraka kole kanava'** the buffalo on the corn eats the corn. On the other hand, it was believed that if the buffalo on the corn eats the corn, it would increase the yield.

Birds, who are found in plenty in tropical valleys and jungles, have evoked similar concern in the hearts of the peasants. Though some of the birds were pests that caused damage to the crops it was not the intention of the farmer to kill these birds . He was satisfied if he could just prevent them from attacking his crops. With this objective in view, he set up, in the middle of his fields, a kind of wooden gong that could be made to issue a loud sound to scare away the birds. **Kem** or magical devices, were among other means of keeping birds and even insects away from the crops. In some villages long strips of land called **kurulu paluva** located at either end to the paddylands were for the sole benefit of the birds.

One's concern for his fellow-beings and one's desire for sharing pre-supposes a society in which the community is held above the individual. The traditional Sinhala village was one in which this community feeling was strong. Both monks and peasants were able to sacrifice their individual interests for the good of the community.

The order of monks , **sangha,** was structurally organized as a community from the earliest times. The very word **sangha** denotes community and

Yellow robe and green valley — A Buddhist monk walks across a paddy

everything that belonged to the **sangha** was considered **sānghika**, communal, i.e. belonging not to a single individual but to the community as a whole.

Religious activities of the village were thus intended not only to arouse piety and serene joy in the hearts of the faithful, but also to bring together in common cause and fellowship the diverse segments of the village community.

Religious activities reinforced the value of this community feeling. Although the attainment of **nirvana**, the ultimate bliss in Buddhism, remains an individual achievement, the acquisition of merit was organised on the widest possible basis so that all members of the village community were made to feel equal partners in spiritual progress.

Performance of certain religious rituals known as **pinkam** also brought the entire village community together. For everyone — men and women, young and old — had a role to play in the **pinkam.** For instance, **pirith pinkam**, chanting of pirith depended on the active participation of the entire village community for its successful accomplishment: monks to chant **pirith** all night, artists and craftsmen to erect and decorate the specia pavillion **pirith Mandapa**, where monks assembled for this purpose drummers to offer **sabda pūjā**, sound-offerings from time to time, at the **mandapa**, children to carry flags in the procession that takes the monks from the temple to the **mandapa**, women to prepare food for the **sānghika dāne** that follows, men to decorate the roadway and to attend to all other activities. Villagers themselves contribute their share to the **dāne** by bringing some item of cooked food from their homes.

At the conclusion of the **pinkam** accoutrements known as **pirikara** were offered to the monks. Villagers participated in this offering in two ways: by offering money towards the purchase of

the **Pirikara**, and by touching it physically, **ata gahanava**, before it was actually presented to the monks.

The immediate religious objective of **pinkam** is the acquisition of merit, which would ultimately help the faithful to attain **Nirvana**, which marks the end of their cycle of births in **samsara**. Even the merit so acquired had to be shared in common, for it was necessary to transfer this merit, **pin anumodan kāranava** to other living beings, the supernatural beings and the dead.

That mankind is one, irrespective of certain physical and social distinctions such as sex, colour, caste, creed and so on, is another value that was fostered by Buddhism. Caste, **kule**, for instance, was an important factor in the social organisation of the Sinhala village, but its recognition was, however, withdrawn on certain religious, agricultrual, and social contexts, in an effort to make the villagers realize that, after all every man is equal.

In agricultural activities in which men of different castes participated, such as that of **kaiya**, no distinction was made in relation to their sitting arrangements. They all sat together either along the **niyara**, ridge that separates one field from another, or in the **paela**, rest hut.

The **muttettu**, meals, that was brought to the **kumbura**, paddy field, or the **Kamata** threshing floor, were also shared by all men and women, irrespective of caste barriers. No one was served on plates but only on banana leaves spread on **atul-pat**, small trays of plaited grass.

Monks, made no discrimination between houses of high and low caste villagers, when they went from house to house on **pindapata**, alms-rounds. In the presence of the monks, all men were equal, and a common form of address was used by the monks, taking the word **'upasaka'** as its base: **'upasaka mahattayo'** for all adult males, and **'upasaka amme'** for all adult women, a term which emphasizes the spiritual traits of the individual rather than his social status.

Refreshing waters of the Kalawewa

Deeply rooted in the hearts of the Sinhala peasants, who were compelled to depend on nature for the success of their crops, was the belief that Nature would never be vindictive for those who appreciate her bounties in explicit modes of ritualistic behaviour. Thus in the Sinhala village were many rituals associated with thanks-giving expressing the sense of gratitude that peasants felt towards Nature.

From the peasants' point of view, the first to be thanked for a bountiful harvest is the Buddha, the Supreme Being who has the power to shower blessings on the world. The **alut sal mangalle**, Festival of New Rice, and the **aggassa dane**, Alms from New Rice, are held in the village temple as a mark of thanks-giving to the Buddha. The alms for these rituals were prepared with **akkiyal**, the first measures of the new rice set apart for this purpose at the threshing floor.

All the villagers participated in this alms-giving.

The villager's sense of gratitude extended beyond animate beings. If a tree provided shade and shelter for the traveller, it was improper for him to break even a branch of the tree. The folk poet who said in relation to **Kala Vaeva**, the great tank in the Rajarata **dota purā paen aragana bi palla**, (Drink as much as you like, taking water into your hand-cups) **Kala vauvata pin dila palayalla** (offer merit, to the Kala Vaeva, before you leave) has expressed the value of gratitude in an idiom familiar to the peasants.

Closely linked with the villager's sense of gratitude is his belief, **pujaca pujaniyanam,** respect those who deserve to be respected, a value that was necessary for establishing goodwill and thereby communal solidarity.

The peasant's respect for the monk arose both owing to his erudition as a scholar and his spiritual progress as a holy man. When the monk enters a lay household for ritualistic purposes, his feet are washed and wiped by the chief householder. The monk is offered a seat only after spreading on it a white cloth. The layman worships him by placing his folded hands at the monk's feet. The layman would also hold the **padikkam,** spitoon, for the use of the monk, an act which he would not do for another layman.

Elders are among those who deserve respect both in the family and the village. In the extended families in the village, the parents, and grandparents command much respect from others, not only because of their roles but also because of the wisdom they have acquired after years of experience.

Women in the traditional village were held in high esteem. Males, however frivolous, refrained from using obscene words in the presence of women. "But for the presence of this lady" a farmer in anger would say, "I would have used the choicest language at you."

Mother was the most respected of women in the family. She is considered one of the two Buddhas at home, **gedera budun,** the other being the father.

During the Sinhala New Year, all family members will visit their elders with gifts, especially clothing. They will offer the elders a handful of betel and request forgiveness for any misdemeanour in the old year. It is not the custom to refuse this handful of betel, even if the offence were something that cannot be forgiven.

The New Year greetings: Betel leaves and tobacoo

Greeting the elders is a tradition of the New Year

The teacher, **gurunnanse,** was also treated with great respect. In the days of old, when his own house was the school, **guru gedara,** pupils had to help perform certain everyday activities at his house. Later, when schools, **iskola,** came into being he retained the same respect. Whenever the teacher enters the classroom, the pupils rise together, wishing him in chorus **'ayubovan'** a greeting which literally means 'may you live long'. At the beginning of every term the teacher is offered a handful of betel by every pupil. Even among monks, the

respect for the teacher **guru hamuduruvo**, was maintained. Like laymen, the monks too showed their respect for the **guru hamuduruvo** by worshipping him, prostrating at his feet.

Paddy, **vi** in whatever form, **hal**, uncooked rice, or as **bat** cooked rice, is considered a sacred grain. According to folklore, paddy was brought to the household, only after worshipping it nine times, **nava vaendum vaendala**. Rice is something that will never be stolen. It is considered **pav** 'sin', to throw grains of cooked rice about. To wash one's hands into the plate on which one ate his rice was, indeed, an act of disrespect for the rice.

The tools used in agriculture are also treated with respect. The **nagula**, plough **dae kaetta**, sickle, **udaella**, mammoty, are among the simple traditional implements of the peasant. When these implements are taken out of the house, at the beginning of a new season, they are worshipped with the thought that they would help the farmer to reap a good harvest. The peasant never jumps over the **viyagaha**, the yoke of the plough, for it is considered an insult to do so. Before the first handful of paddy corn is cut, the sickle is worshipped, and this is known in folk speech as **namo vittiyen kaepum allanava** commencing reaping with thoughts of the Buddha. It is also considered a disrespect to place the mammoty in the sun. All these implements will be washed before they are taken back to the house after the day's work.

The Sinhala villager's awareness of aesthetic delight in his work and environment is almost unparalelled. Aesthetic enjoyment was part and parcel of his everday living. Poetry, music, dance, drama, painting, sculpture, and all other artistic expressions fused harmoniously with his religious and agricultural activities.

Sokari — ritualistic folk drama

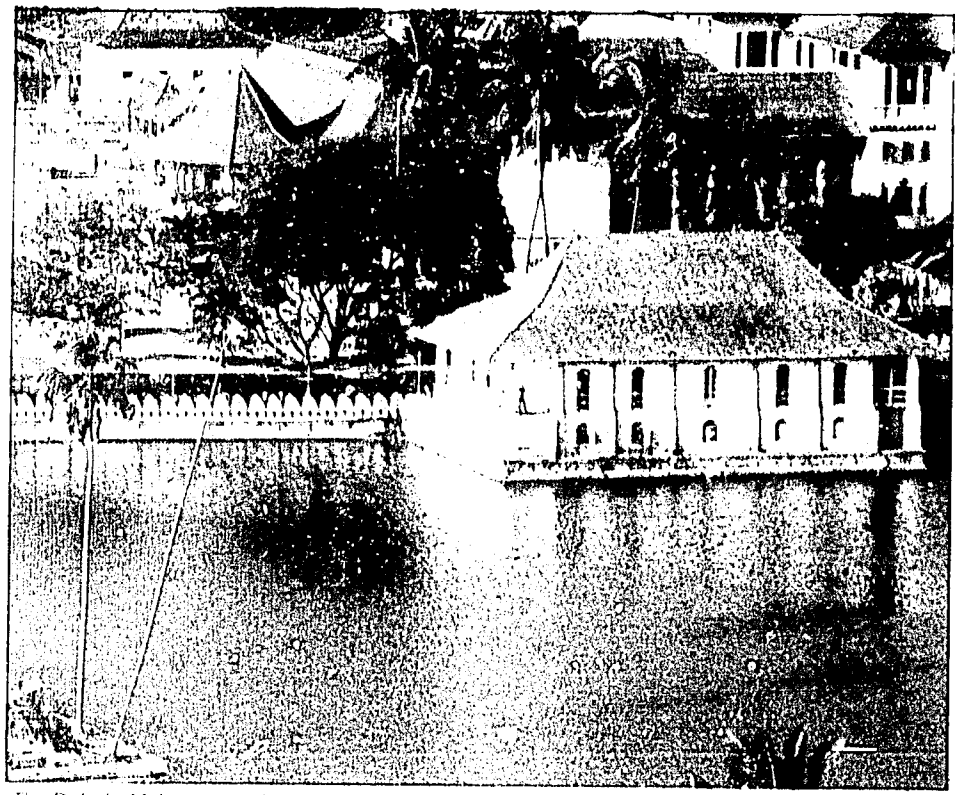
A characteristic that pervades Sinhala folk poetry is its agrarian texture. Folk poetry is used almost in every activity of the agricultural cycle: **nelum kavi**, in transplanting, **goyam kavi**, in reaping, **kamat kavi** in threshing and **pael kavi**, in keeping watch. Chena lands where grains such as **kurakkan**, millet, was grown produced its own variety of folk poetry kurakkan kavi. Even the lonely carter who wends his way at night sings **karatta kavi**, carter's songs. In reaping paddy, poetry was accompanied by the music of the **udaekki**, double hand-drum.

In these folk poems were embedded the simple hopes and aspirations of the peasant.

dumbara kete vaeta baendala raekum baelum
Mavili Gange diya baendala ketata gilum
Bolanda liyan kara osava balana baelum
Tumpat ratavay dumbara kete nelum*

Freely translated the poem states:

The paddy-field in Dumbara, well fenced and protected, is well fed by the waters of the **Mahaweli Ganga**, young village belles, with coquettish looks, are transplanting, in the manner of tumpat rata, in the paddy-field in Dumbara.



The Dalada Maligawa with the Kandy lake and Queen's bath in the foreground

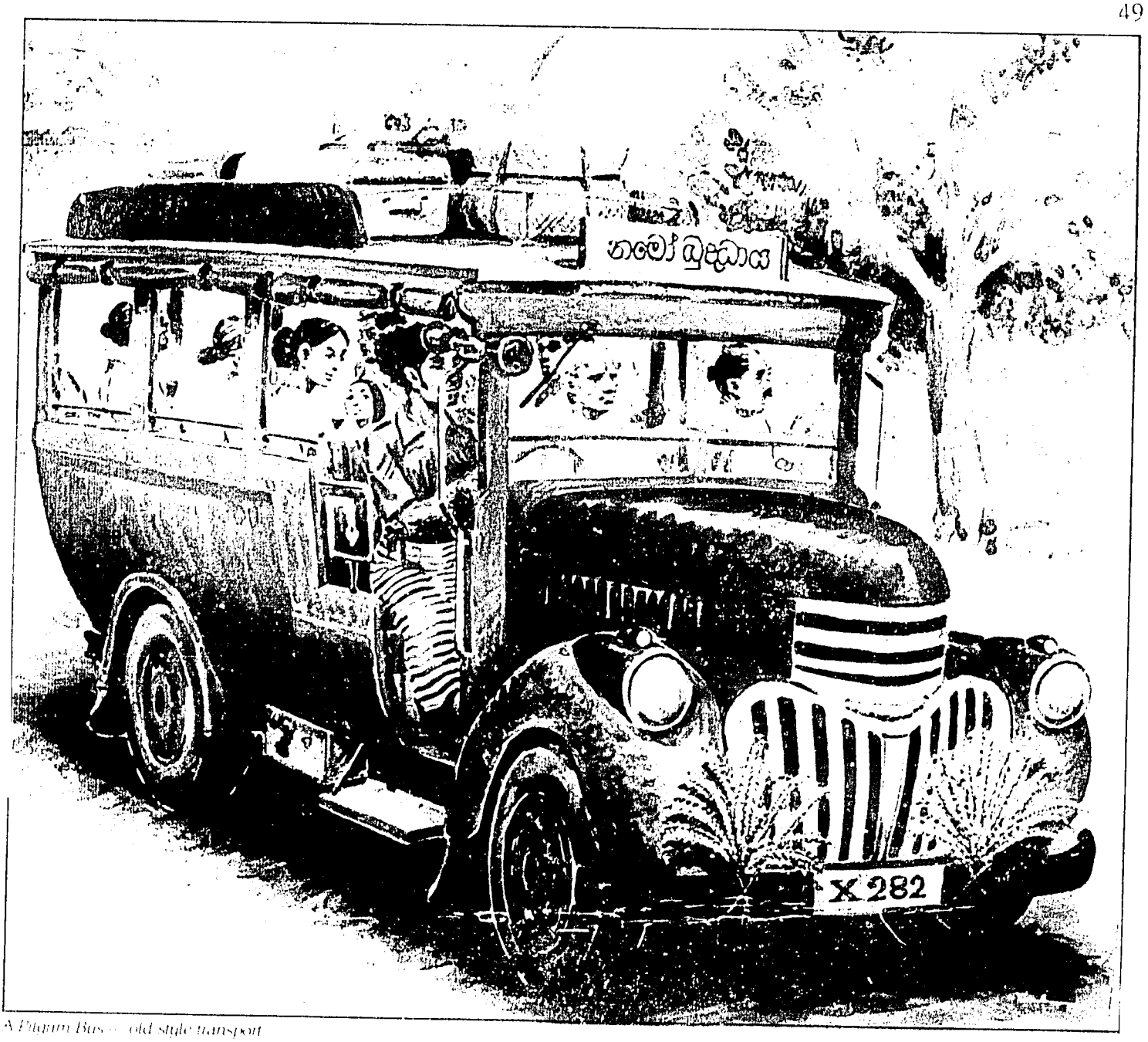
The folk play known as **Sokari** had its origins in the threshing floor.

Peasants who met at the threshing floor, used their leisure to sing, dance and act the story of **Sokari** a popular folk drama. Sokari is a young woman who came from India with a party of men on pilgrimage to this Island. The narrative was presented in such a way as to create laughter and pleasure. In some villages the play was staged consecutively for seven days, in honour of **Sat Pattini,** Goddess of Fertility, who had seven incarnations. At the end of the Sokari season, the peasants were richer in aesthetic sensibility, wiser in worldly judgement, and sounder in moral stature.

A community's attitude towards leisure also reflects the system of values that it has evolved over generations. In the Sinhala village, leisure was never conceived as a period of idling, when people would stand and stare, as it were. On the other hand, leisure was the time when they got actively involved in religious pursuits intended to bring about spiritual upliftment.

Pilgrimage, **vandana,** was the main medium by which the peasants sought to achieve this spiritual advancement. In between the two main harvesting seasons, **maha** and **yala** the peasants go on pilgrimage, **vandanave yanava,** visiting the many centres of holy worship scattered in the different parts of the Island. In the heart of the Mahaweli region is located one of the most sacred centres of Buddhist pilgrimage, the **Dalada Maligava,** Temple of the Sacred Tooth, in Kandy.

Villagers go on **vata vandana,** all-round pilgrimage, once a year, visiting the **atamastana,** Eight Holy Places, in Anuradhapura, and the **solos mastana,** Sixteen Holy Places, located in different parts of the country. The main means of



A Pilgrim Bus — old style transport

transport in olden days, was the **gaman karatte**, a load cart drawn by two bulls. While the women and the infirm travelled in these carts, men followed them on foot.

In the lorries and omnibuses that are used for pilgrimages today, villagers, irrespective of their social distances at home, sit together on an equal level.

There was never a dull moment in the party of pilgrims, for they always sang in chorus **vandana kavi**, pilgrim poetry. The singing was led by the leader of the party, the **nade gura**, who usually sang first, to be followed by the rest, in chorus. '**Tun Sarane**' Triple Refuges, '**Himagata Vamanava**', Description of the Peak, on which were left the Footprint of the Buddha, and **Kaelani Haella** Song of Kelani, are among some of the more favourite traditional poems sung while on pilgrimage.

Bōtali pābat nitara pudanta yi
Etali ran veta pahan labanta yi
Mavaeli ganga diyase labanta yi
Sivali tera men matu upadinta yi

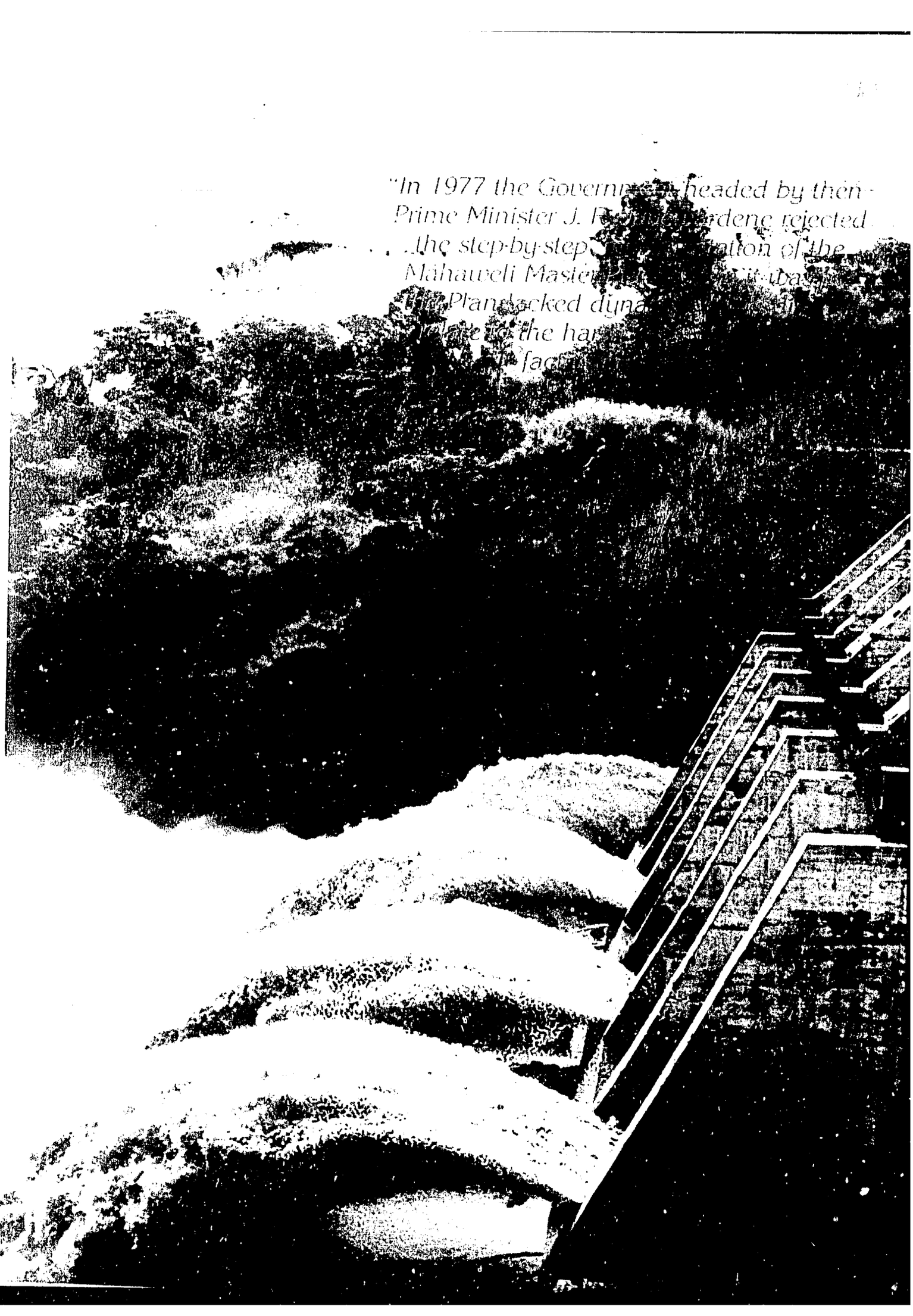
Freda translated this poem as it is told as:

May we get (in our future births) extremely palatable and wholesome food; and lamps with golden oil containers.

May our riches be as abundant and profuse as the waters of the Mahaweli and may our gains be as unbound as those of Arahat Seevali.

The pilgrimage thus develops new bonds of friendship and goodwill among the young, and stabilizes those of the elders, so that when they return to the village they are prepared, socially and psychologically, to face another cycle of agricultural activities.

Such were the ideals, values and attitudes of the traditional Sinhala village by the Mahaweli. In their new home in the Rajarata, the Mahaweli peasants will meet those of the purana villages, the inheritors of the ancient hydraulic civilization. Together they will lay bare the roots of the Sinhala ethos, thereby ushering in a new era in Sri Lankan history.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D. S. Senanayake and his son Dudley Senanayake, who became the Prime Minister after him, played key roles in the restoration of the ancient irrigation works and adding to them. The resources of the Mahaweli were always on their agenda.

The Mission of the Mahaweli

.Sri Lanka turned her back on the glories of the Rajarata civilization with the decline of the Polonnaruva regime. The seat of Government shifted to the hills and the Sinhala Kingdom eventually stabilised itself in the mountain fastnesses of Kandy, insulating itself from colonial invasions.

The stupendous irrigation works of the Rajarata kings fell into disuse and the jungle tide overran the handiwork of king, prince and plebeian. A matted forest canopy eventually hid the monumental monastic edifices of the Sinhala kings. Only the turrets of the dagobas defiantly stabbed the sky.

With Sri Lanka receiving a measure of Independence from the British Crown in 1931, Don Stephen Senanayake, who later became Independent Sri Lanka's first Prime Minister made it his life's mission as Minister of Agriculture and Lands to resurrect the ancient irrigation networks..... and the mighty Mahaweli came into focus again.

What could be regarded as a significant diversion of Mahaweli water resources in the modern era was completed in 1937 by D. S. Senanayake with the restoration of the ancient Elahera — Minneriya Yoda Ela to convey irrigation water from the Amban Ganga, a tributary of the Mahaweli, to the restored Minneriya reservoir.

The restoration of the Minipe anicut on the main stem of the Mahaweli was yet another important landmark in the modern period.

This was followed up by another diversion from the Mahaweli basin, when the Nalanda reservoir, on the Amban Ganga was impounded in 1957 and the water led into the Kala Oya basin via the Ebbawela cut, a work undertaken by Dudley Senanayake as Minister of Agriculture and Lands.

The task of leading the frontal attack on the Mahaweli basin for the multi-purpose use of its land and water resources was left, however to a son of the Ruhuna, Charles Percival de Silva — a Civil Servant who worked closely with both D. S. and Dudley Senanayake in the restoration of the ancient irrigation works in the North Central Province.

He was fired by the vision of the Senanayakes. It was, however, as Minister of Lands and Land Development from 1956 — 1959 and later from 1960 — 1965 as Minister of Lands, Irrigation and Power, that he had the groundwork prepared for harnessing the total resources of the Mahaweli for irrigation, hydro-power and flood control.

C. P. de Silva lamented that while recurrent droughts destroy crops of the Polonnaruva farmer, the Mahaweli rolled wastefully into the sea passing Polonnaruva town within sight. Obviously, the water resources of the Mahaweli had to be harnessed to obviate crop losses of the farmers of the Tamankaduwa and Nuwarakalaviya regions.

In about 1935, the then Minister of Agriculture, D. S. Senanayake, also witnessed this spectacle and he urged the Irrigation Department to find a way of diverting the Mahaweli waters for the benefit of the farmers in the Dry Zone. The concept of river diversion from the Wet Zone to the Dry Zone was seriously pursued. Although the idea of diversion appeared to present enormous difficulties, the thought fired the imagination and the enthusiasm of our engineers.

Investigations were set in motion culminating in a United States Oveseas Mission in 1959 being assigned the task of studying this along with Sri Lankan engineers. This study gave a definite indication of the feasibility of not only the diversion of the waters of the Mahaweli to

the Dry Zone but also the enormous agricultural and other benefits the country could derive from such a project. It also highlighted the possibility of hydro-power generation and flood control.

Later a Master Plan prepared by a UNDP-FAO team whilst confirming the availability of surplus water for diversion dealt comprehensively with soil, water, topography, crop rotation, farm size, settlement, organization and management of the project. It also included proposals for the design of dams and hydro power stations.

This Master Plan intimated the possibility of developing approximately 360,000 hectares of land using resources of the Mahaweli Ganga and its tributaries and the adjacent rivers.

The proposals made for this massive development programme, covered 40% of the entire area of the Island and 56% of the area of the Dry Zone. Implementation of the programme was phased out over a period of thirty years.

The Mahaweli Programme is the largest river basin development programme conceived in Sri Lanka. Indeed, it is the largest conceivable in this country.

Construction work on the first project in the Master Plan — the Polgolla Diversion, was inaugurated in February 1970, and was commissioned in January 1976.

With the completion of the Polgolla and Bowatenna complexes in early 1976, 52,800 hectares of existing paddy land in the Anuradhapura, Polonnaruva and Trincomalee districts were benefitted.

The development of 28,800 hectares of new land in the Kandalama and Kalawewa areas known as System 'H' was completed by 1984.

Over 23,000 farmer families have been settled in this area. Eight new townships, twenty six village centres and hamlets, have been developed to provide facilities for education, health, agriculture inputs, marketing, agriculture processing and consumer supplies.

In 1977 the Government headed by then Prime Minister J.R. Jayewardene rejected the step-by-step implementation of the Mahaweli Master Plan. It was felt the Plan lacked dynamism and did not relate to the harsh economic realities facing the country.

Over the past several years Sri Lanka had to import over 30 percent of her requirements of rice. Imports of wheat, sugar, dairy products and cotton additionally swallowed a sizeable part of her income. Obviously Sri Lanka had to save this outflow of money by rapid local production.

The thinking of the new administration in 1977 was that if the Mahaweli Programme, or at least its major components, were constructed simultaneously, import substitution alone could help solve most of the economic problems facing the country.

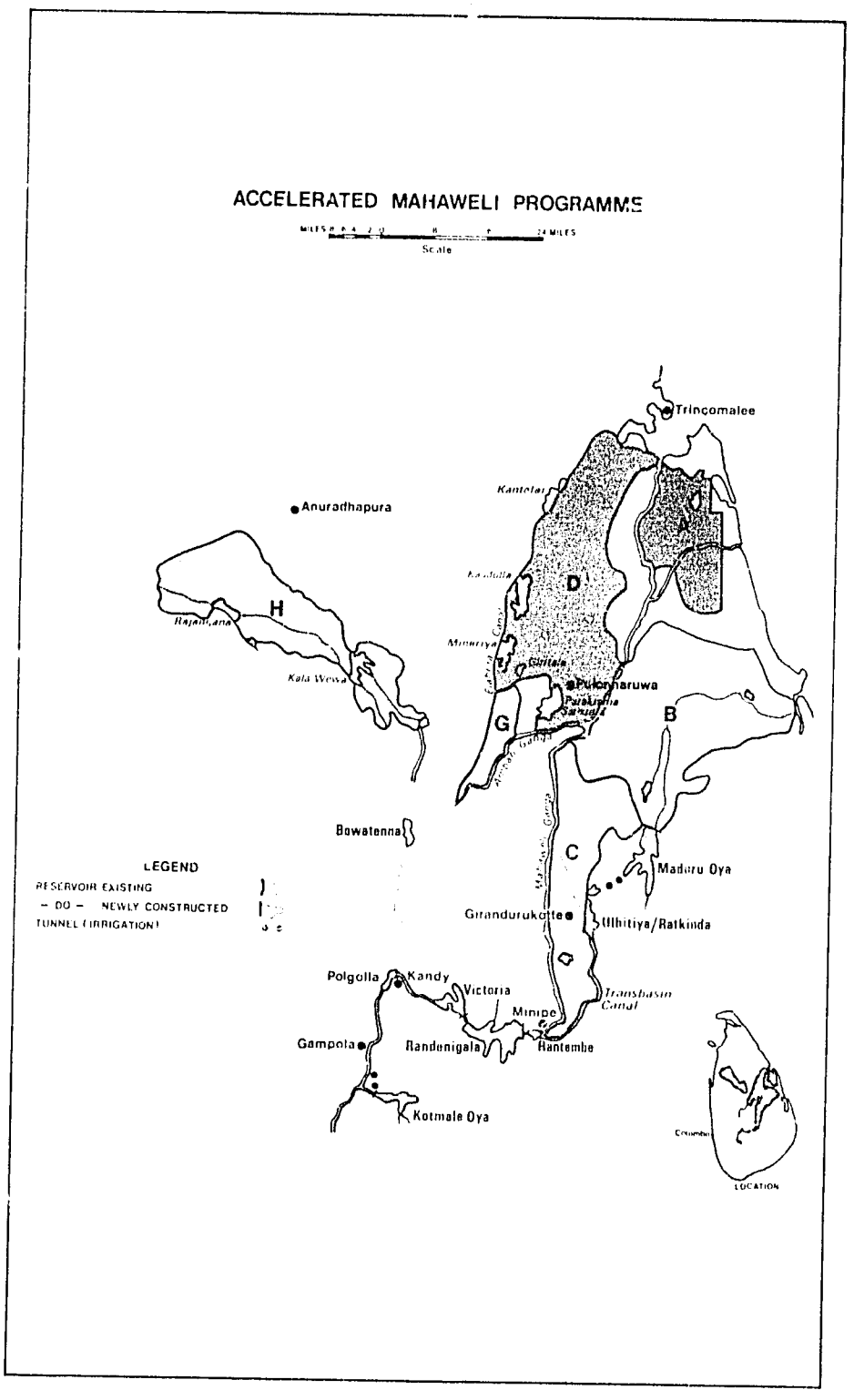
Among other factors which prompted the Government to adopt this strategy were the oil price increases and the resulting increased cost of oil-fired energy, spiralling inflation, as well as higher construction costs, a trend noticeable since 1972.

A further factor for consideration was the very high inflation prevailing throughout the world, a trend that was likely to continue. The longer the implementation of a project was delayed, the higher would be the eventual construction costs. It was in these circumstances that the Government in 1977 decided to accelerate the implementation of the Mahaweli Ganga Programme.

A separate Ministry, the Ministry of Mahaweli Development was established in 1978 with Gamini Dissanayake, Minister of Lands and Land Development, at its head to facilitate the smooth and speedy implementation of the development programme. A separate authority, the Mahaweli Authority of Sri Lanka was also created in 1979 to be in charge of all aspects of the programme. The organization responsible for the designs and supervision of the headworks is the Central Engineering Consultancy Bureau, assisted by Consultants for each of the headworks projects under construction or being designed. The Mahaweli Development Board, which earlier handled all aspects of development at all stages in the Polgolla and Bowatenna complexes, and was later in charge of designs and construction in downstream areas has made way for the Mahaweli Authority of Sri Lanka to be in overall charge of all activities.

Many countries were in agreement with the development strategy of the Government and readily responded to requests for assistance to finance the various headworks under the Mahaweli Project. They agreed to finance individual projects pending preparation of feasibility studies, designs and cost estimates which were also funded with technical assistance by them.

The Government of the United Kingdom agreed to finance the Victoria Project, the Government of Canada the Maduru Oya Reservoir Project, the Government of the Federal Republic of Germany the Randenigala Project and the Government of Sweden the Kotmale Project, while the Government of Japan indicated its willingness to support the Moragahakanda Project. The Government of the United States of America, Canada, Japan, Saudi Arabia, Kuwait, Australia and International Agencies agreed to finance the downstream development.



At 1981 prices, the total cost of the development of the projects included in the Accelerated Mahaweli Programme amounted to about Rs. 64,560 million.

Work in the multi-purpose projects was programmed on the basis of the irrigation requirements indicated in the NEDECO — a Consultancy agency from the Netherlands — study and the power requirements as forecast by the Ceylon Electricity Board. Thus the Maduru Oya, Kotmale and Victoria Projects together with the downstream work in System C and B became the main components of the Accelerated Programme of Mahaweli Development.

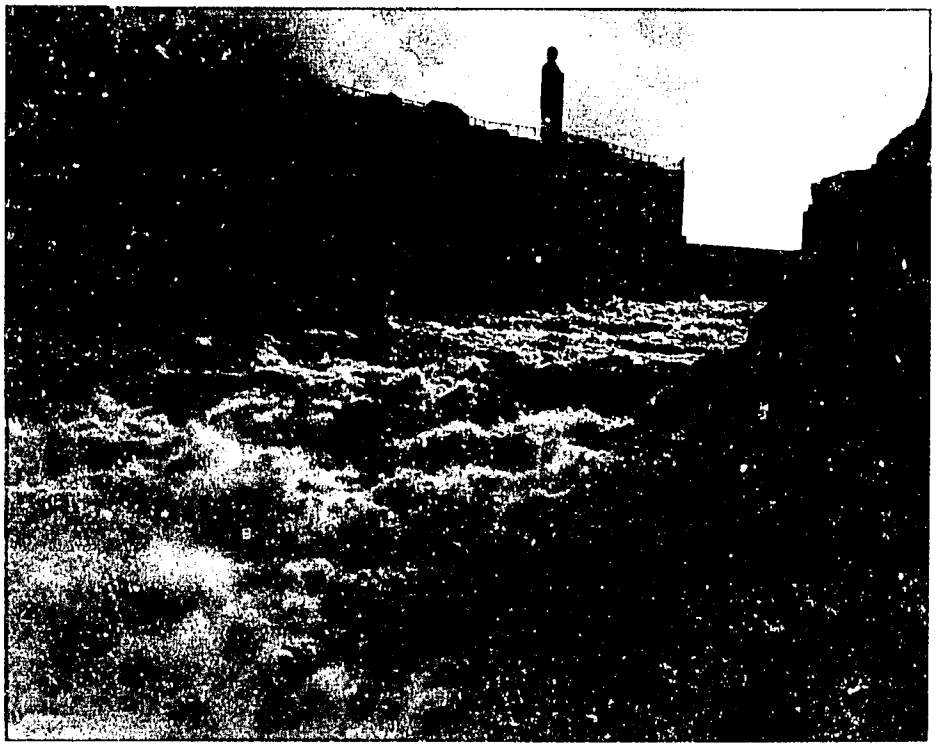
The Randenigala Project was subsequently included in the Accelerated Programme and construction began in November 1982, because its power potential was considered crucial for meeting the power shortfall forecast for 1986.

The first major project taken up for construction under the Accelerated Programme of Mahaweli Development was the Maduru Oya Project and fittingly, it was the first major reservoir to come on-stream under the Accelerated Programme. Construction work was ceremonially inaugurated on this Project on 14 June 1980.

All work on the project has been completed and water released to the downstream areas on July 2, 1983.

Work on the Victoria Project, described as the linch-pin of the Accelerated Programme, was inaugurated on March 23, 1980 and the impounding of the Victoria Reservoir on April 7, 1984.

The Victoria power station, will have an installed capacity of 210 MW and an annual generation potential of 780 million of KW hours. There is provision to double



The Victoria Dam — irrigation and power

the output by the construction of another power tunnel at a later stage.

Kotmale is very much in focus as a major worksite under the Accelerated Mahaweli Programme. The water impounded by the reservoir will be carried through a tunnel to an underground power station with an installed capacity of 134 MW. There is provision to provide for the installation of a third power unit of 67 MW capacity.

Construction work on the Kotmale Project was inaugurated on February 4, 1979. The Project is scheduled for commissioning in 1985.

The Randenigala complex consists of two dams, at Randenigala and Rantembe, in the final cascade of the Mahaweli.

Construction work on the Project was inaugurated on November 21, 1982. The Randenigala Project will have an installed capacity of 122 MW of hydropower. The Project is expected to be commissioned in mid 1986.

The 31 kilometres long Minipe trans-basin canal, the largest canal in Sri Lanka cutting through the right bank of the Mahaweli, had been completed and was inaugurated on April 21, 1984. This canal, a pivotal structure under the Accelerated Mahaweli Programme, will also be the first major canal in Sri Lanka to be concrete-lined along its entire length.

The regulated water releases from the major hydro-power projects on the Mahaweli at Victoria and Randenigala, will be picked up by the new Minipe anicut and diverted through this trans-basin canal for the development of new land on the right bank of Mahaweli, and in the Maduru Oya basin.

This trans-basin canal will convey Mahaweli waters to the Ulhitiya and Ratkinda reservoirs and then to the Maduru Oya reservoir via a link tunnel. The new anicut will also take over water issues to the existing left bank development area of about 6,650 hectares hitherto served by the ancient Minipe anicut.

The canal crosses four major tributaries of the Mahaweli. The first, Baduli Oya, is crossed by an aqueduct followed by a short tunnel, while the other three, Loggal Oya, Heppola Oya and Diyabana Oya are through major "level crossings", which form large detention reservoirs.

A concrete lined tunnel links the Ratkinda reservoir to the Maduru Oya reservoir.

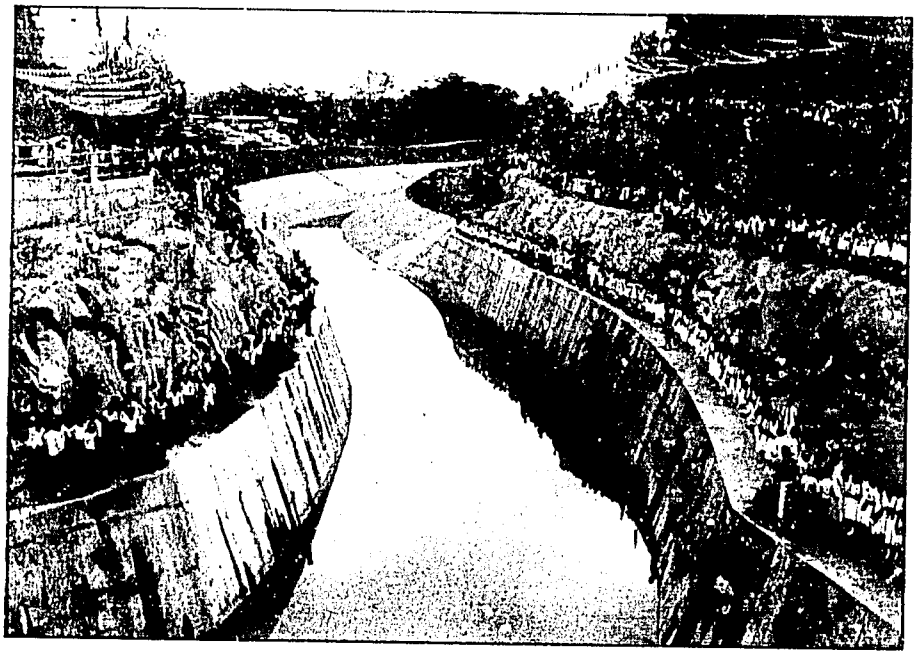
The development of Systems C and B in

His Excellency The President J. R. Jayewardene at the ceremony when the impounding of the Kotmale Reservoir was commenced in November 1984, at the invitation of the Hon. Gamini Dissanayake, Minister of Lands, Land Development and Mahaweli Development. From left to right — Mrs. Srima Dissanayake, Mrs. J. R. Jayewardene, the President and Mr. Dissanayake.

that order, will bring to the Bintenne, Tamankaduwa region, the rice bowl of ancient Sri Lanka, a greater prosperity than ever witnessed in the past. In these two systems a perennial water supply will be available for the cultivation of 65,000 hectares. Over 50,000 families, consisting of about 250,000 persons, will be settled on agricultural land and 100,000 persons will be found employment in agricultural support services.

Downstream development in System C is financed by the European Economic Community, the World Bank, Japan and Kuwait, and that in System B by USAID, Canada, Australia and Saudi Arabia.

The transformation that has taken place in System H is being repeated in Systems C and B, turning them into green pastures; the provision of electricity will be an added bonus for Sri Lanka's development effort.



Inauguration of the Minipe Right Bank Trans-basin canal.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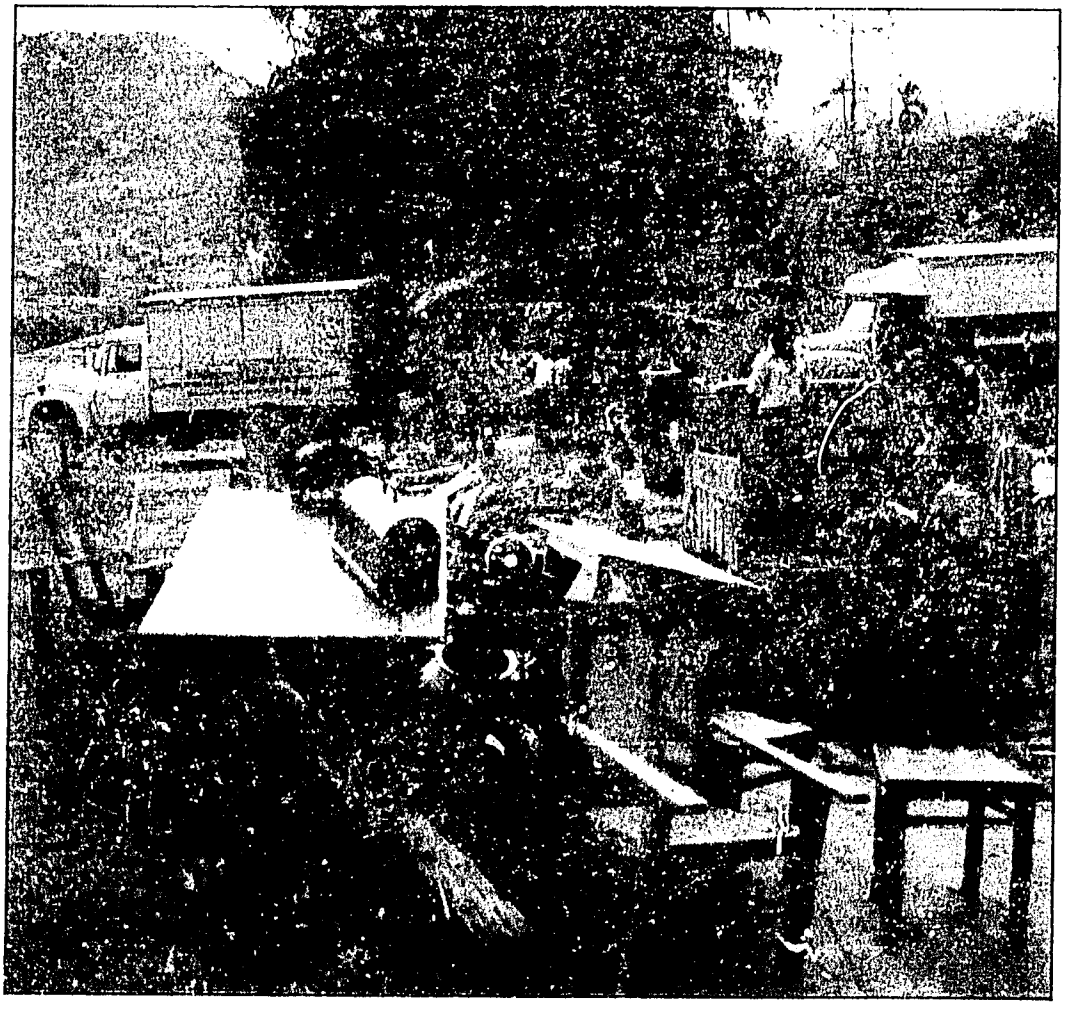
Beginning of migration — people of Teldeniya leaving their homes, now claimed by the Victoria waters



The Exodus

The Mahaweli Development Programme is not yet another engineering feat of our people. It is a programme of work which encompasses a massive shift of people, involving nearly one tenth of Sri Lanka's population. As in earlier settlement schemes the migration of people was largely a matter of individual choice. In the past, it was only the poor and often landless peasantry from the more congested parts of the Island who came in search of land. In the Mahaweli Programme, however, in addition to this type of settler, certain groups of people who had to sacrifice their land for a greater national cause are also entitled to land. Thus, it involves some of the biggest evacuation operations in the history of Sri Lanka. The dehoused from the Victoria and Kotmale reservoir areas had to abandon fertile lands occupied by them and their ancestors for generations. The story of these people is a saga as challenging as that of taming the river by the construction of colossal engineering structures.

The Victoria evacuation

The area affected by the Victoria Project spreads across five Assistant Government Agents' Divisions namely, Meda Dumbara, Kundasale, Uda Hewaheta, Patha Hewaheta and Mahanuwara Gangawata Korala, encompassing 283 villages, all located within the Kandy District.

Teldeniya is the major township affected by the submergence. Nearly 85% of the people who had to vacate their land are Sinhala Buddhists. The Muslims and Tamils, the two dominant minority groups in the area, accounted for the balance. In general, the great majority of the people affected by the Victoria Project were Kandyan Sinhalese (74%) who lived mostly in the villages and earned their living by agriculture. Over 60% of the affected people were young — below 25 years.

The majority of people who had to leave their ancestral homes are heirs to a rich cultural heritage. The Brahmi inscriptions found at ancient temples, such as Gonawatta and Bambaragala, indicate that this area had human settlements since the first century BC. The importance of this area had significantly increased with the establishment of the Kingdom of Kandy and the choice of Kundasale by King Narendrasinghe (1709—1779 AD) to locate the royal residence. The site of the Victoria Dam itself is not too far from the place where the last king of Kandy was captured by the British forces.

It was a searing traurna for those who had to be evacuated to leave the Dumbara valley, which had been their home for genertions. Most of the people evacuated from the Victoria area were resettled in System C.

The people of Kotmale

The evacuation of people from the area affected by the Kotmale reservoir formed the second largest shift of people under the Mahaweli Programme. Although the numbers involved in Kotmale were lower the people affected by the Kotmale reservoir had many characteristics in common with those evacuated from Victoria.

Some 66 villages and parts of 4 tea estates were affected by the Kotmale Project. The total number of families affected was found to be around 2691. The majority of these people (98.28%) were Sinhalese, Tamils and Muslims accounted for less than 2%. The total population affected was estimated to be

A new settlement in the Mahaweli development area

around 18,221, and over 68% of these people were living in the submerging area.

Nearly 60% of the people affected by the Kotmale Project were below the age of 25. The majority of the people affected (68%) by the project were engaged in Agriculture.

The people who left Kotmale were mostly settled in System H. In the process of shifting they have carried with them many aspects of their rich cultural heritage. King Dutugamunu, one of the greatest monarchs of Sri Lanka, who ruled the country from Anuradhapura spent his youth in Kotmale.

Those affected at Randenigala Project

After Kotmale and Victoria, Randenigala forms the third large reservoir in the Mahaweli cascade. Compared with the other two, the Randenigala reservoir covers an area of sparse settlements. These include villages such as Serasumtenna, Yonpane, Govatale, Kehelella, Ettanapitiya, Kimbulantota and Katupathwela. The total number of families affected by the project is estimated to be in the region of 600.

Inspite of the smaller number of families affected by the Project, the area to be submerged by the reservoir is of

considerable historical significance. The ancient route from Badulla to Kandy was located along the narrow valley of the Mahaweli Ganga. As indicated by village names such as Serasumtenna, this had been an area where exercises of the Sinhala infantry were held. According to folklore the warrior king Rajasinghe II, who was born in Mahiyangana around 1612 AD, has been closely associated with Randenigala and Rantembe.

The Mahaweli and the Purana villagers of Nuwara Kalaviya

In most parts of the downstream areas of the Mahaweli Project, particularly in the North Central regions of Nuwara Kalaviya and Tamankaduwa, there were many scattered traditional village settlements. These villages which retained the main symbols of traditional culture, namely the tank, dagoba and the rice fields, survived through centuries amidst many a catastrophe and calamity. When these villages were absorbed to the general settlement plan of the Mahaweli, many families had to shift their homes to new locations, creating much heartburn and nostalgia.

At the initial stages of land preparation under the Mahaweli Project many small village tanks were breached and the tankbed areas converted to paddy fields. Although this helped many villagers to have larger blocks of land in the vicinity of their old villages, it affected many aspects of their hydraulic culture, based on village tanks. Similarly, many traditional nucleated village settlements, called **Gangoda**, were dispersed when people had to leave for their new residential blocks. Thus many old villages were converted into a kind of 'ghost villages' after their evacuation

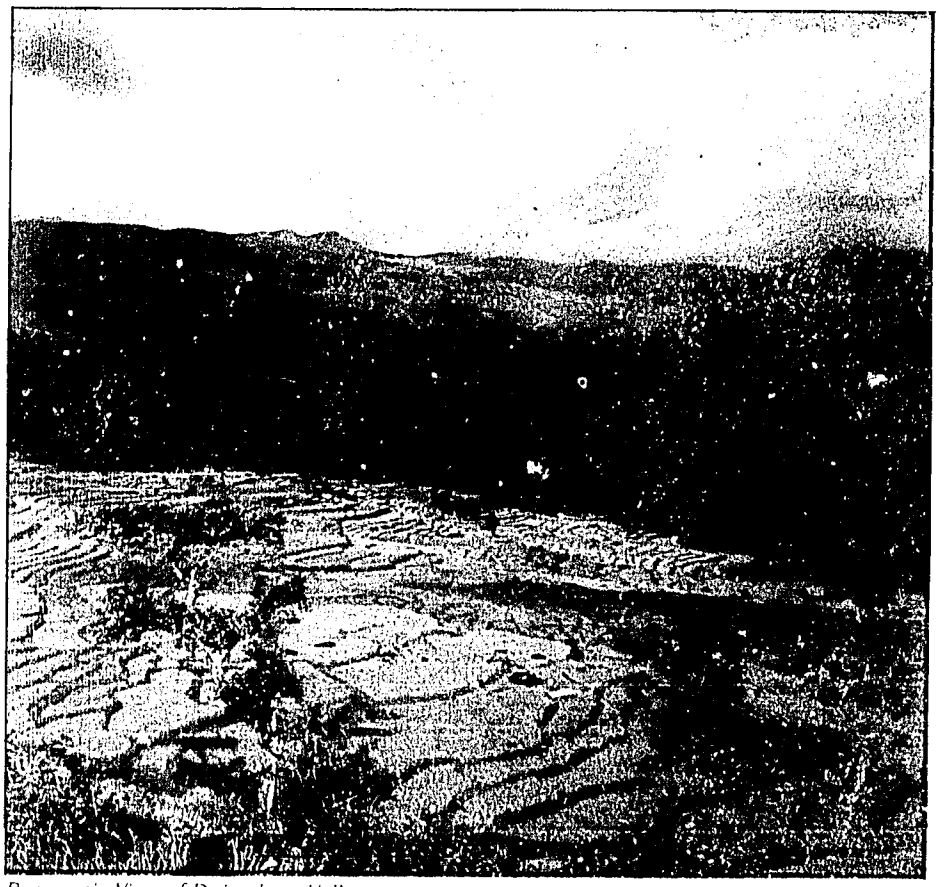
An old homestead in a "Purana" village. Note the paddy store "Vee Bissa" on the left.

The Sinhala Peasantry

The gam karayo or the purana villagers who held pride of place had to mingle with settlers who were 'outsiders'. Inspite of the earnest attempts made by the Mahaweli management, the fusion of these two groups was no easy task, but headway has been made. The purana villagers, who often shifted en bloc, had no problem in carrying with them their values, traditions, temples and their gods to the new settlements.

It is obvious therefore, that the great majority of the people affected by the Mahaweli project belong to the Sinhala peasantry of the hill country. This was the major group of people who resisted foreign invasions and staged resistance to the British rule after 1815. It was for this reason that the colonial administrators neglected these areas. To quote A.C. Lawrie:

> *"The story of English rule in the Kandyan country during 1817 and 1818 cannot be related without shame. In 1819 hardly a member of the leading families, the heads of the people, remained alive: those whom the sword and the gun had spared,*



Panoramic View of Duimabara Valley

*cholera and smallpox and privations had slain by hundreds. The subsequent efforts of Government to rule and assist its Kandyan subjects were, for very many years, only attempts begun and abandoned. Irrigation and education did not receive due attention. The descendants of the higher classes of the Kandyan times rapidly died out, the lower classes became ignorant and apathetic."**

The most devastating effect on the economy and social life of the Sinhala peasantry was brought about by the land policy of the colonial adminstration. The opening of large scale plantations after the Waste Land Ordinance of 1897 led to the impoverishment of the Sinhala peasant who had to surrender all land for which he could not produce documentary claims. When the Sinhala farmers showed reluctance to work as labourers in British plantations a large number of immigrant Indian labourers were brought by the colonial rulers from India.

The tragic outcome of these policies was the creation of a poverty-stricken landless peasantry in the central hill country. They were forced to live in inaccessible, remote villages surrounded by large tea and rubber plantations.

In order to remedy this historical injustice perpetuated on them by colonialism, the Government of Sri Lanka after Independence had to follow definitive rehabilitation policies. The establishment of the Kandyan Peasantry Rehabilitation Commission was one such effort.

The Mahaweli Development Programme is another avenue for providing relief to many landless peasant families from the

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Laurie's Gazeteer, P.203.

Kuthandi
— the itinerant Snake
Charmer and his daughter

hill country. The vast majority of the people rendered homeless due to the construction of reservoirs, canals and roads are also from these areas. Thus, it is to be expected that a considerable proportion of settlers in the new Mahaweli areas have their origins in the hill country villages. Although these people had initial problems in acclimatising to their new environment, they have quickly adjusted themselves, as for most of them, it is in fact a return to their original homeland. Their customs values and ideals were almost identical with those in the purana villages of the Dry Zone which formed part of the Kandyan kingdom. They however continue to maintain their kinship and social ties with their former villages in the hill country. Attachments that have developed through generations of living and working together, sharing the joys and sorrows of life, cannot easily be severed.

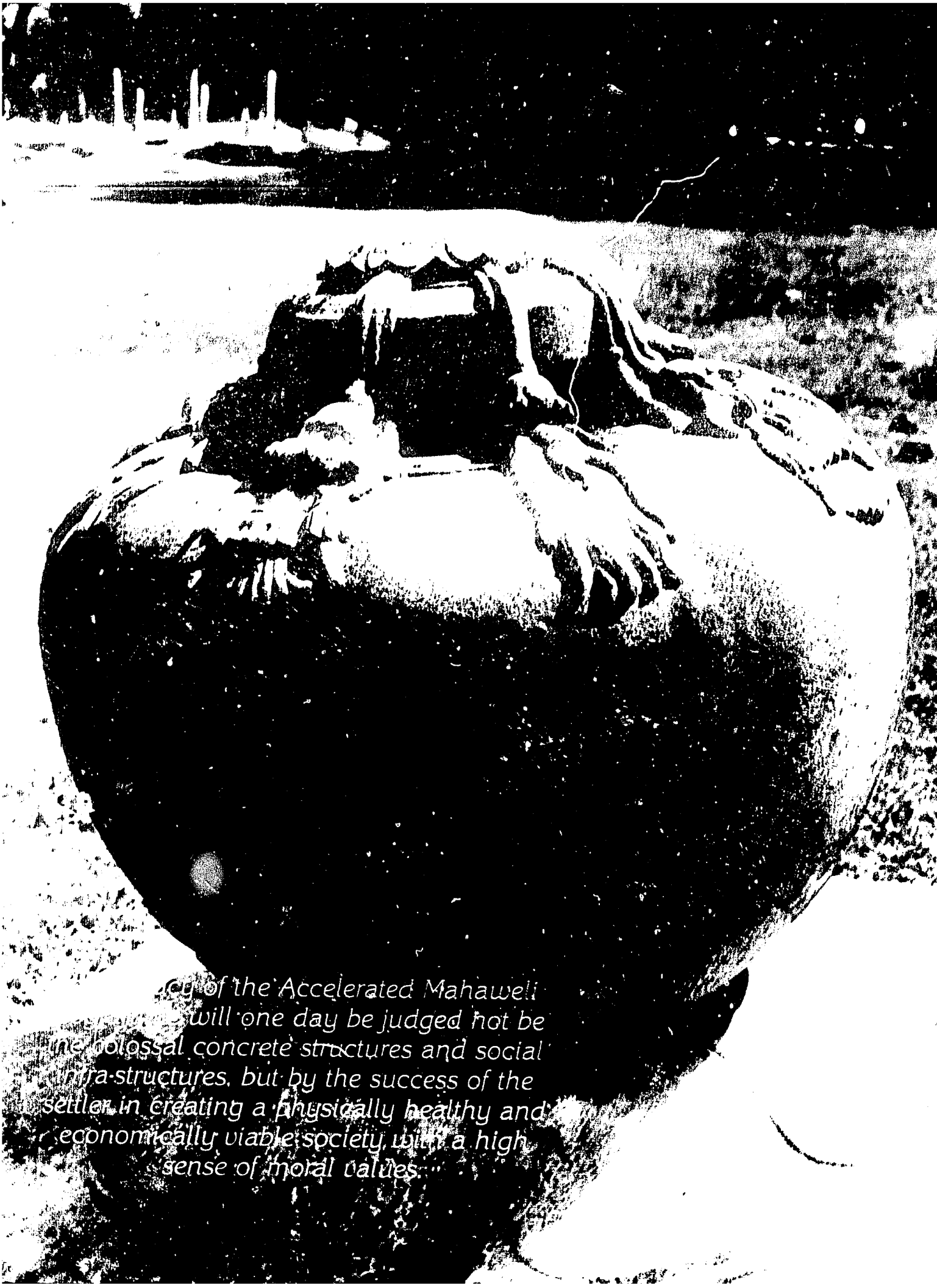
Other groups

Among the many groups of people who had to leave their traditional homes, the **Veddhas** have attracted a great deal of attention. The Veddhas are regarded as descendants of some of the early aboriginal inhabitants of Sri Lanka. Not only is the history of the Sinhalese, as a race, linked with that of the Veddhas, but also, there is evidence to suggest that Veddhas provided shelter to the Sinhalese and made common cause with them in times of turmoil. Although the term Veddha generally denotes a person who lives by killing 'animals' as Deraniyagala has indicated, this term also refers persons who live by fishing and bird hunting. There are a few places in and around the Mahaweli System C area where scattered Veddha settlements are still found. With the diminishing forest habitats and the spread of Sinhala culture the Veddhas in most other areas have been gradually absorbed to the mainstream of civilization.

The development of the Mahaweli areas downstream of Mahiyangana for agriculture and to set up forest and wild life sanctuaries necessitated the evacuation of Veddhas from some areas, like Dambana, which was their traditional home. These families were provided with land in Henanigala in System C.

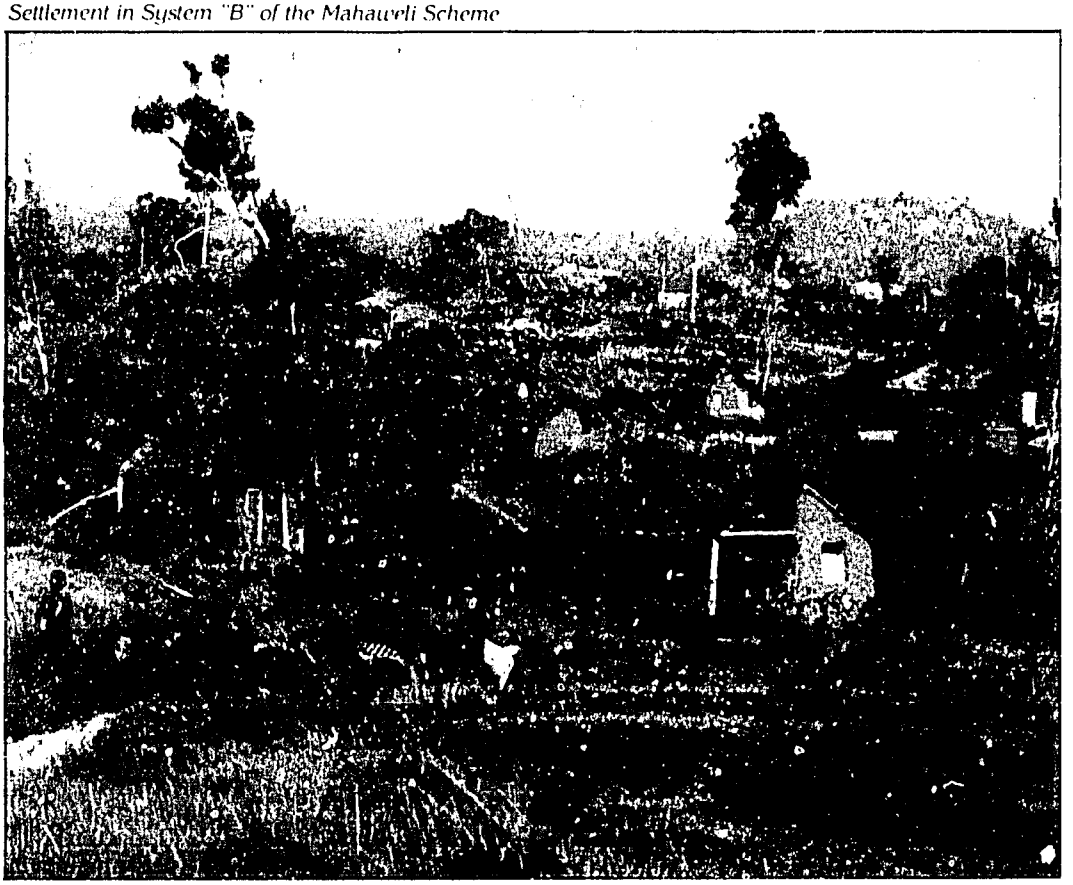
Another small category of people who will benefit by the Mahaweli Programme are Kuthandis, who are basically nomadic tribes that roamed in sparsely-populated areas of the Dry Zone. The Mahaweli Programme has provided these people with an opportunity to lead a sedentary pastoral life in Tambuttegama.

A ceremonial welcome by the Veddahs.



...cy of the Accelerated Mahaweli ... will one day be judged not be... ...colossal concrete structures and social ...ra-structures, but by the success of the settler in creating a physically healthy and economically viable society with a high sense of moral values.

Settlement in System "B" of the Mahaweli Scheme



Return to the land of kings

Set against the background of massive structures — the many large reservoirs, power houses, miles of tunnels, canals and trasmission lines — is a human drama in which the Mahaweli settler is the hero. The efficacy of the Accelerated Mahaweli Programme will one day be judged not by the colossal concrete structures and social infra-structures, but by the success of the settler in creating a physically healthy and economically viable society with a high sense of moral values.

The Accelerated Mahaweli Programme as envisaged will benefit some 150,000 families from agricultural resettlement. The spin-off from this settlement will throw up new avenues of employment in the Service sector benefiting an additional 150,000 persons. In human terms, the totality of the Programme will result in the exodus of over a million people into the new development area in the fertile plains of Rajarata from which our ancestors retreated in the 13th Century AD.

One of the primary objects of the programme is to resettle on farms "the poorest of the poor". Every endeavour is being made to build a new generation of self-reliant farmers who will not depend on the rest of society to assist them to maintain their livelihood. To make this task easy, a detailed programme has been drawn up and all facilities for its successful implementation are being provided.

What distinguishes the Mahaweli settlements from other large-scale irrigation and settlement projects is the greater attention paid to human and social welfare. Consequently, there is no history of dropouts in the Mahaweli settlements.

Special weightage has to be given to the landless people of the upcountry districts in order to set right a historical wrong perpetrated on them by colonialism, which deprived them of their land, favouring capitalist enterprise in the plantation industry. These people have a very definite claim on the new land.

Because a large proportion of the first settlers are from the hills — the last bastion of independence which nurtured our culture in the teeth of aggressive European influences — their translocation has to take into account and provide for their places of worship, which have been the wellsprings of their customs, rituals, arts and crafts, song and dance — all facets of a rich cultural heritage.

Although the settlers from the upcountry are from a culturally rich backgound, it would be idle to pretend that they would automatically transplant their culture to the culturally arid environment of the new settlements. The settelrs' initial period of adjustment, faced with the traumas of resettlement, is hardly the time or climate to engage in cultural or social activity. The Mahaweli Authority has taken upon itself the responsibility to ensure that the cultural milieu that existed in villages, is as far as possible replicated in the new settlements and to see that the golden thread of cultural continuity will not snap under the stress and strain of resettlement.

The initial period of resettlement is the most trying and physically arduous. These settlers have abandoned their established way of life and are bewildered and anxious in their new settlements. The natural hardships, the health hazards and the absence of social institutions, leaves these people frustrated and socially and culturally disorganized. In such a context a balanced approach to development and systematic planning and implementation becomes imperative.

Much emphasis is laid on the orientation of the prospective settlers. The primary objective of this orientation programme is

to prepare the settler for the pioneering role he is to play in this massive settlement programme. The settlers' participation in the development process and national effort to increase agricultural production is highlighted. He is warned of the limited facilities that would be available at the initial stages, the difficulties that he will have to undergo, and the mental and psychological problems he may have to face.

Settler difficulties can only be appreciated by individuals personally present in the settlement area, sharing the emotional and physical environment of the community. This role is fulfilled by the project staff, ranging from the Unit Manager to the Resident Project Manager stationed in the area. From the initial stages a sincere attempt is made by the Project Management to reduce, if not eliminate, the hardships and the causes that lead to frustration among the new settlers. Consequently, before commencing the actual operation of transporting the settlers, the immediate basic needs of these pioneers in the forward areas is looked into. When they arrive in the project area, ahead of the provision of irrigation facilities, they are expected to participate in the infrastructure development process itself, for which they are monetarily compensated.

The initial phase of the programme is managed by the Unit Managers who will, from that time onwards, continue to maintain very close contact with the settlers living with them and caring for them.

On arrival in the Project Area settlers are conducted to their respective locations by the Unit Mangers. Subsequently, settlers are provided with provisions under the World Food Programme and this continues for a maximum period of twelve months.

As much as social infrastructural facilities are important to build a cohesive society, maintaining the spiritual and cultural continuity cannot be ignored.

Fiercely proud of their ancestral villages, settlers from Kotmale and Victoria have made it a point to perpetuate their village names in the new settlement areas as in the case of **Tispanap ra** and **Kotmalegama** in System H and **Teldeniyaya** in System C.

The Mahaweli Authority of Sri Lanka makes a sincere attempt to foster the performing arts. **Sokari** — the ritualistic folk drama enacted on the threshing floor by farmers in many upcountry villages, has been introduced to the System H area by the Kotmale settlers.

Similarly the **Kohomba Kankariya** ritual was enacted in Mahiyangana during the ceremonial inauguration of construction work on the Randenigala Reservoir Project. **Kohomba Kankariya** is an ancient ritual now confined to the Kandyan areas.

With the settlement of people from Teldeniya, Kotmale and other Kandyan areas under the Mahaweli Scheme, the Mahaweli Authority has taken upon itself the responsibility of fostering the performing arts and crafts of these people. The Mahaweli Authority sponsored this performance of the Kankariya as an earnest of its intention to foster the performing arts.

The Mahaweli Authority is sensitive to the needs of the new settlers and attempts to ensure that the lifestyle of the settlers is not unduly disturbed, as for instance the Veddhas, who were evacuated from their traditional hunting grounds, and have been resettled in Henanigala, a relatively remote area in System C. As a gesture of goodwill and appreciation of their traditions, the Project Management provides all encouragement and assistance to the Veddhas to perform

annually the **Kiri Koraha ritual,** to pay homage to their dearly departed and to **Nae Yakku.**

The worker/settler programme is a new experiment that has been tried out in the new Mahaweli settlement areas, especially in Systems B and C. The advantages of this procedure, which was indeed a complete divergence from the earlier settlement process, were twofold. Firstly the settlers themselves were provided with an opporunity to participate in the development, work, such as canal and building construction, thereby inculcating in the settler a greater sense of identity with the project. They are then assisted to establish themselves into viable communtiy units, in anticipation of irrigation water in a short perid of time. Secondly, this process guarantees the availability of human resources in the new areas for construction work thereby avoiding a possible scarcity of labour.

Looking back at the operations of this new method of settlement procedure it must be said that it has been possible to achieve a greater intensity in the infrastructure development than ever before, and also build up initial enthusiasm among these pioneer settlers. This has helped in a great measure to create leadership and institutions ready to take over responsibilities in the following phase of development.

The worker/settler camps — a cluster of a few sixty feet by twenty-feet structures built of wattle and daub and thatched with cadjan or straw, minimised expenditure and were also ideally suited to local weather conditions. The settlers, supplied with equipment, implements and rnaterials, were engaged in the construction of distributory and field canals and roads, and paid on the basis of work completed.

The settlers who were brought into the project around June will be shown their homestead allotments by October/ November. Once the individual homesteads are identified, the settlers while devoting most of their time to canal construction work also attend to the construction of their dwellings and the preparation for a rain-fed cultivation.

Field Officer instructing cultivators on crop diseases

The farming families are settled in clustered hamlets with the object of stimulating greater harmony and social cohesion among themselves and for easy provision of amenities. This is a major departure from the previous system of settlements.

Thus the concept of functional integration within settlements is being followed in the Mahaweli areas. The clustered hamlets are located in proximity to the respective farmlands. Attempts are also made to keep settlers with similar backgrounds or from related localities together as far as possible.

The settlements are planned and set up in a hierarchical system. A hamlet centre, the lowest in the hierarchy, has a population of around 1500, and is provided with the basic service facilities. Village Centres, with a higher order of facilities are established to service a number of hamlet centres, and have a population of about 6000. At the next level, are the Block centres, with a population of around 10,000. A number of Block Centres come under the umbrella of a Township — the highest in the hierarchical arrangement of settlement centres.

In the Mahaweli Settlement Programme, attention is paid to the provision of basic social infrastructural facilities such as schools, hospitals, post-offices, police stations, banks and a good network of roads. From the planning stage of the social infrastructure, relevent Ministries and Departments are consulted and their views obtained, in order to ensure that Mahaweli facilities fall in line with the policies and strategies pursued on a nationwide basis. This serves to ensure that the new settlers are provided the basic facilities to develop and maintain a

Girandurukotte Town under construction.

New horizons — the school in Girandurukotte

healthy social and economic environment.

In an attempt to reduce the social and economic strain that the new settlers face on arrival, a comprehensive assistance programme is implemented. The programme begins with the provision of a cash advance and transport facilities to move the settlers' household goods to the new settlements. A housing grant of Rupees one thousand, provision of well-rings, concrete squatting-plates and cash allowances to build wells and lavatories, basic agricultural implements, seed and planting material for the first cultivation season, initial clearing and on-farm development of irrigable allotments the payment of the cost of fine levelling and the provision of food rations under the World Food Programme for a period of fifteen months, to a maximum of five members per family, are all part of this assistance programme. World Food Assistance both during the worker/settler phase and during the first year of settlement until the farmer reaps his first crop from his allotment, has in no little way helped to curtail the hardships faced by settlers during the initial period of settlement.

In order to make the best use of this assistance and to lay the foundation for the establishment of viable, self-reliant human settlements, a number of Community Development and promotional programmes are being implemented. The execution of this programme is in the hands of a dedicated, qualified and trained cadre of officers. The programmes are tailored to satisfy the identified needs of the settlers. Where and when necessary, the assistance of volunteers chosen from the settlers is effectively utilized.

With the development of the homesteads, the men are joined by their wives and children. This is one of the most trying and physically arduous phases in the settler's life. Through force of circumstances, the settler families have had to abandon their established way of life. For a while they are bewildered and anxious in their new surroudings. In addition to being located in an entirely new physical environment, the social and cultural diversity of the settler community, in particular the absence of the extended family and social institutions, so pivotal to village cilvilization, create a vaccum. Every institution — the temple, the school, the rural development society — which co-ordinated and nursed the economic and social life in the village, conducing to group cohesion and stability are absent in the initial stages of the new settlements. It is at this stage that the settler falls back on the community development effort for support and guidance.

The spartan environment, the exposure to agricultural activities under climatic conditions so different to what they were accustomed to and the clearing of jungles

pose health hazards. The lack of safe sources of drinking water increases the risk of hepatitis and cholera. Infants and very young children are especially vulnerable to these hazards and thus the incidence of diarrhoeal diseases is higher amongst this group. In addition to the inhospitable environment, the heavy involvement of both parents in agriculture and the lack of older family members results in the neglect of the young child. Such neglect can constrain the child's physical and mental development and lead to an inadequate preparation for the schooling phase, with consequent implications for future performance.

The Mahaweli Authority was from the very beginning alert to these hardships and the dearth of social institutions and did not leave their emergence to secular forces. The needs in health, nutritional and educational facilities and services were readily identified. Under the Accelerated Mahaweli programme, social development keeps pace with economic advancement. A balanced approach to development is being followed, with UNICEF and a mumber of other international Agencies such as UNFPA, EEC and the Red Cross, cooperating with the Mahaweli Authority to alleviate the problems and find tangible solutions.

The Project staff, living in the settlement area and sharing the emotional and physical environment of the community, appreciate the settlers' difficulties and always treat them with the sympathy and understanding they deserve.

Hamlet and sub-hamlet level institutions have been formed to enhance community cohesion and solidarity. These institutions would help to develop a new community identity in the Mahaweli villages.

As irrigation is one of the major inputs for productoin, sub-hamlet level organizations are built around the turnout gate — the exit point for water from the main irrigation system to the individual farm-lots. A turnout group sharing this one source of water, comprises approximately eight to twenty settlers. Farmer leaders from these groups are being trained in water management, agricultural extension, social welfare and communtiy development. The turnout leader becomes a member of the executive committee of the Unit-based Settler Development Association, which in fact is a combination of the Rural Development Society, the Community Development Society and the Water Management Society in each village. Thus, the production and the social aspects of the project are being integrated, one facet reinforcing the other, so that total settler-welfare is maximized.

Community participation in the identification of felt social needs and the planning, implementation, adaptation and evaluation of activities, are important facets in this exercise. A process of constant consultation and frequent review of the activities is effected, so that they continually reflect the priority needs of the community. In this way, flexibility is being retained so that changes in interventions expressly desired by the beneficiaries can be accommodated.

Planning and implementation is being geared so that the cornponents of the social service package can be delivered in an integrated fashion. In the case of UNICEF interventions for instance, improved water and sanitational facilities by helping to reduce diarrhoeal diseases enable an easier absorption of nutrients, and thus a more effective nutritional programme. Similarly, the health interventions, ranging from malaria control to the extended programme of immunization, build resistance to childhood infections, and help to reduce acute undernutrition. Improved health and nutritional standards enable the young child to perform better in school. Thus the different components reinforce one another, enhancing overall impact.

A Primary Health Care system has been developed. This system stresses the preventive rather than the curative aspects of good health and the use of low cost, locally-available and known resources and homebased therapies. By these means a framework is being established whereby improved standards of overall health can be sustained by the community itself, even after the withdrawal of external interventions. Health and nutrition education material is being developed and appropriate messages delivered through a number of channels. These Channels range from the Day Care Centre attendant, health volunteer and school teacher to the farmer leader, project official and local priest.

As part of the Primary Health Care Programme and in pursuit of the goal of the Child Survival and Development Revolution, Village Health Centres and Clinics are being strengthened and medical child health services expanded. There is a particular emphasis on reducing the incidence of neo-natal and post-neo-natal mortality. In this context more comprehensive coverage under the Extended Programme of Immunization is sought to safeguard the infant against disases such as smallpox, polio, diphtheria, whooping cough, typhoid and tetanus. Health volunteers keep up-to-date records of the immunization status of children and pregnant women in households under the volunteers' responsibility. They also ensure that a duplicate card of the immunization status of children and pregnant women is kept safely with the mothers, so that the latter are actively involved in this process.

Malnutrition is a priority problem of the area. In this context, growth monitoring

Milk distribution centres such as this ensure the healthy growth of children

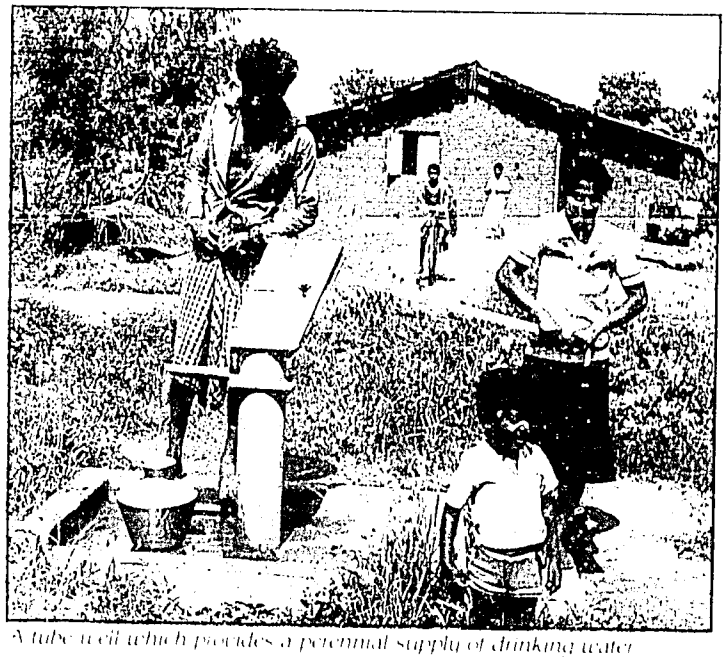
Volunteer Health workers meet at their health centre

The health volunteers are trained at Centres which are spatially well dispersed throughout the settlement area. They are also given fortnightly refresher courses, buttressed by practically oriented discussions of their experiences over the preceding period. The health educators who train the volunteers move from hamlet to hamlet reviewing the latter's work and assessing community needs. In this way, the health nutrition and training programmes are continually reviewed and refined to meet the needs of the settlers.

Health Clinics are conducted fortnightly with the assistance of doctors and other staff from the hospitals of the surrounding districts and also some medical specialists from Colombo, Kandy and Peradeniya who periodically volunteer their services. Thus diseases and health problems which are beyond the capacity of the health volunteers are effectively addressed. Health volunteers however remain an important link between the Clinics and the community by informing the latter of the clinic dates and directing individuals to them.

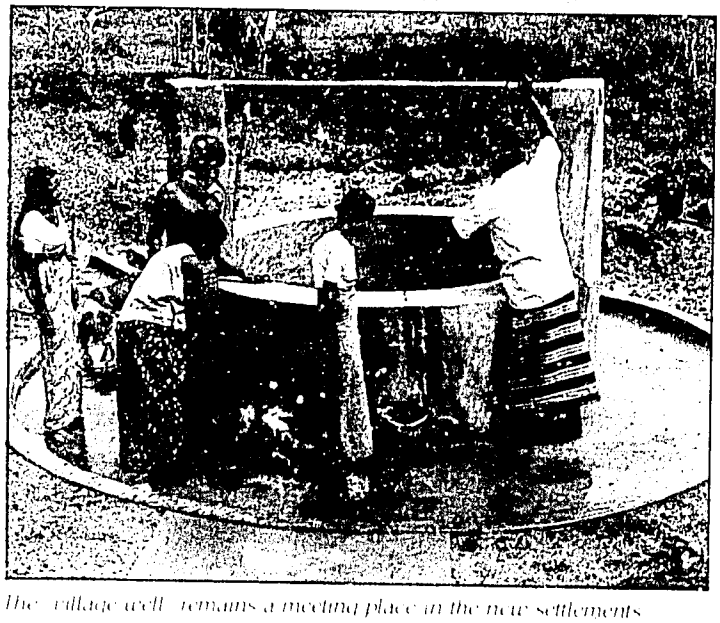
To further upgrade the Primary Health Care System built around the community based health volunteers, the Referral Health System is being strengthened. This is done with assistance from UNICEF and other donors in the form of

Health Education conducted at Mahaweli Health Centres such as this



A tube well which provides a perennial supply of drinking water

Vocational training activities are part of the Anti-Malaria Campaign



The 'village well' remains a meeting place in the new settlements

equipment, supplies and training facilities for para-medics.

Assistance is also given to the development of safe drinking water facilities and the improvement of environmental sanitation. This is effected through the construction of covered shallow wells with hand pumps, one for every six households, and drilled deep wells with hand pumps, two for every hamlet, as well as small piped-water schemes, as and where feasible. The mix of technologies is continuously revised, based on past experiences and changes in the aquifer following prolonged drought and hydrogeological alterations. drought and hydrogeological alterations. There is a gradual shift from shallow wells to deep wells, as the latter have proven more reliable sources of drinking water, provided proper maintenance is assured.

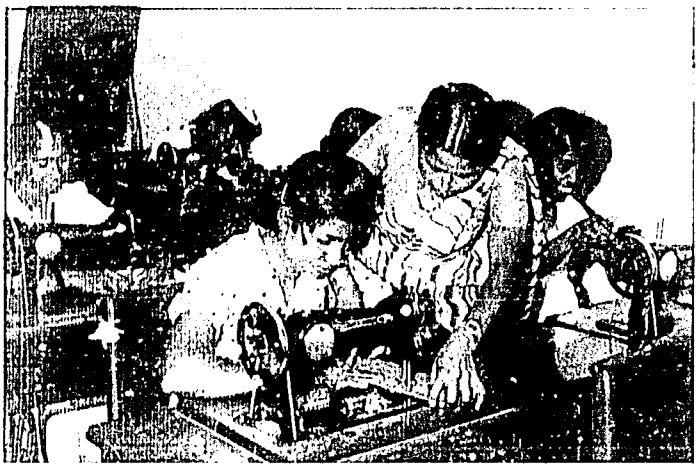
Such maintenance seeks the active involvement of the community, with technical support rendered by UNICEF and the Government of Sri Lanka. Assistance is also rendered in the construction of sanitary latrines and the education of the community regarding hygiene.

Educational and child care facilities and services are being upgraded. In this context, as a large proportion of the settler families have very young children, special emphasis is given to the pre-school and primary school child. Learning materials are developed for both groups and teachers trained and retrained through regular refresher courses. Child Care Services have been provided by setting up Day Care Centres and the training of Day Care workers. Education of the child in hygiene reinforces the education given to the parents by the health volunteers. Thus, the different interventions reinforce one another, in raising overall health standards.

Provision has also been made for the early diagnosis of childhood disabilities. Records are compiled on their prevalence and programmes supported by the Government extended to the area to mitigate them.

Mahaweli youths are trained in tailoring, masonry and carpentry and trainees are assisted to set up their own production outfits.

Under the agricultural extension programme farmers are trained in the growing of crops and the identification



and control of crop diseases. The Mahaweli areas have already recorded one of the highest yields in paddy in the Island. Thus, the Mahaweli farmer has proved that given the necessary incentives he can easily produce a surplus.

Young girls are encouraged to participate in social and economic activities through the Home Development Centres, set up primarily to cater to the needs of women and children. The Home Development Centres have been organised with very firm objectives — to build the Mahaweli settlements on a firm social foundation rooted in our traditions and culture through the influence of woman as mother, wife, daughter and citizen. The Home Development Centre helps to improve the social sectors such as home development, health care and sanitation, child care and nutrition, and offer opportunities to Mahaweli women to develop their skills and talents and to emerge as women leaders. A curriculum consisting of four core courses has been set up. The study of national traditions and customs is emphasized focussing on the different ethnic groups, their customs and manners, dress, language, folklore, religion and culture and the responsibilities of the Mahaweli woman to her community and the nation.

The trainees are also taught a variety of other subjects ranging from home economics where the importance of a balanced diet, pre and post natal child growth, food purchasing and budgeting, food preservation, personal hygiene and home management.

Health and sanitation, childhood diseases, common intestinal and external parasites of man, water borne diseases, care of the sick and the old and simple home cures and how they work are discussed.

Home gardening and cattle rearing skills development, with emphasis on needlecraft and handicrafts, and community development are also covered in the curriculum offered by the Home Development Centres.

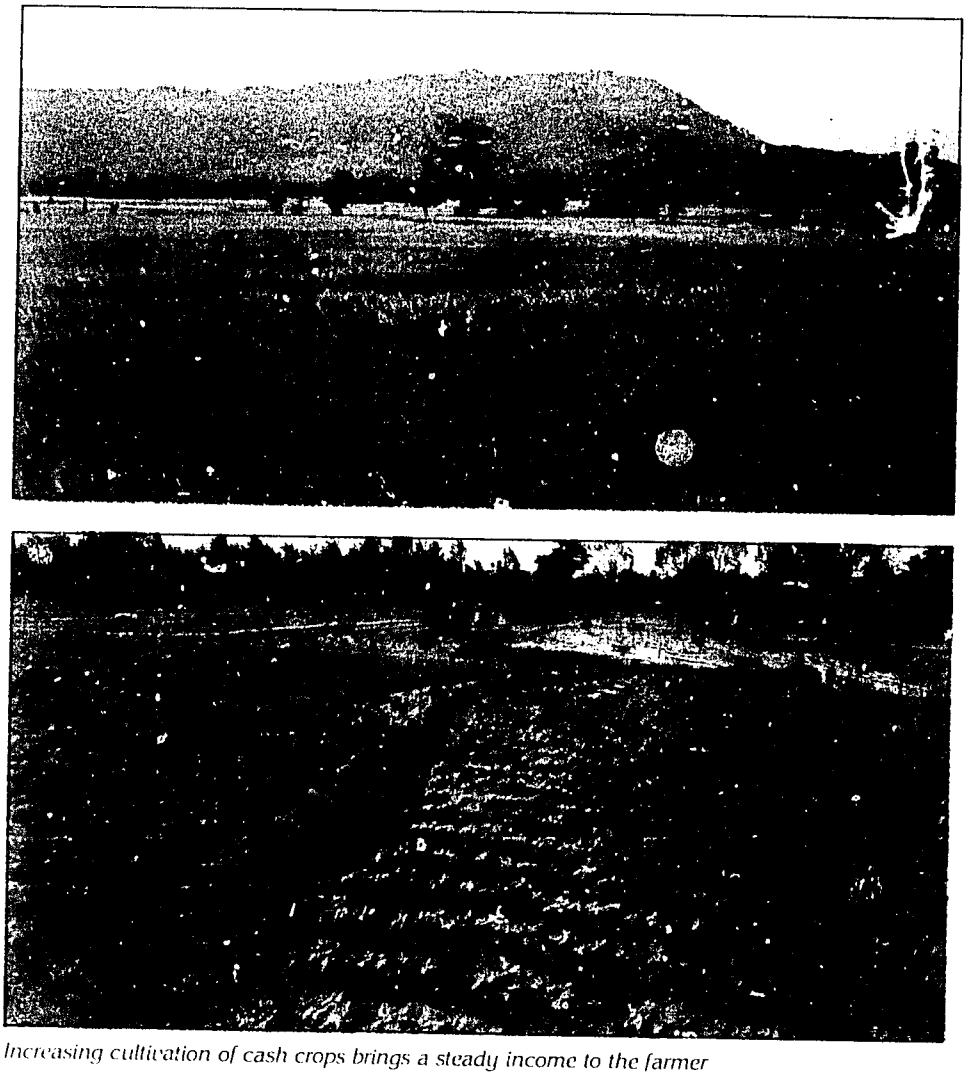
The girls trained are able to use their knowledge and skills for the benefit of their own households and the rest of the community. Training seeks to enhance their capacity to be good mothers and useful members of society appreciative of the nation's cultural heritage.

Sports, religious and cultural activities form a regular feature in the Mahaweli Community Development Programme.

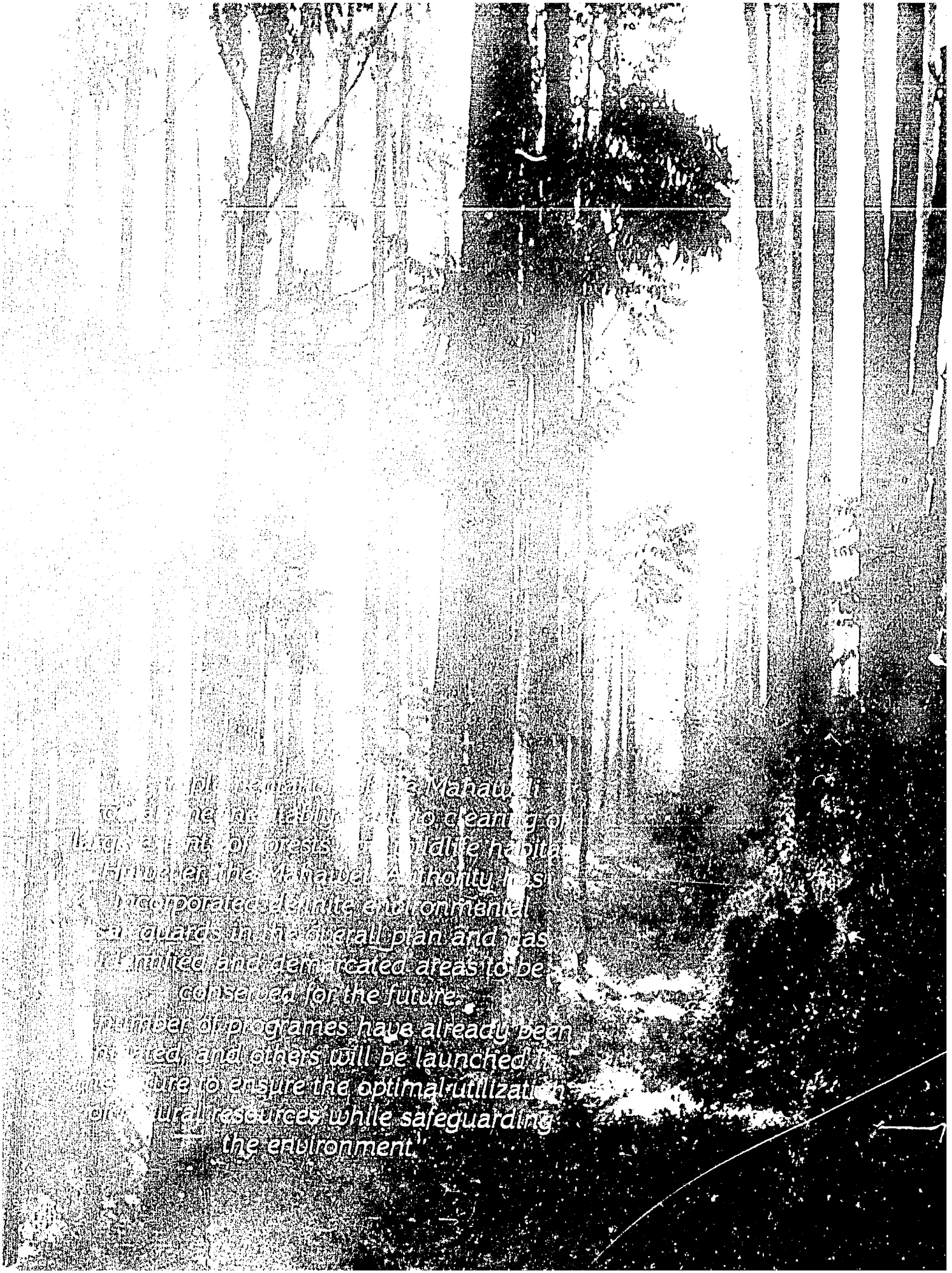
In all these activities the community is and was constantly consulted on its felt needs, and interventions appropriately tailored to suit these. Child Care Services for instance were expressly desired by settler parents to allow them greater time to devote to agriculture, and their older children, to education, whilst safeguarding the mental and physical well being of the younger progeny. The shift from shallow wells to deep wells and the adaptation of Day Care Centres as Pre-Schools and forums for women's activities were made after the community expressed a desire for this.

Community participation is also actively sought. For instance, Day Care Centres are sited after consultation with the settler residents, so as to maximize overall accessibility. Again, the construction of these Centres, the siting and digging of wells and latrines and the laying of roads, is effected with community labour. The maintenance of hand pumps and the distribution of irrigation water also involves community participation. Parent-teacher and Parent-Day Care Centre Attendant Associations involve the community in the education of children and are designed to help reduce dropout and repeater rates.

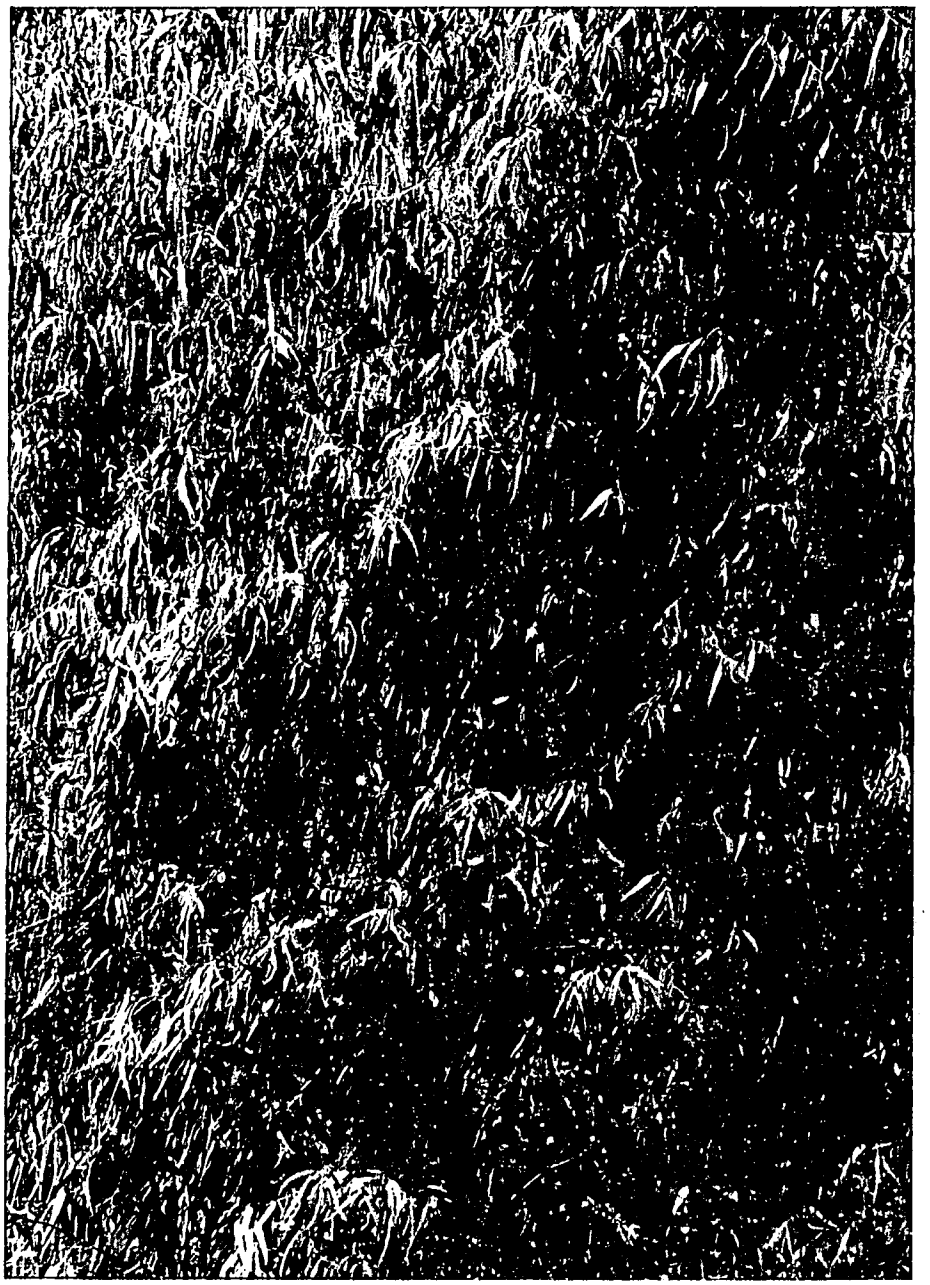
The new approach which seeks to integrate economic and social development is helping to create a new, independent, and self-sustaining society. Groups of people from all parts of the island are brought to the land of their forefathers and afforded opportunities to realise the dreams of their kings. The fears and apprehensions entertained by the early settlers are being rapidly dissipated. Nonetheless, the struggle has only just begun, and much remains to be done before the Mahaweli Vision



Increasing cultivation of cash crops brings a steady income to the farmer



Eucalyptus — part of the extensive re-afforestation scheme



Development without Destruction

The Mahaweli Project involves the construction of large reservoirs and the trans-basin diversion of water, the development of year-round irrigated agriculture and the settlement of people in areas presently under forest. The Mahaweli development programme thus leads to a modification of the physical environment. This interference with Nature disturbs the ecological balance and could produce both highly beneficial and dangerously harmful effects.

The Mahaweli Authority recognizing these problems sponsored a series of studies to identify possible detrimental effects on the environment. The initial assessments however, were in the individual feasibility studies on downstream irrigation systems. These studies highlighted major environmental issues relevant to each irrigation system. In order to overcome this shortcoming the Mahaweli Authority with the assistance of the United States of America Agency for International Development (USAID), commissioned Messrs. Tippetts-Abbett-McCarthy-Stratton (TAMS) of the USA to undertake a comprehensive environmental impact assessment of the Accelerated Mahaveli project.

The TAMS Report analyses in detail the effect of the Accelerated Mahaweli Programme on the terrestrial aquatic and human environments. Both the cumulative environmental impact common to all irrigation systems and project impacts in downstream areas as well as the upstream Mahaweli watershed were assessed.

The report focusses attention on methods of minimizing the detrimental impact and enhancing beneficial aspects of the project while stressing the need for effective management of the natural resource.

On the basis of these findings the Mahaweli Authority produced an ENVIRONMENTAL PLAN OF ACTION with the object of ameliorating potential environmental problems in the Mahaweli areas. Its implementation is in the hands of a Technical Committee on the Environment set up by the Mahaweli Authority and includes representatives from various governmental and non-governmental agencies connected with environmental conservation.

The implementation of the Mahaweli Programme inevitably leads to clearing of large extents of forests and wildlife habitat. However the Mahaweli Authority has incorporated definite environmental safeguards in the overall plan and has identified and demarcated areas to be conserved for the future.

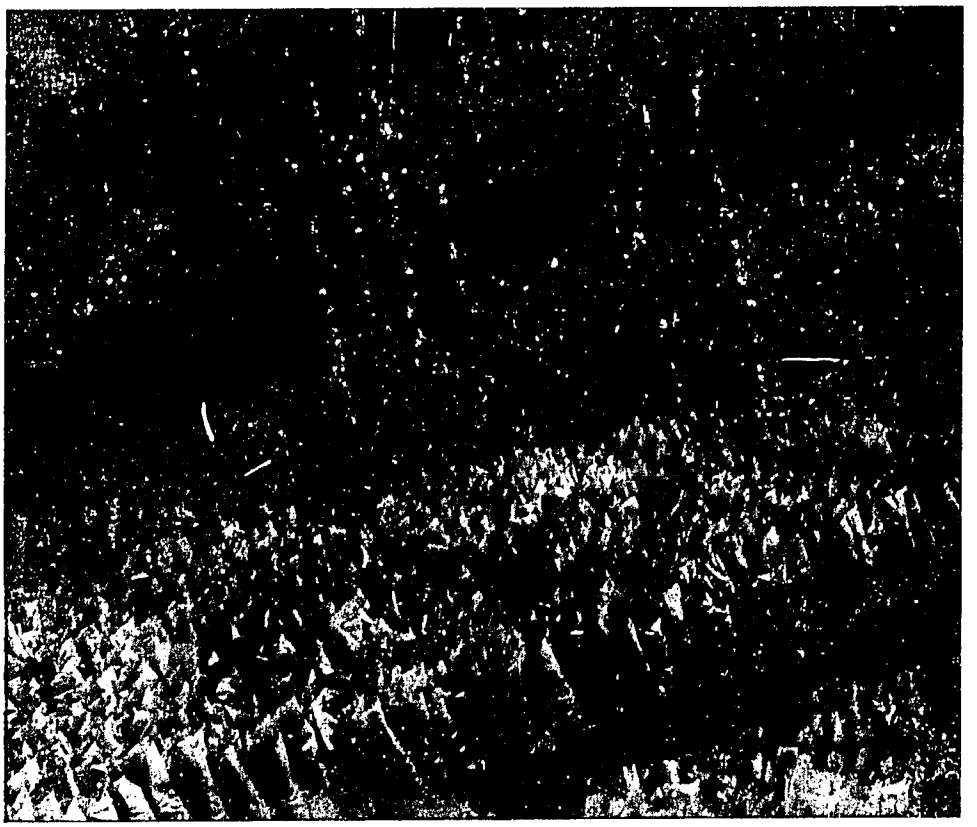
A number of programmes have already been initiated, and others will be launched in the future to ensure the optimal utilization of natural resources while safeguarding the environment.

Management of Catchment Areas

The upper catchment of the Mahaweli is the principal source of water for the numerous hydropower and irrigation schemes.

It displays a variety of land forms and covers a number of agro-ecological zones. The dominant feature affecting run off and erosion however, is the very steep and mountainous terrain. Although soil erosion in the upper catchment could be regarded as moderate, in some areas it is severe.

A concerted programme for re-afforestation of the Mahaweli upper catchment has therefore been launched. The Mahaweli Authority, Forest Department, State Plantations, villagers



Nursery for re-afforestation

and voluntary organizations share the responsibility of implementing this programme.

In the Victoria catchment area reforestation of 1,200 acres has already been accomplished in critical conservation areas. Plans are also being finalized for the other reservoir catchments as well. A major part of the upper Mahaweli watershed will be reforested by the Forest Department under an USAID funded programme.

The present focus is on implementing soil conservation measures in the catchments and for this purpose an integrated development plan is being formulated. Bordering the waterlines of reservoirs, a belt of vegetation is being established to protect the reservoirs. No construction activity will be permitted in the immediate vicinity of any reservoir.

Wildlife Conservation

The Accelerated Mahaweli Programme has been so planned that all reasonable means are taken to conserve the rich and varied wildlife of the development areas. Large and contiguous tracts of land have been reserved in perpetuity for the preservation of wildlife in the area. A total of 190,000 hectares of protected areas are being developed as four national parks. This far exceeds the total extent of new and improved agricultural land to be developed under the Accelerated Programme.

A system has been designed giving high priority to upgrading and establishing protected areas in the prime wildlife habitats, the catchments of reservoirs, and along the major river banks of the project area. The existing Somawathiya Sanctuary is being expanded to cover 52,000 hectares and upgraded to national park status. Similarly, the Wasgomuwa strict natural reserve is being extended northwards to the confluence of the Amban Ganga and to the west to link with the Hurulu forests to cover an area of 76,000 hectares and is to be made a national park. Two other major new protected areas are the Maduru Oya National Park (50,000 ha.) and the Floodplain National Park (20,000 ha.). In addition, the establishment of a 200 metre reservation along all major rivers and streams will ensure the stabilization of the banks that protect important riverine habitats. Such a step is essential for the survival of many endangered and endemic species of fauna and flora. The parks are as much as possible inter-linked by forest reserves and jungle corridors. These will confer maximum ecological and genetic resilience on the system as well as safeguard the routes taken by elephants for wet season feeding and dry season watering. Each park, is being bordered by buffer zones, and will benefit people living in the surrounding areas and also prevent conflicts between humans and wildlife.

Small herd of elephants, with baby, protected in the Mahaweli Sancturies

Leopard in its own habitat

Aquatic Environment

The benefits of the present environmental programme are many. It will protect watersheds, reduce sedimentation, control floods, create employment opportunities, promote tourism and preserve ecological processes and the genetic diversity.

Storage, regulation and subsequent

transfer of Mahaweli waters for irrigation will lead to a series of consequences. The reduced flows of the Mahaweli will have a significant impact on the floodplain marshes. Flood waters of the Mahaweli seasonally revitalize these marshes or villus. Reduced flows will decrease the duration and magnitude of the flooding and thereby decrease their productive value, and hence affect the grazing potential of these marshes. The creation of the Floodplain National Park should provide a mechanism to protect these marshy areas from over-grazing and degradation.

An additional concern is in regard to the possible alteration of water quality in both groundwater and surface water, resulting from the substantial increase in the use of agro-chemicals on the Mahaweli farmlands. The possible elevation of the groundwater table may have an effect on soil salinization.

In this connection a programme has been launched to obtain background data on present water quality conditions and pesticide levels in the project areas. This will enable subsequent monitoring to identify potential problem areas as the Accelerated Mahaweli Programme proceeds. It is designed to evaluate the quality of surface and ground water for use in irrigation supplies, domestic supplies, the protection of aquatic life and for livestock consumption.

Basic Energy Needs

Although the major impact of the clearing of forest areas will be on wildlife, its effect on the energy resources of the rural population is significant. In a country where about 90 per cent of the population use fuelwood for domestic purposes, especially for cooking, the necessity to provide energy for this purpose cannot be ignored.

At the present rate of the use of firewood and population growth, there will be no fuelwood for domestic use by about the turn of this century, unless reforestation on a large scale is undertaken for fuelwood purposes.

The failure to implement such a programme would invariably imperil existing forest cover, jeopardising the environment and putting out of gear the irrigation structures, including the massive Mahaweli Programme on which Sri Lanka is making heavy investments.

Special precautions are being taken to prevent the indiscriminate felling of forests and wastage of forest resources. Clearing of forests has been restricted to areas where it is absolutely essential. The homesteads allocated to prospective Mahaweli settlers remain wooded at the time of handing over, so as to avoid complete removal of the forest cover. In contrast, total clearing prior to settlement was advocated in the earlier settlement projects.

In a massive project like the Mahaweli, long-term programmes to cater to the energy needs of settlers are imperative. For this purpose large tracts of land have been set apart close to settlement centres. These areas are to be developed as fuelwood and utility timber plantation, to meet the demands of the settlers and reforestation for such purposes has already commenced.

The Veddha Community

The land of Bintenne to the south-east of Kandy was once a mighty forest with an abundance of wildlife. Veddhas, the earliest aboriginal inhabitants in the country, made this land their home. To the Veddhas the jungles near Dambana provided the traditional hunting ground. The implementation of the Mahweli Project has resulted in most of the adjoining areas set apart for reserves, being cleared for development.

With the civilization ingress, the Veddhas have realized that their primitive life styles

cannot survive much longer. Faced with a similar predicament the Red Indian Chief, Seattle responding to a demand to sell his peoples' land said, some hundred years ago.

> *We will consider your offer. For we know that if we do not sell, the white man may come with guns and take our land. How can you buy or sell the sky or the warmth of the land? But the idea is strange to us. If we do not own the freshness of the air and the sparkle of the water how can you buy them? Every part of this earth is sacred to my people. Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing and humming insect is holy in the memory and experience of my people. The sap which courses through the trees carries the memories of the red man. The white man's dead forget the country of their birth when they go to walk among the stars. Our dead never forget this beautiful earth, for it is the mother of the red man. We are part of the earth and it is part of us. The perfumed flowers are our sisters; the deer, the horse, the great eagle, these are our brothers. The rocky crests, the juices in the meadows, the body heat of pony and man — all belong to the same family.**

The Veddhas who have been asked to vacate their traditional homeland undoubtedly felt very much like the Red Indian Chief.

The decision to move to a new settlement area was therefore, a difficult one for the Veddha, but it was a decision that had to be taken. Veddha families from the villages of Kandeganwila, Kotabakina and Keragoda have shifted to Henanigala, the new settlement area set apart for them as Mahaweli settlers. In the case of the Dambana Veddhas, however, it was a majority decision to take this decisive step.

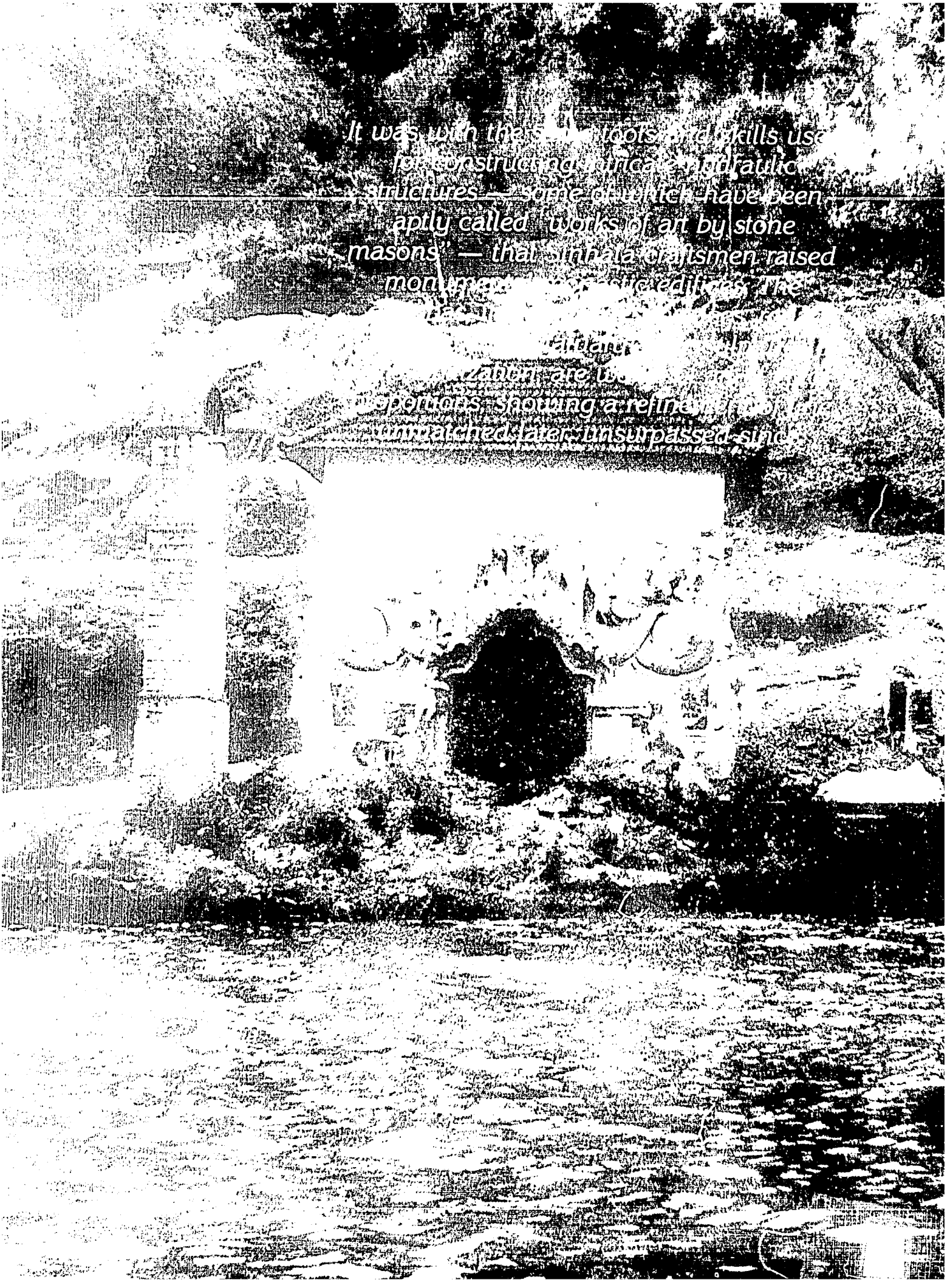
* *Mahaweli Newsletter, February 1981 as quoted from UNEP Publication.*

Veddahs, facing a new challenge

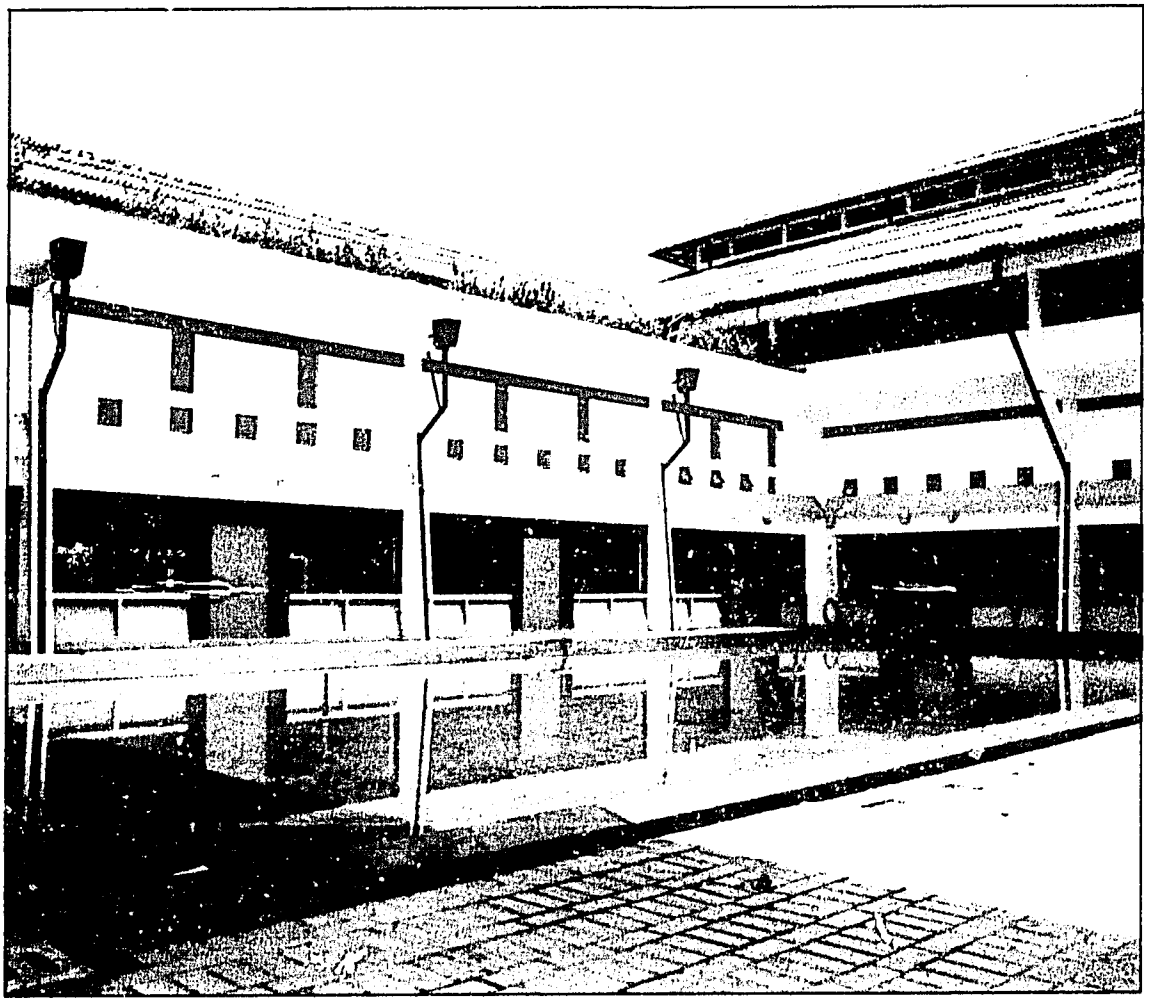
Henanigala, the new home of the Veddhas, lies about seven miles from their earlier homeland. Every effort has been made to settle Veddha families as integrated groups so that the same social cohesion that prevailed earier in their villages could be preserved, in the new settlement.

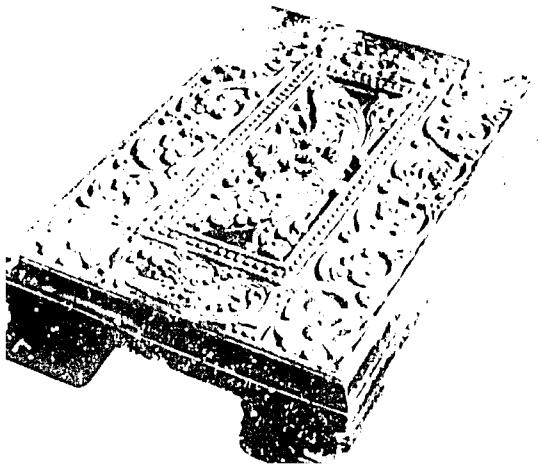
The shift of the Veddhas to the Mahaweli Settlement area has accordingly resolved a clash of interests posed by development on the one hand and the need to protect the environment on the other. The land so vacated will revert to forest as a wildlife reserve designed to protect the catchment of the Maduru Oya resevoir. Theevacuationof the Veddhas from their traditional habitat is perhaps an unusual instance where man has moved out to make way for wildlife.

Before leaving their ancient homeland the Veddhas, devout ancestor worshippers, enacted their traditional ritual of **Kiri Koraha**, to invoke the blessings of their dead whose remains lie buried in the Dambana jungles. They invoked the spirits of the **Nae Yakku** who protect them to follow them to their new settlement to help them start a new chapter in their chequered history.



Mahaweli Museum





Artifacts and artifices

The interaction of the Buddhist ethic on Sinhala hydraulic society gave rise to a unique culture in early Sri Lanka. Sustained and nourished by an orderly agriculture, the early Sinhalese had enough leisure, in between cultivation seasons, to hone their innate skills for further advances in other fields of human endeavour.

In the fullness of time these achievements reached the height of efflorescence in the Rajarata civilization, with epicentres in Anuradhapura and Polonnaruva. A similar civilization co-existed in the Deep South in Magama, in the Tissamaharama area.

The main achievement of this civilization was in hydraulic engineering. Scholars are unanimous in their conclusion that the engineers who were responsible for the stupendous Rajarata tanks and canals would have been backed by a sound knowledge of the exact sciences, without which the conceptualisation and execution of these intricate works would not have been possible.

The intricate sluices and spillways of dressed stone masonry-each block at times ten tons in weight, showed that Sinhalese engineers were applying heavy construction technologies, amazing for that age.

Alas, after the collapse of the Rajarata civilization in the thirteenth century, the Sinhalese who retreated to the hills did not have the need for the software or hardware of these technologies. Eventually, they were consigned to the limbo of forgotten things, and appear to be lost for ever.

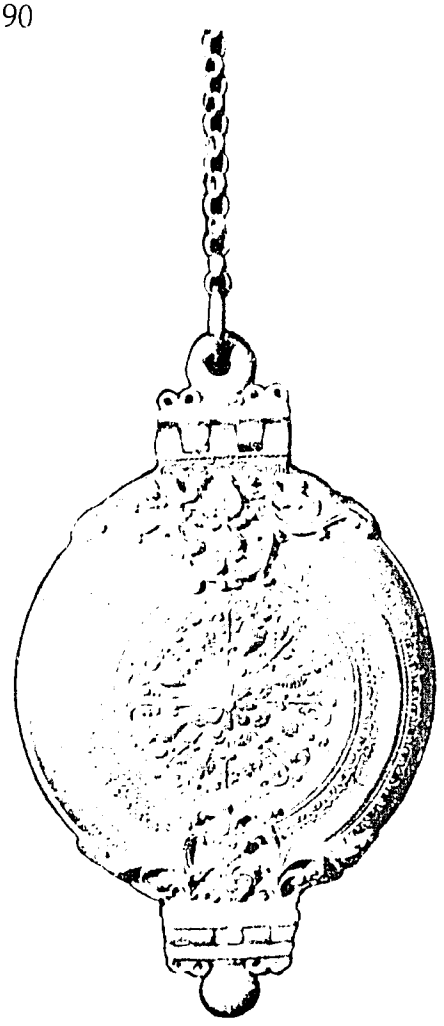
It was with the same tools and skills used for constructing intricate hydraulic structures — some of which have been aptly called "works of art by stone masons" — that Sinhala creaftsmen raised monumental monastic edifices. The dagobas, image houses, palaces, royal baths, towering statuary and sculptures of this civilization, are works of art of epic proportions, showing a refinement of line unmatched later, unsurpassed since.

Modern scholars are of the view that the ancient engineers who laid out structures like the Alahara canal in the Mahaweli complex, and the Kalawewa — Jayaganga in the Kala-Malwatu Oya complex would have had to use instruments for contouring, levelling and gauging. The raising of the dagobas, which vied with the Pyramids of Egypt presuppose the use of mechanical levers and pulleys, quite apart from a knowledge of applied and physical sciences which would have been an essential pre-requisite for such massive constructions.

On the initiative of the Minister of Mahaweli Development, Gamini Dissanayake, the Government has taken the laudable step to set up a special Museum in Colombo to put on permanent display, models and artefacts of Sri Lanka's hydraulic civilization. The Library of the Sri Lanka Branch of the Royal Asiatic Society, too, will be housed in the premises of this Museum. The main show-piece here will be a working plaster-cast model of a **Bisokotuwa**, or valve pit which Sinhala engineers invented to regulate the issue of water from massive dams under conditions of immense pressure. Also on display will be a model of typical ripple bans — **Relapanawa** which absorbed the wave-breaking action in massive reservoirs.

It is also proposed to have a series of folk museums at reservoir sites under the Mahaweli Programme to exhibit artefacts which will depict the life-style of those inhabitants who have had to be dehoused, due to the submergence of their land by the reservoir.

It must be remembered that the Kotmale and Teldeniya Valleys have a history of



human habitations from the first century BC. The people of these valleys have a deep culture from a rich human experience. Sociologists have pointed out that inhabitants of these valleys have distinctly identifiable cultures. Their dialects and life-styles give them a distinct identity. On this score they refer to the community living in these valleys as sub-cultures. Obviously Teldeniya, due to its proximity to the Kandyan capital, is richer by its experiences. It is to the Dumbara Valley, where Teldeniya is located, that Kandyan kings retreated in the face of a superior enemy.

The Kotmale valley, hidden in tea country ravines posseses some of the older Kandyan houses with the typical inner Kandyan courtyards laid in stone blocks, with intricate carvings for indoor games like draughts and **olinda keli.** Some of the older houses have door frames of stone masonry with carvings of the Kandyan style reminiscent of Ambakke. The artefacts in some houses could fill a folk museum. A good number of houses have the **oru wangediya** — the motar and pestle shaped like a dug-out canoe.

Indeed, it is a pity that individuals do not possess the resources to remove blocks of stone masonry from houses that will get submerged. For instance, Village Committee roads paved with stone slabs, glazed by usage, will be submerged if they are not prised out of their moorings, and taken for new constructions. An admirable use for these stone slabs would be in the Maluwa of the proposed Mahaweli **Maha Seya** at Kadadora.

The folk songs and poetry of both valleys are rich and varied. These are part and parcel of the cultural heritage of people who have been disturbed by the Mahaweli Programme. The Mahaweli Authority recognises that it is its responsibility to ensure that these facets of cultural value are recorded so that they could be transferred to the new settlements at the appropriate time.

R. L. Brohier who has written widely on the history of Sinhalese civil engineering has stated that:

> *"Excavations to build foundations for new sluices have in many a case disclosed the remains of an old sluice. Many other instances there are, which go to show that the modern engineer has frequently found himself anticipated by an unnamed predecessor."*

When the Kalawewa bund was excavated to lay the foundation for the right bank main sluice, engineers came across a well-preserved old sluice of dressed stone masonry, at the very spot modern science planned to locate the new one. A part of the handiwork of the un-named Sinhala engineer is today on permanent display on the Kalawewa bund.

It will be recalled that workers deployed on clearing the dam-site at Maduru Oya, way back in 1981, stumbled on the ancient breached earthen dam at the very spot foreign and local engineering expertise of the UNDP-led team had decided to straddle the river. This dam, about 23 metres high and pitched with round stones, along the upstream slope to break the ripple action, indicates the magnitude of the reservoir built here by ancient Sinhala engineers.

The Mahaweli Authority decided to save this structure for posterity and accordingly requested the Consultants to shift their modern rock fill dam a few metres further upstream. Around 1981,, workers removing earth from the Maduru Oya dam site on the bund noticed ancient bricks and their intuition helped save a sluice structure built by ancient Sinhala engineers. Today, cleared of debris, the sluice structure, which is almost intact is

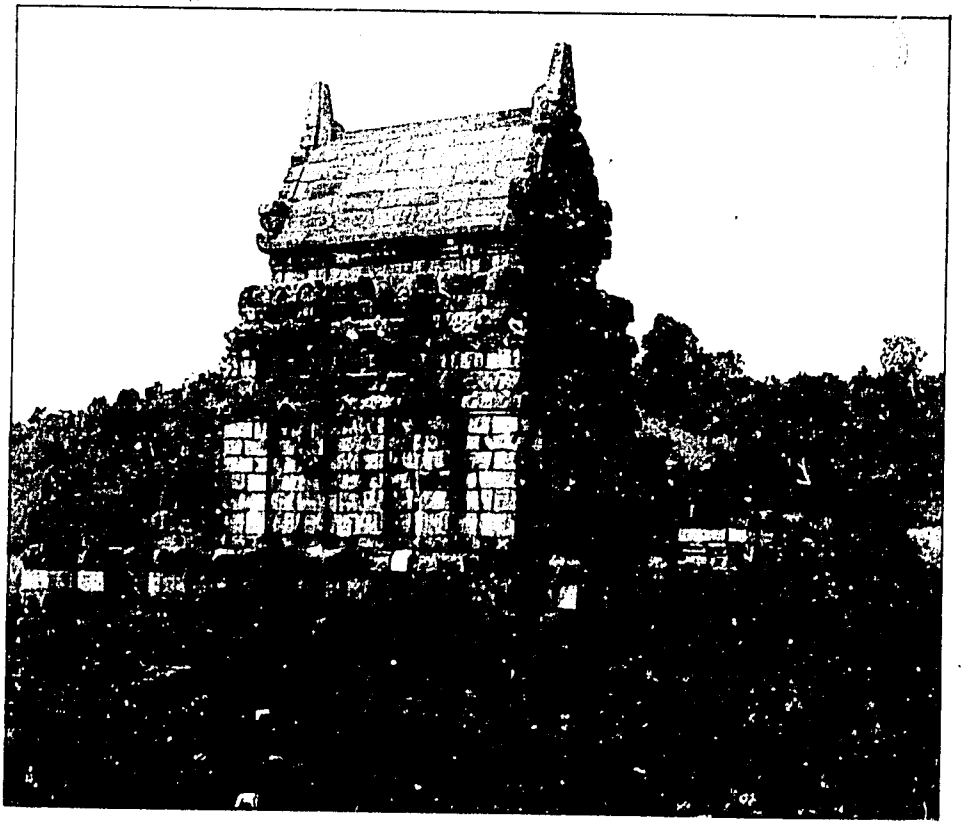
on display with adequate protection from wind and weather.

There was considerable interest in this structure and the Consultants on the Maduru Oya Project recommended to the Canadian International Development Agency (CIDA), who are funding the Maduru Oya Project, to have an expert report on this interesting find.

The experts after carbon-dating a sample of charcoal remains under the wall of this structure have indicated that its antiquity is 1520 years B.P., which appropriately brings it around the reign of Dhatusena (459-477AD), one of Sri Lanka's great tank building monarchs who was pre-occupied with the task of extending the Pabbatantacanal on the Mahaweli,taking off from the Kalinda Nuwara dam and flowing eastwards towards Dimbulagala.

The Ancient Sluiceway discovered when construction work was underway for the new Maduru Oya Bund.

The Nalanda Gedige



The Nalanda gedige, a monument of remarkable architectural beauty has been removed stone by stone, from the bed of the Bowatenne reservoir to high ground where it has now been assembled. The Nalanda gedige is reputed to be a piece of Pallava architecture. It is said that Pallavas built this spot-on, in the centre of the map of Sri Lanka. It is believed that a routed map of the island would balance on a pin, if the pin-point is placed exactly where the Nalanda gedige was located. Curiously, there have been no significant structures for miles around the old site of the Nalanda gedige. The base of the gedige has a frieze of erotica.

In fact the development area of the Accelerated Mahaweli Programme, "downstream" - in Mahaweli jargon often turns up artefacts of remarkable archaeological significance. The balustrade in Girandurukotte — one such find,has been perimeter-fenced to begin with.

Stone pillars of mammoth proportions,

obviously a temple complex, together with a ruined dagoba was exposed in Meegallewa in System H in the Kalawewa area, a few years ago. Other finds here are a **malasana,** giant sculptures of four flowers that apparently adorned the pillar heads and four ponds. A Buddhist monk has recently built an **avase** in the premises. A concrete altar for floral offerings built by him has however ruined the idyllic antiquity of this complex. It is learnt that ant-hills now cover the sculpted flowers and even the resident Bhikku is unaware of their location.

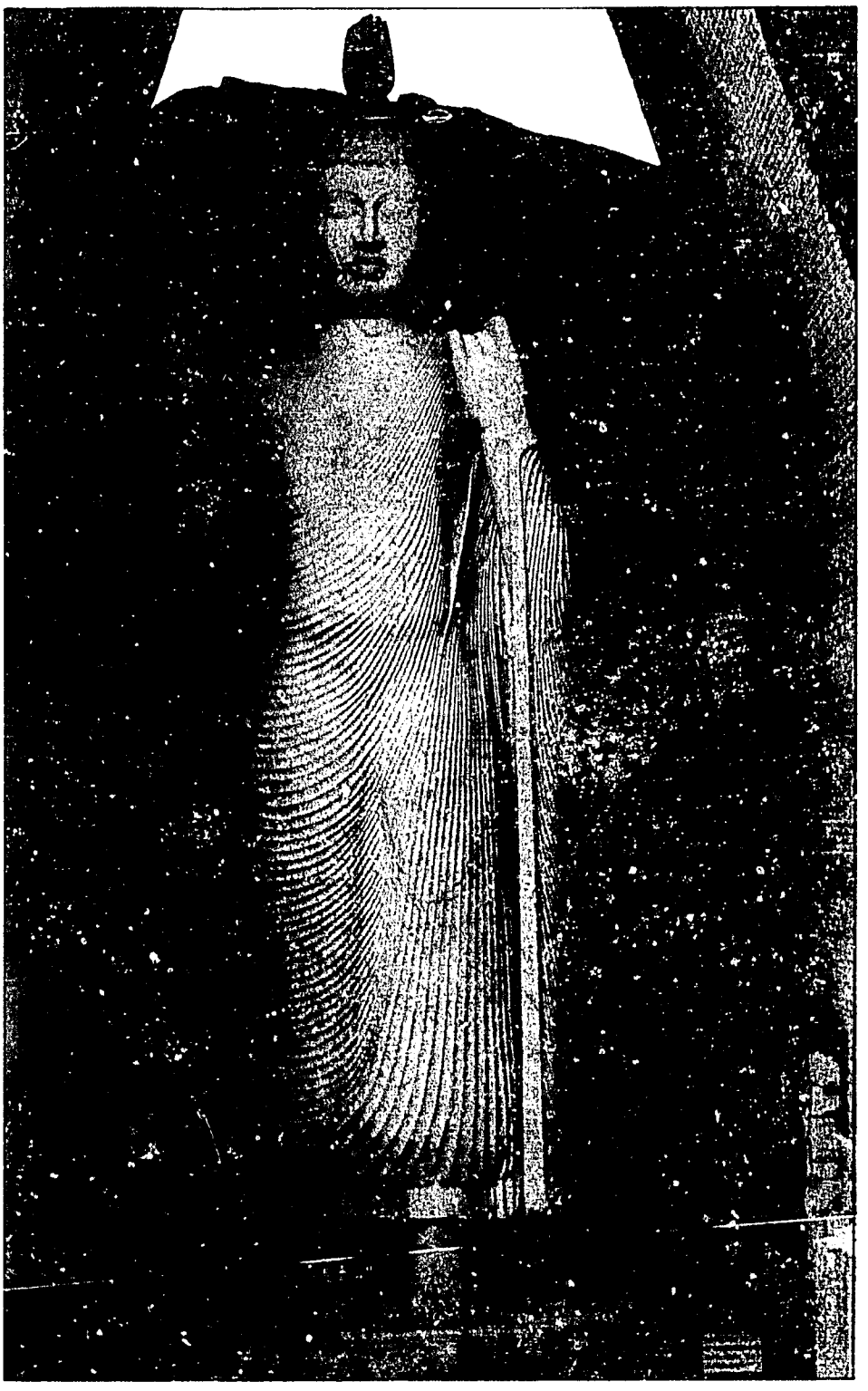
A farmer in Kagama-kattiyawa dug up a beautiful slab inscription which has now been sent to the Archaeological Department.

The Kotmale reservoir which is now nearing completion under the Accelerated Mahaweli Programme will submerge eight Buddhist Temples. The Minister of Mahaweli Development, Gamini Dissanayake, has directed that apart from compensation for the temples and assistance to relocate them on higher ground elswhere, a **Mahaseya** should be constructed to symbolise the homage of the nation to the Mahaweli Ganga itself, which unwinds itself from the central massif to give its bounty to the whole country.

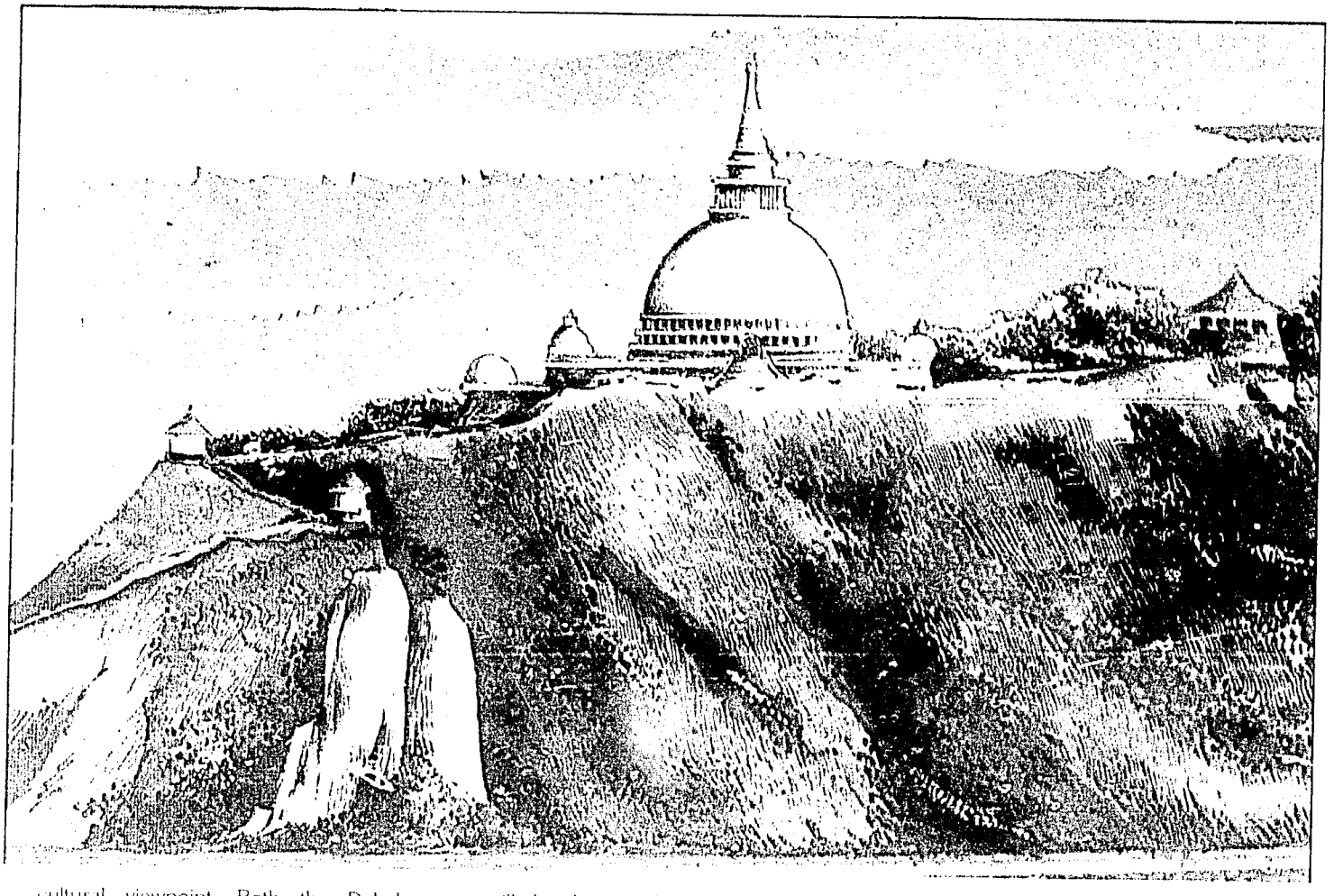
Accordingly His Excellency President J. R. Jayewardene on the invitation of the Minister of Mahaweli Development placed the foundation stone for the Kotmale Mahaseya at Kadadora in March 1983. It is proposed to use some of the housing lots used by the expatriate and local engineering counsultants for a Buddhist meditation complex around the **Mahaseya.**

The re-settlement of farmers from the up-country, with links to cultural institutions in Kandy, especially the Dalada Maligawa and the Esala Pageant, under the Mahaweli Programme has begun to

The Buddha Statue at Aukana



A drawing of the Buddhist Vihare at Maduru Oya



cultural viewpoint. Both the Dalada Maligawa and the Esala Pageant have sustained Kandy's role as the country's cultural capital.

Among those persons satisfying criteria for re-settlement are cultivators who perform in the Esala Pageant because of sevice tenures under Viharagam and Devalagam.

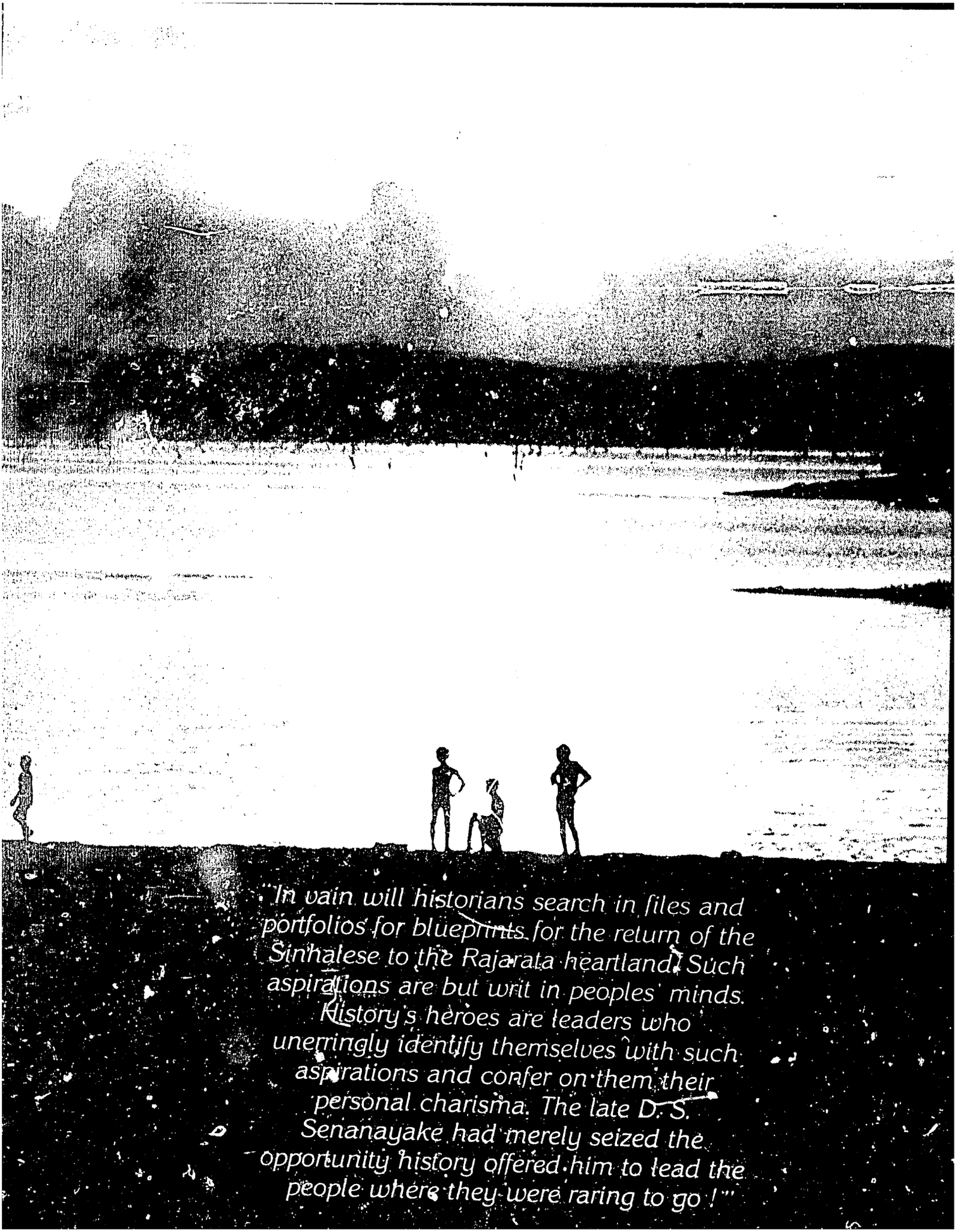
These service tenures kept alive the Kandyan performing arts, like Kandyan dancing and drumming. The art has been handed down from father to son from generation to generation for some 2000 years.

Freed from service tenures, which per se are likely to lose touch with an art-form, for which the country is renowned the world over.

Though it may be possible to induce some of these artistes to perform for payment in the Esala Pageant, the fact remains that the vitality of the art-form will weaken in a new environment for want of practice and patronage. Meaningful measures are proposed to keep alive these art-forms in the new settlement area.

Indeed no price will be too great to pay to ensure that the cultural ethos of our people are not unduly disturbed either by the re-settlement or its reverse impact on cultural institutions.

The foregoing emphasises the real need to take a long hard look at all the available avenues for the cultural sustenance of the Mahaweli Settlements. A permanent body of persons interested in the promotion of the performing arts and crafts and cultural needs of the settlers is to be requested to report on a cultural policy for Mahaweli settlements and watch over the cultural development of the settlements as a national task.


"In vain will historians search in files and portfolios for blueprints for the return of the Sinhalese to the Rajarata heartland. Such aspirations are but writ in peoples' minds. History's heroes are leaders who unerringly identify themselves with such aspirations and confer on them their personal charisma. The late D. S. Senanayake had merely seized the opportunity history offered him to lead the people where they were raring to go !"

D. S. Senanayake relaxing in the Rajarata.

The Mahaweli vision

"Where there is no vision a people perish."
D. S. Senanayake. *

Throughout the history of Sri Lanka, the taunting challenge of the Mahaweli rolling wastefully into the sea excited in the more resourceful kings their "Ulysses factor". This goaded them to get even with might of the Mahaweli. And, as way back as the first century BC, starting with Kutakanna Tissa, the more resourceful Sinhala Kings grappled with the main stem of the mighty Mahaweli. Mahasena, Dhatusena, Aggabodhi I, and Parakrama Bahu I, left behind tangible evidence that they had had the measure of the daunting Mahaweli and had harnessed its resources for irrigation.

The significance of their efforts was that our ancient kings were alive to the vast resources of the Mahaweli basin, but that their technology was not entirely equal to the task of full utilisation of those resources. Obviously they were fired by the vision of the full mobilisation of the resources of the Mahaweli, in order to enable them to consolidate the foundations of the irrigation network of the Sinhala heartland. This would have provided them the resources to safeguard the sovereignty of Sri Lanka.

However the ancient hydraulic civilization collapsed around the thirteenth century AD after an existence of nearly eighteen centuries. The nuclear areas of that civilization gradually reverted to jungle. A variety of reasons have been adduced for the collapse of the Rajarata civilization, principally the relentless invasions from South India, which singled out the irrigation structures for destruction and the scourge of malaria that followed in its wake. The Sinhalese retreated to the hills in the Wet Zone — an area which did not require massive investment for agricultural development. Trade in cinnamon and spices received priority, and most spices were collected from the wilds.

The trauma of being torn from moorings which anchored them to land which they, an their forebears tilled for some eighteen centuries, tormented their conscience with nostalgia. They had the will to return but the colossal task of reconstruction baulked them.

It was true that they retreated before insuperable odds, and saw their cities being put to the torch, and their riches looted. But they knew that the treasures of the Rajarata were indestructible and that these would endure. The handiwork of their engineering ingenuity — the irrigation network — could be made inoperative, but could not be destroyed. Their monumental monastic edifices, the towering dagobas and statuary -- the symbols of their faith — could be defiled and disfigured; but they would endure.

These, and shrines sanctified by the sacred footsteps of the Buddha, and the sacred Bodhi Tree itself, remained in the Rajarata and tugged at their heartstrings — beckoning them to return home, to the Sinhala heartland. Like an individual, a people historically wronged and dispossessed nurse their pride and bide their time, until the force of their collective conscience reinvests them with courage and will, to recoup their lost inheritance. And, while they bide their time they are nourished by hopes and visions of the glories of their past.

Colonialism retarded the rediscovery of the Sinhala heartland. It did not take the British colonial rulers long to realise that the key to the heart of the people was the restoration of the ancient irrigation system. Thus, Sir Henry Ward (1855 — 1860) the British Governor, said that the British Government before him had "never devoted a fair proportion of the revenue towards the restoration of the old works" and that "the one thing that comes home to every Sinhalese is the improvement of those means of irrigation which the climate rendered indispensable". He embarked on a modest programme of restoration which was pursued by Sir William Gregory (1872 – 1877) and Sir Arthur Gordon (1883 – 1890).

But it was fittingly left to a son of the soil, D. S. Senanayake, the Minister of Agriculture and Lands in the State Council, who later became Sri Lanka's first Prime Minister after Independence to lead the people back to the Rajarata. A feverish zeal to rediscover the ancient Rajarata consumed him.

Though he seemed every inch the earthy pragmatist, D. S. Senanayake had the foresight to envision that the full resources of the Mahaweli had to be harnessed, for that rediscovery of the Rajarata to be a rewarding experience for modern Sri Lanka. The vision of Senanayake is vividly presented by Farmer:

"As a practical farmer he was greatly interested in colonization as a means to land development, the opening up of ground which it irked him to see lying idle. He was, perhaps, more subject to this motive, and to the appeal of recreating the glories of the Rajarata, than to the more academic consideration of national, social and economic conditions." *

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* *A Hebraic proverb quoted by D. S. Senanayake in AGRICULTURE AND PATRIOTISM published by Associated Newspapers of Ceylon Ltd. Colombo 1935 — while postulating priorities in his agricultural policy as Minister of Agriculture & Lands in the State Council 1931 — 1947.*

* *B. H. Farmer, PEASANT COLONIZATION IN CEYLON — Oxford University Press 1959.*

Elaborating on the same theme de Silva (1981) comments:

> *"..... holding the key post of Minister of Agriculture, he had greater influence than ever before on the initiation and implementation of irrigation policy, and he demonstrated 'a visionary zeal in peasant settlement of the Dry Zone' — as a return to the heartland of the ancient irrigation civilization of the Sinhalese! Characteristically, there was no commitment to a theory, or a blueprint, but instead a refreshing practicality and commonsense in the drive and vigour which he provided in eliminating legislative and bureaucratic obstacles to quick decisions...."* ×

In vain will historians search in files and portfolios for blueprints for the return of the Sinhalese to the Rajarata heartland. Such aspirations are but writ in peoples' minds. History's heroes are leaders who unerringly identify themselves with such aspirations and confer on them their personal charisma. The late D. S. Senanayake had merely seized the opportunity history offered him to lead the people where they were raring to go!

The Minister of Mahaweli Development, Gamini Dissanayake, writing on D. S. Senanayake, observed:

> *".....what was remarkable in the man was the wide sweep of his vision. It was he and he alone, who realised that Independent Sri Lanka's salvation lay in the restoration of the reservoirs lying in desuetude in the Dry Zone, and the re settlement of the people in agriculture. Thanks to his indomitable will, he pressed on in the early 1930's as Minister in charge of Agriculture on the restoration of the tanks and giant canals like Alahera, Minneriya, Giritale, Kantale, Kalawewa and Parakrama Samudra. Long before D. S. Senanayake died, paddy was thriving once again in the Rajarata. More importantly in his book AGRICULTURE AND PATRIOTISM, D. S. Senanayake reveals for the first time how in the period around 1934-1935 he, as Minister of Agriculture presided over the first practical steps "to render useful to the Nation the waters of the Mahaweli and its tributary streams". He adds that it was on the basis of a report submitted to the Government in 1908 by W. L. Strange, an irrigation expert, that work on the Mahaweli had commenced. So much for those who claim paternity for the Mahaweli Project."* *

In a massive programme of enormous dimensions as that of the Mahaweli, designed to determine the destiny of our people, it is vitally important to ensure that our bearings are correct. It is imperative to have a clear conception of what constitutes our final goal.

The Minister of Mahaweli Development, has succinctly encapsulated the vision of the great men who conceptualised the Mahaweli Programme.

> *"For it must be remembered they did not launch the Mahaweli merely to ensure a plenteous agriculture to service the supply lines to the cities, or to merely provide hydro-power to*

× *K. M. de Silva, A HISTORY OF SRI LANKA - Oxford University Press 1981*

* *Gamini Dissanayake, KEEPING ALIVE THE GRAND VISION an article published in the Ceylon Daily News on the 29th death anniversary of D. S. Senanayake.*

keep the wheels of industry moving. Nor were they thinking solely of employment opportunities that the programme would throw up. Of course they expected these as spin-off benefits from a viable development programme on the Mahaweli. More than anything else they expected the catalysing effect of the Mahaweli to work centripetally to improve the quality of life of the rural interior. What these men of vision envisaged was the Dawn of a Mahaweli Era, with the return of the people to their ancient homeland in the plains. They envisioned that on their returning to their traditional homeland they would reawaken to their cultural ethos and build a new civilization like that which flourished in Anuradhapura and Polonnaruwa....." **

What do we expect the communities in the Mahaweli areas to be like, say fifty years hence? Would it be sufficient to stop at providing only water, land, hamlets and townships and other material conveniences, as it was the case in most older settlement schemes? Surely, Sri Lankans who claim inheritance to an advanced civilization, at a time in history when some of the so-called developed nations of today were yet unborn or still in their rudimentary stages of cultural evolution, do hardly wish to see the creation of a future society of able-bodied automatons of computer age; particularly after sacrificing so much in the name of Mahaweli for the benefit of future generations. It must be recalled that we have had to fall back on enormous loans and credit facilities to get the accelerated Mahaweli Programme off the ground. Their amortisation would spill over to the next generation. This generation has correspondingly trimmed its subsidies and other welfare measures and put up with a high rate of inflation to ensure that the Programme proceeds without let.

In a way it is easier to identify what we do not want, from the Mahaweli than to state what we really want of it. Nevertheless, it is of paramount importance to crystalise our thinking, even though one may be accused of being too futuristic, idealistic or Utopian. There is a vital need for a 'Mahaweli ideology', for a Mahaweli-orientation in our life-style.

It is admitted that we must modernise our agriculture, establish better townships and housing and set up industries. Our aims should not be circumscribed by the concepts of self-sufficiency alone. We should refine our products to service the foreign market. We shall build a modern agrarian society. However, the Mahaweli Village, the Mahaweli Town, the Mahaweli family and the Mahaweli man which we envision should all be well-structured, self-reliant and viable.

In formulating the new Mahaweli society let us not be dominated by foreign ideologies but be open to the winds of change. As Pandit Nehru said 'Let us open our windows to get fresh air but let us not be swept off our feet."

In our endeavour to help plan our future, let us make a concerted attempt to develop a Mahaweli society well-anchored to our "roots" not because we must repudiate everything foreign, not because we believe that everything foreign should be rejected, or because everything indigeneous should be protected and propagated, but because of the conviction that thousands of years of accumulated civilised human experience should not be thrown to the winds just because the new winds of change seems strong.

The type of life and society that was long rooted in our soil could best be described as a 'just society', or as a 'righteous society', although the definition and understanding of these terms and concepts became much clouded in recent times. In the Mahaweli areas, particularly in the Rajarata the basic ingredients or such a society have endured to the present day. In a symbolic form, the tank, paddy field, its threshing floor, and the dagoba representing the basic elements of this culture. The tank representing science and technology of that society, the paddy field and its threshing floor representing its economy and the dagoba representing its spiritual base. The entire social system of that great civilization appears to have been centred around the attainment of mental peace and happiness, not merely through material means, but through a system of time tested values and ideals. Everything else was merely a manifestation of this system of values. A glimpse of the type of rural society that prevailed before the impact of colonial rule in the villages of Nuwarakalaviya is given by Brodie, one of the first Government Agents of Anuradhapura (1856):

"Serious assaults, robberies and murders are all but unknown, and during three years I have not had to punish one native of the district for pilfering" *

He added:

"Two circumstances exercise a beneficial effect on the people; the first that for the last three years there has not been a single tavern in the district; the latter there are no residential proctors" *

** *Foreword to MAHAWELI PROJECTS & PROGRAMME 1984: A Ministry of Lands & Land Development and Mahaweli Development publication.*

* *A.O. Brodie, Royal Asiatic Society Journal (Ceylon) Vol. III, 1856 - 1858, pp.*

Similar comments are made several decades later on the discipline and restraint of the Sri Lankans during the Kandy Perahara by Ananda Coomarswamy (1908):

> *"It may be mentioned of this festival, that Davy records that during the whole time, that though there were several thousand people assembled, when he witnessed it, he saw no reason of riot or disturbance and no instance of drunkenness."* ×

Coomarswamy, comparing the society of his time (1908) with that of Davy, further noted that:

> *"In these days when a part of the revenues of Government is derived from the farming out of liquor licences, and taverns in Kandy are numerous, it would hardly be possible to say the same thing."* ×

Undoubtedly these typified a highly contented society, a righteous society which could uphold and maintain the traditional value systems and high moral standards.

It is needless to mention, however, what Brodie and Davy saw then were only feeble vestigial remnants of a civilization which had collpased several centuries earlier.

A return to this traditional Sinhala homeland should thus entail a return to the values of that social system which were robust and stable enough to withstand the winds of change. It is on these roots that the future Mahaweli society has to be developed.

We have a dream, that there will be a rapid growth of farmlands in the Rajarata, which would, produce the bulk of the food requirements of Sri Lanka, leaving a considerable surplus, for export to some

An abundant harvest

A tractor load of paddy

× *Ananda Coomaraswamy, Medieaval Sinhala Art, 1908—p.39*

of the neighbouring countries,as well as,to certain other parts of the world.

We have a dream, that in a world grappling with an energy crisis, Sri Lanka will be blessed by the hydropower resources of the Mahaweli bringing light to many a rural home and energy to industry.

We have a dream, that there would be a growth of healthy peasantry whose status would not be second to that of any other sector in Sri Lankan society whose children will have the same opportunities as those born in the urban environments in the more populous parts of the Island.

We have a dream, that the traditional homeland of the Sinhala people again becomes the centre of gravity of the entire nation.

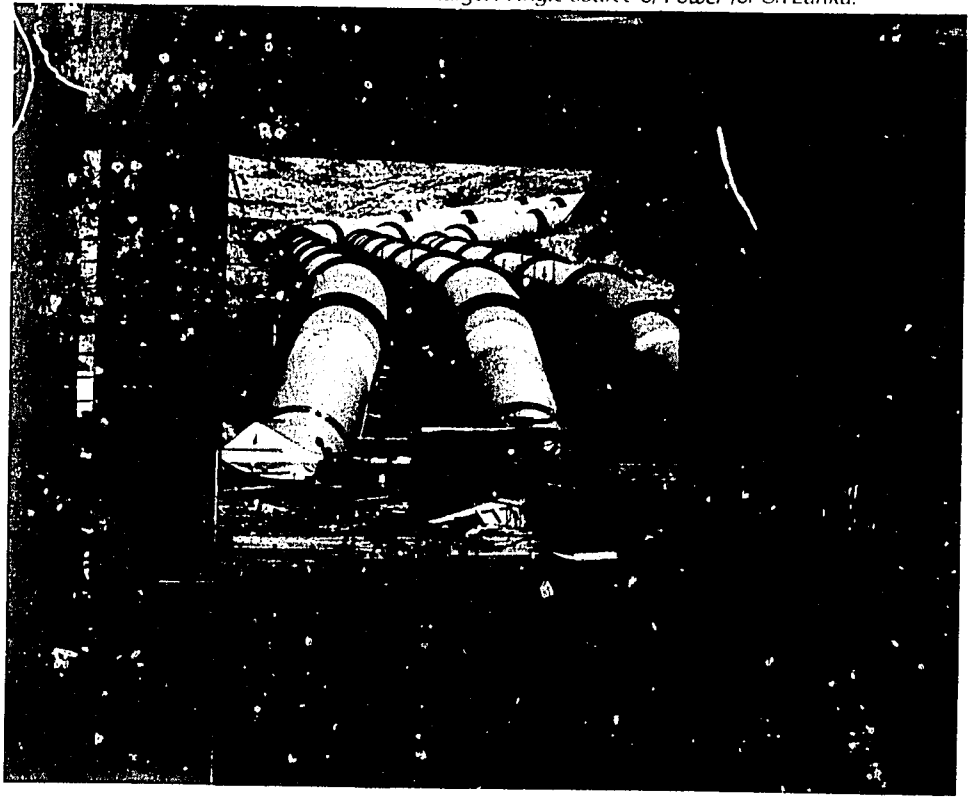
In the unfolding of the curtain of the future the growth of urban centres in the present Mahaweli areas would produce a hierarchy of new cities which would finally support the development of Anuradhapura to its pristine glory, as the capital city of Sri Lanka. In this hierarchy of settlements, Trincomalee would regain its former status as a leading port and harbour.

We have a dream, that there will be a reverse process of the disintegration of the Rajarata civilization after a lapse of eight centuries, logically leading to the re-creation of the Sinhala heartland.

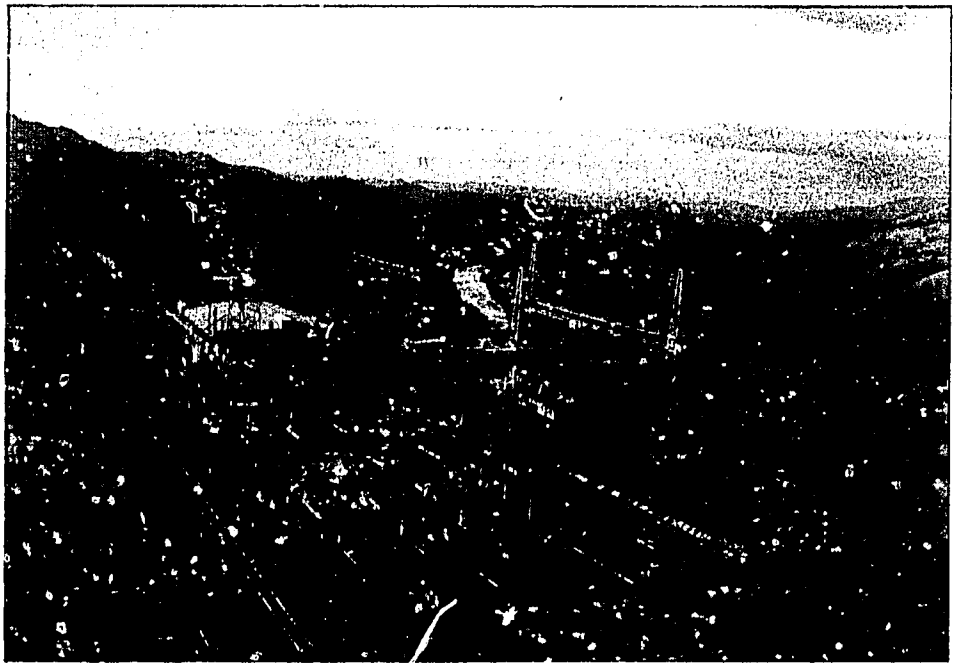
Sri Lanka, due to its georgaphical location athwart the sea route[illegible]tween East and West and its proximity [illegible]ndia, had always been the meeting place for people of different races and religions. This has inculcated in the Sinhala Buddhists, who always formed the majority group and the hard core of the Sri Lankan society, a sense of tolerance and peaceful co-existence, through their religion, and by many a lesson in history.

Cash crops are increasingly popular

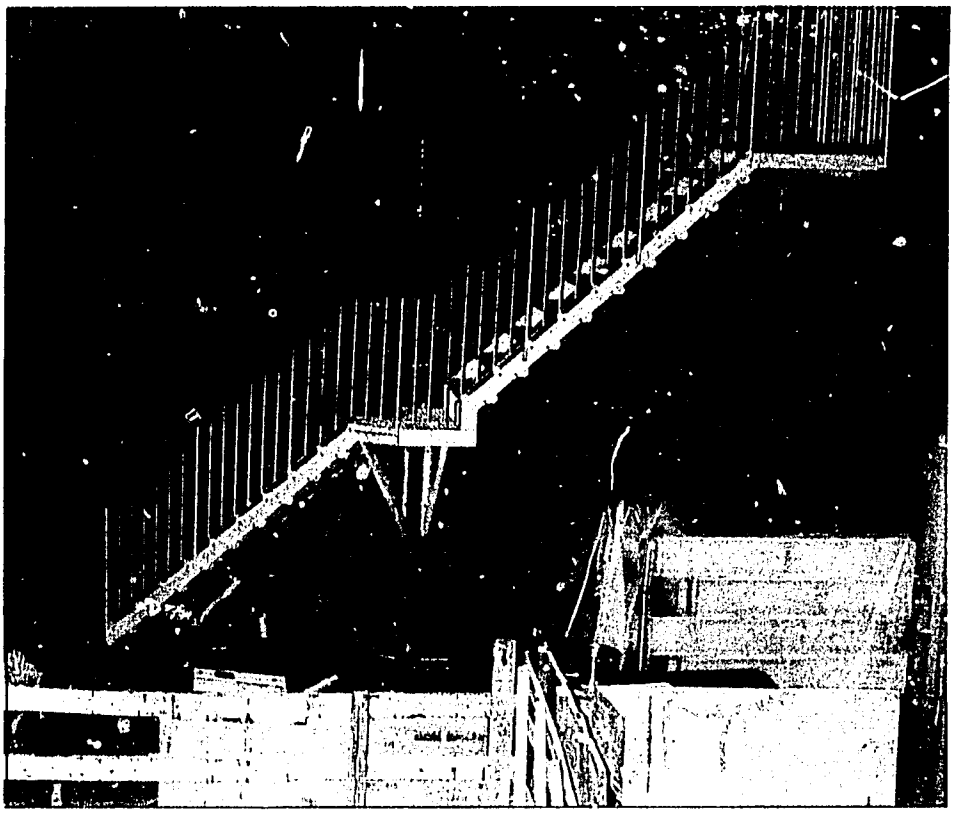
The Penstock of the Victoria Power House – largest single source of Power for Sri Lanka.



The switchyard at Kotmale, with the Kotmale Oya in the background



The turbines at Kotmale, under construction.



This accommodating and non-violent attitude was deeply embedded in their system of values and ideals except when their very survival was threatened. Although these attitudes have occasionally led even to their temporary subjugation by invaders, their ideals and value systems remained unchanged. The continuity of the traditional culture and value systems of the Sinhalese which eschewed violence is vital for amity and peaceful co-existence among peoples of varied origins who have made this country their home.

To underscore this trait of tolerance it may be recalled that the Sinhala Buddhists are unique in the history of the world, for willingly inducting South Indian Hindu Kings, and providing for Hindu shrines in Buddhist vihares. Such tolerance and restraint is unique although it is often mistaken for weakness and lethargy.

It is vitally important in planning the future Mahaweli society, that we should not concede to the pressures that would lead to any disturbance to the traditional value systems or change the historical balance among the people of Sri Lanka. The processes of cultural assimilation which were operative in the Mahaweli area through centuries should be fostered and encouraged so as to see the birth of a new society, rich in culture, but well anchored to its traditional roots.