

Agricultural Practices as gleaned from the Tamil Literature of the Sangam Age

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Abstract

The most significant source material for our study is the earliest stratum of Tamil literature of the Sangam age. This is found grouped in two schematic anthologies-*Eṭṭutokai* (the Eight anthologies) and *Pattuppāṭṭu* (the Ten Idylls). All these literary works of great merit belong to the first three or four centuries AD.¹ To this period of anthologies may be added the *Tolkappiyam* (1965) a comprehensive work on Tamil grammar by the celebrated author, Tolkāppiyar. Next stratum of Tamil literature is the *Padinen-kiḷ-kaṇakku* (the Eighteen didactical texts). Among them, the two most famous and unique works are the *Tirukkural* [the ‘Sacred’ *Kural* (Pope, 1886)] and the *Naladiyar* [Four Hundred Quatrains in Tamil (Pope, 1893)]. Based on these literary works as the main source material, an attempt is made in the following pages to throw light on the salient agricultural practices in ancient *Tamilakam*.

Key words: Ādichanallur, Agriculture, *Kuriñji* and *Mullai* tracts, Land Reclamation, Sangam period, Shifting Cultivation, *Tamilakam*, *Tolkappiyam*

1. ANTIQUITY OF AGRICULTURE: RICE CULTIVATION

The area under consideration is the ancient *Tamilakam* of the Sangam period which spread from the Arabian Sea in the West to the Bay of Bengal in the East and from the hills of Tirupati in the North to Kanyā kumari in the South. Kerala, to day, on the western side of South India, has become a separate linguistic and cultural entity. So also the northern fringes of Tamil Nadu have been added to Andhra Pradesh after the reorganization of Indian states on the linguistic basis. The principal rivers of the *Tamilakam* are the Pālār, the Pennar (southern), the Kāvēri and the Vaigai, all flowing into the Bay of Bengal. The Tāmraparani, which is an old and sacred river in the Tirunelveli district, is a perennial stream and

forms a life-line in that district. The Periyar on the Malabar coastal strip is an important river in the State of Kerala.

The importance of agriculture in the Tamil country was well recognized. That it was recognized from the Megalithic period is quite evident from the archaeological finds from Ādichanallur on the river Tāmraparani in the Tirunelveli district, Tamil Nadu. Alexander Rea, the amateur British archaeologist, who excavated the Ādichanallur site, for a few years from 1900, found several thousand objects at the burial site and inside the urns which included “some household implements used for grinding curry or sandalwood”. “Husks of rice and millet were found in quite a large number of pots inside the urns”. It is now a fair assumption that the people

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¹ *Pattuppāṭṭu*: *Paṭṭinappalai*, *Porunaratrappaḍai*, *Mullaippattu*, *Perumpanatrappaḍai*, *Sirupanatrappaḍai*, *Nedunavadai*, *Kuriñjippattu*, *Maduraikkañji*, *Malaipadukadam*, and *Tirumurugatrappaḍai*. *Eṭṭutokai*: *Natrinai*, *Kuṟunthokai*, *Ainkurunuru*, *Pathitrippathu*, *Paripadal*, *Kalithokai*, *Akananuru*, and *Purananuru*

of Ādichanallur practiced agriculture and also perfected rice cultivation and funerary practices, particularly in the Tamil speaking areas.

After a gap of hundred years the Archaeological Survey of India, Chennai Circle, resumed digging the burial site adjacent to a lake on a huge mound on the southern bank of the Tāmraparani. The find consist of 220 urns, painted pot shreds, black ware and red ware. “Along with the skeletons, husks, grains of rice, charred rice and Neolithic Celts (axe like instruments used in agricultural operation) have been found”. According to T. Satyamurthy, in charge of excavation at Ādichanallur, “people generally think that megalithic culture is the earliest culture in South India, especially in Tamil Nadu. In our excavations (at Ādichanallur for two seasons 2004 and 2005), we have come across a culture earlier than the megalithic period” (Hindu, 2014).

A Megalithic cist burial site excavated in 2009 at Porunthal, a village located 12 km south west of Palani, Tamil Nadu, has brought to light spectacular variety of grave goods. Among the many finds in the burial chamber, a four-legged engraved jar with two kg of paddy inside is interestingly a significant discovery. Rice paddy samples were found to be 450 BC when analyzed using ‘Accelerator Mass Spectrometry’ (AMS) by the Beta Analytic Lab. Miami, USA. Thus the megalithic period in South India ranges from the 4th century BC to 3rd century AD, and the iron using megalithic people practiced the organized method of agricultural operations in the Tamil country. This is well reflected in the Sangam literary works (Subramanian, 2011).

2. IMPORTANCE OF AGRICULTURE AND PEASANTS

Agriculture was the main industry/ occupation of the people of the Tamil Country. To highlight the supreme importance of agriculture to society, Tiruvalluvar has devoted in his work a separate chapter containing ten couplets (ch. 104,

1031-1040). Here are a few quotes from the *Tirukkural*:

Who ploughing eat their food, they truly live;
The rest to others bend subservient, eating what they give.

(No. 1033)

They nothing ask from others, but to askers give
Who raise with their own hands the food on which they live.

(No. 1035)

To Tiruvalluvar ‘the yoke and the plough’ were the emblems of freedom, honour and virtue. But the poet of the *Naladiyar* is more formal and forthright in his comments. Here is the noteworthy quote from it. “Hill men remember their hills. Farmers remember their fertile fields”. The peasants increased the agricultural production and kept the people prosperous, thus forming the backbone of the land. A poet (Naganar of Vellaikkudi) tells the young king Killivalavan, that all his victorious campaigns and fruits of victory have been made possible only by the industrious peasantry (*ulupaḍai*) in a *Purananuru* passage (Sastri, 1972, p.43 *Pura*. 35: 25-26).

3. IMPORTANCE OF WATER OR THE EXCELLENCE OF RAIN

Agriculture depends mainly on water, whether it is from ‘above’ (rain) or ‘below’ [rivers, water reservoirs (man-made and natural) deep sunk wells]. Rainfall is the direct manifestation from ‘above’ when it pours in abundance, and this fills up all sorts of reservoirs. The wells get charged when the water table increases which directly depends on the amount of precipitation. Tiruvalluvar devotes a separate chapter (II, No. 11-20) with the heading ‘*Van Sirappu*’ (in ‘Praise of Rain’) in the *Tirukkural*. Here are a few quotes from it:

The world its course maintains through life that rain unailing gives;
Thus rain is known the true ambrosial food of all that lives.

(No. 11)

If from the clouds no drops of rain are shed
'tis rare to see green herb lift up its head.
(No. 16)

When water fails, functions of nature cease, you say
Thus when rain fails, no men can walk in duty's
ordered way.
(No. 20)

After analyzing this chapter G U Pope concludes that (1-7) 'rain is the cause of all the affairs of the world going on their wonted way' and (8-10) 'rain is the cause of the continued existence of virtue, wealth, and pleasure on earth'(Pope, 1886, p. 192). In the *Naladiyar*, the poet expresses a similar view of this sad waste of rain water:

While the red paddy's golden germ is parched
within the ear and dies, the cloud gleaming with
lightning, pours forth its treasures on the sea.
(Pope, 1893, p. 173; *Nala*. No. 269):

The essential constituents of a 'kingdom',
according to Tiruvalluvar, are:

Water from rains and springs, a mountain near, and
water from thence;
These make a land, with fortress' sure defense.
(*Tirukkural*, No. 737)

4. NECESSITY OF IRRIGATION

The importance of irrigation was well recognized by the rulers of Tamil country. Very extensive irrigation works were carried out by them with large amount of treasures and forced labour at their disposal. However, due to constant wars with their adversaries they could not carry out their duties in an effective manner. The following anthology from the *Purananuru* (18: 18-30) is addressed to the Paṇḍiyan ruler Neḍuncheliyan by the poet Kudapulaviyanar. It is, in fact, a sage advice from the poet who exhorts the ruler the necessity of irrigation works for the distribution of water to the fields of his subjects:

No bodies woven of their can subsist without water.
Those who give these bodies food give them life.
The body massed together of food has food as its
source.

That which men call food comes from water
mingled with earth.
Those who bring together earth and water in unison
create
The means for bodies to exist in this world, for life
to be!
Large but barren fields where men sow and stare
at the sky
In no way serve the efforts of the king who rules
there.
And so, O Cheliyan, murderous in battle! You
should not
Disdain my advice but rather you should act
quickly!
Those who construct dams so that the water collects
On low ground in the fields are assured, in this
world, of glory!
Those who build none will have no renown
enduring in this world.
(Hart and Heifetz, 1999, p. 16).

In this connection we turn to the same poet
again for his terse saying:

Verily he who has turned the bent (low) land into a
reservoir to arrest the flow of the running water is
one who has established a name in the world.
(Iyengar, 1914, p. 43).

Thus the artificial irrigation of the soil by
constructing large reservoirs and canals on an
extensive scale was encouraged by the early
Tamils (Iyengar, 1914, p.43). Among the essentials
of a habitable village, good water supply was given
the foremost importance. As the poetess Avvaiyar
puts it in *Kondraivendan*-'*Niragam porundiya
uragattiru*' ('Reside in a place where there is
plenty of water') (Iyer, 1916, p. 182). A river side
measures good water supply. The importance or
the influence of a river adjoining a village has been
emphasized by the same poetess who states:
'*Arilla-uruk-k-alagupal*' (A place without a river
is a dreary waste) (Iyer, 1916, p. 182).

5. CLASSIFICATION OF LAND

The ecosystem as delineated in the
Sangam literature is known as '*Thinai*'. The word
'*Thinai*' means the different geographical regions
and the behavior of the inhabitants in those

regions. In the *Tolkappiyam* we find a direct reference to the four-fold physiographic divisions of the land and climate (*Tolkappiyam, Tol. Porul. 5*); and these are known as the *Kaḍurai ulagam* (the forests), the *Maivarai ulagam* (the hills), the *Tiruppunal ulagam* (the plains or fields) and the *Perumaṇal ulagam* (the littoral or sandy areas). Here the word ‘*ulagam*’ (world) implies that each region was a separate unit by itself and distinctly different from one another. The regional variations must have been so great that they must have been ‘world in themselves’ (Sivathamby, 1974, p.28). We notice in the same work further five-fold ecological divisions (*Ainthinai*) or regions or five types of tracts or terrains. They are (1) *Kuriṇji* (hills and environs), (2) *Mullai* (forests or pastoral or woodlands), (3) *Marutham* (water courses or plains studded with wet fields and standing crops), (4) *Neytal* (littoral or sandy coastal tract) and (5) *Palai* (arid or dry or desert tract). The last region, *Palai*, is recognized not as a separate physiographic or ecological region but as state of aridity with scrub vegetation and generally hot climate. This type of dry tracts could be an extension of the *Mullai* or *Kuriṇji* region in some specific cases. The *Maduraikkaṇji* refers to such a tract as ‘*Kuriṇjippalai*’ (Chelliah, 1962, p.248) and in the same text only we notice the descriptions of the five tracts (Chelliah, 1962, p.248). The *Perumpanatruppaḍai* idyll has also detailed account of these five *thinai*s (Chelliah, 1962, p.248). We may also note here out of interest that the Pandyan kingdom had all the five kinds of regions, while the Cheras had only the *Kuriṇji*, and the Chola, only the *Marutham* tracts.

The five ecological regions were identified and named especially after the trees, shrubs and vines and their blooms which grew abundantly in the respective regions. There are several material elements included by the commentators in each of these regions for consideration and they are: god, food, flora, fauna, occupation, water sources, type of habitation, folklore and musical

instruments. Here we are concerned with flora, food, occupation and water sources (Sastri, 1972, pp.28-30).

5.1 *Kuriṇji*

Kuriṇji or *Neela Kuriṇji* (*Strobilanthes kunthiana*), is a shrub predominantly found in the Shola forests of Western Ghats and the Nilagiri Hills of South India. It blooms once in 12 years on mountain slopes and dies immediately after producing seeds. Its season extends from mid-October to mid-February. This is the most prominent flower in the region and when it blooms it changes the entire hills into beautiful flower garden bearing dense clusters of purple, honey-filled flowers. This plant is said to have black stem and the soft tender flowers grow on tall stalks in the mountains. (*Pura*: 374, *Nat*: 268 and 301, *MK*: line 301). This brief description apart, we hardly find any detailed account of the plant extant in the Sangam poems in spite of the identity of the nomenclature of the flower with the region itself (Fig.1).

Food: *Tinai* (millet), *aivanam* (*Oryza mutica*-mountain rice), *veṇṇel* or *vedir-nel* (white paddy)



Fig. 1. *Kuriṇji* or *Neela Kuriṇji* (*strobilanthes kunthiana*)

or bamboo seeds), *avarai* beans (*Dolichos lablab*), honey and tubers.

Social/ethnic groups: *Kaḷamar* (farmers), *Kaṇavar* (hill man), *Vedar* (hunter), *kuravar* (mountain dweller) and so on; and their headmen were *Verpan*, *Silamban*, *Poruppan-koḍicci*, and so on.

Soil: Red and black soils with stones and pebbles.

Occupation: The main occupation of this group was honey collection, cultivation of *tinai*, *aivanam*, bamboo rice, digging edible roots, and parrot tending.

Water sources: Waterfalls, springs, mountain stream (*vellaruvi*), and forest stream (*kanyaru*).

5.2 Mullai

This is the name of a flower, *Mullai*, (Jasmine-*Jasminium trichotomum*), and it is a vine which grows wild in the forest areas. ‘Green-leaved *mullai* vines have buds like the thorny teeth of young wild cats’ (*Pura*: 117). It blooms in the rainy seasons in the regions where grass shrubs form the chief natural vegetation (Fig 2). Unlike the most flowers that bloom with sunrise, in the woodlands, *Mullai* buds open and spread their petals and bloom after sunset thus spreading the delicate fragrance around. (*Tol.Poṟul*. 9; *Nat*: 69).



Fig. 2. *Mullai* (Jasmine-*Jasminium trichotomum*)

Food: *Varagu* (millet), *tinai* (millet), *kol/kolḷu* (Horse gram, *Mudira macrotyloma uniforum*) and spotted *avarai* beans (*Dolichos lablab*).

Social/ethnic group: *Idaiyar* (shepherds), *Ayar* (cowherds and shepherds) and their headmen were known as *Annal*, *Tonral*, *Kuramporai*, *Nadan* and *Manaivi*.

Soil: Red soil

Occupation: They were mainly subsisting on animal husbandry, shifting agriculture and raising dry crops.

Water sources: Forest streams (*kanyaru*) and brooks (*kattaru*).

5.3 Marutham

This riverine or agricultural region is identified with the *Marutham* tree (Indian Laurel, *Terminalia arjuna*, Fig.3). The significant aspect of this region is the availability of plenty of water from the tanks and rivers wherein this tree grows chiefly along the river banks (*Aka*: 36, 97, 34, 376; *Ain*: 31, 33, 72; *Pura*: 233, 344, 351; *Kali*: 27; *Silap*: 7:2).



Fig. 3. *Marutham* (Indian Laurel, *Terminalia arjuna*)

Food: Red and white rice.

Social/ethnic groups: *Uḷavar* (farmer), *Uḷumagan*, *Verlalan*, *Vellān-kuḍi* or *Velan-mandar* (peasants), *Kaḷamar* (tillers), *Toluvar* (tillers,

serfs) and their head man were known as *Mahilman*, *Uran*, *Manaiyol*, and so on. Their main occupation was agriculture involving cutting furrows in soil and turning it up, tilling, sowing, weeding, reaping, bullfight and other related activities. [*Ain*: 3:8, *Nat*: 60:2; *Pura*: 13:11; 209:2; *Parp*: 90:41]. Shepherds (*Poduvar*), goat herder (*Aḍudai-iḍaimagan*) and cowherds, cattle herder (*Kollaikkovalar*) were common to the agricultural as well as the pastoral tracts (*Nat*: 266 & 289).

Soil: Alluvial.

Water sources: Wells, ponds, rivers and streams are all over the place.

5.4 Neytal

This maritime or littoral region is named after the *Neytal* flower (Blue/white water lily, *Nymphaea odorata*, or *Nymphaea stellata*), most commonly grown in the backwaters and, therefore, often referred to as 'irkali neytal' (*Kuru*: 9; *Nat*: 27, 47, 117, 138; *Aka*: 350, 170) Fig 4).



Fig. 4. *Neytal* (Indian Blue/white water lily, *Nymphaea odorata*)

Food: Fish and salt.

Social/ethnic groups: They were known as *Nulaiyar* (fishermen), *Timilar* (oarsmen), *Paradavar* (fishermen), *Minavar* (fishermen) and their headmen were known as *Kongan*, *Turaivan*,

Serppan, *Mallampulamban* and so on. They were mainly dependent on fishing and salt panning.

Soil: sandy and saline soil.

Water sources: sand-wells and dug wells in brackish water.

5.5 Palai

Strictly speaking, the *Tamilakam* has no desert, but certain parts of *Kuriñji* and *Mullai* become arid due to the want of seasonal rains. Yet, this region is named after the *Palai* tree (Ivory wood, *Wrightia tinctoria*) that grows prominently in very dry areas (Fig. 5). This tree abounds with clusters of fruits that look like tongs (*kodiru*) and its white branches are fibreless. (*Nat*: 107). It is, therefore, the most important tree that is found in the arid areas.



Fig. 5. *Palai* (Ivory wood, *Wrightia tinctoria*)

Food: The collections from waylaying and molesting.

Social/ethnic groups: The *Palai-tinai* folks were *Eyiner* (hunters), *Maṛavar* (the term generally used to denote the wasteland warriors), and their headmen were found to have the names of *Mili*, *Viḍalai*, *Kalai*, and so on. They were indulging in waylaying, molesting hapless travellers and robbery.

Soil: Salt affected soil (*kalar*), brackish soil.

Water sources: Fresh water ring-wells (*uṛai-kiṇaru*) and dried springs (*urru*).

Apart from the above mentioned five physiographic divisions, the land was broadly classified into *vanpulam* (hard country representing the *Kuriñji* and part of the *Mullai* tract) and *menpulam* (wet land plains representing the agrarian tract, *Marutham*). The soft or alluvial land of the *Marutham* tract was also known by the term 'menpal'. The cultivable or agricultural fields or wet land in this tract was known as 'akavayal' and 'panai'. In this tract the wet lands and pasture lands were classified as 'kaḷani' and 'kadu' respectively. The cultivable field was specifically known as 'vayal'. This term is used even now in the Tamil speaking areas to denote the cultivating fields. Another term to identify the cultivating field was 'palanam'. Salty waste lands or salty and brackish soil marshy lands in the *Neytal* tract were classified as 'kalar' or 'kalari'.

6. RECLAMATION

There was a steady progress in the reclamation of forest and waste land that was brought under the plough. Land was reclaimed for tillage and the founding of new villages and the work was often undertaken by the king. Among the rulers of the *Tamilakam* during the Sangam period the Chola king Karikala was the pioneer in South India to embark on a stupendous task of reclamation. In the northern Tamil region (Tondaimandalam) of his territories he deforested large areas of forest lands. The author (Uruthirankannanar) of the *Paṭṭinappalai*, while glorifying his achievements, speaks of his creating villages out of forests and deepening of ponds and tanks thus: "*kadu-konru-nadaki-kulam-tottu-valam-perukki*" meaning "destroying forests to extend the inhabited country, digging tanks to improve fertility" (*Pat*: II. 283-84). Tradition has it that he cleared the forest lands for the settlement of 48,000 families. But we are not sure of this traditional account. In the *Purananuru* we notice

that the forest dwellers (*Kaṇavar*) burned trees and created cultivable land and planted wild mountain rice (*aivanam*, *Oryza mutica*). Immature millet not yet pretty and dark was also planted between the mountain wild rice. This sort of reclamation took place in the Muthiram hill of the Palani mountain range, ruled by the benevolent ruler Kumanan. Fragrant trees like the *Akil* (eagle wood) and the Sandal wood were deliberately felled and cleared to make way for the cultivation of short-stalked *thorai* rice and other plants on uplands of the *Kuriñji* tract (Chelliah, 1962, p. 247).

7. PLOUGH AND PLOUGHSHARE

Since the Neolithic times, there was distinct cultural transformation from food gathering to food production. This transformation took place in South India when the Neolithic man started using two types of stone tools 5000 years ago: polished stone axes were used for cutting trees and plants and stone adzes for agricultural operations. The edges of these tools were quite often polished and sharpened against the rock surface. Grooves for sharpening the polished tools have been found on bedrock on the Javadhu Hills in the middle of a rivulet near Keezhanur village in Vellore district, Tamil Nadu. When the tools got blunted the Neolithic man used the grooves on the bedrock for sharpening for re-use. The polished adzes were tied to wooden staff and used for ploughing. South India is dotted with several Neolithic sites. In Tamil Nadu, in particular, Neolithic settlements have been found at Paiyampalli in Dharmapuri, Mayiladumparai and Kappalavaḍi in Krishnagiri, and Appukallu in Vellore districts. After the advent of the Iron Age (circa 1,000 BC), iron ploughs were made for effective agricultural operations (Subramanian, 2013).

The importance of the use of plough and ploughshare was realized well by the Iron Age inhabitants. But so far none of the dated Iron Age

sites has yielded a relic of ploughshare that had survived from the earlier times. "A few pothole cist of Wynad (in Kerala) are reported to have contained ploughshares whose dates are yet to be determined (Nair, 1965, pp.165-177)." But the invention of irrigated and plough agriculture was only by the compelling power of circumstances which enabled the Iron Age folks and the subsequent settlers on the river banks to increase the agricultural operation and production in manifold ways. As a sequel to this is the invention of plough and ploughshare by the permanent settlers and communities.

Kalappai, *meḷi* and *nañjil* are the terms commonly used by the poets in their works to denote a plough. The term 'er' stands for a team, yoke of oxen, plough and ploughshare (Pope, 1886, *Tirukkural*: Nos. 14, 812, 1031 and 1038) as well as the art of furrowing (*ulavu*) and hence the terms 'eror' and 'ulavar' for the peasants, tillers, plow men (*Sirup*: 233) and hence the term 'uḷudal' stands for ploughing and tilling the soil. Terms such as 'koḷuḍ' and 'ani' refer particularly to the plough-point; but the latter term also means a 'nail' or a 'needle'. The tip or the pointed end of the ploughshare was fashioned to resemble the sharp head of the *uḍumbu* (iguana, monitor lizard). "The shares that go quite deep look like the iguana's face and the curved ploughs to which they are attached look like the trunks of elephants" (Chelliah, 1962, p.119 *Perumpanatrupadai*: ll. 229-232). The purpose of fixing the 'koḷuḍ', the pointed or sharp iron at the tip of the plough-axe, was to dig the earth and further make deep furrows in the soil and turning it up. Among the artisans of the society it was the carpenters who fashioned the plough for the field.

We come across in the *Śilappadikaram* the use of the phrase 'er mangalam' to signify the festival of ploughshare (*Silap*: X: 135). If we can take the phrase 'er-mangalam' for the harvest festival of Tamil Nadu (*Pongal* or *Makara Shankaranthi*), then we can say that the plough/

ploughshare was honoured with festivities and worshipped in a grand manner by the farmers of the Sangam age. In the *Purananuru* the epithets 'erkala-uruvakam' are used as a comparison of battle fields with the farming fields. In two other poems in the same anthology (Nos. 33:4 and 375:6) there are passing references to 'those who live by plough' (*erin-valnar*) and 'settlement of those who live ploughing' (*erin-valnar kuḍimurai*).

"The long yoke (*nukam*) of their curved plough (*meḷi*) is balanced with a central pin (*ani*)" (Chelliah, 1962 p. 41, *Paṭṭinappalai*: ll. 205-207). In the paddy cultivation, a pair of *pakaḍu* (oxen) or *erudu* (bulls) or *erumai* (buffaloes) were harnessed and yoked with a cross-bar of the ploughshare at their necks. In other words the yoke is a long wooden crosspiece fastened over the necks of two oxen or bulls pulling the ploughshare.

As far as the agricultural operations are concerned, the invention and introduction of the plough was significant in the sense that the plough was used as an important implement/tool for cutting deep furrows in soil and turning it up. This implement, or so to say the contrivance, no doubt, had augmented the agricultural yields in many ways. But this superior form of farm production, plough agriculture, was confined to the *Marutham - menpulam* and small pockets in the adjoining *Mullai* areas, which was surrounded by large tracts of *Kuriñji - vanpulam*.

8. FERTILITY OF THE SOIL

The fertility of the soil in the Kāvēri belt (*Marutham*) was a pet theme with the *Sangam* poets. That the Chola country had an abundance of water for irrigation is known by the very name it bore in those days as 'Punal Nadu' - 'the land well-watered'. It has been suggested that 'Punal Nadu' also means 'the land of floods'. The fertility of the soil in the Chola country was not only enhanced by the waters of the Kāvēri but also the

alluvial deposits left by the river. This is evidenced from the following lines from the *Purananuru*:

“Your country alone is truly a country where lovely, cool Kāvēri flows and feeds the land and appearing like spears, dancing flowers of sugar canes with nodes sway” (*Pura*: 35: 6-9) (Herbert, 2015, *Purananuru*: No. 35: 6-9). Another poem from the same anthology describes the fields in the Chola country thus: “His fields are full of flowers that bloom among the patches of sugar cane that are fences for the paddy fields” (Herbert, 2015, *Purananuru*: No. 386: 8-10).

In a hyperbole in the *Purananuru*, the poet Avur Mulam Kilar states that in the *Marutham* fields ‘the small space necessary for a female (*pidi*) elephant to lie down can produce enough food to feed seven male (*kaliru*) elephants’ (Herbert, 2015 *Purananuru*: No. 40: 10-11). An interesting sidelight on the protection of the mature paddy grains is afforded to us in the *Akananuru* passage which narrates how “an old cow which goes to graze the ripe paddy crop, but the field guards (*kavalar*) watching the field tie it to a *kanji* tree (Portia tree, *Thespesia populnea*), nearby by means of the *pakal* (bitter melon) and the *pakandrai* (Indian Jalap, *Operculina turpethum*) creepers and feed it on the sugar canes. They, the peasants, were able to save the paddy crop at the cost of the sugar canes” (*Aka*: 156) (Varadarajan, 1969, p. 156). This particular incident provides us the vital information/clue that the soil was fertile enough to raise double crops - paddy and sugar cane - at the same time. That the Kāvēri occupied a pride of place in the Chola country is well set in the idylls of the *Paṭṭinappalai*:

Even if the faultless, famous, bright Venus drifts
to the south,
Even if the skylarks are distressed without
raindrops to drink and
Even if the clouds change and the skies fall
Kāvēri, which starts in the mountains
And ends in the ocean, does not fail
Its flowing water spreads and showers abundant
prosperity.

(Herbert, 2015 *Paṭṭinappalai*: ll. 1-7)

The Chola land was noted for the cultivation of paddy and the poet in the *Porunaratruppadaḍai* (ll. 242-248) describes the fertility and production of paddy in the Chola country and ends the stanza by unfailingly praising the river the Kāvēri:

The farmers with their sickles (*kuyam*) bend to reap
Their harvests, pile rice sheaves in immense stacks
Heap daily grains threshed out that look like hills,
And store it in large bins enclosed in straw
That stand ranged close without a space between.
Each plot enclosed, five acres in extent,
Produce paddy (*sali-nel*) thousand *kalams* full.
This is the land the Kāvēri well sustains,
And this, the realm the king doth own.

(Chelliah, 1962p. 75, *Porunaratruppadaḍai*: ll. 290-299).

We also notice in the *Natrinai*, the fertile growth of the ears of *tinai* –a reddish grain-commonly cultivated in the hilly tracts (*Kuriñji*) (*Nat*: 209) and in the same anthology the ears of *tinai* crop is compared to the trunks of the she-elephants (*Nat*: 344). Similarly, the form of the millet stalks with clusters is compared to the trunk of the she-elephant in one of the *Kurunthoki* poems (*Kuru*: 360) [*pidigaianna*-like a female elephant trunk, *perun kural*-huge clusters, *yenal*-millet].

9. PROSPERITY OF AGRICULTURAL LANDS

9.1 *Marutham*

In the *Marutham* tract, the tanks are always full of clear water; and the Mango or *Arjuna* or *Venkai* trees adorn their bunds (*Aka*: 186; *Kuru*: 18; *Nat*: 230, 330). The buffalo is the *sine qua non* of this tract (*Aka*: 316; *Ain*: 91-100). The large tanks (*nedunkayam*) are full of lotus flowers (*Perum*: 289-290) and the epithets ‘*netu nir*’ and ‘*kuntu nir*’ and so on denote the depth of water (*Ain*: 61; *Kuru*: 122). In the idylls of *Paṭṭinappalai*, the prosperity of agricultural lands in Kāvēripoompaṭṭinam, the capital city of the Chola land ruled by Karikala, is thus described in a vivid manner:

There are continuous yields from wide fields. Fragrant smells waft from the sugar mills (*alai*) and heat from their fires wilt the water lilies in nearby fields, making them lose their beauty. Fully grown calves of fat buffaloes eat mature, fine paddy and sleep in the shade of tall grain bins. There are coconut palms with clusters of nuts, banana trees with bunches of fruits, betel nut palms (*kamugu*) with mature nuts, fragrant turmeric, many kinds of mangoes, clusters of palmyra fruits and fresh harvests of yams (*Chembu, Colocasia esculanta*) and tender ginger in the Chola Country (Herbert, 2015, . *Paṭṭinappalai*: ll. 8-11).

In a similar manner, the *Maduraikkañji* describes the prosperity of the agricultural lands in the *Marutam* tract: “The rain that falls on lands both high and low collect in pits. Formed by the *Kalai* roots dug up, and swell into noisy floods. The rivers overflow into the eastern sea, encircling fields of corn in which plants grow so high that elephants that stand in them are fully lost to view” (Chelliah, 1962 p. 245 *Maduraikkañji*: ll. 245-252). Farmers/plough men in the same region owned many ‘buffaloes and many rice granaries as tall as mountains’ (Herbert, 2015, *Natrinai*: No. 60: 1-2). ‘Nature and man bestowed all the bounty to these people and thus their villages were called havens without any sign of hunger (Sastri, 1972 p. 34 *Perumpanatrupadai*: ll. 242-253).’

9.2 Mullai

In the *Mullai* tract *tinai* grain,
The sesame and black-stemmed *varagu*’s ears
Become mature (Chelliah, 1962, p. 246-247,
Maduraikkañji: ll. 279-281)

9.3 Kuriñji

In the *Kuriñji* tract are mountains high where grow
The short-stalked *thorai* rice on uplands sown
From which the *akil* tree (Eagle wood) and the
sandal wood
Have been well cleared, the long-stalked pepper
white,
White rice (*veṇṇel*), and *aivana* paddy mixed with
it,
Green pepper, ginger, turmeric, *tinai*: these and
Other plants do grow luxuriant there.

(Chelliah, 1962, p. 247 *Maduraikkañji*: ll. 294-300)

Here is another piece of information about the prosperity of the *Kuriñji* tract:

Lord of the lofty mountains, where
Honeycombs hang, jackfruit cluster,
Grains and legumes (*kulam*) are always
Harvested in abundance, there is
Prosperity in the mountain ranges,
And those who have left it will feel sad!

(Herbert, 2015, *Natrinai*: No. 93: 1-7)

10. METHODS OF CULTIVATION: TOOLS AND TECHNIQUES

The terms ‘*palliaḍṭal*’ and ‘*taliaḍṭital*’ are specifically mentioned in the *Purananuru* to a kind of ploughing intended to remove the wild growth in the fields. “In the fields with intense heat where the *Vengai* trees (*Pterocarpus marsupium*, Indian *kino* tree) grow on red mounds and rains have poured abundantly drenching the land, the soil is ploughed often and seeded, harrows comb the fields and remove weeds with their roots, letting plants grow with many stems (Herbert, 2015 *Purananuru*: No. 120: 1-7).” This technique was applied in the *Kuriñji* areas also to prepare the field before starting the regular agricultural operation to raise *pudu varagu* (new millet), *eḷlu* (sesame) and *avarai* (field beans). Here a bush, or a shrub, or thick growth or wild plants are classified as wild growth. Weeding hooks were used by hand for removing the thick growth of bushes and shrubs from the uncultivated fields. A chopping tool (axe) with a sharp blade known as ‘*navi*’ or ‘*naviyam*’ was used to clear the unwanted growths on the soil. After ploughing the cultivable fields, an instrument called ‘*talambu*’ was used for leveling the ground for cultivation; perhaps the so called instrument or device must have been a flat and narrow wooden plank. Even otherwise also “the ploughmen level their fields with their feet”. A trowel known as ‘*kanichchi*’ was used for lifting the earth. But this implement was different from ‘*kadari*’, an axe like tool or ‘*malu*’ (mace or

axe; this instrument was also wielded as a weapon in war). The farmers used their sickles (*kuyam*) to reap the harvests. In the *Neythal* tract the workers who were engaged in harvesting the paddy were known as ‘*nel-ari-tholuvār*’ and they used their sharp knives (*kur-val*) to reap clumps of fine paddy (*sennel*) (Herbert, 2015, *Natrinai*: Nos. 195, 275).

10.1 Wet Cultivation

The cultivation of paddy was apparently carried on in the time tested method by the peasants and farmers of *Tamilakam*. Tiruvalluvar highlights the importance of tillage and the avoidance of manure in two couplets: “Reduce your soil to that dry state when ounce is quarter-ounce’s weight; without one handful of manure, abundant crop you thus secure.”(No. 1037) “To cast manure is better than manure; weed well; to guard is more than watering now.” (No. 1038)

The longest description in the *Perumpanatruppadai* (Chelliah, 1962, p. 117-119 *Perumpanatruppadai*) of the various activities in the fertile *Marutham* region is recounted by the poet in graphic manner. Undoubtedly, he must have seen with interest while giving a comprehensive account of the methods of cultivation in that region. For instance, the routine activities of the farmers in furrowing and tilling their fields, sowing of seed, weeding, reaping and storing the grains and straw are painted with a wealth of information. The details given in the text are very much in the same way in which the work in the fields is carried on today by the farmers in Tamil Nadu. Here are some citations from the same anthology:

Tilling and Sowing

Plough men make their furrows well.
Their houses well-stocked are with plenteous food
and at their front courtyards they yoke big bulls
well trained to the plough. The shares that go quite
look like the Iguana’s face, and the curved ploughs
to which they are attached look like the trunks
of elephants. They sow, and weed the fields

with the weeding hooks, and when they come to
reap.

(*Perum*: ll. 226-233)

Seedlings and Transplantation

The ploughmen level with their feet their fields,
extensive, muddy, and unploughable,
stirred up by bulls that fight with muddy horns,
(*Perum*: ll. 238-241)

They set plants that are in bundles tied
in flooded fields in which much water stands,
(*Perum*: ll. 245-246)

The seeds were first sown in a nursery (*naṭṭrankal*) in one corner of the field. The seedlings (*naru*) were then allowed to grow up to a height of one span (*saan* – 6 to 9 inches). When they were ready for transplantation on to the main field, the seedlings were carefully pulled with their roots intact and gathered into small bundles. The job of transplantation was done mainly by the women folks. The seedling bundles were distributed among the women workers who in turn planted the *naru* deftly in horizontal as well as in vertical rows. The space between each seedling was approximately restricted to one *saan*. The entire operation of transplantation of seedlings was carried out within a day, that is, before sunset.

Ridges and Hedges: The wet lands were generally hedged (*vaṟappu/vaṟampu*), as of now, though the unenclosed fields were not unknown or uncommon. Ridges were made ostensibly not only to break the monotony of avoiding long stretches of green fields and to retain in the fields but also to protect the crops from the animals and birds. In the *Marutham* fields these ridges (boundaries) were generally utilized for planting the sugar cane about which we come across a number of references in the texts. In the *Nochi/Vakai thinai* cotton plants were planted as hedges (*Pura*: 299 & 324).

Reaping and Threshing Paddy

In fields that bring continued income great
The reapers cut the thick and hollow stalks

of ripened rice whose large grains look like swarms of stinging wasps. They pile in large full heaps The sheaves in ample threshing grounds, where gifts are offered to the Gods beneath the shades of snake infested *marutham* branches tall.

(*Perum*: ll.264-270)

Then they thresh out the grains with bulls, remove the chaff and straw, and dry the grain by sifting in the west wind with their hands. The grain thus heaped in *Marutham* hamlets rich resembles Meru great, the northern mount.

(*Perum*: ll. 275-279)

In the *Mullai* tract women used the winnowing tray called ‘*chulaku alai*’ to free the grain of chaff. (*Aka*: 393:16) Otherwise, the normal practice was to winnow the harvested and threshed paddy in the direction of the western wind (*kuda-kattru*).

Storage: The harvested grains were stored in rice bins known as ‘*kudu*’ and ‘*kuthir*’. Such bins were made of clay and covered with straw (*Pat*: line 11). These bins were usually located in rows in the extensive harvested fields without a space between them. “In front yards rice bins lie that look like a crowd of elephants” (Herbert, 2015 *Perumpan-atruppaḍai*). It is also gathered from the Sangam poems that in the houses of the plough men/farmers “are found old bins that were used long, in which through open tops unreachable with ease by ladders high, they store old grains of various kinds (Chelliah, 1962, pp.117-119, *Perumpan-atruppaḍai*: ll. 282-285)”. A similar activity in the *Marutham* fields is briefly noticed by the poet in the *Porunaratrappaḍai* (Herbert, 2015 *Porunarat-ruppaḍai*: ll. 241-248). Here the poet acknowledges the prosperity showered by the river Kāvēri in an unflinching manner:

They bend (their bodies) and cut paddy with sickles (*kuyam*), and bundles of sheaves are stacked each day like mountains, in heaps that never become small. Fine paddy (*salinel*) in well-stitched bags, are kept in places protected by fences (*veli*), growing in thousands of measures, in the land of the king, where River Kaviri provides abundance.

(Herbert 2015, ll. 241-248)

***Mullai* tract adjoining the agricultural land:**

Here again we have to depend on the *Perumpanatrappaḍai* (trans. by *VH*) for details:

In the woodland fenced with thorns there are tall cattle sheds (*tholu*), granaries (*kuthir*) in the front yards that resemble the herds of female elephants and canopies with grinding stones that looks like feet of elephants. On the walls, small wheels and plows (*kalappai*) are leaning.

(Herbert, 2015 *Perumpanatrappaḍai*: ll. 185-190)

Above the land there is a community with abundant food and esteemed plow man.

They yoke huge oxen (*pakaḍu*) that are used to walking and plowing. They plow their fields by pressing down the front parts of their plows (*nañ jil*) that resemble trunks of cow elephants, and then Seed and weed.

(Herbert, 2015 *Perumpanatrappaḍai*: ll. 196-200)

In the above passages we notice the unmistakable influence of plough agriculture from the *Marutham-vanpulam* area into the *Mullai* region. Even otherwise also there is a possibility that the *Mullai* folks might have realized the need to keep pace with the changing world and get innovative and borrowed/adapted the plough agriculture techniques from their neighbouring agricultural region. However, this assumption is nothing but a hypothetical proposition.

Size of Plots: Regarding the size of cultivable fields, we elicit little information from the Sangam texts. From the mention of one ‘*ma*’ or one ‘*kuḷi*’ or one ‘*veli*’ we may infer that fragmentation of land holdings must have begun and proceeded and put into practice during the Sangam period.

Wet Cultivation: Sugar Cane: *Marutham*

Sugar cane (*karumbu*) cultivation involves several methods such as furrow method, trench method, wet planting and so on. But the sugar cane was cultivated in the prosperous *Marutham* fields surrounded by water as a wet crop along with the paddy (*Aka*: 306). Here we presume that the

method of double cropping system was adopted in the given circumstances by the Tamil farmers. The borders of rice fields were utilized for planting and growing the sugar cane. Patches of sugar canes were grown in some fields like fences (*veli*) to paddy fields (*Pura*: 386: 10-12). Other than this we hardly find any reference to the regular sugar cane cultivation. However, there are certain poetical similes about the sugar cane itself. This aspect is more evident from some of the comparisons in the *Kurūnthokai*. It is mentioned in it that the ‘elephant’s footprints are compared to look like the garden-beds (*paththi*) of the sugar cane planting holes’ (*Kuru*: No.262). The folded leaf of the “sugar cane appears like the pregnant green snake” (*Kuru*: No.35). In the wide fields in the *Palai thinai* “the beautiful sugar cane with bright flowers and field (*kaḷani*) paddy grains growing on stalks out of flame-like sheaths, sway in the wide field with wide boundaries (*Akananuru*: No. 13).” “In the vast fields, thick-stemmed white flowers of tall sugar cane sway in the northerly wind like the *Poolai* flowers (*Aerva lanata*) of summer(*Akananuru*: No. 217).” The cold northern wind blows, opening the spear-like white buds of sugar cane (*Nat*: 366). The white flowers of the *velam* (reed) on the bunds of tanks are said to appear like those of the sugar cane (*Ain*: 18). In another similitude the tall thick-stemmed white flowers of sugar cane swayed by the north wind is compared to the summer flowers of *Poolai* (*Aerva lanata*) (*Aka*: 217). In a *Purananuru* (Pillai, 1959) poem the poet compares the sugar cane flowers with spears:

Thy land shall flourish, where through channels deep,
Kāvēri flows with bright refreshing stream,
Along whose banks the sweet cane’s white flowers wave
Like pennon’d spears up rising from the plain.

The sugar cane cutters, known as ‘*arainar*’, were responsible for cutting and extracting sweet sap from the sugar cane (*Pura*: 42). There was an equipment to make sugar cane

juice and in a *Purananuru* poem we notice the use of the term ‘*yendiram* (sugarcane press) for it (*Pura*: 322). “The unending, roaring sound of equipment (*yendiram*) in every sugar mill (*alai*) where sugar cane juice is boiled, surrounded by smoke, is like the screams of many huge elephants that are attacked by an *ali* (lion?) in the bamboo growing mountains where clouds play. There you can drink sweet sugar cane juice as much as you desire (Herbert, 2015 *Perumpanatruppaḍai*: ll. 257-262).

We get a taste of the sugar cane in the *Nalaḍiyar*. It mentions that the tip (*kadaikkan*) of the sugar cane is tasteless; whereas, its middle joints (*idaikkan*) are sweet and juicy (No.390). The nether end was sweeter, its flowers were white and liked by herons; its essence was used as a drink and *jaggery* (unrefined sugar) was made of it by pressing it on a wheel. The canes were also used, instead of bamboo sticks, for making rafts. There was also a belief that the Velir forefathers of Adigaiman brought this plant to this part of the world.

10.2 Dry Cultivation - (*Varagu* and *Tinai*) - *Kuriñ-ji* and *Mullai* tract

There are interesting passages in the *Purananuru* and *Malaipadukadam* with regard to the cultivation of dry crops such as the *varagu* (millet), *eḷḷu* (sesame), and the curved *avarai* (*Dolichos lablab*) field beans. In the Parambu mountain country ruled by the chieftain Pari, the poet Kapilar gives his eye witness account of the cultivation of *varagu* and other crops:

In the fields with intense heat
Where *vengai* trees grow on red
Mounds and rains have poured
Abundantly drenching the land,
The soil is plowed often and seeded
Harrows comb the fields and remove
Weeds with their roots, letting plants grow
With many stems, big with flourishing ears,
And when the black stalks grow tall
To the colour of a peahen that has just given birth,

They cut the new millet that has grown well
Without the top and base getting ruined,
And then when sesame seed blackens'
It is time to reap the white pods of densely
Growing *avarai* beans.
(Herbert, 2015 *Purananuru*: No. 120).

Sesame (*Eḷḷu*)

The sesame that springs up from the seeds
Sown in the fields has many pods that look
Like a blue sapphire. In forests, where are ponds
Like water pots, the pods do not turn red,
As drops of rain upon them fall, and they
Mature becoming black. They grow so thick
That only seven of them could well be grasped
Together; and the seeds are full of oil.

(Chelliah, 1962, p. 299 *Malaipadukadam*: ll.
134-141)

'The mature sesame plants with many forked branches are green without the *makuli* disease, and are filled with seven times oil' (*Malai*: l. 103, Herbert, 2015). It appears from the text that the term '*makuli*' stands for the plant disease affecting the leaves and branches of the sesame plant. The meaning of this term needs further explanation and elucidation from the scholars.

On the long hill slopes were cultivated *eḷḷu* (sesame), *varagu* (millet), *aivanam* (mountain rice), *aiyavi* (white mustard), *avarai* (field beans), and *inji* (*ginger*) on a regular basis. The tropical oil seed plant such as sesame was directly used as food. In fact these plants were cultivated on a regular and systematic manner but not by the slash-and-burn method. The details given by the poet in the *Malaipadukadam* idyll show his keen perception of nature.

Varagu, Aivanam, Aiyavi, Avarai and Inji

The *Panicum* (millet) whose ears are intertwined
Like the trunks of elephants that fight in sport
Is fit for harvest. On their stubbles short
The *avarai* creeper sheds its blossoms white
That looks like drops of curds; its fruits are curved
Like a sickle. In wide fields the *varagu* plant,
Quite ready to be reaped with double stalks
Resembling fingers joined together well

By one who argues, lie spread out on rocks
Like the buffaloes recumbent on the paths.
In flower-filled forests sheaves of bamboo rice
Matured by rain are ready to be crushed
And into *aval* made. White mustard sown
In unplowed fields that are with weeding hooks
Prepared grows thick becoming quite mature.
The roots of ginger grow in image shapes
Acquiring pungency.

(Chelliah, 1962, p. 299 *Malaipadukadam*: ll.
142-158)

We also come across a few lines in the *Natrinai* describing the fertile growth of the ears of the *tinai* (*enal*) millets in the cultivated fields in the *Kuriñji* land: "The red stalks with curved spikes of millet (*siru-tinai*) are ready to be harvested in the vast field". "Mountain dwellers (*ulu-kuravar*) prepared the curved land which rain made perfect, and planted few seeds that grew too many plants. The grain spears matured and the plants bent on the sides, unable to bear their weight". "In the mountain country, the farmers (*Kaḷamar*) use oxen (*erudu*) to thresh tender millet wearing *vengai* flower (*Pterocarpus marsupium*) garlands and work in their big storage rooms that are as big as the land itself" (Herbert, 2015, *Natrinai*: Nos. 57; 209: 1-5; 125: 9-11). The form of the *tinai* (*enal*) ears is likened to the trunk of the she-elephant (*Kuru*: 360; *Nat*: 344). "The parched village in the wasteland (*Mullai*) does not yield rice. Two kinds of millets (*varagu* and *tinai*) are the only ones here, and they have been given (by the housewife) to those who have come in need." "Unable to give anything else, clusters (*kuṛal*) of dried millet that is set aside for seeding on her pounding stone (*ural*) was given away to needy people (Herbert, 2015, *Purananuru*: Nos. 328 & 333)."

10.3 Slash-and-Burn Cultivation (*Kuriñji* and *Mullai* tracts)

This is another method of cultivation often used or adopted by tropical forest root-crop farmers in various parts of the world and by dry-rice cultivators, especially the hill men. Both the

Kuriñji and *Mullai* tracts during the Sangam times had considerable cultivable slopes at their merging zones which enabled *vetar* (hunter) and *kuravar* (hill man) to take to cultivation. The classic example comes from the *Purananuru* which refers to the *Kaṇavar* of Kollimalai, Palani hills, (ruled by Kumanan), carrying on slash-and-burn cultivation: “Cloud coming down with lightning and thunder, as it shed rain on immature millet which is not yet pretty and dark, planted between wild rice, after the mountain dwellers burned and cleared the forests” (Herbert, 2015, *Purananuru*: Nos. 159: 15-18). Another poem from the same anthology indirectly refers to mountain dwellers of Kollainilam doing the same type of operation for cultivation (*Pura*: 231).

10.4 Shifting Cultivation (*Mullai* tract)

In this system of cultivation the soil fertility is preserved by plot (field) rotation, as distinct from crop rotation. In shifting agriculture a plot of land is cleared and allowed to revert to its natural vegetation while the cultivator moves on to another plot. “The period of cultivation is usually terminated when the soil shows signs of exhaustion or, more commonly, when the field is overrun with weeds. The length of time that a field is cultivated is usually shorter than the period which the land is allowed to regenerate by lying fallow(*Wikipedia*).”

In the soaring mountains of the *Kuriñji* terrain ‘millet field (*enal*) is dotted with cotton (*pariye*) plants’ (*Kurun*: 72: 4). In the *Mullai-Marutham* blending zone the shifting agriculture was carried on by the cattle herders and goat herders. Two poems in the *Natrinai* (Nos. 266 & 289) in similes were composed by the poet in honour of the departed noble ruler, Adigaiman Anji; and they specifically mention the shifting cultivation by the *Aḍudai-iḍaimagan* (goat herder) and *Koḷḷai-Kovalan* (cattle herder) of *Mullai thinai*.

11. PADDY AND RICE

Paddy (*nel*) was the principal crop that was mainly cultivated in the *Marutham* fields and there were different varieties of paddy such as *veṇṇel*, *sennel*, and *podunel*. Among them ‘*sennel*’ (red paddy) was considered to be superior. The *Nalaḍiyar* mentions that this variety of paddy was reserved for the purpose of future cultivation of the same type of crop and ‘never changes from generation to generation’ (Pope, 1883, p. 367, *Nalaḍiyar* No. 367). ‘*Sali*’ is another superior kind of paddy that is mentioned in the texts. ‘*Alagu*’ is the term used in the *Tirukkural* to specify ‘grains of paddy, food or corn’ (No. 1034). In the mountain fields (*Kuriñji*) the short-stalked *thorai* rice, the long stalked *veṇṇel* (white rice with bran) and *aivanam* (wild mountain rice, *Oryza mutica*) paddy varieties were planted and cultivated (*Maduraikkañji*: ll. 287-288; *Purananuru*: Nos. 159 & 172; *Natrinai*: No. 373). Paddy without grain or a blighted paddy without substance was known as ‘*pathadi*’. The grain of paddy after de-husking is mentioned in the texts as ‘*arisi*’ (*Pura*: Nos. 140, 318, 328, 371 and 399). It is a known fact that the refinement of rice is greater in proportion to the number of times it is pounded. ‘*Palavarisi*’ (old rice) obtained from the paddy of previous year’s produce is always considered to be better than the new product.

12. GRAINS, PULSES, TUBERS, VEGETABLES AND FRUITS

In one of the *Natrinai* poems (No. 93) we notice the word ‘*kulam*’ which refers to grains and legumes/pulses. They are of different kinds. They are: *nel* -paddy; *pul*-grains other than paddy (*pul* also stands for grass generally eaten by herbivorous animal); *varagu*-common millet; *snai*-little millet (*Panicum miliare*); *tinai*-Italian millet commonly found in the hilly tracts (*Kuriñji*); *enal*-a kind of millet; *irungu*-great millet; *kadalai*-lentil; *eḷḷu*-sesame; and *aiyavi* (white mustard, *Brassica alba*). They were grown on the

slopes of hills and the pastoral region. *Payaru*-green gram/lentil (*Vigna radiata*)—[‘It grows fertile and the beans mature like pointed fingers that are separated’, *Aka*: 339]; *Ulundu*-black gram/lentil (*Vigna munga*)—[Herds of deer attack mature pods of *ulundu* plants, whose red stems look like legs of quails (*kadai*), *Kurun*: 68]; *kol/kollu* - horse gram (*Muthira macrotyloma uniforum*)—[‘In the mountain where bamboo ladders hang whether it rains or not and runs down in canals that wind through the vast land where horse gram is farmed’ *Pura*: 105].

Besides the above-mentioned cereals and pulses, we also notice numerous references to wet crops such as the sweet sugar cane (*karumbu*, already mentioned above) and banana (*valai*). From the texts it is conspicuous that the banana cultivation was more in the *Kuriñji* hillside rather than in any other areas. They flourished in the mountain springs (*Nat*: 188) and always in the grove (*Nat*: 232). The leaves of the banana trees are said to be long and delicate (*Nat*: 400). In the Kuthirai mountain the banana with huge clusters of fruits was grown (*Pura*: 168). The poet Kapilar observes that the Parambu hills are fertile and are full of fruitful trees like the plantain and the jack. In the slopes of mountain red banana (*chemmuga valai*), a special variety, was grown (*Aka*: 302). In a similitude the bent plantain fruits are compared to shape of the tusks of the elephants (*Perum*: 358-359). In another simile the plantain bud is like the tusk of the elephant stained with blood while fighting a tiger (*Nat*: 225).

Among the tubers *Chembu* (*Colocasia esculenta*) is mentioned in several Sangam poems. This (Taro) plant, with thick broad leaves, looked like the ears of the elephant and were grown on the slopes of *Kuriñji* (*Kuru*: 76). Its leaves are as ‘dark as blue sapphire in colour; and its roots look like the balls of cooked rice (*pindam*). Wild boar with lifted tusks ate thick tubers of *chembu*’ (*Aka*: 178). *Kilangu* (yam) is mentioned in several *Natrinai* poems (85, 168, 176 & 328) without

details. *Karunai* (Elephant foot yam), mentioned in *Pura*: 395, 398 and *Nat*: 367, were grown on the hill slopes and pastoral region. It was cooked and eaten along with the roasted venison and white rice. *Valli* (sweet yam, *Convolvulus batatas*) (*Pura*: 109, 316 and *Nat*: 269, 295), a creeper with luxuriously grown stems with an epithet ‘*kolunkoti valli*’, was grown in almost three *thinai*s - *Kuriñji*, *Neytal* and *Palai*. Spicy tubers/rhizomes such as *manjal* (turmeric, *Curcuma longa*) and *inji* (ginger, *Allium sativum*) were grown. The matured bulbous roots of the ginger (with different image shapes) are said to be like dolls in form (*Malai*: 125-126). *Kari*-black pepper-*milagu* (*Nat*: 151, 297, 66 & *Pura* 168, 343) grown in the hilly tract was used in culinary preparations.

Vegetables such as *Peer/Peerkai* (sponge gourd—*Pura*: 116, *Nat*: 197, 277, 326), *Surai* (bottle gourd, *Lagenaria siceraria* Opo squash, *Pura*: 116), *Pagal* (bitter melon-*Pura*: 399), *Avarai* (field beans, *Dolichos lablab* -*Nat*: 120, 215, 335), *Kuppaikkirai* (greens -*Nat*: 159) were grown in front of every household. The luxuriant growth of the leaves of the field-beans is noted by the phrase ‘*kolilai avarai*’ (*Ain*: 217). *Murungai* (*Moringa oleifera*) and *Agathi keerai* (*Sesbania grandiflora*) were grown for consumption purpose. *Agathi* blooms are described in (*Perum*: 109-110) to look like the bent tusks of the wild boar. Small fragrant leaves of *munjai keerai*/greens were eaten with grains of millet from the dry fields (*Pura*: 197). *Pirandai* (*Cissus quadrangularis* - Adamant Creeper - Devil’s Back Bone) is just mentioned as a creeper, but the information about its food and medicinal uses are wanting (*Aka*: 119).

The important fruit-bearing trees grown in different regions are *Ma* (mango, *Mangifera indica*) *Nelli* (goose berry, *Phyllanthus emblica*), *pala* or *palavu* (Jack fruit, *Artocarpus heterophyllus*), *Puli*-tamarind (*Garcinia gummi gutta*), *Naval* (*Eugenia jambolana*), *Nungu* (tender palm fruit), *Vellal* or *Vilampalam* (wood apple,

Limonia acidissima) and Fig-*Athavam* or *Aththi* tree (*Ficus glomerata*). References to these trees that yielded big bunches of fruits with apt similes are aplenty in the *Siangam* texts. For example, “the big drum-like fruits hanging in the branches of the jack tree have attracted the keen and imaginative eyes of the poets who have depicted the scene with a wealth of words. *Vilkot palavu*, *vilukkot pallavu*, *talkot palavu* and *celunkot palavu* are the phrases describing this attractive sight of the fruits of the tree” (Varadarajan, 1969, p. 261).

13. PROTECTION OF CROPS

Protecting the standing crops from wild animals and birds was an important activity of the people in the *Kuriñji* and *Marutham* regions. In the *Akananuru* the poet depicts a mountain scenery in which the elephant with immense strength rooted out trees, “stabbed and killed a screaming tiger and its strength drained, moved to steal tiny millet from a large millet field” (*Aka*: 148). In the fields of *Mullai* and *Neithal* the ‘*thannumai*’ drums were beaten by the reapers who cut the white paddy causing fear to big footed *narai* (stork/crane) and other birds (*Aka*: 40 & 204). In the *marutham* fields also the ‘*thannumai*’ drums were beaten when the white paddy (*vennel*) was harvested by the paddy reapers (*aṟinar*) to frighten and chase away the marauding birds (*Nat*: 350). To protect the mountain paddy fields the guards set fire to chase away the animals entering the field (*Pura*: 172). In a similar manner, “the elephant moves in fear, on seeing torches lit by a guard (*senon*, mountain dweller) protecting a field with beautiful, small-eared millet (Italian *setaria italicum*), and is startled by the sudden brilliance of a shooting star (Herbert, 2015, *Kuṟunthokai*: No.357)” (*Kuru*: 357). Here is an interesting anecdote from the *Natrinai*: “The mountain farmer (*punavan*) places a big rock trap with a small device (*siru pori*) to catch a boar that comes to eat his millet, only to find a bright coloured, strong tiger trapped (Herbert, 2015, *Natrinai*: No. 119:

1-3).” In the *Kuriñji* region “the sounds of watchers (forest dwellers/ *Kaṇavar*) who the parrots scare that sweep down on the hills, of jungle men who drive away the deer (*ama*, forest wild cow) that eat the buds of the *avarai* vine on which grow gem-like blooms (Chelliah, 1962, *Maduraikkañji*: ll. 300-302).”

We have fine pictures in the *Kuriñjippattu* of the cultivator guarding his crops from wild animals and birds. We get a number of references in the texts about the elephants and parrots often making raids in the millet fields. Generally the *tinai* fields were watched by young women who stood by bird-hit farmers. They were specifically employed “to chase away marauding birds that come to eat the bent, mature, tiny millet (*siru tinai*) on big spears with fuzzy tops, resembling elephant trunks (Chelliah, 1962, *Kuriñjippattu*: ll. 35-39).” Those who protect the millet (*enal*) and millet fields were known as ‘*enal kappor*’, (*Pura*: 28). Among the birds frequently referred to in the Sangam poems, the parrot is the one that has close links with the *tinai* field. *Natrinai* mentions that the parrots gathered in flocks on hill tops and voraciously feed upon the ears of *tinai* plants (*Nat*: 206, 304 and 376). It was always the mountain girl/*kuravar* women (*koḍicci*) who ‘protects the big millet spears in the field from marauding peacock (*manjai*)’ (*Ain*: 296:1). Here is an interesting passage from the *Kuriñjippattu* wherein the poet Kapilar narrates the specific role of young women in guarding the crops from the parrots:

We climbed a loft that is the tiger’s dread
erected by the hunter on the top
of noisy tree. We parrots scared away,
and made sky-roaming birds fly to their nests
with corn-cracks made of hill-side canes with skill,
and slings and drums and other instruments
employed in turn.

(Chelliah, 1962, *Kuriñjippattu*: ll. 49-55).

Here the corn-cracks such as ‘*thalal*’ and ‘*kulir*’ are ready-to-use implements that were used to drive the flocks of birds away from the millet

fields and *'thattai'*, a hand-rattle, to chase parrots and other birds. While the young *kuravar* women (*kodicci*) and low-class peasants used hand-held rattles (*kai-kulir*) to scare birds away (*Kuru*: Nos. 291:2, 357 & 360), the forest dwellers (*kuravan*) used stone sling device called *kavan* to drive away the elephants. In the millet fields in hilly region the guards known as *'senon'* built the tall look-out towers for the daughters of mountain dwellers to ward off marauding birds and animals (*Nat*: 276). They guarded the *tinai* fields and frightened away the elephants from grazing and destroying the *tinai* fields (*Kuru*: 357). The watchers beat the drums to scare away wild boars that root out *chempu* (yam) ripe and turmeric (*Malai*: ll. 444-445). In the mountains "people living in fine villages shoot arrows, beat *kinai* drums, shoot hand-made slingshots (*kavan*) and make loud noises, when fierce-eyed male elephant strays from its female and enters their field to eat their dark coloured millet" (Herbert, 2015 *Natrinai*: No. 108: 1-4).

Here is an interesting tidbit of information from the texts about the crabs. Known as *'kalavan'* or *'alavan'*, the free occupant of the burrows in the *Marutham* fields, the crabs had the habit of carrying "ears of grains from a lovely, fine paddy (*sennel*) field to his cool hole in the mud", and also coming out of its burrow the crab "severs the white sprouts of a newly sown paddy plant, as guards (*kavalan*) come running in the rain to protect the field (Herbert, 2015 *Ainkurunuru*: Nos. 27 and 29)."

14. AGRICULTURAL LABOUR

To a certain extent we glean from the Sangam poems the class of labour, hired as well as slaves, and how they were utilized. As has been mentioned earlier, the *Marutham* folks were identified as *ulavar* (agriculturalists, tillers, farmers), *Kalamar* (farmers, tillers), *toluvar* (farm workers), *nel-arinar* (paddy reapers) and their headmen were known as *mahilman*, *urom*,

mannaiyol and so on. Among the three classes of peasants working on the land, the *toluvar* were virtually the agricultural serfs. So we can only guess the early stages of differentiation of this class of society mostly on the basis of the Tamil texts.

The bulk of the agricultural land was owned by the *vellalar*, who did not plough or till the land themselves, but employed labour class to do it. The land owners were also known as *kilavan*. The late commentator, Naccinarkkiniyar (15th-16th century AD), distinguishes between the rich and the poor *vellalas* by describing them as "those who maintained themselves by causing (land) to be ploughed", and "those who maintained themselves by ploughing (land) (*Tolkappiyum-Porulatikaram*, *Akathinai* Sut.30, see *Pura*: No. 33:4 & 375:6)". This clearly shows the disparity between the rich land owners and the poor landless labour class. The rich land owners held official position in the civil and military administration with the titles such as *'Vel'* and *'Arasu'* in the Chola country and *'Kavidi'* in the Pandya country.

Another interesting point which deserves mention in this context is the status of peasant women. There is no denying the fact that agriculture was the mainstay of the State economy, and most of the agricultural operations such as seedlings, transplanting, protecting the crops, harvesting, winnowing and storing the grains were assiduously carried out by women of the lowest or last classes (*kadaiyiar*, *Pura*: 61) whose status appears to have differed little from that of the slave. The expression *'kadaiyiar'* itself suggests the existence of a vertical hierarchy of castes or communities during the Sangam age. In the texts we come across more terms such as *'adiyurai'* (slave, humble servant) (*Kali*: 140:11; *Pura*: 67:12, *'adimai'* (slave) and *'adiyor'* (petty servant). Then we are given to understand or assume that evidence of serfdom in Tamil land in agricultural operations is more tangible, but that practice of employing the slaves was apparently only the continuation of the caste hierarchy. K A

Nilakanta Sastri clarifies that “there is no clear evidence of the prevalence of predial slavery, though it is possible that most of the labourers of the ‘last classes’ did not differ much from slaves in their status, as many agricultural operations were done by women of the last classes (Sastri, 1955, p. 87)”. It is apparent that the ‘last classes’ of workers were bound to their land. Whether the rich peasants protected and cherished them, we have no textual evidence; whether the slavery was a very hard bondage or not, we have no clue.

15. METHODS OF IRRIGATION

Water was collected from a number of sources in the *Kuriñji* region for the cultivation of certain dry crops. Waterfalls (*aruvi*), springs, mountain streams (*vellaruvi*) and forest streams (*kanyaru*) are pictured by the poets in many of the Sangam poems while treating the *Kuriñji* region (Varadarajan, 1969 p. 208-212). ‘In the middle of the night, heavy rain with roaring thunder fell on the mountain that reach up to the skies. Flood waters flowed in the forest streams (*kanyaru*) with rocks, carrying dried leaves and clusters of flowers buds (*Natrinai*: Nos 53 & 292, Herbert, 2015)’. Small pools in the hills are called ‘*cunai*’. They are said to preserve water from the fresh showers of early winter so as to be useful for the animals to drink throughout the year (*Aka*: 364) and water in these pools is mentioned as ‘crystal-clear’ (*palingu chori vanna pai-cunai* (*KP*: 1. 57)). Basically the *Kuriñji* folks were hunters and food gatherers and were always mobile. But in course of time they might have climbed down to *Mullai* and *Marutham* regions to adopt agriculture for subsistence sake. So to say the least there was no systematic irrigation technique followed by them in spite of the fact that the streams and water falls are given careful and discriminating observation by the poets. In the *Mullai*-pastoral region the farmers utilized water from the forest streams and brooks (*kattaru*), rivulets and ponds but not in a planned manner.

There were many forest springs (*cunai*) in this region also which had taken in abundant rain water (*Malai*: ll. 103-104). Otherwise they were totally dependent on the seasonal rains to drench the red ground that looked like vermilion (*Aka*: 14, *Kuru*: 40). Forest streams were active in the rainy season. In this region, varagu was cultivated in red soil and well watered by abundant rains. (*Pura*: 120)

Coming to the *Marutham* region, we notice in the Sangam texts that the villages were invariably surrounded by green fields. They were many tanks (*ayam*), minor dams (*sirai*) to harness the flow of streams and fresh water pond (*uruni*) in the villages. Generally the term ‘*poigai*’ stands for a tank; it is not man-made, but it is a natural formation. The term ‘*kayam*’ stands for a village pond or a tank. The epithets ‘*netu nir*’ (*Ain*: 61) and ‘*kuntu nir*’ (*Kuru*: 122) stand for the depth of water in the village tanks. In addition to the tanks and ponds, deep sunk wells (*kinaru*) were also utilized for the purpose of irrigation. There were, of course, many rivers and branch channels with coordinated sluices (*tumbu*). The river banks were fringed with the *Marutham* and *Vanji* trees. Well irrigation was in vogue during the period under study. In the Tamil texts we come across the terms such as ‘*kulam*’, ‘*kinaru*’, ‘*vavi*’, ‘*kuval*’ and so on were freely used to signify a well. Watchmen and farmers guarded the irrigation tanks at night by taking turns without sleep. There was untiring all-round vigil by guards at reservoirs to prevent the overflow or bursting of banks during the rainy season (*Akananuru*: 252:11-14 Sastri, p. 47).

Almost in every nook and corner of every village in the Tamil country one finds the use of wells both for irrigation and domestic purposes. Well irrigation no doubt extends the distribution network, but slowly. However, it was common in those days, as it is today, to have a well dug in the midst of fields. Well water was utilized in the areas where the tank or canal irrigation was impossible or totally absent. One of the oldest regions in the Tamil Country was the Kongu region (modern

Salem and Coimbatore districts of Tamil Nadu). It was bordered on the west by the Cheras country, on the south by the Pandya country, on the east by the Chola country and Konadu on the north by the territory of the Adigaimans. Although the Kongu region was watered by the Kāvēri and its numerous tributaries - the Bhavani, the Noyyal, Amaravati and other streams - water scarcity was felt very much at all times. "The skill and energy with which the people of Kongu sank very deep wells and brought out water by breaking hard rock with their pickaxes drew the admiration of the ancient bards who celebrated them in their songs. The wells supplemented to a great extent the limited water supply of the people to convert arid tracts into arable lands" (Aiyar, 1917, p. 45).

In the *Paṭṭinappalai* (line 76) it is mentioned that in the outskirts (puracherry) mud-walled wells were found (*uṛai-kiṇaru*). The inside of these wells were covered with baked clay instead of being built with stones. Wells provided with filling and discharging pipes and sluices were known as '*endirakkinaru*'. (*Mani*: XIX: 102) They were also known as '*endiravavi*'. In the *Maduraikkaṇṇi* we get a glimpse of the different modes or types of water-lifting devices employed in irrigation: "In thy domain is heard the sound of those who stand in rows and irrigate their fields from tanks with basket-pails to well-sweeps tied and baskets strongly made and softly bound" (*Maduraikkaṇṇi*: ll. 80-83, Chelliah, 1962, p. 237).

The words '*ambi*' and '*kilar*' in the texts stand for baskets, pails and buckets. These names refer to different types of baskets and buckets used in irrigating small parcels of lands. A container or a vessel known as '*pattal*' was also used for drawing water from wells. The application of water-lifts (*erram* or *ettam*) and other simple devices are unmistakably mentioned in the texts of the *Maduraikkaṇṇi* and *Śilappadikaram*. In the *Śilappadikaram*, the poet Ilango Adigal, while giving an account of the Kāvēri, mentions the use of different types of devices in irrigation:

"By finding her (Kāvēri) movement arrested by the barrier - the *anicut* with its doorway - she noisily leaps beyond it in the sportive mood natural to her first freshes. No sound other than this can be heard. We can hear there neither the sound of the bucket nor of the water-lift; neither the usually loud *picotah* nor the palm-leaf bucket used in irrigation" (Dikshitar, 1939, p. 161).

A passage like this would surely indicate the existence of water-lifting mechanisms for the purpose of cultivation and irrigation. In the *Maduraikkaṇṇi* it is stated that the palm-leaf baskets were responsible for the continuous water-logging in the paddy fields. '*Tev*' (*MK*. ll. 89-92) and '*eda*' (*Silap*: X: 107-119) are terms generally met with in the Tamil literary works to denote the palm-leaf baskets; and '*pila*' (*Silap*: X: 111) is also a basket made of metal for drawing water. These simple contrivances were evidently handled by the application of human labour. Wells fitted with pulley wheels for drawing water from them were known as '*kilar*'; and they were made either of wood or stone and similar to those used in modern times. Among the devices used by the Tamils, the pulley-wheel was the simplest one for all practical purposes. It was a one-man job to draw water from the well for increasing the flow of water in the channels leading to the fields.

Sand Wells (*Manarkkeni*) and Spring Wells (*Uṛṇir-keni*)

'*Keni*' stands for a well and, in particular, a temporary well. Such wells were dug on sandy soil and used for drinking and irrigation purposes by the *Neytal thinai* folks. 'In sandy soil, when deep delve, you reach the springs below'. (*Tirukkural* No. 396). A similar kind of information is found in the *Naladiyar*:

The water of well dug in the sand, though draw it forth, gushes still; though
You irrigate with it, it gushes still; dam it up is it stayed?

(Pope, 1893, p. 340)

The well of springing water (*Uṟru-nir-keni*) serves
The town that draws and drinks, even in time when
rains are scant.

(Pope, 1893, p. 340).

16. STOCK-REARING

Closely allied to agriculture was the cattle rearing and dairy farming. That the cow and ox were held in high reverence is quite clear from the texts. Oxen and buffaloes were reared for agricultural operations, and cow, goat and sheep were the main domesticated animals. Cattle, naturally, was considered not only holy, but also as the measure of property. The wealth of the individual and of the society was assessed on the basis of cattle heads that one possessed. The importance of livestock as a form of economic wealth was well realized and to increase the stock of livestock, breeding bulls were reared. Special care was taken to protect breeding bulls from wanton attack. The farmers in the *Marutham* and *Mullai* tracts had maintained their own cattle herds; since the owning of cattle heads symbolized the social status. There were no separate cattle-stands in any of the tracts; there were plenty of pasture lands in the *Mullai* and *Kuriñji*. It was a usual practice in those days that the plow man from the agricultural land let their oxen (*pakaḍu*) graze on forest land (*Pura*: 395: 1-2).

Cowherds and shepherds were generally known in the *Mullai* as '*ayar*'. Shepherds (*poduvar*), goat herder (*Aḍuḍai-iḍaimagan*) and cowherds, cattle herders (*kovalar*, *kollaikkovalar*) were common to the agricultural as well as the pastoral tracts (*Nat*: 266 & 289); whereas the cattle herders in the *Palai* tract were known as '*kudavar*' and one with herds of cattle was a '*nirai palakuliea*' (*Aka*: 393:1.16). Cattle herders (males) were called '*ayar*' and women cattle herder as '*aymagal*' (*Pura*: 33 & 215). They were also variously known as *idaiyan* (*Pura*: 54, 324 & 331), *Kovalar* (*Nat*: 69, 264, 265 & 289 and *Pura*: 224, 265 & 359), and *Idaimagan* (*Nat*: 142 & 169).

The huts in the *Mullai* settlement belonging to cattle herders (*kovalar*) were quite simple and livable. It had posts with short legs and young goats (*mari*) were tied to these posts (*Perum*: ll. 147-168).

Among the numerous ruminants mentioned in the texts, the important domesticated animals are bull (*eru*, *erudu*, *kalai*), buffaloes (*erumai*, *pakaḍu*, *karan*, *kulavi*), *aan* (cow), milk cow (*karavai*), young cow (*nagu*), calves of cow or buffalo (*kandru*), goat (*adu*, *puruvai*, *turu*), young goat (*mari*), mountain goat (*varudai*). Cattle herds and goat herds are mentioned as '*nirai*' & '*ayam*' and '*tholuthi*' & '*thodu*' respectively. Tawny cow in the mountain region is mentioned as '*sedha*' and '*kura-al*'.

The buffalo is a *sine qua non* of the agricultural tract; so to say an indispensable and integral part of the agricultural operations. The farmers in the *Marutham* owned many buffaloes and rice granaries. They carefully selected the bullocks (*eru*) that were to be yoked to the plough (*Pura*: 259: 1). They did not tire to go round and round the wet field. Then they threshed out the grains with bulls (*Perum*: 275). In the Chola country fully grown calves (*mulu-kulavi*) of fat buffaloes ate mature, fine paddy and slept in the shade of tall grains bins (*Pat*: ll. 6-7). In the mountain country the farmers (*Kaḷamars*) used oxen (*erudu*) to thresh tender millet wearing *vengai* garlands (*Nat*: 125:9-11). In the woodland fenced with thorns there were tall cattle sheds (*thoḷu*) and granaries (*kuthir*). The farmers (*uḷavar*) yoked huge oxen (*pakaḍu*) for plowing and they were allowed to stalk the paddy spread (*Perum*: ll. 185-186 & 196-197).

17. CONCLUSION

In conclusion it is imperative to note that the gleanings from the Sangam texts have unraveled all important aspects on the agricultural practices during the early centuries of the Christian

era. The three major ruling families, the Cheras, the Colas and the Pandyas representing the fertile agricultural tracts (*menpulam*) of the major river valleys, and their chieftains were constantly engaged in plunder-raids and wars. This resulted in the destruction of cultivated fields (*kaḷani*) and settlements. It was amidst these adversities that the people of *menpulam* had to carry on agricultural production. "Thus were the arts of agriculture developed to such perfection in early days that modern science can add but little to the traditional wisdom of the South Indian farmer" (Iyengar, 1929, p. 13). And no wonder that advanced farming remained absolutely to the river valleys with or without remarkable progress till the seventh - eighth century AD.

ABBREVIATION

Ainkurunuru (*Ain*), *Akananuru* (*Aka*), J V Chelliah (*JVC*), *Kurinjippattu* (*KP*), *Kurunthokai* (*Kuru*), *Maduraikkañji* (*MK*), *Malaipadukadam* (*Malai*), *Manimekalai* (*Mani*), *Natrinai* (*Nat*), *Pathiruppathu* (*Parp*), *PattinaPalai* (*Pat*), *Perumpanatrupadai* (*Perum*), *Porunaratrappadai* (*Porun*), *Purananuru* (*Pura*), *Tolkappiyum Poruladikaram* (*Tol.Pòorul*), *Śilappadikaram* (*Silap*), *Sirupapanatrupadai* (*Sirup*), Vaidehi Herbert (*VH*)

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