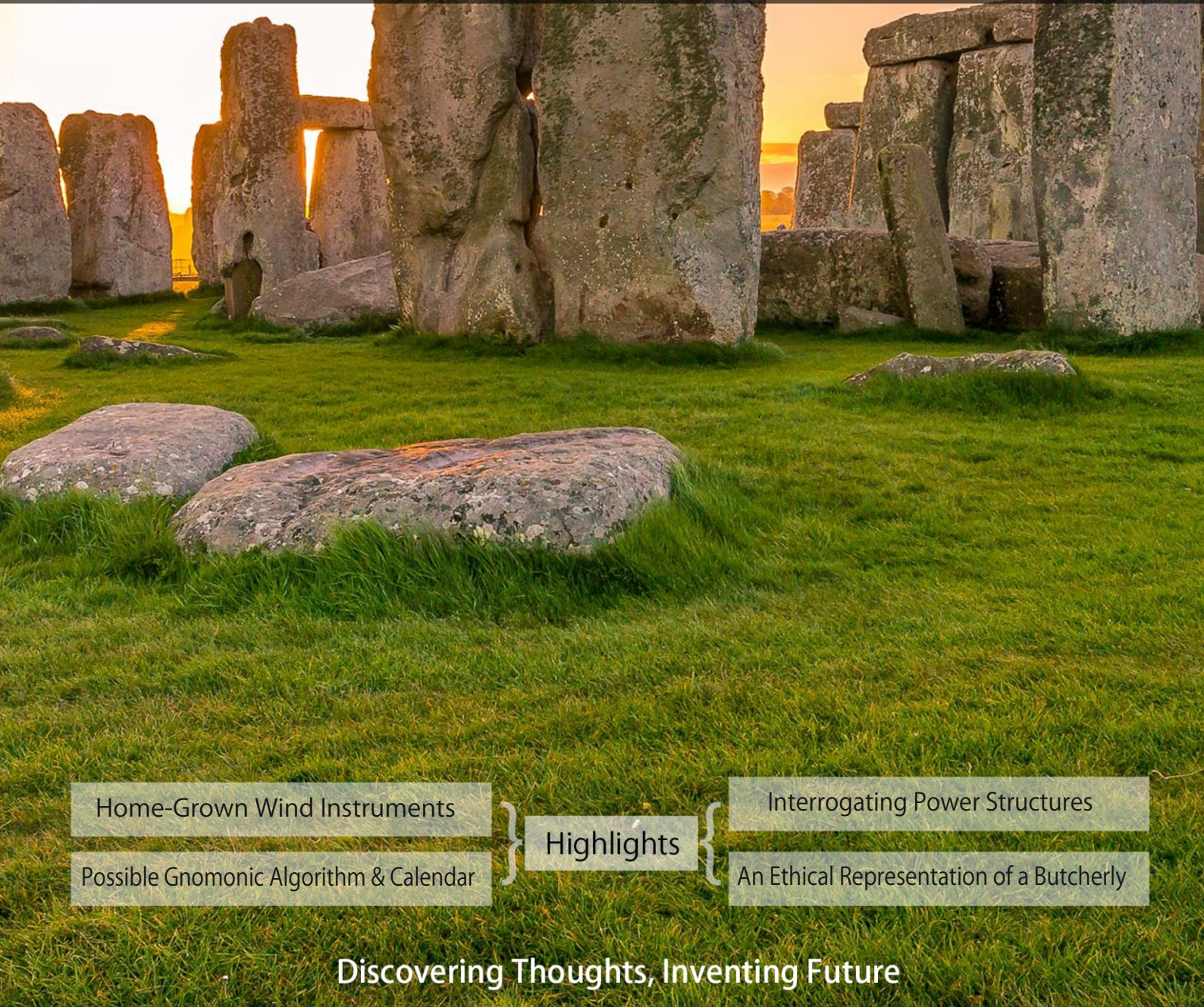


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Home-Grown Wind Instruments

Possible Gnomonic Algorithm & Calendar

Highlights

Interrogating Power Structures

An Ethical Representation of a Butcherly

Discovering Thoughts, Inventing Future

VOLUME 18

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Possible Gnomonic Algorithm & Calendar from Vršac's Circles, Serbia

By Raúl Pérez-Enríquez & Marc Frincu

Universidad de Sonora

Abstract- Vršac Circles are a set of five, practically, concentric circles located in a plain of western Serbia. There have not been any systematic archaeological research in the zone but some exploration work indicate a possible date for the earthwork to be around five thousand years ago. In this paper, we present a sequential analysis of the sizes (diameters) of the circles that may obey, with the help of a gnomonic approach (the "gnomonic factor"), an algorithm involving the number of the circle and the height of the gnomon. The first assumption is that the smallest radius would be obtained from the shadow of a gnomon on winter solstice at noon; the others by the addition to the first a multiple of 1.5 times the gnomon's height. At the final stage of the analysis we discuss a possible calendrical meaning of the circles. Our results, we consider, call the archaeologist to look at this place for confirmation or rejection of these hypothesis. They may support subsequent development of ideas for the history of mathematics.

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Possible Gnomonic Algorithm & Calendar from Vršac's Circles, Serbia

Raúl Pérez-Enríquez^α & Marc Frincu^σ

Abstract- Vršac Circles are a set of five, practically, concentric circles located in a plain of western Serbia. There have not been any systematic archaeological research in the zone but some exploration work indicate a possible date for the earthwork to be around five thousand years ago. In this paper, we present a sequential analysis of the sizes (diameters) of the circles that may obey, with the help of a gnomonic approach (the "gnomonic factor"), an algorithm involving the number of the circle and the height of the gnomon. The first assumption is that the smallest radius would be obtained from the shadow of a gnomon on winter solstice at noon; the others by the addition to the first a multiple of 1.5 times the gnomon's height. At the final stage of the analysis we discuss a possible calendrical meaning of the circles. Our results, we consider, call the archaeologist to look at this place for confirmation or rejection of these hypothesis. They may support subsequent development of ideas for the history of mathematics.

I. INTRODUCTION

Members of the Association "Vlašići" for Archaeoastronomy and the Archaeoastronomical Society from Romania, made the trip to Vršac. The circular pattern they wanted to visit are five circles which centre is located at 45° 12' 37" N latitude and 21° 17' 14" E longitude. This unusual earthwork dated around five millennia ago can be seen in Figure 1. The aim of the trip was to exchange experiences and to formulate a joint work between both academic groups there.



Figure 1: Unusual formation at the swamp of Vršac (Google Earth 2018).

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They had troubles to make the walk through the ancient Big Swamp of Vršac; after reaching the edge of the largest circle, the soil was not flat any more, and the can identify the five concentric circles: the larger with about 150m in diameter; the inner one just 50m or less. Several things were reported about this trip [1]. However, at the SEAC 2018 Conference that took place in Graz, Austria, part of the group met Raul, with whom they discussed some features on the collaboration done. The discussion arrived to the *gnomonic factor* [2] from which him exposed the importance to consider the shadows of a gnomon at solstices (winter and summer).

From that meeting and the discussion that took place a possible collaboration become feasible. The fact of Latitude and its value of around 45° in the region of Serbia and Romania came later; the sites presented at the SEAC 2018 Conference by us would make relevant the issue because gnomons' shadow would be equal to its height. One of us (Marc) presented considerations about Sun alignments in the Neolithic times [3].

The present report covers one aspect of the collaboration that arise when exchanging data about Vršac Circles; the studies on the application of *gnomonic factors* (*fg* and *fgp*) to this site and the findings on the dimensions of the circles and their interpretation as a possible Calendrical Monument.

In the first part, a search for the significant values of the gnomonic factors is done: two main proposals come about when analysing the data. Then a study of the sizes (diameters) of the circles is made, discovering a special regularity. From this behaviour of radius and diameters, a possible gnomonic algorithm came apparent and its principal characteristics are presented in that section. These allow us to make some considerations on the possible origin and objectives of the circles, correlating them with a calendrical division of the year.

II. THE GNOMONIC FACTOR SEARCH

The first step towards the evaluation of the possible influence of the gnomonic factor, *fg*, when the circles were designed, was to consider several suggested values for the Obliquity [1]. In Table 1, Gnomonic Factors at Vršac, the value of the factor expressed in decimal and as a fraction, are presented. As it can be seen easily, to values become of significant importance: $2\frac{1}{4}$ and $2\frac{2}{7}$.

In the last two rows of the table, the exact value of obliquity has been defined to obtain the exact decimal value of the fraction. In the previous to last row the exact value of 2.2500 or $2 \frac{1}{4}$, for fg appears: The

corresponding value of 24.0260 for obliquity implies an epoch of 3056 BC (using the Laskar algorithm to estimate it [4]).

Table 1: Gnomonic Factors at Vršac

Vršac	Serbia									
	Lat	Lon	Epoch							
	45° 12' 37"	21.287244°	3056	BC						
	45.21029	12.61758	37.0548							
	90			Gnomon	8.546					
Epoch	Obliqy	WS	SS	WSs	SSs	Fg	fg'	fgp	WSc	SSc
	24.200	20.5897	68.9897	2.661909	0.384070	2.2778	2 2/7	1.6619	22.7487	3.2822
	24.150	20.6397	68.9397	2.654890	0.385072	2.2698	2 1/4	1.6549	22.6885	3.2908
	24.100	20.6897	68.8897	2.647861	0.38607	2.2618	2 1/4	1.6479	22.6286	3.2993
	24.050	20.7397	68.8397	2.640887	0.387077	2.2538	2 1/4	1.6409	22.5690	3.3079
	24.000	20.7897	68.7897	2.633944	0.388081	2.2459	2 1/4	1.6339	22.5097	3.3165
	23.950	20.8397	68.7397	2.627033	0.389086	2.2379	2 1/4	1.6270	22.4506	3.3251
	23.900	20.8897	68.6897	2.620153	0.390091	2.2301	2 2/9	1.6202	22.3918	3.3337
	23.850	20.9397	68.6397	2.613310	0.391100	2.2222	2 2/9	1.6133	22.3331	3.3421
	23.800	20.9897	68.5897	2.606489	0.392103	2.2144	2 2/9	1.6065	22.2752	3.3509
	23.750	21.0397	68.5397	2.599703	0.393110	2.2066	2 1/5	1.5997	22.2171	3.3595
	23.700	21.0897	68.4897	2.592947	0.394118	2.1988	2 1/5	1.5929	22.1593	3.3681
-3056	24.0260	20.7637	68.816	2.637550	0.387559	2.2500	2 1/4	1.6376	22.5405	3.3120
-7080	24.2330	20.5567	69.0227	2.666573	0.383410	2.2832	2 2/7	1.6666	22.7885	3.2766

Then, our first proposal is that around the end of fourth millennia BC, the selection of the site to make the earthwork was made; specifically, a date around 3056 BC.

Due to the importance of the shadows of solstices at consideration the design of the circles could have took the observations of shadows. Here, a second consideration can be made. The definition of the radius of the smallest circle, the one which must have been defined in the first place, could arise from the measurement of the shadow of a gnomon at winter solstice (WSs). A measurement using Google Earth [5] gave us a diameter of 45.08m; thus a radius of 22.5405m could be assumed. In Table 1, a gnomon of 8.546m is suggested in order to get a WSs of that long (see column 10 previous to last row).

Then, our second proposal is to consider a possible gnomon of 8.546m height located at the centre of the circles.

a) The Circles of Vršac

In a similar way, we have measured the diameter of the other four circles. The results of this operation are presented in Table 2, Diameters of Vršac's Circles, and the ratios between them and the smallest are reported also. One significant fact that must be enhanced here is the very similar values of the differences between successive diameters.

Table 2: Diameters of Vršac Circles

Diameter	Ratio	ratio_f	Diff
45.08	1	1 0	27.37
72.45	1.60714286	1 3/5	25.05
97.50	2.16282165	2 1/6	23.08
120.58	2.67480035	2 2/3	23.24
143.82	3.19032831	3 1/5	

The next step in our analysis was to consider the estimation of the ideal radius for each circle while considering the fractions reported in the last table, Table 2. In the following table, Table 3 Ideal Radius and Proportions for Circles, we recover the results for the analysis that can be summarized as follows:

- Five circles considered. We define the radius of the first circle as basis and numbered all of them from 1 to 5;
- Ideal radius. Using the fractions reported in Table 2, we calculate the ideal values of the circles going from 22.5405 to 72.1280;
- Differences. We calculate the differences between the radius and the corresponding one of first circle; and,
- Gnomon's fraction. We calculate how many times the gnomon height is in those differences.

Table 3: Ideal Radius and Proportions for the Circles

Circle	Fraction	Ideal radius	Diff2	Gnomon_f
1	1	22.540	0.000	0
2	1 3/5	36.064	13.524	1.58249473
3	2 1/6	48.837	26.297	3.07707309
4	2 2/3	60.107	37.567	4.39581871
5	3 1/5	72.128	49.588	5.80248069
g	3/8	8.546		

The results appear very suggestive. The gnomon's fractions seem to be very regular: 1.5, 3.0, 4.5 and 6 times the gnomon, approximately. They could reflect a specific algorithm defined by the builders of the monument. Let's look forward to find a kind of procedure, possible, used around five millennia ago.

b) Gnomonic Algorithm

An analysis of Table 3, allows us to define the main characteristics of the algorithm that possibly was

used to the design of the circles of Vršac. The radius of the circles seem to be equally separated and they appear to have a relation with the length of the gnomon.

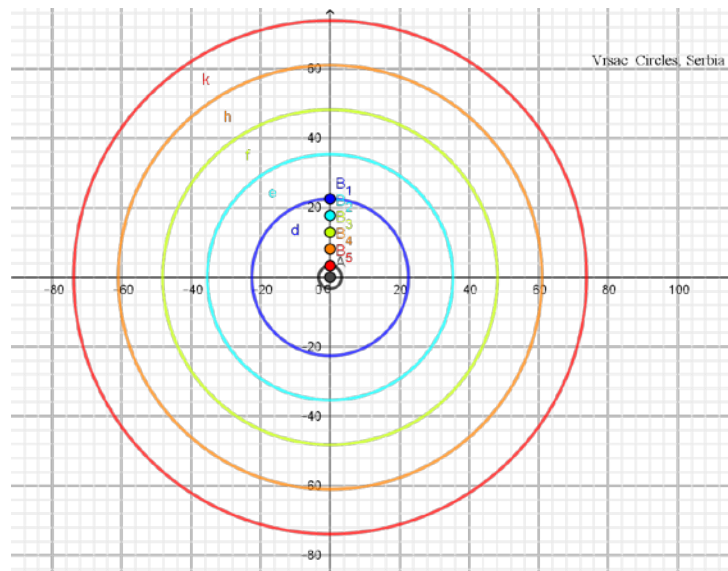
c) Definition 1. Vršac's Algorithm

Using a gnomon, g , at Vršac, the radius, r_n are the radius of the circles numbered with $n=1, 2, 3, 4$ and 5. The radius are calculated with the following expression:

$$r_n = r_1 + (n-1) \cdot b \cdot g \quad (1)$$

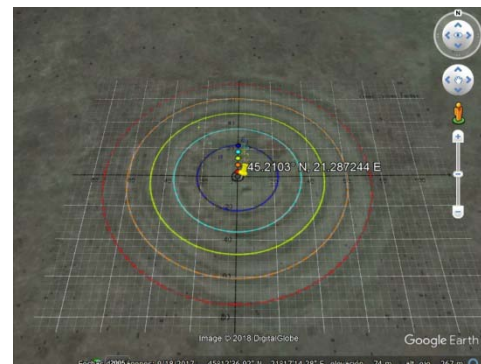
Where r_1 is the WSs = 22.5405m and b is a constant equal to 1.5 or $1 \frac{1}{2}$, $g = 8.546$ m.

With this definition we have drawn the circles using Geo Gebra [6] and are shown in Figure 2. In it, a colour has been used in order to distinguish between them and for the reasons each of them will be apparent in the following section.

**Figure 2:** Circles defined using the Vršac's Algorithm and Shadows using Gego Gebra.

In Figure 3, the five circles are shown overlapping the Google Earth image of the monument under analysis. It could be confirmed this way that the correspondence between the image and the drawing is almost in perfect harmony to the north-eastern quadrant of the figure.

Then, a new proposal could be given: it is possible that the design of the Vršac's Circles has been based on a simple algorithm including the use of a gnomon and the gnomonic factor.

**Figure 3:** Overlap of the drawing of circles, generated with GeoGebra [4].

d) *On the image of Vrsac' Circles, Serbia*

As it can be seen in the figure, there are marked in the south-north axis of the circles small points on the same colour as the circles. The Blue one corresponds to r_1 ; the light blue circle to the l-blue point, etc. This approach has to do with the other consideration appearing in Table 1: the size of the summer solstice shadow (SSs) that reaches the length of 3.3120m (red point). In next section, we suggest a further interpretation of the already presented results, in order to assimilate them in a calendrical context.

e) *A Calendrical Design?*

The Vršac's Circles is a well preserved monument. The locality has not been archaeologically explored. Only a shallow excavation was done and materials found suggested that the site was occupied at Neolithic times [1], our data goes in that direction for the dating. However, the probe on the ground has not been even clogged, gagging like a wound in the central circle. Although not protected by anything, the formation of concentric circles is in a surprisingly good condition.

It seems to be protected by the remote location; the salty soil here is unsuitable for farming and the quick way of life of today's people no longer let them have time to walk around. Until about a hundred years ago it was protected by a swamp, now drained by relatively shallow canals. In spite of drainage, in several places it can be seen that the level of groundwater is high.

In addition to this, the size of formation speaks in favor of Neolithic dating (similar Bronze Age circular formations are generally smaller).

Assuming a possible Neolithic design, we can ask about the reasons to build such a set of rings. Has it a relation with the religious ideas of the people? Or, was it more related to more quotidian issues like farming or chasing?

Our approach to the circles have found a relation between the winter solstice shadows of a possible great gnomon at the center. Then one can suggest that a kind of relation must be present for the other extreme shadow of the year: the summer solstice shadow.

f) *Definition 2. Vršac's Shadows*

The specified gnomon shadows (Gs) could be defined taking the differences in length of the solstices shadows (WSs, SSs, respectively) divided by 6 (g') (in a similar way as the circles), and then multiply by the fraction considered ($b = 1 \frac{1}{2}$); i.e.,

$$s_1 = WSs = 22.5405m; \quad (2)$$

$$g' = (WSs - SSs)/6 = (22.5405 - 3.121)/6 = 3.236; \quad (3)$$

$$Gs_n = s_1 - (n-1) \cdot b \cdot g' \text{ with } n = 1, 2, 3, 4 \text{ and } 5. \quad (4)$$

The results are shown in Table 4.

In the table we have calculated other values that will be discussed next.

Table 4: Sun's Altitudes and Calendrical Data

Shadow	Frac	Gs	Season	Sun_h	Day	#Day	Lapse	Calendar
1	1 0	22.5405	Winter	20.764	12/01/-3056	0		21/dec
2	1 1/2	17.2964	cold/ice	26.294	20/02/-3056	39	39	29/jan
3	3 0	12.3436	Spring	34.696	18/03/-3056	65	26	24/feb
4	4 1/2	7.9735		46.985	20/04/-3056	98	33	29/mar
5	6 0	3.3121	Summer	68.816	17/07/-3056	186	88	25/jun
g'		3.2366		46.985	10/10/-3056	271	85	18/sep
				34.696	09/11/-3056	301	30	18/oct
				26.294	05/12/-3056	327	26	13/nov
				20.764	12/01/-3055	365	38	21/dec

The fifth column of the Table 4, Sun_h (Sun's altitude), was calculated assuming that a gnomon ($g = 8.546m$) has to make a shadow of the corresponding length (Gs). This lengths are represented as coloured points in the already discussed Figure 2. These shadows appear in Figure 3. We have arrived to a kind of division of the year using the height of the Sun and the corresponding shadows of the gnomon. Using a sky simulator such as, for example Stellarium [7], one can verify the dates when the corresponding altitudes of the Sun were observed in the past. After an estimation of the

#day and the lapses between each marked day, we can define a possible Vršac's Calendar with the dates of the year defining the principal days of a calendrical analysis. A Climatological analysis coming back to three millennia BC would help to feed with specific conditions the possible origin of this Vršac's Calendar and correlate them with the activities made by the people that constructed it. The colour of our circles in the drawing become meaningful: Blue for winter; light blue for cold/ice; Green for spring; orange for hot; and, Red for summer.

III. DISCUSSION AND CONCLUSION

Our discussion on the definitions made around the design of the five circles found at Vršac's site give us enough evidence to say that a kind of gnomonic design was involved there. The evidence pointing to the existence of an algorithm give us a tremendous task to try to confirm or disconfirm it. The mathematical abstraction that such a thinking implies could give support to other ideas about Neolithic world that have been suggested before [8].

Maybe a gnomon of 8.546m would be too high to set in position in the first place. Today, we have not any evidence of a work-earth at the site. Also, one must to assume that previous observations have to be made before the structure was made. Table 5, Scaling the Gnomon, shows that if a 1.899m gnomon is set at the desired point, the difference between solstices shadows is half the height of the final gnomon (obtained by us). A more credible size for the gnomon that possibly the people of Vršac (Vinca culture [9]) used to select the site and define the sizes of the circles.

Table 5: Scaling the Gnomon

Vršac	Serbia				
	Lat	Lon	Epoch		
	45° 12' 37"	21° 17' 14"	3056	BC	
Oblqty	WS	SS	Fg		
24.026	20.763707	68.815707	2.250		
m	m*fg	Gnomon/(m*fg)	WSc	SSc	Diff
		8.546	22.5405	3.3121	19.2284
1	2.25	3.798	10.0180	1.4720	8.5460
2	4.50	1.899	5.0090	0.7360	4.2730

This means that a gnomon of length 1.899m can explain the whole data of the site. Dividing this length by 6 one can expect to have a 0.3165m unit; maybe a unit called foot. The problem to this approach is that such a unit and a gnomon would not left any evidence for the long period that have elapse since.

Finely, we can suggest that the last table could confirms, precisely, that the site have been carefully selected and that the design obeyed a kind of gnomonic criteria; i.e., there was while designing the Vršac's Circles, a gnomonic algorithm that took into account the difference between solstices' shadows, more specifically, the possible use of the *gnomonic factor* became one of its foundations. Such an idea can contribute to the development of more detailed history of mathematics for that period.

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War: An Ethical Representation of a Butcherly Enterprise in Kalki. R. Krishnamurthy's *Sivakamiyin Sabadham*

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Abstract- The prominent Tamil kingdoms in ancient Tamil Nadu were the Cheras, Cholas, Pandiyas and Pallavas. Similarly, the primary literature in the history of Tamil Literature is the Sangam Period (200 B.C- 300 A.D). Kalki. R. Krishnamurthy with the help of a few available historical records of the ancient Pallava realm has rendered the world a masterpiece through the novel Sivakamiyin Sabadham. The novel is divided into four parts. The paper brings out the features of the foundational tenets pertaining to war as enunciated in an ancient Tamil treatise Tolkappiyam in the novel Sivakamiyin Sabadham.

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Abstract- The prominent Tamil kingdoms in ancient Tamil Nadu were the Cheras, Cholas, Pandyas and Pallavas. Similarly, the primary literature in the history of Tamil Literature is the Sangam Period (200 B.C- 300 A.D). Kalki. R. Krishnamurthy with the help of a few available historical records of the ancient Pallava realm has rendered the world a masterpiece through the novel *Sivakamiyin Sabadham*. The novel is divided into four parts. The paper brings out the features of the foundational tenets pertaining to war as enunciated in an ancient Tamil treatise *Tolkappiyam* in the novel *Sivakamiyin Sabadham*.

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I. INTRODUCTION

Historical novels are set in the past and the plot revolves around historical events. Contrary to this nature, Literature affects the present. The historical works of Kalki. R. Krishnamurthy would not have earned mammoth readership if it had been a mere imitation of past events. Though the characters are dead and gone, Kalki as a writer brings them back to life by infusing the element of culture within them. Where history failed, Kalki has attained success in reviving the lives of the Chola dynasty and the Pallava Empire by making the characters live the culture that has been passed down for centuries in the Tamil region.

No phase in Tamil Literature is as memorable as that of the Age of Sangam Literature. Sangam literally means academy. There were three Sangams in the history of Tamil Literature. What is available to the modern reader is only a fragment of the second and third Sangam. But these works cannot be set aside as obsolete for its influence is mighty even in works of today.

Aiyangar in his book *Tamil Studies* says that the Tamil sangam is known to some English scholars as the 'Madura College' and to others as the 'Madura University.' The Age of Sangam may have been covered or even perhaps been buried by the subsequent ages. But the literary greatness of the epoch remains unparalleled for the simple reason that right from the works that followed the Sangam Age up to the present ones, reveal patterns established by the Sangam

writers. Nature is a powerful presence in these works. Varadarajan in his book on Sangam Literature states that "These ancient poets do not treat of Nature alone, but resort to it always to describe human life in its varying aspects, chiefly love and war. In short, they knit together the feelings and the beauties of Nature in closest bonds and warmest associations" (2-3). Merged with nature is the universal theme of love and war and this has long been methodically categorized in an ancient voluminous work of the Sangam Age, *Tolkappiyam*. It appears to be a book on Tamil grammar but it is much more, for it encapsulates an entire way of life- not merely of an era but it is almost impossible to evade its clutches, however modern a Tamilian's lifestyle may appear to be.

The two themes of love and war are categorized under Akam and Puram. The former which literally means 'internal' deals with love and its associated emotions while the latter meaning 'external' refers to the social world. Puram primarily deals with war and also praise of kings. It concentrates on the outer field of life. It constitutes other aspects of human experience such as valour, heroism, ethics, benevolence, philanthropy, social life and customs of the people. Similar to Akam, Puram also constitutes seven 'tinai's' or behavior patterns or phases of war and the social world. A major difference between the categories of love and war is that Akam poems highly depend on its image to deliver its objective since it delves deep into sensitive human emotions which are intangible. On the other hand, Puram is expansive. Tinai's pertaining to Puram are based on action rather whereas in Akam, the principal speaker is the landscape.

The seven tinai's are named after flowers of various species. These flowers which are native to the Tamil region, are worn as garlands at different stages of war. The tinai's in Puram are Veṭci, Vaṇji, Uḷṇai, Tumbai and Vāhai. The two tinai's which are considered unsuitable for poetry are Kāñci and Pādān. It is evident from these tinai's that all is not unfair in war because battles were not a disorderly confrontation among kingdoms. There was a code governing the conduct of warfare. Cows, women and children were not injured during sieges and battles.

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The first stage of war is *Veṭci*. It refers to cattle lifting. It is the first phase, initiated by a tribe to start a war. *Veṭci* is the provocation phase in a war. Before the rise of kings, the Tamil country was ruled by petty chieftains. The chieftains who desired to capture the neighbouring territory would start a war by raiding the cattle of the enemy. The possessions of ancient chiefs were cattle. So, lifting cattle of a kingdom was reason enough for two kingdoms to start a battle. In the Tamil region, which gives predominance to valour, a slight provocation served as a best cause for war. Stealth pervades this *tinai*.

The activity that follows is the expedition conducted by the chieftain through the woods to reach his opponents' territory. This phase is *Vañji* which covers preparation for war and beginning of an invasion. The season is the rainy season and they march through the forests to reach the enemy's fort. This invasion gradually leads to the siege of forts or an inhabited fertile area in the city of the enemy's. The time is dawn. This attack on the fort is called *Uḷṇai*. Only after the third phase, comes the open battle. This pitched battle is called *Tumbai*. The time of the day associated with this *tinai* is evening and grief suffuses the entire *tinai*. The tribe which emerges victorious wears the *vāhai* flowers as garlands. This phase is called *Vāhai*. Abduction, possession of women, search for wealth and fame forms a part of the *Vāhai tinai*. When a poet sings of the impermanence or the frailty of life and war, it falls under the *Kāñci* phase and the poet's song of praises for the victorious king is called *Pādān*.

Apart from the seven *tinai*s, the *tinai*s attributed to Puram are *Karantahai*, *Nocci* and *Pothuviyal*. During the first phase, when the enemy tries to steal the cattle, the host defends the stealthy act. Defending against cattle raids is called *Karantahai*. Similarly, when the enemy attacks the fort and tries to take over, the natives try to safeguard their land. This contributes to *Nocci*. *Pothuviyal* includes general heroism, philosophical themes and elegies for heroes.

Sivakamiyin Sabadham is a historical novel written in the 20th century by Kalki.R.Krishnamurthy. It exposit three different battles in the Pallava history fought during the reign of Mahendravarman I and his successor Narasimhavarman in the seventh century A.D. The Pullalur battle, the Vatapi invasion and the Pallava retaliation against the Chalukyas are the three wars that occur in the novel. War is resonant right from the beginning of *Sivakamiyin Sabadham*. The gates of the fort are sealed as early in the first chapter when the Pallava Kingdom's espionage informs their king about a possible Vatapi invasion. But before Pulikesi, the Emperor of Vatapi, arrives on the Pallava soil, Naganandi, a *bikshu* reaches Kanchi, the capital city of the Pallavas. He sends messages to other kingdoms in the four directions and he himself sets forth to the south to incite the other kingdoms against the Pallavas. His

plans succeed. The words of Kannabiran to his wife Kamali confirm the success of his designs: "The King of Ganga Nadu seems to be in a hurry. He is coming from the west with a large army, eager to reach Kanchi before Pulikesi does." (SK 74) This is proof of one of the many crooked strategies hatched by the *bikshu*. He tries to distract and weaken the Pallava troops. When they engage in a battle, their forces would be divided; but the Pallava army is unfazed by the sudden preparation for war. Rather, a tone of jubilation is present among the men folk- "War of a much larger scale than the Mahabharata War is about to break out only now. The opportunities for Mamallar to perform his gallant acts will arise only now" (SK 78). The hint of war arouses a sense of joy in the Tamil people, because the belief is that they are born to perform deeds of valour at the battlefield. And so, even the unexpected war does not have a terrifying effect on them.

The first stage in warfare is the prelude to war. Usually, a provocative issue ignites a battle. The prelude to the Pullalur battle is fuelled by Naganandi. The two kingdoms were at peace and the Emperor Mahendrar least expected an attack from this quarter because it is Mahendrar's father who had gone to the Ganga Kingdom to crown the Ganga King, Durvineethan's father. The two kingdoms remained at peace until Naganandi sends messages to disrupt it through unfair means. The Queen, normally a symbol of patience says, "I too am enraged with the Gangapadi king's ungrateful and treacherous act" (SK 77). Gratitude is held in high honour among the Tamils. To return ingratitude to a person who extended help incurs wrath and curse not only by the society but also by the Creator is a widely accepted belief. The Pallava army only doubles its hatred towards the ungrateful king, which is but a natural emotion common to man. The Pallava king sums up the nature of the Ganga king and also the phase of *Veṭci* initiated by the enemy: "Like a fox interrupting the combat between two lions, he has chosen to invade the Pallava kingdom when Pulikesi is attacking us! Durvineethan is hurriedly advancing towards us, even without halting at night!" (SK 77) The phrase 'hurriedly advancing' describes the *Veṭci* phase where an army travels to meet its rival. Further, the army of the Ganga King travels even by night, a strategy which involves stealth- to attack the enemy even before they are aware of. This is characteristic of the first phase of war.

Ahead of the next phase, the *Vañji*, where the invading army reaches the enemy's territory, Emperor Mahendrar sends messages to his son to counter the Ganga King's strategies. "He has asked you to take the army stationed at Kazhukunram and vanquish Durvineethan before he reaches Kanchi" (SK 82). The counter attack by the Pallavas to stop the enemy reaching its territory falls under *Karantahai*, where the host initially tries to avoid the pillage of the enemies. The Pullalur battle is the first step taken by the enemies to

route the Pallava Empire. In the first case, the dangers were unanticipated, least from a friend-turned-traitor like the Ganga King. The second is the closing in of different armies from all directions-Ganga Nadu from the west, the Pandya Kingdom from the south and the Vatapi from the north. The eastern border is covered by the Bay of Bengal. And so, "Mamallar has proceeded to the battlefield along with the army stationed at Thirukazhukunram for our self-defense" (SK 99). Defending the host territory becomes the reason for the Pallavas to retaliate.

The Pullalur battle does not exhibit the other two phases in warfare. The Vāñji phase and Uḷḷai is rerouted by the Pallava King's war tactics. Since the Pallava army marches towards their western borders, the enemy is barred from an invasion. Before they could invade, the Pallava forces retaliate. So the Vāñji phase is partially present amidst the Pallavas progressing towards the battle. Another reason behind the partial portrayal is that the Pallava army does not plan a siege on the Ganga Kingdom's fort. But they progress towards the Tumbai phase. The phase of pitched battle is not a firsthand picture of war. It is narrated by Gundodharan and is also recounted by Sivakami, Aayanar and few other people. The sculptor and his daughter stay at the viharam in Ashokapauram, a short distance from the battlefield. There they see "Several people were frantically running down that road." Further, "At corner, a few people carrying a tall flag staff were running. The flag hoisted on the flag staff was torn to shreds" (SK107). Kalki describes the phase of Tumbai through eyewitnesses. A Tamil sense of valour is exhibited in this portrayal. Fleeing from war is the worst disgrace for a king and his warriors. Aayanar is anxious to learn as to which troop is fated to such an ignominy. Kalki builds up on the suspense as to how the battle proceeded. B. Kolappan in an article on *The Hindu* titled "Ponniyin Selvan in 32 Hour Animated Film" says, "The gripping narration of Kalki also has an element of suspense as he will suddenly change the scene." It is usually the case to kindle the reader's interest. In this context, Kalki does not change the stage to another character, rather opens doors, but one at a time. He does not give a sequent narration of the battle and he does not narrate it immediately. He first kindles the readers' interest through the eyes of Sivakami and Aayanar, who view these events from outside the battlefield-the entrance of the viharam. They gather only a few details-that "It is obvious that one side has lost the battle. The vanquished side is desperately fleeing" (SK 108). Kalki allows these two characters to speculate on the outcome to arouse the suspense of the events. Kannabiran who arrives at the scene adds a little more detail. He says, "We are pursuing those who are fleeing out of fear of fighting" (SK 111). Kannabiran displays that the Pallava Kingdom has gained an upper hand. But what exactly happened in the war is known only that

evening when "Gundodharan suddenly made his appearance" (SK 112). The Pallava spy cum disciple of Aayanar narrates that "The two armies met on the outskirts of the Pullalur village, which was two kadu to the South west of Kanchi" (SK113). He also describes the battle scene: "The Ganga Nadu army was thrice as large as the Kanchi army Mamallar headed. But Mamallar's brave army pounced unexpectedly on the Ganga Nadu army" (SK 113). He also narrates of the cowardly fleeing of Durvineethan, the Ganga King. Kalki does not take his readers to the battle front in the Pullalur encounter but narrates the facts through his characters, steadily building up on the details- Sivakami, Kannabiran, Gundodharan and finally the author himself narrates the tactics employed by Mahendra Pallavan. The reason behind the intervention of the author is to reveal the truth behind the war which the characters are unaware of- it is the Pallava King who intercepts the scroll sent by Naganandi and misleads the Ganga King to proceed immediately towards the Pallava kingdom. There are two motives for the Pallavan's message- firstly, he is sure that his army would be able to tackle the Ganga Nadu army; secondly, the immediate advancing of Durvineethan implies that he would not partake with the Vatapi army as allies, thereby reducing the strength of the Vatapi army to a certain extent.

The Vāhai phase which denotes victory seemingly appears as if incomplete. The reason being that is, when from the Pallava army, "A thousand hand-picked horsemen also reached the Pullalur battlefield. As the horsemen arrived unexpectedly at the battlefield and attacked, the Ganga army lost its nerve and fled" (SK 123). Because the opponent and his army run away from the battle, victory is not determined on the battlefield. However, the Vāhai stage is not totally absent. Mamallar and Paranjyothi, with a few men reach up to the banks of the South Pennai River to decimate the fleeing army. The Pallava army is again betrayed by the intervention of Naganandi, who makes a breach in the Thirupaar Kadal Dam so that the entire area be flooded. He also helps the Ganga King and his army to reach the other side of the shore through boats. The Pallavas do not possess the privilege to imprison the Ganga King; but he is imprisoned by the Pallava Kingdom's neighbourhood friends- Anandhan Mazhavarayan in his fort. Thus Vāhai belongs to the Pallavas when they defeat the Ganga King.

The Pullalur battle does not exhibit all the phases enunciated in Puram. On the other hand, it follows the fundamental code of warfare as is appropriate in the Tamil society. Fleeing a battle is a shameful deed. The Ganga King flouts the code of valour and heroism. His imprisonment is therefore appropriate.

The war between the Chalukyas and the Pallavas "is a well-known incident in the annals of Dakshina Bharata" (BL 17). The war is a realistic

portrayal, not because it adheres to the patterns of Puram but also because of the duration it covers. *Ponniyin Selvan*, another historical masterpiece of Kalki, is a story that centers on love and war but *Sivakamiyin Sabadham* is primarily a tale of war interspersed with love. The Battle at Pullalur is only a miniature of war- it is in fact a strategy utilized by Mahendrar to mitigate the strength of the joined forces and also to provide a first-hand battle experience to his son. Contrary to the Pullalur Battle, the war against Vatapi is a well-planned one as it uncovers the protocol of warfare. The first part of the novel begins with a prelude to the Vatapi war and the fourth and final part of *Sivakamiyin Sabadham* ends with the after-effects of the same war. It is evident, therefore, that the entire novel runs on this much-spoken war as the scenario.

The Chalukya invasion in *Sivakamiyin Sabadham* begins with the Vañji phase and not the usual stage of Vetci. The Vañji phase begins in the first quarter of the first part. The Pallavas are least prepared for a war of high magnitude. However, it does not signify that they are incapable because in the seventh century India "Harshavardhanar rules the area to the north of the Narmada, Pulikesi reigns over the region between the Narmada and the Tungabhadra and Mahendra Pallavar rules the area to the south of the Tungabhadra" (BL 55). The Pallavas were the most prominent kingdom in the south during Mahendra Pallavar's reign. The Pallava Emperor had planted spies in various kingdoms so as to glean information about the kingdoms. But somehow, his spies are cheated, for the Pallavas come to know about the Vatapi army's plans only after the army begins marching in the Vañji phase. Mahendrar declares that "The King of Vatapi, Pulikesi, has mobilized a large army and is invading us. It would be necessary for us to gather a massive army and wage a bitter war" (PJ 92). The Vetci phase which normally precedes all the other stages in a war steps to the fore only after the Vañji phase. The Vetci phase comes ahead because the Pallava soldiers failed to ascertain the enemy's moves.

The Chalukyas are successful in the Vañji phase, where they stealthily reach the borders of the enemy territory without them being aware of it. This stage also covers the reason for waging a war. Another reason for the laxity on the part of the Pallavas is that there was no reason for any realm to wage a war against them. The Pallava Emperor's confession to his son testifies their stand: "That's my mistake Narasimha! I did not anticipate a war during my lifetime. I spent the time I ought to have spent on warfare in dance, music, sculpture and painting" (PJ 121). The ulterior behind the invasion which also constitutes the Vañji tinai is known to the Pallavas at a later stage- only when the siege is about to begin. The prelude to the war is because a poet Bharavi who was closely associated to Emperor Pulikesi, refused to come to the Vatapi kingdom because he was enamoured by the beauty of the

Kanchi city. "It was the spark that the poet Bharavi ignited then that has become this war. Pulikesi wrote in one of his messages to Bharavi, 'I will come to Kanchi one day and see if what you say is true'" (SK 237). This serves as a prelude for the Vatapi King to march against Kanchi. Later, he himself tells King Mahendrar, "You take my large kingdom that stretches from Narmada to the Tungabhadra and give me just the city of Kanchi in exchange" (BL 80). Another reason for the Vatapi king to initiate a war is his brother Naganandi's provocation. These serve as proper reasons for the Chalukyas to attack the Pallavas during a time when they are least equipped to face a battle.

The Vatapi army is in the advanced stage of the Vañji phase when the novel begins. The Vetci phase is narrated only as events of the past. The Pallava army fails to identify the stealthy initiation of the Chalukyas. The Emperor's words reveal the magnitude of their precarious situation. "The King of Vatapi, Pulikesi has crossed River Tungabhadra and has entered our kingdom with a huge army. I heard that his army consists of lakhs of foot soldiers, thousands of elephants, hundreds of carts harnessed by powerful bulls, and sixteen thousand horsemen" (PJ 48). The prolificness of the Vañji phase lies not only in the massive number of the progressing troops but also because "Pulikesi's demonic army has effortlessly defeated our border forces and is rapidly advancing. We do not have the forces to stop Pulikesi's army. Our forces stationed at various locations are retreating. The Pallava Kingdom is in grave danger" (PJ 49). The Vañji phase is also symbolized in the Vatapi army involving in activities that would force the host to retaliate. The Vatapi force is successful in this phase of warfare because the Pallavas are defeated in their own borders and added to the woe is the retraction of their soldiers.

To retreat is an act of shame in the Tamil tradition. The young-blooded Narasimhan is unable to digest this shameful activity on the part of his army. But Mahendrar known for his astuteness takes control over the situation and asks his son to enforce patience. Mahendrar is quick to agnise the potential of his kingdom. He does not act impulsively because he weighs the situation pragmatically. He perceives that his army is unprepared for such a massive attack. He realizes that the only possibility is to play with time. Through his intuitive intelligence, he first secures the protection of the Kanchi Fort and simultaneously discovers the setbacks in his domain also. The Emperor's decree to procure food and weapons inside the Fort marks the beginning of the Nocci phase in warfare. Usually, the Karanthai stage precedes the Nocci tinai but preparation to secure food and weapons begins ahead, keeping in mind the enemy's treacherous attacks. The beginning of this phase is seen in sealing the food resources inside the Fort. "A column of boats sailed one after the other in that canal towards Kanchi.

Most of the boats were laden with sacks of paddy. Each boat was manned by two" (PJ 112). Securing weapons also take place concurrently. Kalki juxtaposes landscape and human activities to reiterate the significance of the context. He first describes the peaceful landscape and then proceeds to describe that This peace and serenity were deceptive as thunder, rain, storm and earthquake were soon to follow. Indicating this, a boat laden with weapons made its way along the canal amidst the boats laden with paddy. Several weapons like spears, swords, lance, knives and shields filled the boat. (PJ 112-113).

The peaceful boats that carry life-giving resource (food) are disquieted by the boat carrying munitions which are symbols of destruction. Such is the position of the Pallavas also.

With the onward motion of the Nocci phase begins the Karanthai stage too. Karanthai is the defending act against cattle raids. Although the Pallava army is not completely victorious in the Karanthai stage because of their retreat, it does not mean that that they are defeated either-Mahendrar recovers from the news of the enemy's steady invasion. He lives by his words when he puts into action the dictum he earlier pronounces- "Rulers should always keep their eyes and ears open. This is extremely essential during war time" (PJ 114). He uses his 'laid-back approach' to set right the loopholes in his fort. He also gives orders to fortify the fort for the siege. Not only is the fort renovated, but he immediately calls for the Council and then stations his army at different quarters. He then disappears from the Kanchi Fort giving orders to wait till the enemy begins the siege. He disguises as Vajrabahu and proceeds to enter into the enemy barricade. His strategy of patience towards the bikshu allows him to extract the plans of the enemy. The King is quick-witted to realize the true colour of the bikshu when he surmises- "our enemies' spies may be camouflaged in the ochre robes of monks" (PJ 113). He is also correct in his judgments on Paranjyothi- "That youth is innocent. I believe that deceptive bikshu is trying to engage in treachery using that youth. I guess that the bikshu is an extremely clever spy of the Vatapi kingdom" (PJ 117). Had he arrested the bikshu, Pulikesi would have immediately stormed and razed down the Fort of Kanchi.

The king who is gifted with a remarkable foresight, disguises as Vajrabahu and befriends Paranjyothi who himself is not aware that Naganandi is using him as a Vatapi messenger. Naganandi sends a scroll through Paranjyothi asking the Vatapi army to invade immediately and wage war against the Pallava kingdom. The innocent youth thinks that he is carrying a message pertaining to the secrets of the indelible Ajantha paintings. Vajrabahu who knew that Paranjyothi is carrying a scroll, stays in the Mahendra Rest House, drugs him in the night, reads the contents sent by the bikshu, burns the scroll and replaces it with a similar

scroll but with a different message- he writes an irrelevant message concerning the paintings in the Ajantha caves. Vajrabahu then proceeds to enter the enemy camp pretending to be a messenger of a friendly neighbouring kingdom. He also saves Paranjyothi who unwittingly gets trapped by Pulikesi who plans to behead him. The disguise of the Pallava King as Vajrabahu and his exploits to counter further invasion by the Vatapi army falls under Karanthai. The king tries to safely escort his kingdom against the siege planned by his opponents. By undertaking such a dangerous venture, he also gauges the strength of the enemy, where he sees

Thousands of elephants trained for war stood in rows like black hills. The white tents pitched amongst the elephants resembled white colour hills. Countless horses, camels, rams, chariots and carts dotted the landscape. Like ants that swarm a place strewn with sugar, lakhs of warriors were found in the army camp. (PJ 202)

The impossibility to attack and win such a huge well-armed force is confirmed by the King's visit to the enemy terrain. The Karanthai phase ends with the return journey of Vajrabahu and Paranjyothi to their own Fort. The journey symbolizes the Emperor's growth- he learns of the mistakes he had committed, especially the overindulgence in sculpture. His penitence results in setting things right by commanding the sculptors to build 'Bharata Mandapams' in every village where people can congregate and listen to discourses on Mahabharata. This is because the Emperor realizes that "This war cannot be won solely by Mahendra Chakravarthy and the army. The citizens of the Pallava Empire must also be motivated. They must be willing to give up their lives" (PJ 232). In other wars, the Karanthai phase does not prolong for a longer duration. But in the case of the war between the Pallavas and the Chalukyas, the Karanthai stage proves decisive. The novel is divided into four parts, in which only at the end of the second part comes the siege. The other two parts cover the remaining three phases, not inclusive of the other retaliatory war. This means that the first two parts of the novel concentrates on the initial stages of a military attack which emphasizes on the importance of the Karanthai phase. It is in this phase that the course of the war shifts to the advantage of the Pallavas. Moreover, it becomes a stage of physical and intellectual growth for the Rishaba army.

The Karanthai phase opens its portals to the Ujñai phase which deals with the siege of the enemy's fortress. The siege begins at a later time-period than scheduled. This is due to the interception of Naganandi's message in which he had originally written about the poor defense set-up of Kanchi; he had asked the Vatapi military to continue marching without stopping on the way so that they may capture the Fort in three days. But the Pallava King defends immediate

siege by misleading the Vatapi army. The Vatapi army on the other hand, waits for the bikshu's approval to begin the siege. Owing to the Pallavan's intervention, the siege begins eight months later. The span of eight months changes the course of the war. Mahendra Pallavar himself says "Had the Vatapi army directly marched to Kanchi, we could not have withstood them for more than three days. Fifteen of the fifteen thousand Chalukya war elephants would have sufficed to force open the gates of our fort" (SK 239). The Pallava head's insight and war strategies enable the Pallavas to strengthen their ramparts. And so, when the Vatapi forces surrounded the Kanchi Fort, they were not able to penetrate through the Fort.

The Uḷḷai phase begins when the siege of Kanchi starts. Contrary to the message stated earlier by Naganandi, the siege lasts for months. The Nocci phase is intertwined with the Uḷḷai and Karanthai part in this war. When the Pallava forces were gathering weapons to defend the invasion, Paranjyothi follows the Emperor's orders in beefing up the Fort. Paranjyothi and Mamallar under the command of Mahendrar take care of every single detail to defend the attack on the fort. The first step undertaken by any advancing army is to cross the moat. Commander Paranjyothi equips the Queen Bhuvana Mahadevi on the defense measures carried out on the fort. He tells about the moat- "I too saw it eight months ago. Previously, it was like a small canal. Now it is as large as an ocean. Crocodiles with their jaws wide open thrive in the moat" (SK 78). The possibility of building bridges across the moat will be countered by five thousand archers camouflaged within the fort walls to shoot arrows on the enemies. Concealed pits, invisible nets and traps are all set either to injure or kill the enemy. Boulders too are placed on the fort walls to roll it down at the opportune time. The strategy session to defend their territory is planned and executed meticulously by these three heads. They also gather the appropriate information regarding their attackers- their usual plan of action, their manner in laying a siege- and plan their defense accordingly. The Vatapi army is in the habit of intoxicating their elephants by making them consume liquor so that their strength grows manifold and also wild. To subvert this move, the Pallavas build an inner fort gate embedded with spear tips. If the outer wooden gate is broken, the spear tips on the inner gate would be a death knell to the elephants.

The arsenal of the Pallava Kingdom alone is not depleted. Mahendra Pallavar considers a gamut of defense measures to keep his kingdom safe from the enemy's clutches. He gathers the Council to explain the practical difficulties the kingdom might encounter. "The Chakravarthy expects the siege to continue for even up to a year" (SK 232) says the Commander Kalipahayar. So they gather all the available food supplies for the people in the fort. The primary concern of the King is the

safety of his people. He frankly tells them of the possibilities in case of a long siege. He arranges for the chieftains to reach their respective places before the siege and asks if they would stand by him.

By dawn tomorrow, the Vatapi army would have reached our fort. All of you should leave the city before that. All of you should rush back to your respective kottams. When the Kanchi Fort is under siege, there will be no communication between you and those of us within the fort. When Pulikesi is defeated, he will vent his anger on the surrounding villages. You should be prepared for all this. Chiefs of the Kottams! Think well before you respond. Are you prepared to sacrifice all you have to safeguard Kanchi? Will you tolerate all the atrocities perpetrated by the demonic Vatapi army? Will you be steadfast even if famine strikes the nation and people die of hunger? asked the Chakravarthy majestically. (SK 240).

The chiefs answer positively in unison which echoes the Tamil social life where unity is considered the primary strength. This becomes the case with the Pallava army too. The humanistic approach followed by the King delineates the kingly features in Mahendrar, where his prime concern lay in the safety of his people and he does so through love. Another tactic adopted by the Pallava men which brings out the unity and sacrifice is that "Our spy force headed by Shatrugna functioned excellently. The Chiefs of the Kottams have also worked skillfully. Unmindful of the famine that the country may face, they broke down all the dams and canals" (BL 42). The Pallavas break down the storage resources of water to inflict their enemies of thirst and dryness. The Nocci phase is meticulously capitalized by the Pallava forces. And so, when the Uḷḷai stage begins, the ramparts prove indestructible to the Vatapi army.

The Vatapi soldiers do not have new tricks up their sleeve in the siege of Kanchi. They act as per the expectations of the Rishaba army- their infantry try to scale the Fort walls, cross the moat, build bridges and intoxicated elephants which were half successful in ripping open the outer wooden gate only to be injured by the spear-embedded gates. After some time, they managed to break the spear tips through heavy logs of wood only to be barred by a strong inner wall. The Uḷḷai phase continues as Pulikesi plans to starve the inhabitants of the fort but it backlashes on him for it is his men who are left without food. The food scarcity for the Vatapi army is because "The villages that surrounded Kanchi were evacuated" (BL 118). At the beginning of Uḷḷai, the Vatapi King had an upper hand but the situation topples to give way to the Pallavas. The success of their defense lay on the fact that "The siege lasted for about eight months during which time the ramparts of the Kanchi Fort stood tall without any damage being done. Not even one soldier was able to enter the Kanchi Fort" (BL 17). Mahendrar's defense stands an example of the 747th Kural in which

Thiruvalluvar says "A fort should be impregnable to foes who gird it round, //Or aim there darts from far, or mine beneath the ground." The kural defines the term fort—that which cannot be captured by blocking, assaulting or even undermining it. The Uliñai stage does not lead to the expected sequence—the Tumbai.

The stage of siege yields to a truce called by the Vatapi king Pulikesi. He initiates the armistice not only because his troops languished without food resources but also more importantly because of the message he received that Naganandi is imprisoned and is about to be impaled on a stake. In spite of warnings "We have heard that the Vatapi king is a treacherous man who has no code of ethics and that he has a demonic character. Can there be a hidden ruse behind his stated intention of visiting Kanchi?" (BL 57) from the Ministers' Council and also from his own family, Mahendra Varmar invites the enemy on the grounds of the 'Pallava dynasty's dharma' and also to avoid unnecessary loss of lives. The Vatapi King is accorded a royal welcome. When the two kings meet, "Their eyes met. Mahendrar's face bore a slight smile and conveyed no emotion. But Pulikesi's face reflected the fury that was simmering within him" (BL 57). The Pallava King, who displayed remarkable statesmanship earlier, is suddenly bereft of even the fundamentals of logical reasoning. Like the man mentioned in the 792nd Kural which says "Alliance with the man you have not proved and proved again, //In length of days will give you mortal pain" (164), Mahendrar fails to make repeated inquiry before trusting his enemy which finally wounds him mortally. He flaunts the city's greatness and in one of the conversations, he divulges the gimmicks he employed to thwart the invasion earlier. His conversation with Pulikesi seem to justify his irrational act: "I revealed the tactics I had employed to counter your invasion as I thought that would be betraying our friendship by suppressing them" (BL 83). The Tamil custom could blame fate for the actions of the Pallava king but the same tradition has framed the Council and granted powers to the council in order to temper autocracy. A King who is like a deity to the Tamil people cannot afford to commit mistakes. If it is so, then the entire nation suffers. The careless tongue of Mahendrar reaps its own disaster. Pulikesi embraces Mahendrar's friendship superficially and does not act according to the treaty. This is because "When Pulikesi took leave of Mahendrar Pallavar and left through the northern gates, he was a disgruntled man. His heart was akin to a volcano filled with black smoke, molten lava and fire that was waiting to erupt" (BL 101). Pulikesi was fuming within because he felt that he was deceived and that had he arrived earlier, the beautiful city of Kanchi would have been annexed. He breaks the ethics of warfare by issuing a decree that

Fifty four thousand of the sturdiest soldiers in the army would be left behind. They would form small

groups, plunder and then set fire to the villages and towns that lay within a radius of four kadu from Kanchi. These soldiers would imprison the young men in the villages and towns, kill the young men, maim the aged and seek revenge in any other manner they deemed fit. Importantly, all sculptors and sculpture galleries had to be demolished. One arm and one leg of the sculptors had to be amputated. (BL 105)

The Vatapi forces execute the order of their king. The Pallavendra who trusts the friendship of Pulikesi and blurts his tactics, reaps untold miseries for himself and his kingdom. Though Mahendrar is left with most of his forces, his son Mamallar and his aide Paranjyothi were not present to shoulder his burden as they were sent to a battle against the Pandian army. Mahendrar gathers his forces to combat the remaining Vatapi soldiers. This Tumbai phase of battle scene is the Manimangalam battle which witnesses the fall of the Pallava King. Mamallar and Paranjyothi hasten to join their leader but not before he receives the fatal wound wielded by a poisonous dagger. As they arrive, they see that "the majority of the soldiers who accompanied Mahendra Pallavar from Kanchi had died fighting bravely on the Manimangalam battlefield" (BL 140). The Chalukyas with their meager army emerge victorious in this battle. All the same, they scatter and flee the Sooramaram encounter against the Pallavas. The Vāhai phase, nevertheless, belongs to the Chalukyas because the Pallavas suffer heavy losses. "The Chalukyas had set fire to the houses, huts, haystacks and crops ready for harvesting. Ashes covered the entire region. It seemed as though the Pallava Nadu had become a large and horrific graveyard" (BL 141). Excluding these inflictions, the major loss they suffer is the loss of their king. He fails to recover from the injuries he sustained in the battlefield.

The war initiated by the Chalukyas exposes all the phases elaborated in Puram. The different stages are projected in its own pattern to enforce the historicity of this major war. This war does not come to an end with the Vāhai phase. Rather, another cycle of these stages is repeated when Narasimha Pallavar assumes charge as king.

The growth of Narasimhar is evident in the second cycle of the war. He is no longer the same Mamallar who yielded to anger and impatience. Revenge contributes towards the Veṭci phase and serves as the best cause to restart the battle that had ended earlier. But a thirst for vengeance does not blind the eyes of the new Emperor. This is evident in his conversation with Aayanar: "When I failed to bring your daughter back from Vatapi, I thought I could mobilize an army in three years and invade Vatapi." But the initial plan encounters practical difficulties and so, "The task we set out to accomplish in three years has taken us nine years" (SD 22). The Veṭci phase which is inclusive of the preparations to begin a war reaches its heights at

Thirukazhukunram, the place where the Pallava army had camped.

Horsedrawn chariots, bullock carts and beasts of burden like cows, camels and donkeys occupied the area up to the southern horizon. Sacks of grains, clothes, daggers, shields, swords, spears, lances, tridents, bows, and arrows, several other uncommon weapons, mounds of thick ropes, rope ladders, hooks, spades and torches were stocked in those carts lay around. Observing the canopies that were heaped up like a mountain in one place, one would think that it was possible to cover the sky with these without allowing a single raindrop to reach the earth. (SD 23-24).

The war preparation far exceeds that of the Chalukya invasion. Manavanman, the Prince of Lanka and the Cholas join the Pallavas in order to decimate the Vatapi army. Following the Tamil ritual to start on an auspicious day, the army sets out on the dawn of Vijayadasami. "Mamalla Chakravarthy after performing ceremonies like Yatra Danam and Graha Preethi at the entrance to the ancient Pallava palace, sought the blessings of the elders including Rudrachariar, took leave of his mother Bhuvana Mahadevi and left for the battlefield mounted on the royal war elephant" (SD 69). The Tamil customs of departure for war are far more elaborate-war drums were followed by the woman folk showering flowers and blessings on the warriors. The *Veṭci* phase encapsulates the Tamil customs as well. The parting of soldiers from their wives and family form a part of this *tinai* also. Mamallar entrusts the safety of the palace to his wife from her brother's possible invasion also falls under this *tinai*.

The marching of the army towards the Tungabhadra border (Chalukya Kingdom) forms the *Vaṇji tinai*. "The Pallava army crossed the North Pennai River a week ago. It must have neared the Tungabhadra River by now" (SD 144). The *Vaṇji* phase is similar in style to that of the Chalukyas when they marched against the Pallavas. Contrary to the Pallavas who displayed solidarity during the invasion, the Vatapi kingdom begins to fall apart during this phase and hence the *Karanthai* and *Nocci* stage of protecting their territory is totally absent. This becomes a major setback to the host army. The major divide is the fraternal fights between Pulikesi and his brother Neelakesi (Naganandi Bikshu) over Sivakami. Others include the division of Vatapi forces that are stationed at the other borders in their kingdom; Pulikesi himself is held at Ajantha and he races with time to enter the Vatapi Fort. In addition to these impediments, a famine breaks out near the Tungabhadra River and so the army stationed close by was redirected to the distant land of Vengi. Pulikesi is devoid of time to regroup his entire forces.

The *Karanthai* phase is spoiled by Naganandi who then played traitor, dons the same role against his own brother. He had dismissed the Chief of the spy forces and assumed charge over it. Pulikesi was led into

the belief that Mamallar was gathering a huge army to invade Lanka. Naganandi who knew about Narasimhar's planned attack does not inform his brother. Therefore, only words of hope and courage fill the *Karanthai* phase.

The *Uḷḷai* stage commences when the Pallava army "surrounded that expansive city's fortress from all sides" (SD 148). The *Uḷḷai* stage is cut short when the invaders learn about the absence of Pulikesi inside the fort. The stage is disrupted of its importance when only a small army is left behind- "After deploying a small force to continue the siege at Vatapi fort, a major portion of the Pallava army started marching northwards" (SD 150). The short *Uḷḷai* phase quickly paves way to the phase of pitched battle. The Vatapi emperor who expected that the Pallavas would attack the Fort and that he could wait till he gathers his other forces and then attack is left with no choice but to face the combat. He is forced to forego a retreat as it would cause a slur on the heroism of the entire army. The two armies lock horns in the northern outskirts of Vatapi where the battle proceeds for three continuous days and nights. The butcherly *Tumbai* phase of this war reflects the fatality of war.

The dead elephants that lay on the battlefield resembled black granite hills. The corpses of humans and those of horses were all piled together. The pathetic moaning of humans, the horrific shrieking of elephants and the sorrowful neighing of horses that were on the verge of death mingled together to form an intolerable din. Rivers of blood flowed in all four directions on the battlefield. The mutilated limbs of warriors floating on the rivers of blood presented an excruciating sight. It is impossible to provide an accurate description of that war in which lakhs of warriors and thousands of elephants and horses were deployed. (SD 150)

The gory *Tumbai* phase prolongs for three days. Loss of lives affects both the sides but the Chalukyas receive the major blow when Pulikesi is killed in the encounter. But none of the armies are able to ascertain it. The victory phase belongs to the Pallavas. The garland is its symbol and so is jubilation: "the Pallava Chakravarthy and his commanders garlanded and congratulated each other and celebrated the conclusive victory secured by the Pallava army" (SD 151). The *Vāhai* phase is not complete in this victory on the battlefield. The Pallavas return to the camp and join the rest of the forces to continue with the siege. The *Uḷḷai* phase reenters to ensure complete victory to Mamallar and his army. Initially, the Vatapi forces offer a truce because they thought their King is dead. Even Paranjyothi and the Ministers accede to it but this suggestion is vehemently disfavoured by Mamallar. He averts the same mistake committed by his father- he learns a valuable truth to never trust an enemy's peaceful offer. True to his doctrines, the Vatapi army lowers its white flag from the fort and deploys soldiers. They exult over their king's return; the Pallava army

erects scaffolds, throws sulphur bombs and illuminated torches into the city. Through elephants, wooden masts and iron rods, they break open the gates and enter the city that was already set on fire. The invasion which ensues constitutes the Uliñai phase. The Pallava forces emerge victorious and the Vāhai phase becomes complete when Paranjyothi hoists the Simha flag of the Pallavas atop the Jayasthambam erected earlier by the Chalukyas.

The tina is of Puram are all exhibited in the war between the Chalukyas and the Pallavas. The Chalukyas resort to chicanery in most of the phases. In the initial stage, the Bikshu roams the territory as a friend to the Pallava Empire, Pulikesi oversteps the treaty, the Chalukyas brutally murder the villagers on their way and finally they call for a ceasefire but suddenly withdraw it during the siege of the Vatapi Fort. War, from ancient times is seen as a clash between good and evil. This battle in *Sivakamiyin Sabadham* also echoes similar thoughts. The Vatapi King and his army represent deceit and lack of cultural values. Hence war becomes necessary to weed out evil.

Puram centers on action and so landscape is subsidiary in nature. Nevertheless, Kalki does not permit landscape to dwell in its supplementary state. In every possible comparison, elements of nature relevant to the Tamil region are fused into the context. The phases of war are also a reflection of the social life in the land. Puram deals with social life in which the predominant occupant is war because war was the ancient system of life. But the brutality of war is not praised. Rather it is heroism that is extolled by the Tamils. Heroism is the cornerstone of war. Puram which most importantly deals with warfare reveals a thirst for honour and renown. Fame induced the kings of the past to undertake conquest on an extensive scale in order to earn an undying name in the world. Monarch and warrior in unison bowed to the principle of conquering kingdoms. The martial spirit was rife in the ancient Tamil land. However war was not totally devoid of ethics. The five major phases in warfare is enough testament that there existed a code even in carrying out a butcherly enterprise.

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The Home-Grown Wind Instruments Social Beliefs and Attitudes for the Peoples of Wolaitta: The Case of *Dinkiya* and *Chacha-Zaiya*, Southern Ethiopia

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Abstract- The Dinkiya and Chachazaiya music for spiritual actions was specifically created for the occasion, publicly performed in the context of the worship. In some cases, participation in these events was selective, usually for initiates, and was not open to every member of the community. The concept of performance composition in ritual place is one of the unique features of Wolaitta music especial Dinkiya and Chachchzayeya wind-instruments.

The Wolaita nation's Social structure involves three levels of stratification. The privileged class of nobles (Kawonata), the commoners (Goqqaa) at the upper strata is followed by the artisans called the Chenashasha. Blacksmiths (Degelaa) leather workers. From above mentioned social structure the artisans (Chenashasha) play vital role in musical industry. The artisans are professional musicians in the community of Wolaita. They took these professional by birth or inheritance.

Keywords: wind-instrumentants, dinkiyya, chachchzaiya, wolaitta peopls, music, cheneshsha.

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Abstract- The *Dinkiya* and *Chachazaiya* music for spiritual actions was specifically created for the occasion, publicly performed in the context of the worship. In some cases, participation in these events was selective, usually for initiates, and was not open to every member of the community. The concept of performance composition in ritual place is one of the unique features of Wolaitta music especial *Dinkiya* and *Chachchayaya* wind-instruments.

The Wolaita nation's Social structure involves three levels of stratification. The privileged class of nobles (*Kawonata*), the commoners (*Goqqaa*) at the upper strata is followed by the artisans called the *Chenashasha*. Blacksmiths (*Degelaa*) leather workers. From above mentioned social structure the artisans (*Chenashasha*) play vital role in musical industry. The artisans are professional musicians in the community of Wolaita. They took these professional by birth or inheritance.

The nations of wolaita musicians might be professionals. Thos are called *Chenashsha*. These musicians serve numerous functions for a variety of occasions in traditional Wolaita society. Given that all members of the professionals participate in music making. The Wolaita nation's musicians trained music by inheritance. My informants told that a wolaitta professional musician is learned primarily through social experience and communal partaking.

The Wolaita nations professional instrumentalists are performers of slit wind-instruments the rattle and double bell players; the song leader; and members of vocal ensembles. Most Wolaita nations have a low regard for musicians and discourage their children from becoming musicians. The peoples of Wolaita considering the wind-instruments musician/players belong to *Cheneshsha* cast groups. However, musicians are still a vital part of the community. The peoples of Wolaita think of customary music assume that oral and aural traditions were used exclusively throughout the region.

The Researcher selected, three Woredas from Wolaitta zone (*Soddo zuriya*, *Kindo-Dedaye* ,and *Ofa*) . The study site selection criteria were the implementation of those wind-instruments of the nations.

Keywords: *wind-instrumentants, dinkiyya, chachchayaya, wolaitta peopls, music, cheneshsha.*

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I. INTRODUCTION

African culture is embedded in strong moral considerations. It has a system of various beliefs and customs which every individual ought to keep in order to live long and to avoid bringing curses on them and others. Adultery, stealing and other forms of immoral behaviour are strongly discouraged and whenever a suspected offender denies a charge brought against him, he would be taken to a soothsayer or made to take an oath for proof of innocence (Gabriel E.103:2015)

Music plays an important part in all over the world. In our locality music plays in rituals of birth and puberty, at marriage and death, in secret society initiations, and in rituals of livelihood (e.g., hunting, farming, gathering, etc.). Parties often set out singing and dancing their way from one village to another or a dance may be held to cement good relations with a neighboring village. Costumes, masks, and musical instruments usually attain an "aura of sacredness" in ceremonies and rituals.

Audience participation, a type of communal sharing, has greater importance in African music than in most Western music. Interaction is closely related to ceremony and ritual. In the West, a symphonic concert is a one-way process where an ensemble performs while the audience waits quietly and patiently for the prescribed moments where it is permissible to applaud. This too is a ritual, but the behavior is generally restricted to a stylized expression of appreciation at the conclusion of a performance, and a spontaneous response at other times is prohibited by tacit agreement. The collective participation characteristic of African music is retained in African-American music when it is performed in African or African-American communities). This emotional freedom attracts listeners from all over the world. Hand clapping, finger popping, vocal prompting, and foot tapping during performances are not considered offensive but are viewed as signs of ardent approval that help to motivate the performing artist.

To play a wind instrument well, the player controls several elements in the player-instrument system, beginning with the source of pressurized air in the lungs. The bore of the instrument is a resonant duct

whose geometry is controlled by the player's fingers via keys, valves or a slide. At the mouthpiece the player controls several parameters of a nonlinear element (which is an air jet, reed or the player's lips) that produces sustained oscillations. Upstream from this valve is a second resonant duct—the player's vocal tract—whose geometry is also controlled. This paper gives an overview of the interactions of these elements and how they are controlled by the player. (Wolfe, J. e.i 2015:1)

Orchestral wind instruments are generally divided into two major categories: "woodwind" and "brass", with the woodwind category comprising flutes, oboes, clarinets, saxophones and bassoons while the brass category comprises trumpets, trombones, horns and tubas. This omits many ancient and folk instruments, such as recorders, shawms, and the bagpipes in the woodwind category, and the cornet to, serpent and didjeridu, whose excitation mechanism is rather like that of a trumpet or tuba. There is also the anomaly that modern flutes are usually made from copper-nickel alloy, silver, or gold, while saxophones are made from brass. (Ibid)

From the viewpoint of the player, instruments in the brass category are all played rather similarly, with the player's vibrating lips constituting a valve that controls injection of air at high pressure from the lungs through the vocal tract and mouth into the instrument mouthpiece. Oscillation of the lips is strongly influenced by acoustic resonances in the bore of the instrument itself, but the player has a dominant role by controlling blowing pressure, lip tension, and the configuration of the mouth and vocal tract. It is these individual contributions by the player that we will be concerned with here. (Ibid)

Music is learned as part of one's cultural and practical instruction, the birthright of all African children, which provides not only musical education but also a comprehensive preparation for all of life.

According to Jenkins in Africa One of the most complex areas and most difficult to interpret is the Ethiopia-Sudan borderland where Omotic and Cushitic-speakers are adjacent to Nilo-Saharan speakers. Many groups in this region practice a variety of types of vocal and instrumental polyphony. The Maji, for example, use ensembles of single-note pipes, sometimes in combination with panpipes, in the classic African style. They also imitate instrumental polyphony by cupping their hand into aerophones, and they have a type of vocal polyphony with a restricted tessitura and use of falsetto that strongly resembles the rainforest Pygmies. (Jenkins n.d, 1994)

The peoples of Wolaita are part of Omotic speaking family. The peoples of had enjoying by playing wind-instruments for the last centuries. In this article I would make out the home grown wind instruments

social beliefs and attitudes in the peoples of wolaitta: the case of *Dinkiya* and *Chacha-zaye*.

II. STATEMENT OF THE PROBLEMS

Music is by far the most vital and the most demonstrative expression in the life of the Negro. From morning till night, from the cradle to the grave, everything is done to the rhythm of his music. It is a living art-form passed on by word of mouth from one generation to the next. It is a means of preserving for posterity the traditions, ambitions and lore of the tribe. Music performs a vitally important role in maintaining the unity of the social group. Singing the same songs in the same way at the same time binds the individuals together, and a strong group feeling is established. The ceremonial music functions most vitally in this respect. Whether religious or secular, improvised or traditional, the songs have a powerful influence on the social group and bring about a feeling of harmony. (Laura 1957: 1)

Among the songs which make up the group repertoire, there is a wide range of subjects, some old, some new. Every occasion and every activity has its song or group of songs. There are songs for love and work: and war, historic songs, fervent religious chants and frenzied dance tunes. Whether the African sings a gay, rollicking play song, a boisterous boat song, a gentle lullaby, or a dignified noble lament, always he pours out his emotions in an appealing form of music. The texts of the songs make up the poetry of the people. The verses show the same feeling for form, balance and symmetry which is apparent in all artistic expressions of the Africans. (Ibid)

According to Newi if music can be taught in African schools from an African philosophical point of view using indigenous instrumental music and dance practices, the learners would better imbibe the compositional/performance elements that will enhance and excite inborn creative talents. They would be able to participate in music making activities in their community, and experience the theoretical implications in the practice (Newi 1997: 2).

San speakers also have polyphonic music but it is essentially vocal. Structurally, it appears quite unlike the wind polyphony recorded from elsewhere in Africa, although it has been argued that it resembles the vocal polyphony of the Pygmies. There are important structural differences between this type of two- and three-part polyphony and the multi-octave ensembles characterized here. Nonetheless, the link may be found in southwest Ethiopia. Omotic and Nilo-Saharan speakers in this area retain polyphonic styles reminiscent of the Pygmies as well as more complex styles and it seems likely enough that from this centre of diversity emerged the characteristic one-note-to-a-part wind polyphony (Jenkins n.d, 1994)

The Wolaitta peoples home grown wind instruments social beliefs and attitudes in the peoples in

the case of *Dinkiya* and *Chacha-zaye* were not studied. Therefore the researcher identify *Dinkiya* and *Chacha-zaye* wind instruments social beliefs and attitudes. Assess the challenges and opportunities of home grown wind instruments,

a) *Research Questions*

- What are/were the wind instruments social beliefs and attitudes
- What are the challenges of home grown wind instruments?
- When was the wind instrument applied?
- Who are the engineers of the wind-instrument?

b) *General Objectives*

The general objective of this study was the social beliefs and attitudes of *Dinkiya* and *Chacha-zaye* wind instruments

c) *Specific Objectives*

- Recognize the wind instruments social beliefs and attitudes.
- Assess the challenges of home grown wind instruments
- Clarify the wind instrument concern in the community?
- List out the engineers of the wind-instrument

III. LITERATURE REVIEW

African musical instruments are of many kinds and vary from tribe to tribe. Their unusual tone color, their uses and role in the society, their religious importance in the life of the people, -all are subjects of study of the utmost significance, from the point of view of both cultural and musical research. Music in Africa is for the whole community and everyone from the youngest to the oldest participates. It is so interwoven with the work, the play, the social and religious activities of the natives, that it is difficult to isolate it and study it apart from its role in the life of the people. African music, while more complex in certain aspects than the music of other preliterate people, has certain things in common with all primitive music (Laura 1957: 1)

There is a definite tendency of the melodies to progress downward as from tension to rest. Usually the phrases are short and repeated over and over again. Fractional intervals (smaller than semi-tones) seem to be regularly employed of all the wind instruments in Africa, flutes are used especially for melodies of rather elaborate form. They are played widely throughout West Africa, generally two or three together, sometimes accompanied by drums. The flute players are often attached to the court of the king, or paramount chief, and frequently become famous for their virtuosity. The flutes are carved of wood, made from bamboo, or as among the Ovimbundu of Angola, they may be a combination of both-with mouthpiece and endpiece carved of wood and a central section of bamboo. The

two flutes of the Bambara tribe heard in this record are of bamboo with five holes each. (Ibid)

According to Afework there were different types of musical wind-instruments for the Wolaitta of peoples, like *Dinkiyaa*, *Chachazayiya* and *pulaliya* which are made from stalks of bamboo and sorghum. In ancient Wolaitta *Dinkiyaa* wind-instruments used for funeral events with drums called *Kamba*. But now a day it used for different occasions. In early culture of Wolaita *Chachazayiya* wind-instruments are used for circumcision rites. Other than now a day it used for different junctures like New Year celebration of wolaitta, (*Gifatta*, weeding and any events it happened in our locality with drums/ *Kamba*. The last wind-instrument is *pulaliya*. It is made from stalks of bamboo. In ancient time it played by shepherd. Now a days *pulaliya* was not functional that much. Generally they argued that the wind-instruments of Wolaita use for secular purpose.(FGD with traditional leaders, Wolaita)

He stated that the musical instruments' of Wolaitta are both used for ritual and secular purpose. In most dance the musical instruments plays a great role. One of the wind instruments of the Wolaitta is *Dinkiyaa* (the longest wind instrument in the World") (Afework 2012:62)

Chachcha-zayiyaa is used in the funeral and circumcision occasion with *Kambaa*. *Chachcha-Zayiya* and *Dinkiya* with *Nagarita* (largest drum) its objective was announce the king had started to eat and finished, proclamation of new laws, calling men to war and coronation time".(Ibid). It shows that different Wolaita wind-instruments are their own contribution for the accomplishments of diverge cultural events.

Stigane 1996:298 a British traveler stated that who visited Wolaitta a few years after Meneliks conquest the Wolaita appear to have reached a very advanced state of civilization for an Africa tribe. Since the Abyssinians have taken their country they have been brought more or less in to touch with the civilization of the latter , but hey probably have not advanced , more likely they have receded a little, since that date (Stigane, 1996:298).

IV. HYPOTHETICAL SETTING

According to Terje Oestigaardn 2004 to be found the Hodder work said that by "Materialist approaches those that infer cultural meanings from the relationship between people and their environment. Within such a framework the ideas in people's minds can be predicted from their economy, technology, social and material production. Given a way of organizing matter and energy, an appropriate ideological framework can be predicted. By idealist I mean any approach which accepts that there is some component of human action which is not predictable from a material base, but which comes from the human mind or from

culture in some sense... In inferring cultural meanings in the past, there is no necessary relationship between social and material organization of resources on the one hand and cultural ideas and values on the other." (Hodder 1994:19).

A society, a group of interdependent persons forming a single community, has a culture, a set of beliefs. Social history and social anthropology study the relationships between individuals or groups of individuals in a society, especially the patterns and details of the daily existence of large subgroups as defined by class, race, religion, place of residence, wealth, and so forth. Cultural history and cultural anthropology study the peculiar achievements, especially intellectual, that characterize a society, such as art, science, technology, religion. Obviously there are significant areas of overlap. Society and culture are inextricably intertwined, and their study cannot and should not be isolated except for analytical purposes. Cultural history and cultural anthropology, with their sister subjects of social history and social anthropology, thus constitute a field-of-interest umbrella that arches over the study of material culture (Jules 1982:3)

Culture and Society The definition given at the beginning stated that the study of material culture can be considered a methodological branch of cultural history or cultural anthropology. Material culture is the object based aspect of the study of culture. As with cultural history and cultural anthropology, the study of material culture touches on the allied concerns of social history and social anthropology (Ibid)

V. CONTEXTUALIZING PERFORMANCE COMPOSITION

Music has been an integral part of the life of the indigenous African. Invariably, every activity that the African engaged in had a music aspect to it. This ranged from the daily subsistence occupation to the evening relaxation. Music was never played just for entertainment in the old African culture, there was an extra musical purpose for each and every occasion in which music was made. This could range from religious intentions to social functions and recreation. Thus in traditional Africa, music was always functional i.e., it had to fulfill the objective it was created for. The life of the indigenous African was encompassed with social events like title taking, marriages, initiations, religious worships etc. Basically, the African availed himself of every opportunity to transact music. Thus, mass music education was a norm in old Africa. There were of course, experts and people who had exceptional skill in certain specialized areas of the musical arts such as choreography, singing and the playing of certain instruments. Otherwise the average African participated in musical arts activities in tradition as an actor, a

dancer, an instrumentalist or an active audience. The first exposure to music for the African child starts from when he is born.

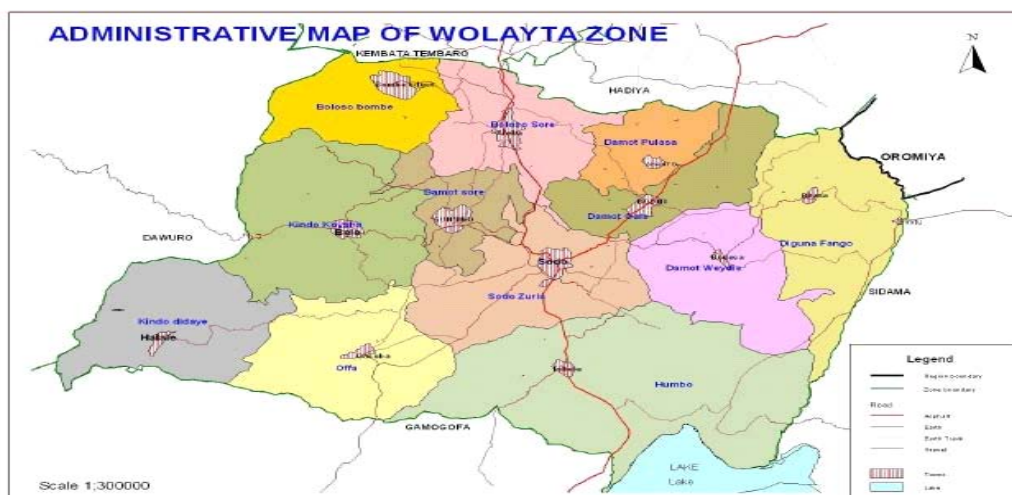
The mothers would usually sing to the child either to get him to sleep or to stop him from crying. This singing would usually go with some gentle body movements. In most cases, the mother would carry the child on her back while she engaged in her daily household activities, and as was the practice then, would sing and make dance movements while she worked.

Terje Oestigaardn 2004 cited Miller Material culture studies is a discipline concerned with all aspects of the relationship between the material and the social. It strives to overcome the logistic constraints of any discipline (Miller 1998). The aim is to model the complex nature of the interaction between social strategies, art factual variability, and material culture. The Wolaitta people's indigenous wind instruments are amused healthy in Social beliefs and attitudes especially *Dinkiya* and *Chacha-zaye*. However, in studying the indigenous wind instruments have been little attention, hence, this study filled the gap.

a) Study Area

The study was prepared in Wolaita Zone. Wolaitta zone is one of the fourteen zone of the Southern Nations, Nationalities and Peoples Regional States of Ethiopia. Wolaita Zone governmental centre is Wolaita Soddo. Geographical Wolaitta zone capital is 320 km far from Addis Ababa and 125 km distant from regional capital *Hawassa*, through the city of *Bedessa*.

The Researcher selected, three Woredas from Wolaitta zone (*Soddo zuriya*, *Kindo-Dedaye*, and *Ofa*). The study site selection criteria were the implementation of those wind-instruments of the nations.



b) Sampling Method

The study used purpose sampling Methods. Based on the sampling technique the researcher selected eight wind instrument players from three centers, eight informants were from social and cultural institution leaders, eight informants from cultural experts and elites. The researcher selected those informants based on the musical instruments skill and knowledge.

VI. METHODS OF DATA COLLECTION

The researcher designs were qualitative research approach. In qualitative study two types of data sources. Which are primary and secondary data. The primary data sources were in case study, depth interview focus grouped discussion and Observation are the major one. The Secondary data sources were books, published and unpublished thesis, articles, journals, archives.

VII. DATA COLLECTION TOOL

Data collection tool were Semi – structured and in-depth interview types. With interview consent field notes, photography and observation was also taken.

VIII. RESULTS AND DISCUSSION

a) An Overview of Musical Style of Ancient wolaitta

In ancient Wolaita Music civilization may be observed in every Wolaita community. The music traditions of Wolaita are both old and multifaceted. Among them *Dinkiya* and *Chacha-zaye* are the most complex one. Even if earlier observations revealed the predominance of polyphony in parallel fifths in Wolaita peoples have developed systems of classification of songs. They have at least different types of musical instruments. The Wolaita people's wind instruments played by professional musicians called "*Chenasha*" which are cast groups in Wolaita community. According to my informants the professional musicians played for:-

Entertainment, music for political purposes, songs for harvesting and other work songs, war songs, beer drinking songs, songs commemorating the birth of children, songs admonishing erring members of the society, songs deride vulgar songs, etc. Social songs are separated from ceremonial or religious songs. The Wolaita peoples have other songs associated with paddling against a strong current, paddling with the current, etc.

IX. GROUPS OF WOLAITA MUSICIANS

The Wolaita nation's Social structure involves three levels of stratification. The privileged class of nobles (*Kawonata*), the commoners (*Goqqaa*) at the upper strata is followed by the artisans called the *Chenashasha*. Blacksmiths (*Degelaa*) leather workers. From above mentioned social structure the artisans (*Chenashasha*) play vital role in musical industry. The artisans are professional musicians in the community of Wolaita. They took these professional by birth or inheritance.

The nations of wolaita musicians might be professionals. Thos are called *Chenashsha*. These musicians serve numerous functions for a variety of occasions in traditional Wolaita society. Given that all members of the professionals participate in music making. The Wolaita nation's musicians trained music by inheritance. My informants told that a wolaita professional musician is learned primarily through social experience and communal partaking.

The Wolaita nations professional instrumentalists are performers of slit wind-instruments the rattle and double bell players; the song leader; and members of vocal ensembles. Most Wolaita nations have a low regard for musicians and discourage their children from becoming musicians. The peoples of Wolaita considering the wind-instruments musician/players belong to *Cheneshsha* cast groups. However,

musicians are still a vital part of the community. The peoples of Wolaita think of customary music assume that oral and aural traditions were used exclusively throughout the region.

a) Musical Instruments

Wolaita people's musical instruments may be classified as chordophones (stringed instruments), idiophones (instruments that are struck or shaken), membranophones (instruments covered with skin) and aerophones (wind instruments). Musical instruments can also be classified as instruments with melodic functions and instruments with rhythmic functions. Wolaita nations indigenous wind instruments are *Dinkiya* and *Chachazaiyiya*, *pulaliya* etc... Which are made from stalks of bamboo and sorghum. From them the longest wind instrument is *Dinkiya*.

b) Challenges and opportunities the wind instruments

There were/ are a number of challenges to contumely using these winds – instruments. According to my grass the challenges come from indigenous peoples which are marginalizing the social-class of these professional backgrounds. They are totally isolated from any social interaction except celebrity. Additional confront is the religious perspective, after the coming of Christianity many professionals ignored their job because of the weight of their religion principle. The practices are related by evil things. Modernization also their own pressure those wind-instruments and professionals are not-enforced their activities now. Since the accesses of modern music instrument and players

get involved in to other jobs. Therefore, now the construction and players of these wind-instruments decreasing time to time. That leads cultural crisis.

c) The fabrication of *Dinkiyyaa* and *Chachchazaiyiya*

The wind instruments of Wolaita are fashioned by different materials. These materials are found in their locality. According to my informants the *Dinkiya* is made up of a stalk of bamboo pinnaced by elements/ buffalos/ibex's/ horn. It is festooned with a wisp of cow's tail. Its distance end to end is 3 to 4 meters long.

The *Dinkiyya* wind instrument rhythmically and length are different in their size and rhythm. My informants stated that *Dinkiyya* rhythmically and its length alienated in to six groups. Which are *Zohaa*, *Lamiyaa*, *Hesssiya*, *Kubbiyaa*, *Maraa* and *Cachchaa*. These six *Dinkiyya* types are their own sound system and size. It is frequently used with *Kamba/ Drums*'.

The *Chachchazaiyiya* finished from sorghum stalks enclosed in a cow's gullet. According to my informants *chachchazaiyiya* sound system and rhythm divided in to six, *Tootiya*, *Hechchchiya*, *Silduwaa*, *Koyishattuwaa*, *Gooshaa* and *Dirbba*. Its length is 1.5 to 2 meters long. The innovators and players of these wind-instruments are by local engineers called *Chinashsha*. The professionals are trained and playing these music instruments is because of their social-background/social stratification. The professions are taken this skill on or after inheritance Photo was taken by the researcher (groups of longest wind-instrument is *Dinkaya* while the simplest one is *Chachazaiyiya*).



d) Wind instruments Social beliefs and attitudes

Social beliefs and attitudes represent a large proportion of shared musical events in traditional Wolaita society. These include events such as title taking/coronation ceremonies, initiation ceremonies,

ceremonies to mark annual harvests and to usher in new farming seasons, funerals and other music events that are particular to different communities.

These events in most cases would require the participation of every member of the community. There

would be different music groups that could be gender specific, age group specific or occupation specific (such as hunter's guild). The period and timing for some of these events could last from one day to two weeks. The music category used for these activities are specific event-music types each of which is peculiar to its event. The dances could be choreographed, free medley or mass participatory. In these social event situations, performance composition is the norm. The context of each performance will determine the nature of the re-composition of each of the pieces. The *Dinkiya* and *chachazyiya* wind instruments' at funeral place it made ritualized the funeral ceremony. The Wolaita community understood the language of the wind instruments with drums.

These music events give the members of the community opportunities to come together and interact with one another in dance and music. It creates opportunity for somatic relationships, compelled by mass dancing. It is the occasion for the community to come together and share the spirituality that the music offers and to bond as one entity. It is also a time for mending bridges and reconciliation within the community. During such events, new musical talents are discovered and are encouraged towards attaining or harnessing the full potentials of such innate creative personality





Photo was taken by the researcher

X. PURPOSE OF DINKIYA AND CHACHAZIYA

a) Entertaining music performance

The *Dinkiya* and *chachazyiya* entertaining music behavior__take in, kingdom coronation, funeral ceremonies, marriage, and circumcision, wrestling music events, hunting, fishing and other traditional recreational sporting events. The music is also event specific, and is only employed during these activities. Frequently, these recreational activities take place in the day to day activities of the people.

According to my informants the members of the community come back amusement from the different area of professions. The music starts as people get back from their different places of work and gradually move to the village arena where the event is to take place. There is mass dancing and the youths play a place like *Gazeya* (*Wolaita* new year *Gifatta* celebrate park), while the older persons engage in more advanced entertains such as like *Gifatta* festivity. According to my informants:

Music is an important part of Wolaitta community daily life. Except on rare occasions, youths attend all the evens that occur in the family and community. In play, youngsters imitate the songs, dances and ceremonies of their elders. They often borrow and can play adult's instruments for their songs, games, and dances. The wind-instrument used announces such important events as births, deaths, or, important public events and dancers. (FGD in Ofa Woreda)

Wind Instruments that you blow include whistles, flutes, horns and trumpets. They are usually wood but near the sea they may be made from sea shells. Where elephants live, they may be made from the tusk. Besides being part of celebrations and dances, horns and trumpets warn communities about emergencies, announce the presence of kings and chiefs, encourage warriors to fight harder, take part in secret ceremonies and even help village judges settle disputes.

b) Recital in Religious

The peoples of Wolaitta are their own indigenous religion for the last thousands of years ago. According to my informants Previous to the arrival of Christianity, Islam or Judaism the Wolaitta peoples had a belief system that was based on the worship of goddess; there is the Supreme divinity. For every clan they had been their own divinity. There was usually a place of worship a particular time in the year when the deity is honored and a specific music type that went with the worship of the divinity. In some cases, there were blessed wind instruments that were used for these worships and which were only brought out at the occasion of these worships.

The *Dinkiya* and *Chachazaiyya* music for spiritual actions was specifically created for the occasion, publicly performed in the context of the worship. In some cases, participation in these events was selective, usually for initiates, and was not open to every member of the community.

Dance is an integral part of Wolaita people's religious worships. The dances most times are choreographed, sometimes to reflect activities synonymous with the divinity being worshiped. These dances of course would not be performed in another music event occasion. There is a close inter-relationship between the drummer, the dancer and the audience in worship. The concept of performance composition in ritual place is one of the unique features of Wolaitta music especial *Dinkiya* and *Chachchzayeya* wind-instruments.



Photo taken by the Researcher (*Dinkiyaa, Chachazayiya and pulaliya*) of Wolaitta
Photo taken by the researchers during FGD, Wolaita Zone

XI. CONCLUSION AND RECOMMENDATIONS

The music traditions of Wolaita are both old and multifaceted. Among them *Dinkiya* and *Chacha-zaye* are the most complex one. Even if earlier observations revealed the predominance of polyphony in parallel fifths in Wolaita peoples have developed systems of classification of songs. They have at least different types of musical instruments. The Wolaita people's wind instruments played by professional musicians called "*Chenasha*" which are cast groups in Wolaita community.

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Social beliefs and attitudes represent a large proportion of shared musical events in traditional Wolaita society. These include events such as title taking/coronation ceremonies, initiation ceremonies, ceremonies to mark annual harvests and to usher in new farming seasons, funerals and other music events that are particular to different communities.

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To save the indigenous wind instruments of Wolaita people all concerning body's work together. Especially Wolaita zone Administrative bodies, regional governments, federal minister of culture and tourism, UNESCO and the lion share is to the peoples of Wolaita. In general, the professionals are will trainee and playing these music instruments in professional way in kindergartens, schools, colleges and universities.

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The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.



The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of “Open Association of Research Society, U.S.A (OARS)” so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.



Journals Research
inducing researches

The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.



We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.



After nomination of your institution as “Institutional Fellow” and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.

The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.



Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.

Disbursement of 40% Royalty earned through Global Journals : Researcher = 50%, Peer Reviewer = 37.50%, Institution = 12.50% E.g. Out of 40%, the 20% benefit should be passed on to researcher, 15 % benefit towards remuneration should be given to a reviewer and remaining 5% is to be retained by the institution.



We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth \$ 2376 USD.

Other:

The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.



- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10% discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in-depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of “Difference of Opinion [if any]” among the Board members, our decision will be final and binding to everyone.

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PREFERRED AUTHOR GUIDELINES

We accept the manuscript submissions in any standard (generic) format.

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from <https://globaljournals.org/Template.zip>

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

BEFORE AND DURING SUBMISSION

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct*, along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

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Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures



- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

AUTHORSHIP POLICIES

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1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



FORMAT STRUCTURE

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

TIPS FOR WRITING A GOOD QUALITY SOCIAL SCIENCE RESEARCH PAPER

Techniques for writing a good quality human social science research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of human social science then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow [here](#).



6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

19. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



20. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

21. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

22. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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