

LAND MEASURES IN EARLY MEDIEVAL ORISSA

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It is well-known that the rulers in ancient and medieval India had created *agraharas* or rent-free villages and granted them to the Brahmanas or religious institutions. It is further evident from the inscriptions that the gift land often consisted of a *Khanda-kshetra* or a plot of land separated from the village by means of a specific boundary (*Cheda*). Whenever such plots of land were granted to the beneficiaries, they were probably measured by the royal officials and the measurements were recorded in the charters for future reference. There was no uniform system of land measurement in India in the past. The land measures varied considerably in time and space. The inscriptions of Orissa furnish an elaborate system of land measurement. They clearly spell out the different units of measurements for the *sasya bhumi* (cultivable land) and *vastu- bhumi* (homestead land). Although many such land measures are also available from the records of other parts of India, yet there are certain technical terms of land measure that are exclusively occurred in the charters of Orissa. An attempt is made in this paper to bring together most of the relevant information relating to the land measures available from the inscriptions of Orissa up to the 13th century A.D.

Chronologically, the Rithapur copperplate grant of the Nala king Bhavadattavarman furnishes one of the earliest references to a land measure¹. The inscription is not dated, but palaeographically it can be assigned roughly to the 5th century A.D. It records that the gift village measuring in extent ten *nivartanas* was granted to the brahmanas (Matraddhyarya of Parasara *gotra* and his eight sons) together with the right of ploughing and the garden. The earliest reference to *nivartana* is found in the Satavahana inscriptions of the 2nd century A.D.² and it was also prevalent in the western³ and southern⁴ part of India in the later centuries. But the Rithapur grant is the only epigraph of Orissa where we come across this technical term. The exact area measuring a *nivartana* in a particular locality can not be ascertained because the ancient literary texts widely differ on the point⁵. But there has been a near unanimity among the ancient authorities regarding the area of a *nivartana* in comparison to that of a *go-charma*. It has been mentioned that a Nivartan is one tenth of a *go-charma*. *Go-charma* finds mention in the inscriptions of the 6th-7th century while quoting benedictory and imprecatory verses from the *Vyasa-gita*⁶. It is generally taken to be equal to 150 cubit square. But more definite information is available from a 13th century inscription where

an area of 18 *vatis* of land is referred to as equivalent to one *go-charma*⁷. As will be shown below a *vati* is now regarded as equal to 20 acres and hence 18 *vatis* are equal to (20x 18 =)360 acres which is also the extent of a *go-charma*. If a *nivartana* is equal to one-tenth of a *go-charma*, then it comes to about (360/10=)36 acres of land. But what it exactly amounted to either in the 6th-7th or 13th century cannot be determined precisely. D.C. Sircar, who edited the said Ganga inscription of the 13th century believed that the *go-charma* mentioned in the record could be equivalent to that area which was recognised by such authorities as Parasara and Brihaspati⁸. According to Brihaspati a *nivartana* was an area of 300x300 square cubits or about 4 3/4 acres. A *go-charma* which was ten times of a *nivartana* could be (4 3/4x10=)47 1/2 acres in extent.

Another land measure, i.e. *hala* is found used in the inscriptions of the Gangas of Kalinga and in an inscription of the panduvamsis of South Kosala. The land measure was probably used in Kalinga from the 6th to the 12th century. It is evident from the inscriptions that the plot size endowed to the beneficiaries ranged between one and six *halas*. The land measure *hala* means a plough share but is also used to denote a measure of land. In the latter case it represents the amount of land which can be conveniently ploughed or rather cultivated with the help of one plough or one pair of bullocks annually. But it is difficult to determine the exact area of land indicated by a *hala* and in no case it could have been the same everywhere because the size of plough, the condition of soil, and the physical and number of bullocks engaged for the purpose were bound to differ from place to place. Moreover, Manu refers to various kinds of ploughs. His commentator Kullukabhatta explains that the land measure using plough drawn by eight bullocks was known as *dharmahala*, that drawn by six for the cultivators as *Madhyama hala*, by four for the house-holders as *grihastahala* and the one drawn by three bullocks used for brahmanas was known as *Brahmahala*.⁹ In the present state of our knowledge it is difficult to ascertain whether there was any difference between the *hala* measure granted to Brahman donees and the religious establishments in the early medieval Orissa. In this connection it may be pointed out that in other areas of India, *bhikshu hala*, *bhoga hala*, *brahma hala*, *brihad hala*, etc., occur which may refer to the specific number of bullocks to be used to indicate a plough share in respect of the donees such as a Buddhist Sangha, an official, a Brahmin and the like¹⁰. Similar expressions are not forthcoming from the Orissan epigraphs, yet in one of the Ganga charters we come across a phrase *halasya bhumi-brahmadey-danda mana-mita* which has been translated by Hultzsch as one plough of land measured by the rod used for the *brahmadeyas* had been granted to the donee¹¹. But here *brahmadeya-danda* may mean the prescribed number of bullocks to be used to indicate a plough share in respect of a *brahmadeya* village.

Sl. No.	Inscriptions	Reference	Plot of Land	Village	Donee
(1)	(2)	(3)	(4)	(5)	(6)
1	Narasinghpalli plates of Hastivarman Year 79(AD 557)	R.C.Majumdar, <i>EI</i> ,23,62-67.	6 <i>halas</i> of land with 4 <i>nivesanas</i>	Rahanaki in the Dist. of Varahavattrani	God Narayana
2	Urla m plates of Hastivarman year 80(AD 578)	E.Hultzschi <i>EI</i> ,17,330-34	2 1/2 <i>halas</i> of land	Honderaka in the Dist of Kroshtukavarttani	Jayasarma
3	Achyutapuram plates of Indravarman year 87(AD 585)	E.Hultzschi <i>EI</i> ,3,127-30.	1 <i>hala</i> of land	Siddharthake in the Dist. of Varahavarttani	Durgasarma
4	Santabommali plates of Indravarman, Year 87(AD 585)	L.N.H. Jagadeb <i>Jourandal of Andhra Historical Research Society(JAHRS)</i> 4(1-2),21-24	2 <i>halas</i> of land	Haribhatta in the Dist. of Kroshtukavarttani	God Ramesvara Bhattaraka
5	Telkkali plates of Indravarman year 154(AD652)	E.Hultzschi <i>EI</i> ,18,307-11.	1 <i>hala</i> of land	Tunganna in the Dist.of Rupyavati	Skandasarma
6	Siddhantam plates of Devendravarman year 195(AD 693)	G.Ramdas, <i>EI</i> ,13,212-16.	1 <i>hala</i> of land along with the water course and a <i>nivesana</i>	Siddharthaka in Varahavarttani	Tamparasarmadikshita
7	Tekkali plates of Anantavarman year 358(AD 856)	R.K.Ghosal, <i>EI</i> ,26,174-77.	6 <i>halas</i> of land along with <i>tataka</i>	(Vai) Sinicharana Dist.(not mentioned)	Vithubhatta
8	Senakapat inscription of Mahasivagupta Balarjuna(c.9th century AD)	M.G.Dikshit & D.C.Sircar, <i>EI</i> ,31,31-36	2 <i>halas</i> of Black soil land	Gudasarkaraka grama	God Madanarati (Siva)
9	Algumma inscription of Chodagangadeva Year 62(AD 1140)	D.C.Sircar & S.R.Sarma, <i>EI</i> ,29,44-48.	1 <i>hala</i> of land	Alagumma in the Dist.of Ramanga	God Garte-svaradeva

Timpira (also spelt as *timmira* in some records) is another land measure which was current in Orissa in the 6th/8th centuries. The term finds mention in the Soro plate of Sambhuyasa of (Gupta) year 260 (A.D. 579-80). The king had granted 8 *timpiras* of cultivable land (*sasya-bhumi*) along with 200 hastas¹² of homestead land (*vastu-bhumi*) in a village called Ghantakarna Kshetra in the district of Sarepahara in Uttara Tosali (north Orissa). Later on the area measure was popularised in the inscription of the

Sailodbhavas of Kongoda (parts of undivided Puri and Ganjam Districts) of the 7th-8th centuries. Like *hala*, the size of plots granted to the donees ranged between one and eight *timpiras*. While Sambhuyasa granted 8 *timpiras* to the donee in north Tosali, the Sailodbhava rulers granted comparatively lesser size of cultivable plots, the lowest amount of which was one *timpira*. The Cuttack museum plates of Madhavavarman and the Parikuda plates of Madhyamaraja state that 23 and 12 *timpiras* were granted to respectively 23 and 12 Brahmins, and thereby make us believe that each donee receive one *timpira* of land. Although the exact area indicated by a *timpira* is not known to us and the term is not traced in any classical Sanskrit and Prakrit literature, yet it can be presumed that like the plough measure it also stood for a fairly big patch of land. The gift land of the Banapur plates of Dharmaraja was consisting of 3 *timpiras* in a locality called Suvarnalondi, and 2 *timpiras* and 1 *pada* at the village of Madhuvataka. D.C. Sircar has taken that one *pada* (meaning one-fourth of the standard land measure) as a fraction of *timpira* and opined that the land in Madhuvataka consisted of 2 *timpiras*. In other words, in his opinion four *padas* made a *timpira*¹³.

Sl. No.	Inscription	Reference	Plot of Land	Village	Donee
(1)	(2)	(3)	(4)	(5)	(6)
1	Soro plate of Sambhuyasa, year 260(AD 579-80)	N.G.Majumdar, <i>El</i> , 23, 201-02.	8 <i>timpiras</i> along with 200 <i>hastas</i> of homestead land	Ghantakarna Kshetra in the Dist. of Sarepahara	Bhavana-swami
2	Cuttack Musuem Plates of Madhavarman, year 50	N.G.Majumdar, <i>El</i> , 24, 148-53	23 <i>timpiras</i>	Tamatada in Vyaghra purabhukti	23 Brahmins
3	Parikud plates of Madhyamaraja, year 26	R.D.Banarji, <i>El</i> , 11, 281-87	12 <i>timmiras</i> (<i>timpiras</i>)	Purvakhanda in the Dist. of Katakabhukti	12 brahmins
4	Ranapur plates of Dharmaraja, year 3	S.Tripathy, Inscriptions of Orissa, 1 New Delhi, 1997, 241-45	5 <i>timpiras</i>	Usavataka in the Dist of Tanakendra	Trilochana swami
5	Nivina plates of Dharmaraja, year 9	N.P.Chakravarti, <i>El</i> , 21, 34-41	2 <i>timpiras</i>	Nivina in the Dist, of Khidingahara	Savarideva-dikshita
6	Puri plates of Dharmaraja, year 12	S.N.Rajaguru, <i>Journal of Bihar & Orissa research Society</i> , 16(2), 176-88	(a) 2 <i>timpiras</i> . (b) 1 <i>timpira</i>	(a) Dongi in the Dist. of Varttani (b) Duka	Gola swami
7.	Banapur plates of Dharmaraja	D.C.Sircar, <i>El</i> , 29, 38-48	(a) 3 <i>timpiras</i> (b) 2 1/4 <i>timpiras</i>	(a) Suvarnaralanda in the Dist. of Thorana (b) Madhuvataka	a religious establishment in charge of Prabuddha-chandra.

In the Bhaumakara inscriptions, *mala* is mentioned as a land measure. The Angul plate of Dharmamahadevi records the donation of ten *malas* of land¹⁴. It also occurs in the records of the Tungas of Yamagartamandala¹⁵. *Mala* is probably a scribal error for *Mana* used in the records of the imperial Gangas, and as such it may denote the same measure as *mana*. *Vati* along with its fractions such as *mana* and *guntha* are some of the land measures widely popularised in Orissa from the 12th century. The Lingaraja temple inscription of A.D. 1163 furnishes one of the earliest examples of the land measure *vati*¹⁶. It refers to 7 *vatis* of *gochara* (pasture) land. The Dasagoba plates of Rajaraja III of S.1120 (A.D. 1198) make an interesting distinction between *vati* and *grihavati*. The plates register the grant of 102 *vatis* to 12 brahmins and another 66 *grihavatis* were gifted away to 63 brahmins. It is also stated in the same grant that 66 *grihavatis* were equal to 15 *vatis*¹⁷. The Nagari plates of Anangabhimadeva III of S.1151 and 1152 (A.D. 1229 and 1230) also make a similar distinction between *sasya-bhumi* and *vastu-bhumi*¹⁸. From the Alalpur¹⁹ and Kendupatna plates of Narasimhadeva II²⁰ respectively of S.1215 (A.D.1293) and S.1217(A.D. 1295) it becomes fairly clear that 1 *vatika* of land was regarded as equal to 20 *manas* while 1 *mana* was equal to 25 *gunthas*. D.C. Sircar points out that " a *vati* is sometimes regarded as equal to 12½ acres of land, but there seems to be varying areas of a *vati* prevalent in different parts of the country and there may have also been difference between the areas of a *vati* of the present day and that recognised by the Ganga kings of Orissa in the thirteenth century A.C. This is possibly suggested by the fact that the *Pramoda Abhidhana*, an Oriya dictionary published in 1942, regards a *mana* as equal to one acre of land and a *vati* as equal to 20 acres²¹. Thus, a *vati* is either equal to 12½ or 20 acres in extent but a *grihavati* is about 4½ acres, as gleaned from the Dasgoba plates.

It has already been referred to above that Sambhuyasa had granted 200 *hastas* of homestead land to the brahmin. *Hasta* is a cubit measure which was often measured in the length of the forearm of a particular individual. A standard *hasta* measures 36 *angulas* or 27 inches and hence 200 *hasta* would become 5400 inches or 450 feet. While specifying the boundaries of the gift village, the Kamanalinaksapur plates of Svetaka king Samantavarman mention a unit of measurement called *nala*²². Beside, the measurement of land gifted by the Alalpur plates was made with the help of a *nala*²³. It was a measuring rod made of a piece of wood or bamboo and had the length of a recognised number of cubits (*hasta*) or steps (*pada*). This type of measurement was also popular in other parts of India. But the exact measurement of a *nala* was not the same and differed from place to place. In the Telugu-speaking tract of the Ganga empire another term called *kola* is used in the sense of a measuring rod. The Ganga inscriptions of the 11th-13th centuries refer to a few measuring rods with the suffix *kola*, such as *kola kola*²⁴, *Jena kola*²⁵, *Pedda kola*²⁶ *Aniyankabhima kola*²⁷, *Jagaddevani kola*²⁸, etc. " These rods appear to be of a particular standard of length statutorily fixed by the ruler and named after the name of the king or god for use in the period to which

they belonged²⁹. These linear measuring rods were of varying lengths ranging between 22 spans and 34 spans³⁰. Kola is probably a Telugu equivalent of kannada kolu and Tamil kkol, as we have Manikesvarada kola and Dharanidevana kola in the kannada inscriptions and Sripadakkol and Maligaikkol in the Tamilinscriptions³¹.

The Midnapore plate of Subhakirtti refers to the gift of 40 *dronas* of land and one *dronavapa* of homestead land in the village Kumbharapadraka to a brahmin named Damyasvamin³². *Drona* is apparently an abbreviated form of *dronavapa*. *Dronavapa* along with its other divisions and multiples such as *adhavapa* and *kulyavapa* were also used in the inscriptions of Bengal³³. The words *kulyavapa*, *dronavapa* and *adhavapa* indicate the area of land that was required to sow seed grains of the weight respectively of one *kulya*, *drona* and *adhaka*³⁴. According to Sanskrit lexicons a *dronavapa* was equivalent to one-eighth of a *kulyavapa* and this equation of 1:8 between a *kulyavapa* and *dronavapa* is also corroborated by epigraphic evidences.³⁵ It is further known from the Smriti texts that 4 *adhakas* were equivalent to a *dronavapa*³⁶. Besides, the inscriptions from Bengal furnish conclusive evidence to prove that a *pataka* was denoting to a larger unit and was equivalent to 40 *dronavapas*³⁷. Like the inscriptions of Bengal, in the inscriptions of Orissa also *pataka* is used both as a part of a village as well as a land measure. The Ranapur copper plate grant of Dharmaraja (late 7th century A.D.) was issued from Matrichandra-pataka³⁸. Here *pataka* possible denoted a locality, that was created by naming it after the person Matrichandra. On the other hand, the phraseology *purvadatta-pataka-sahitena pataka dasa praipta* in the Orissa State museum plates of Nettabhanja II *alias* Prithvikalasa³⁹ admitted refer to *pataka* as a land measure. Thus, *dronavapa* and *pataka* were the units of land measurement relating to the quantity of seed sown.

The Indian museum plates of Indravarman register the grant of land measuring 10 *kaidis* between the villages Bethisinga and paduni in the district of paduni-khanda⁴⁰. The term *kaidi* is not known from any other source although *kai* is used in the Kannade incriptions in the sense of cubit measures for indicating the length and breadth of house sites⁴¹. But the record under discussion specifically states that the land included forests, pits, water courses, etc., in addition to the cultivable lands.

In the southern part of Orissa in the inscriptions of the Gangas of Svetaka and the Gangas of Kalinga another important land measure called *muraja* or *muraya* was used. *Muraja* is referred to as a land measure in at least two Svetaka Ganga grants. The gift land of the Kamanalinaksapur plates of Jayavarman was consisting of 10 *murajas*⁴² while that of the Gautami plates of Indravarman was of 4 *murajas*⁴³. In the copper plate grants of the Gangas of Kalinga the technical term seems to have been changed into *muraya/muraka* and used in the same sense⁴⁴. The Chicacole plates of Madhukamarnava of Ganga year 526 (A.D. 1024) furnish an interesting information, where it has been stated that 200 *murayas* of land were granted to a charitable feeding

house (*sattra*) and another 40 *murayas* to the writer of the charter⁴⁵. The practice of granting lands to the writers of the official charters was a well-known feature of the administration of the Imperial Gangas. Although the exact import of the word *muraja* and its cognates *muraya* or *muraka* is not forthcoming, the phraseology *dhanya-muraka sata-dvayotpatya-bhumir-datta* (meaning land with the produce of two hundred *murakas*) in the Madras Museum plates of Vajrahasta III of S.984 (A.D. 1062)⁴⁶ unmistakably prove that it was another approach of measuring land on the basis of its yielding capacity. *Galelai-dhanya-sahasrekasya bhumih* as mentioned in the Chicacole plates of Satyavarman of year 351 (A.D. 849)⁴⁷ and *Dvikathadha grame khanda-kshetra-dhanya-sateka-karsana-yogya-bhumih* in the Chicacole plates of Anantavarman⁴⁸ may have been used in the same sense. Another derivation of *muraja* or *muraya* is *mura* which has been mentioned as a grain measure. The Chikkalavalasa plates of Vajrahasta III, S.982 (A.D. 1060) supply the information that the rent for the village payable to the king had to be paid at the rate of one hundred *muras* of paddy or grain and 8 *madas* (of gold or silver) apparently per annum⁴⁹. The word *mura* is still used in Ganjam by the Oriyas as *mareyi*. It is a basket, made of bamboo for preservation of paddy. Generally a *mareyi* holds about a cart-load of paddy, which varies from twelve to fifteenmonds⁵⁰.

In the Telugu-speaking tracts of the Imperial Gangas of the 11th-13th centuries, a few more land measures such as *putti*, *tumu*, etc., were prevalent. According to C. V. Ramachandra Rao, "The terms *putti* and *tumu* were used to express both linear and volumetric measures. The inscriptions make it clear that by one *putti* of land was meant the area in which one *putti* volume of seed could be shown⁵¹. Thus, the technical terms denoted the extent of land in terms of seed showing capacity. The epigraphic evidences suggest that one *putti* was equal to 20 *tumus*⁵² or 500 *kuntas*⁵³. *Pauti* and *tumba/tumba* are possibly the Oriya equivalents of the Telugu *putti* and *tumu* respectively. In the Oriya lexicon both *pauti* and *tumba/tumba* are called as grain measures. While *pauti* is said as equal to 20 *gaunis*⁵⁴, *tumba/tumba* is simply meant as a bowl made from gourd or the hollow shell of a gourd⁵⁵. Both these terms were used in the southern part of Orissa until recently.

Thus, there were basically three approaches to the measurement of land in early medieval Orissa. *Nivartana*, *hala*, *timpira*, *go-charma*, *vati*, *mana*, *guntha*, etc., were the usual methods of measuring lands (both cultivable and uncultivable) with the help of a plough or a cubit or a measuring rods of some specific length. The second approach was based on the seed sowing capacity of the land and as such some volumetric measures such as *dronavapa*, *pataka*, *kaidi* (?), *muraja/muraya/muraka*, *putti*, *tumu*, etc., which could contain a fixed quantity of seed according to their respective capacity were used to determine the area of land. The third approach was related to the yielding capacity of the land. The cubit measurement was essentially the most popular method of indicating the homestead lands. Often the term denoting the linear measurement

was used for indicating both cultivable and homestead lands but the units of measurement differed in each case. *Vati/grihavati* is a case in point. It is further observed that certain technical terms were also prevalent for both linear and volumetric measures and their units too differed considerably.

REFERENCES :

1. Y. R. Gupta, *Epigraphia Indica* (hereafter *EI*), 19, 100-04, text line 16-17
2. D. C. Sircar, *Select Inscriptions bearing on Indian History and Civilization, I*, Calcutta, 1942, 191-94.
3. V. V. Mirsshi, *Corpus Inscriptionum Indicarum*, 4(2), Nos. 12, 13, 21, 22, 23, etc.
4. P. Sreenivasachar, *Corpus of Inscriptions of Telengana District*, 206-08 ; *South Indian Inscriptions* (hereafter *SII*, 2, 350, 11 (2), 136.
5. For a detailed discussion see D. C. Sircar, *Indian Epigraphy* (hereafter *IE*), Delhi, 1965, 409-10 Saradha S. Srinivasan, "Area Measures in Gujarat as Gleaned from Epigraphical Sources," *Journal of The Epigraphical Society of India*, 17, Mysore, 1991, 38-44.
6. S.N. Rajaguru, "Jayarampur copper plate grant of the time of Gopachandra, Year 1" *Orissa Historical Research Journal* (hereafter *OHRJ*), 11(4), 206-29, text line 46 ; R. C. Majumdar, "Midnapur plate of Maharaja Somadatta", *Journal of the Royal Asiatic Society of Bengal, Letters* (hereafter *JRASB, L*, 11, 3-8, text line).
7. D. C. Sircar, "Nagari Plates of Anangabhim III, S. 1151 and 1152", *EI*, 28, 235-58, text line 136
8. *Ibid*, 245
9. *Manusmriti*, 7, 119
10. Puspa Niyogi, *Contribution to the Economic History of Northern India*, Calcutta, 1962, 34
11. *EI*, 18,307-11, text line 12-13
12. This was the cubit often measured by the length of the forearm of a particular individual
13. *Pada* is also mentioned in the Nirakarpur plates of Udayakhedi where the gift village was divided into a number of shares (*vrittis*) out of which one share was consisting of 5 *padas*. [S. N. Rajaguru, *Journal of Bihar Research Society*, 35 (1-2), 2, text line 24]. Here *pancha-pada* may stand for $1\frac{1}{4}$ part of an unspecified measure.
14. Priyatosh Banerjee, *Journal of the Asiatic Society, Letters* (hereafter *JAS, L*), 17 (3), 245-50, text line 25-26.
15. The Talcher and the Asiatic Society plates of Gayadatunga (D. C. Sircar, *EI*, 34, 96-104) refer to *mala* or *mala amsa*, where the, gift villages Vamaitallo and Torograma were divided respectively into four and thirty-six parts with the help of the *mala* measure before being granted to the brahmins.
16. *OHRJ*, 5(4), 179-82, text line 4
17. *EZ*, 31, 249-62
18. *Ibid*, 28, 235-58
19. *Ibid*, 31, 17-24
20. *Ibid*, 28, 185-95
21. *Ibid*, 244
22. *OHRJ*, 7 (2), 86-90, text line 14-15
23. *EI*, 31, 17-24, text line 209
24. *SII*, 5, 1042, 1144
25. *Ibid*, 1052, 1084, 1114, 10, 655, 656, 716

26. *Ibid*, 10, 654, 704
27. *Ibid*, 702
28. *Ibid*, 5, 1273
29. N. M. RAO, *Kalinga Under the Eastern Gangas (Ca. 900 A.D. to Ca. 1200 A.D.)*, Delhi, 1991, 131-32.
30. *Ibid*, 133
31. Sircar, *IE*, 408
32. R. C. Majumdar, *JRASB, L*, 11, 1945, 9, text line 9-10
33. R. C. Majumdar, *The History of Bengal, I, Hindu Period*, Reprint, Patna, 1971, 651-54
34. Sircar, *IE*, 412
35. The Paharpur plate of Gupta era 159 (*EI*, 20, 59ff.) reveals that four plots of land measuring respectively 4, 4, $2\frac{1}{2}$ and $1\frac{1}{2}$ (=12) *dronavapas* corresponded to an area measuring $1\frac{1}{2}$ *kulyavapas*.
36. R. K. Deb, *Sabdakalpapruma, I*, Calcutta, Saka era 1743, 249. *Adhaka* as volumetric measure is also known to us from a few epigraphs of Orissa. The Hindol plate of Subhakaradeva III, (B. Mishra, *JBORS*, 16, 69-83, text line 23-24) and the Panasi plate of Rayabhanja (S.Tripathy, *Journal of Orissa Research Society*), No. 4, Dec.
37. *Indian Historical Quartely*, 6, 40ff
38. S. Tripathy, *Inscription of Orissa, I*, New Delhi, 1997, 241-45
39. P. R. Srinivasan, *EI*, 37, 268, text line 39-40
40. C. C. Dasgupta, *ibid*, 26, 165-71, text line 15
41. Sircar, *IE*, 408, n.9.
42. *OHRJ*, 7(2), 83-86, text line 23
43. K. G. Goswami, *EI*, 24, 180-83, text line 29
44. N. M. Rao, "Ramapuram plates of Vajrahasta II, Ganga Era 495", *JAHRS*, 35, 177 ff ; text line 30; N. M. Rao, *op.cit.* 1991, Appendix II, "Maliaputti grant of Anantavarman Ganga Era 550" 209-10, text line 43-44.
45. C. N. Rao & R. S. Rao, *JAHRS*, 8, 168-80, text lines 28 and 34
46. Sten Konow, *EI*, 9, 94-98, text line 53
47. J. F. Fleet, *Indian Antiquary*, 14,10-12, text line 33
48. D. C. Sircax *JAS, L*, 18(1), 1952, 47-51, text line 16-17
49. D. C. Sircax, *EI*, 33, 141-46, text line 55-56
50. S. N. Rajaguru, *Inscriptions of Orissa*, 3(1), Bhubaneswar, 1960, 9, n.5
51. C. V. Ramachandra Rao, *Administration and Society in Medieval Andhra (AD. 1038-1538) under the later Eastern Gangas and the Suryavamsi Gajapatis*, Nellore, 1976,198.
52. *SII*, 4, 1239, 1015
53. *Ibid*, 5, 1046, 1142
54. G. C. Praharaj, *Purna Chandra Odia Bhasa Kosa*, 4,Cuttack, 1934, 4885
55. *Ibid.*, 3, Cuttack, 1933, 3510.

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