Chapter 5 -

DISCUSSIONS

The overall aim of the thesis is to understand the impact of overseas cultural contact between West Asia and Western India during the latter part of the early historic and early medieval periods (delimited from 3rd to 10th century A.D.). The discussion part of this thesis is presented under five sections (sections 5.1., 5.2., and 5.3., 5.4., and 5.5.). The first section 5.1. deals with cultural and political factors that emerged due to trade as evident from the spatial-temporal distribution of material remains. The second sections 5.2. tries to understand the cultural processes that evolved as a part of this socio-cultural and political interactions. This part of the sub-chapter also deals with different research outputs and their theoretical propositions. Further, artefact provenance studies were undertaken to establish the differences between the imported and local materials and their quality variations. This was achieved through a thin-section petrographic analysis and the same is explained in sections 5.3., and 5.4. The use of Torpedo Jars as one of the most prevalent transport vessels to the Indian sub-continent has been discussed in detail in section 5.5.

5.1. Political Scenario and the Resulting Material Distribution

Two diverse social-political scenarios existed in West Asia between 3rd and 10th centuries A.D., firstly the Sasanian rule and secondly, the Early Islamic caliphates. This shows significant changes within the socio-political, socio-cultural, and economic situation in West Asia in the aforesaid period. Whether these socio-political, socio-cultural, and economic ‘changes’ actually had an impact on Western India is further discussed here.

The Sasanians had a good relationship with the Indian kings, and there were as many philosophical and socio-cultural interactions as there were commercial contacts between the two regions. Whereas it is noted that Torpedo Jars were reduced and phased out during the Early Islamic period (after the 8th century A.D.), according to sites such as Sanjan and Nagardhan. The internal chronologies of excavated discoveries shown from both regions, such as Nani Rayan and Vadnagar in Gujarat, and Nagardhan in

Maharashtra, show that the Torpedo Jars are generally found from Late Sasanian settings, as stated in Chapter 4.

Table 5.1: Type of West Asian Materials from Western India and the respective Spatial-Temporal data

Site	Region	Finds	Functionality	Time-Period of Contact
Vallabhipur	Gujarat	Torpedo Jars	Transport vessel	Late Sasanian?
Nagara	Gujarat	Torpedo Jars	Transport vessel	Late Sasanian?
Paliyad	Gujarat	Torpedo Jars	Transport vessel	Late Sasanian?
Lothal	Gujarat	Torpedo Jars	Transport vessel	Late Sasanian?
Kanmer	Gujarat	Sasanian Glazed Ware, Torpedo Jars	Transport vessels and Table Ware	Late Sasanian?
Vadnagar	Gujarat	Sasanian Glazed Ware, Torpedo Jars	Transport vessels and Table Ware	Late Sasanian?
Taranga	Gujarat	Torpedo Jars	Transport vessel	Late Sasanian?
Nani Rayan	Gujarat	Sasanian Glazed Ware, Torpedo Jars	Transport vessels and Table Ware	Late Sasanian
Kamrej	*Dakshina Gujarat*-Maharashtra	Torpedo Jars, Turquoise Glazed Ware?	Transport vessels and Table Ware	Sasanian, Early Islamic?
Nagardhan	*Dakshina Gujarat*-Maharashtra	Torpedo Jars, Tin Glazed Ware (Samarran)	Transport vessel and Table Ware	Late Sasanian, Early Islamic
Chaul	*Dakshina Gujarat*-Maharashtra	Sasanian Glazed Ware, Torpedo Jars, Tin Glazed Ware (Samarran), Turquoise Glazed Ware, Eggshell Ware Varieties, Sgraffiato varieties	Transport vessels and Table Wares	Sasanian, Early Islamic and Middle Islamic
Sanjan	*Dakshina Gujarat*-Maharashtra	Sasanian Glazed Ware, Torpedo Jars, Samarran Related classes (White Glazed Ware, Splashed White Glazed Ware, Cobalt Painted Ware, Lustre Painted Ware) , Turquoise Glazed Ware, Eggshell Ware Varieties, Sgraffiato varieties, Line Incised Storage Vessels (LISV), Glass vessels	Transport vessel initially and later dominance of Table Wares	Sasanian, Early Islamic and Middle Islamic

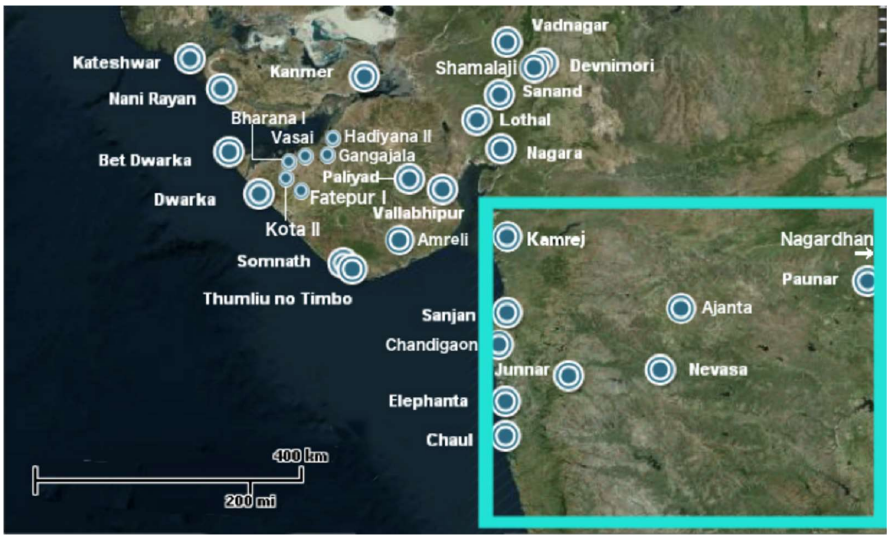
5.2. Vicissitudes of West Asian contact with Western India – A socio-cultural and political viewpoint

The Table 5.1 above demonstrates the finds from the two regions Gujarat and *Dakshina Gujarat*-Maharashtra with Map 5.1 demonstrating the spatial-temporal distribution of West Asian material across Western India. The recording, analysis, and identification of the ceramics from the two regions has led the researcher to believe that trade and contact with western India continued from the Sasanian into the Early Islamic phase.

But it is to be noted that, the 'political' relations between the two regions were frosty in the Early Islamic period (circa 8th – 10th c. A.D.) on account of the several attempts made by the Arab invaders into Western India. This affected the trading mechanism as seen from the Table above, the finds from the Gujarat region were temporally restricted to the Sasanian period. This may suggest the temporary downfall of 'trade havens' within Gujarat (excluding south Gujarat) and a fall in the economy as multiplied by the de-urbanisation of Gujarat after the fall of the Maitrakas of Vallabhipur. The first impression one gets when one views the spatial distribution of settlements Map (5.1) is the amount of contact that can be discerned. The contact is not only seen on the coast but also much into the mainland, as evidenced from sites such as Nagardhan and Vadnagar. If the find spots would be put into different zones based on its temporality. They can broadly be classified into two major areas, Gujarat (excluding South Gujarat i.e. *Dakshina Gujarat*), and *Dakshina Gujarat*-Maharashtra which is also echoed by the then political boundaries of Western India where *Dakshina Gujarat* was closer to Maharashtra.

The Sasanian contact is seen throughout Western India, from almost all the sites in the different regions as well (except Chandigaon which yielded only Sgraffiato wares - IAR 2006: 53). But the Sasanian contact continuing into the Early Islamic period (8th c. A.D. - 10th c. A.D.) is only found only in the region of *Dakshina Gujarat*-Maharashtra. Also the finding of a Samarran ware (dated to 9th c. A.D. - 10th c. A.D) in the deep inland sites such as Nagardhan, does attest to the fact that even in this phase Indian Ocean trade and its effect was continuing in this region and sites such as Sanjan and Chaul would be

the places for initial offloading of goods and commodities and also simultaneously of market places. But it is to be noted that, no site in the Jamnagar survey or even the recorded excavated remains from the sites of Gujarat (except south Gujarat) has yielded Early Islamic materials. Neither do any of the published literature regarding West Asian finds in this region reviewed by the author have any 'Early Islamic' material. Although, post the 10th century A.D., the finds from West Asia may be found from the Gujarat side as well, if the polity indeed does reflect the distribution of material. The coming of the Solankis and a more stabilised economy, would have had a greater impact on the fortunes of Gujarat in this period post 10th century A.D. But it is certainly not the contention of the researcher that absolutely no non-political contact was made in this Arab invasion phase for Gujarat, but rather, the region of Gujarat would have probably indirectly been involved in the exchange. Otherwise, a site of the size and stature of ancient Vadnagar, and the large scale excavations would certainly been a potential find-spot of Early Islamic remains.



Map 5.1: Map showing sites that have revealed West Asian contacts. The box in Turquoise contains sites that show both Sasanian and Early Islamic tangible remnants of contacts, located in Dakshina Gujarat-Maharashtra. Sites outside the box have not yielded Early Islamic tangible remnants.

The connection between the religion and the polity has been closely linked in the Early Historic and Early Medieval period in Indian history. Construction of religious structures to a great extent was also driven by the support given by the polity. There is

an interesting contrast of the then Brahmanical temple construction in Gujarat and in *Dakshina Gujarat*-Maharashtra. Where truly monumental temples and ambitious projects (such as the Kailasa temple at Ellora) were built in *Dakshina Gujarat*-Maharashtra region between 8th to 10th c. A.D., the region of Gujarat sees a reduced temple building activity which was initially carried out by the Maitrakas and later by the Saindhavas. The temple construction may have been affected because the political system within Gujarat around the 8th to 10th c. A.D. was de-centralised and the resources may have been shipped towards the defence of the region. This may be the effect of the Arab invasions into the western India in that phase. The Zoroastrian diaspora from West Asia to western India was thus most successful only in the *Dakshina Gujarat*-Maharashtra region as illustrated in Kisse-i-Sanjan and not in Gujarat.

5.3. Thin-Section Petrographic Discussions on Mineralogy and Ware Types

The thin-section studies undertaken in 4.6. yielded 12 major Petro-Fabric Groups with two sub-groups totalling 14 in number. The Petro-Fabric Groups are divided into 4 major groups according to their mineralogical compositions: (i) Crypto-Crystalline silica dominant (PFGs 4 and 4a), (ii) Quartz dominant (PFGs 1, 2, and 3), (iii) Quartz-Feldspar dominant (PFGs 9, 10, 11, and 12), and (iv) Feldspar dominant (PFGs 5, 6, 7, 8, and 8a) (Figure 5.1, Table 5.2).

(i) Crypto-Crystalline silica dominant PFGs 4 and 4a is represented by Torpedo Jars and Honey comb Pithos Jar from Susiana region exclusively.

(ii) Quartz dominant PFGs 1, 2, and 3 is represented by Torpedo Jars (PWWS), Torpedo Jars (Buff), and Sasanian Glazed Ware respectively

(iii) Quartz-Feldspar dominant PFGs 9 (Turquoise Glazed Ware, and Turquoise Splashed Tin Glazed Ware), 10 (Turquoise Glazed Ware, Tin Glazed Ware, and Sasanian Glazed Ware) 11 (Sasanian Glazed Ware, Tin Glazed Ware, Turquoise Splashed Tin Glazed Ware, and Turquoise Glazed Ware) and 12 (Turquoise Glazed Ware) are all represented exclusively by Glazed Wares

(iv) Feldspar dominant PFGs 5 (Grey Eggshell Ware), 6 (White Eggshell Ware, Buff Plain and Incised Ware, and Sasanian Glazed Ware), 7 (Buff Plain and Incised Ware), 8 (Hatched Sgraffiato, and Champlevé Sgraffiato), and 8a (Late Sgraffiatos).

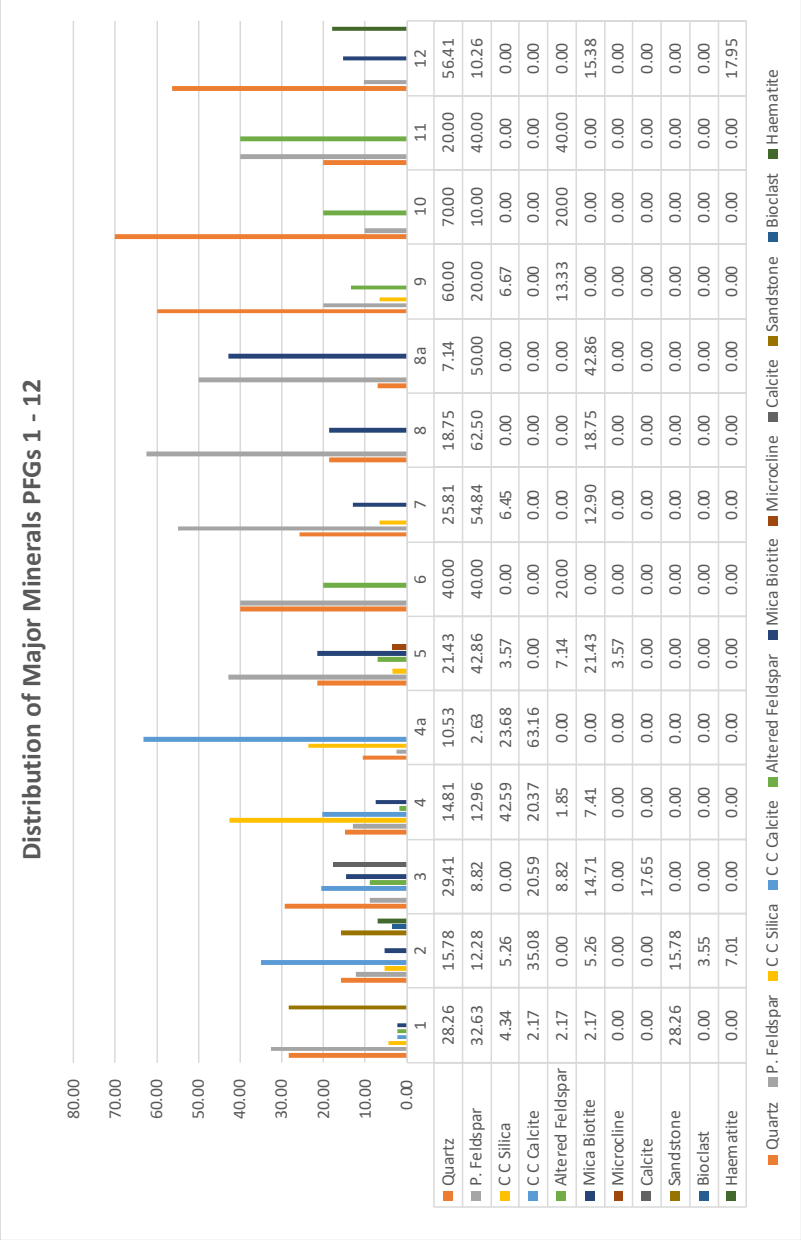
The Wares that show least variability in terms of sources are the Torpedo Jars (intra-ware variability aside), Honey comb Pithos (from Susiana), Grey Eggshell Ware, White Eggshell Ware, Buff Plain and Incised Ware, and Sgraffiatos varieties. The ware that has maximum variability is the Sasanian Glazed Ware which is represented in (ii), (iii), (iv). Turquoise Glazed Ware, Tin Glazed Ware, Turquoise Splashed Tin Glazed Ware along with Sasanian Glazed Ware form group (iii) which show more or less similar sources of raw-material. Interestingly, the 'Samarra Horizon' wares (Tin Glazed varieties) exhibit mostly similar technology to achieve the opaqueness especially through the air bubbles as seen in the glaze and the well-known use of tin as an opacifier. The Petro-Fabric Groups 9, 10, and 11 have coarser sub-rounded inclusions of Quartz which are typical of the Basra and related Petro-fabrics Mason and Keall's (1991) Basra petro-fabrics which exhibits similar textural and mineralogical composition. Basra is mentioned here not just as a site, but also a region as the Lower Tigris-Euphrates Delta exhibits similar geology. A similar Petro-Fabric (D) was also independently characterised by Krishnan (2011: 233) from the material at Sanjan. It is interesting to note that the Petro Fabric D that Krishnan (2011: 232) has defined is represented by wares such as Turquoise Glazed Ware, and types of Samarran Wares (White Glazed Ware, Splashed White Glazed Ware, and Lustre Painted Ware) (Nanji 2011: 229). The researcher's PFG 9 is represented by Turquoise Glazed Ware, and Samarran Wares (Turquoise Splashed Tin Glazed Ware and Tin Glazed Ware) from Sanjan and Chaul. Whereas PFG 11 is represented by Turquoise Glazed Ware, Sasanian Glazed Ware, and Samarran Wares (Turquoise Splashed Tin Glazed Ware and Tin Glazed Ware) again found from both Chaul and Sanjan.

The typical Early Islamic wares including the Eggshell Wares show a continuing importance of the Mesopotamian region in dispersion of material to south Asia in the Early Islamic period. Petro-Fabric Groups 5, 6 and 7 exhibit the thin vessels of the Early Islamic period including the Buff Plain and Incised Wares and Eggshell varieties. The White Eggshell Ware overlaps with the Buff Plain and Incised Wares suggesting common centre of production or technology used for making these. Grey Eggshell Ware on the other hand is different terms of technology but is still part of the

same mineralogical group dominated by Feldspar. The Sgraffiato Wares (Petro-Fabric Groups 8 and 8a) exhibit a similar mineralogy. The Sgraffiato Wares were mostly likely produced as earlier studies have suggested in the southern Iran region near the entry to the Persian Gulf.

Table 5.2: Distribution of Major Minerals in the Different Petro-Fabric Groups

Site	Sample	PFG	Quartz	P. Feldspar	C C Silica	C C Calcite	Altered Feldspar	Mica Biotite	Microcline	Calcite	Sandstone	Bioclast	Haematite
Kanmer	KMR 3	1	28.26	32.63	4.34	2.17	2.17	2.17	0.00	0.00	28.26	0.00	0.00
Paliyad	PT3	2	15.78	12.28	5.26	35.08	0.00	5.26	0.00	0.00	15.78	3.55	7.01
Kanmer	KMR 4	3	29.41	8.82	0.00	20.59	8.82	14.71	0.00	17.65	0.00	0.00	0.00
Susiana	7	4	14.81	12.96	42.59	20.37	1.85	7.41	0.00	0.00	0.00	0.00	0.00
Susiana	1	4a	10.53	2.63	23.68	63.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chaul	EXP 5	5	21.43	42.86	3.57	0.00	7.14	21.43	3.57	0.00	0.00	0.00	0.00
Chaul	39 WEGG	6	40.00	40.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00
Chaul	CHL 26	7	25.81	54.84	6.45	0.00	0.00	12.90	0.00	0.00	0.00	0.00	0.00
Sanjan	SLS2	8	18.75	62.50	0.00	0.00	0.00	18.75	0.00	0.00	0.00	0.00	0.00
Sanjan	SLS1	8a	7.14	50.00	0.00	0.00	0.00	42.86	0.00	0.00	0.00	0.00	0.00
Sanjan	STS3	9	60.00	20.00	6.67	0.00	13.33	0.00	0.00	0.00	0.00	0.00	0.00
Sanjan	STGP1	10	70.00	10.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00
Chaul	CHL 24	11	20.00	40.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00
Sanjan	STGP3	12	56.41	10.26	0.00	0.00	0.00	15.38	0.00	0.00	0.00	0.00	17.95



	1	2	3	4	4a	5	6	7	8	8a	9	10	11	12
Quartz	28.26	15.78	29.41	14.81	10.53	21.43	40.00	25.81	18.75	7.14	60.00	70.00	20.00	56.41
P. Feldspar	32.63	12.28	8.82	12.96	2.63	42.86	40.00	54.84	62.50	50.00	20.00	10.00	40.00	10.26
C C Silica	4.34	5.26	0.00	42.59	23.68	3.57	0.00	6.45	0.00	0.00	6.67	0.00	0.00	0.00
C C Calcite	2.17	35.08	20.59	20.37	63.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Altered Feldspar	2.17	0.00	8.82	1.85	0.00	7.14	20.00	0.00	0.00	0.00	13.33	20.00	40.00	0.00
Mica Biotite	2.17	5.26	14.71	7.41	0.00	21.43	0.00	12.90	18.75	42.86	0.00	0.00	0.00	15.38
Microcline	0.00	0.00	0.00	0.00	0.00	3.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcite	0.00	0.00	17.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sandstone	28.26	15.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bioclast	0.00	3.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Haematite	0.00	7.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.95

Figure 5.1: Overall Distribution of minerals in Petro-Fabric Groups and Sub-Groups

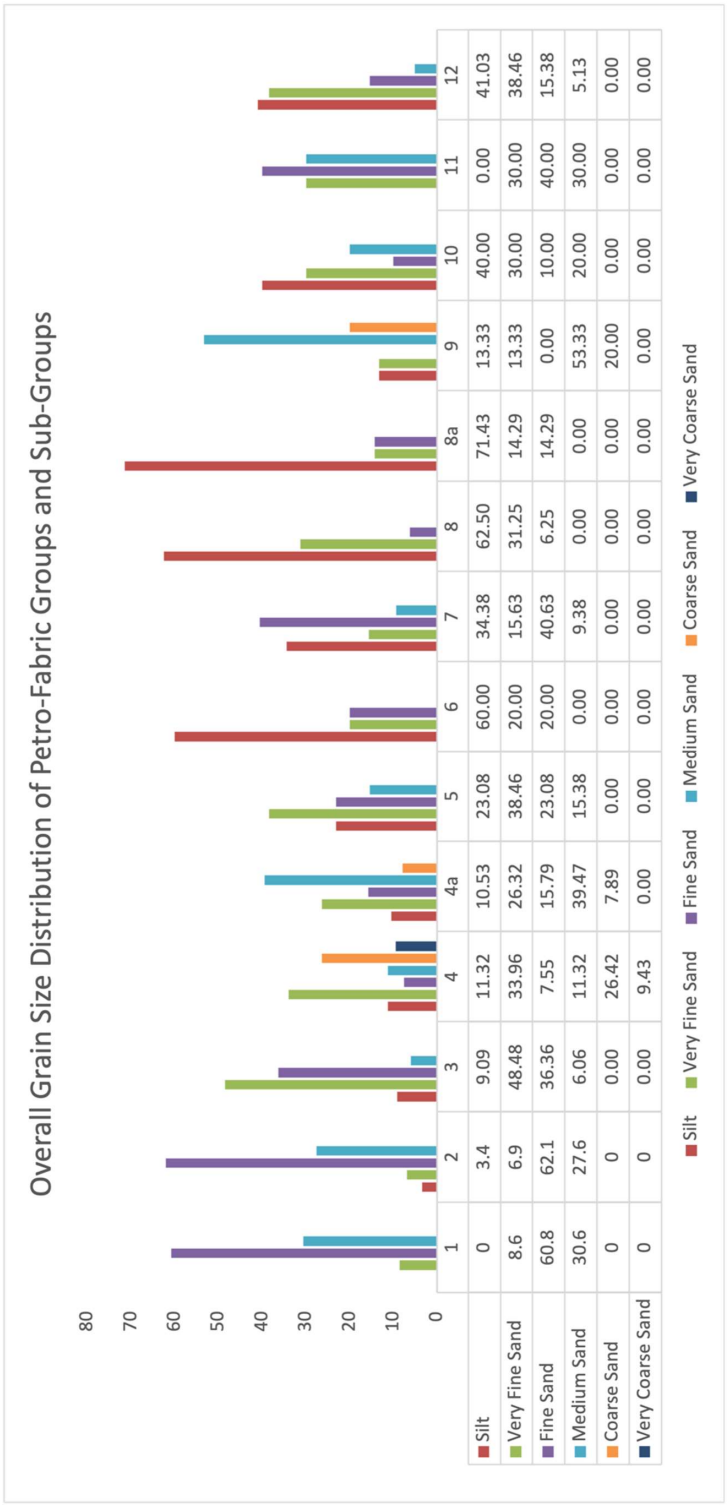
5.4. Textural Data and Clay Paste Preparation Techniques

The analysis of the Petro-Fabric Groups as gleaned from the mineralogy coupled with the ware, and texture has yielded interesting results. The three textural groupings are

groups namely (i) PF groups 4 and 4a, (ii) PF Groups 5, 6, 7, 8, 8a, 10, and 12, and (iii) 1, 2, 3, and 11 and PF group 9 as an anomaly. The textural groupings are displayed in a ternary diagram with separate textural groups encircled suggesting closeness in terms of clay paste preparation techniques (Figure 5.3).

Temper is the non-plastic inclusion that a potter adds to the pottery while processing the clay. The potter would either add or remove grains as per his/her/their needs for getting the right consistency for shaping pottery before firing. Petro-Fabric The Thin-section petrographer is therefore interested in understanding the different 'non-plastic inclusions' which are coarser than the clay fraction which is separated as matrix. The overall distribution of this grain size distribution from the analysed Petro-Fabric Groups (Figure 5.2) and distribution of temper (Table 5.3) are discussed below.

Groups 4, 4a, 7, and 10 exhibit bi-modal grain size distribution (Figure 5.2) which may indicate mixing of two raw-material sources (Krishnan and Rao 1994: 113-117). The Petro-Fabric Groups 4 has a dominant very fine sand temper, 4a has a dominant medium sand temper, 7 has a fine sand temper, and 10 has a silt dominated temper (Table 5.2). The non-plastic inclusions of Petro-Fabric Groups 4 and 4a which are derived from a similar geological source though indicate a difference in their dominant temper which maybe the result of different stages of kneading. Kneading is the preparation of the clay before shaping and the amount of sand (very fine to coarse – 50 microns to 2000 microns) increases as and when the process of kneading is repeated.(Krishnan and Rao 1994: 113-117). Petro Fabric Group 4 may indicate a single stage of kneading whereas 4a indicates a multiple stage of kneading as gleadned from the coarseness of the dominant temper (Table 5.3). The Petro-Fabric Groups 1, 2, 3, 5, 6, 8, 8a, 9, 11, and 12 exhibit uni-modal grain-size distribution (Figure 5.2). The Petro-Fabric Groups 6, 8, 8a, and 12, have silt dominated temper, Petro-Fabric Groups 1, 2, and 11 have fine sand sized temper that dominates whereas, Petro-Fabric Group 9 has a medium sand dominated temper (Table 5.2). All, the Petro-Fabric Groups analysed within the results have mineral-rock temper. None of them exhibit any vegetal temper as its impressions are not seen in any thin-section sample.



	1	2	3	4	4a	5	6	7	8	8a	9	10	11	12
Silt	0	3.4	9.09	11.32	10.53	23.08	60.00	34.38	62.50	71.43	13.33	40.00	0.00	41.03
Very Fine Sand	8.6	6.9	48.48	33.96	26.32	38.46	20.00	15.63	31.25	14.29	13.33	30.00	30.00	38.46
Fine Sand	60.8	62.1	36.36	7.55	15.79	23.08	20.00	40.63	6.25	14.29	0.00	10.00	40.00	15.38
Medium Sand	30.6	27.6	6.06	11.32	39.47	15.38	0.00	9.38	0.00	0.00	53.33	20.00	30.00	5.13
Coarse Sand	0	0	0.00	26.42	7.89	0.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
Very Coarse Sand	0	0	0.00	9.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure 5.2: Overall Grain Size Distribution of Petro-Fabric Groups and Sub-Groups

Table 5.3: Distribution of Textural Features of the Petro-Fabric Groups and Sub-Groups

Petro Fabric Group	Texture			Temper Dominant
	1	2	3	
1	FS	MS	VFS	**FS**
2	FS	MS	VFS	**FS**
3	VFS	FS	Silt	**VFS**
4	VFS	CS	Silt&MS	**VFS**
4a	MS	VFS	FS	**MS**
5	VFS	Silt&FS	MS	**VFS**
6	Silt	VFS	FS	**Silt**
7	FS	Silt	VFS	**FS**
8	Silt	VFS	FS	**Silt**
8a	Silt	VFS	FS	**Silt**
9	MS	CS	Silt&VFS	**MS**
10	Silt	VFS	MS	**Silt**
11	FS	VFS	MS	**FS**
12	Silt	VFS	FS	**Silt**

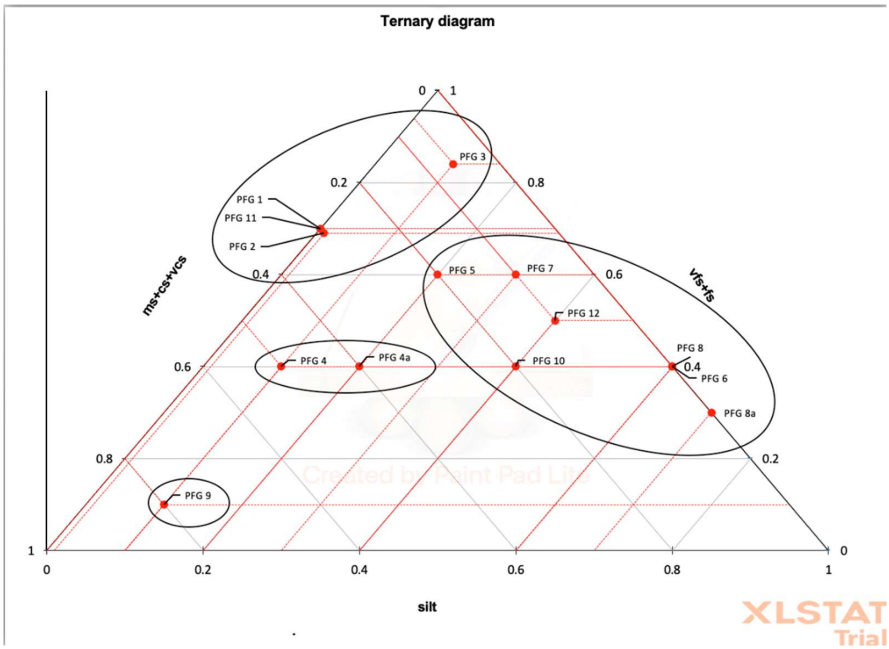


Figure 5.3: Ternary Diagram of the four distinct Textural Groups encircled

5.5. Torpedo Jars - Discussion

According to the studies the Torpedo Jar petro-fabrics overlap in Western India and Peninsular India. Thus, the production centres used for producing the Torpedo Jars was derived from two sources in West Asia and were distributed into Western India and Peninsular India. The samples from Iran form a separate petro-fabric group (and sub-group). The petrographic results show that samples from Iran do not match with the finds from India (see 4.6, Figure 5.3, Table 5.2).

A geo-chemical study done on the bitumen of the Torpedo Jars from the Buddhist centre of Anuradhapura (Sri Lanka) showed that possibly the bitumen used for lining the Jars originated from Luristan region of Iran (Stern *et al.* 2008: 413 – 423). The composition of bitumen samples from Anuradhapura match with that of the samples from artefacts from Susa (Connan and Deschesne 1996: 114-115). The latest data from the Samut Sakhon shipwreck suggest Torpedo Jars of two types were travelling to south-east Asia in the 8th century A.D. namely the Cream Torpedo (TORP.C) and the Sandy Torpedo Jar (equivalent to PWWS in this thesis) (Connan *et al.* 2020). The macro fabric distinction between the TORP-S and TOPR-C is further solidified by the bitumen analysis which confirms different bitumen sources for each class Deh Luran for TORP.S and further south-east from Deh Luran near Mamatain for TORP.C (Connan *et al.* 2020) respectively. According to the petrographic analysis, the cream Torpedo jars possibly came from different sources, though the provenance situated within the general area of the southern Zagros fringes running through central and southern Iraq and southwest Iran (Tomber *et al.* 2020). Tomber's study (Tomber *et al.* 2020: 19) study though discusses the difficulty to pinpoint the actual sources of the Torpedo Jar Petro fabrics in their study. This is because of the similarities between the sediment deposits of the Tigris/Euphrates river system in Iraq and the Karkeh/Dez/Karun river system and smaller river systems in southern Iraq and southwest Iran (Tomber *et al.* 2020: 19). But, the semi-quantitative results and textural data of this particular study (Figure 5.1) suggest that the Petro-Fabric Groups (4, and 4a) from Susiana (from the Karkheh/Dez river systems) have a dominance of angular coarser addition in the form of crypto-crystalline silica which may have been as a result of temper. But, more number of samples need to be studied and analysed to

use this as a distinguishing criteria of the sediment deposits from the Tigris/Euphrates system.

The Torpedo Jars recorded by the researcher from the studied sites in Gujarat and Maharashtra mostly belong to the Pink Ware with White Slip (PWWS) category which is similar to Priestman's TORP-S i.e. Sandy Torpedo Jars. The Torpedo Jars from western India do not exhibit the following macroscopic characteristics of TORP-C, - 'internally fattened often with a distinctive internally projecting lip and bases that are generally solid through most of the length of the point.' (Tomber *et al.* 2020: 3). The typological comparisons thus suggest that Priestman's TORP-C is not found in western India. On the other hand, significant overlap is seen in the Petro-Fabric Groups 1 and 2 from this thesis (Results 4.6) in comparison with Tomber's (*et al.* 2020: 11-12) Petro-Fabric Groups 5, and 8 respectively further strengthening the theory that no purely Early Islamic Torpedo Jar types such as the TORP.C are found from western India.

A wide-spread dynamic bitumen industry was effective in West Asia where the Jars were produced in certain locations and the bitumen was imported and probably lined on the Jars on the ceramic production centre(s) probably near Deh Luran i.e., south-west Iran which is drained by the Karkheh/Dez and Karun rivers and/or central/south Iraq before it was shipped on the ports. The multiple Torpedo Jar varieties also suggests that there is an underlying complexity of how material was being exchanged and moved around within and outside West Asia at the time. The samples from the Susiana region (Petro-Fabric Groups 4 and 4a from Results) i.e., south-western Iran do not match with the Petro-Fabric Groups 1 and 2 of which exclusively include the Torpedo Jars found from western India.

But the overriding discussions on the functionality of the Torpedo Jars is debated between a liquid/wine carrier or bitumen transporter. The researcher's recording of a Sasanian metal wine ewer from the Reza Abbasi Museum (Tehran, Iran) can further add to the debate which argues the use of Torpedo Jars as a wine carrier. The wine ewer shows various individuals carrying out different activities related to the vineyards. The

upper most figure near the beaded shoulder has a person hunting, the individuals below him is holding on to a grape vine (Figure 5.4). There are two different activities that are happening at the bottom, on the right there are three individuals possibly engaged in crushing of the grapes, and lastly the person to their left holds a rounded vessel and appears to be pouring the wine into three peculiarly shaped jars. These jars according to the researcher as seen from the shape and pointed bases with lack of handles are undoubtedly Torpedo Jars. But it is not the contention of author that bitumen wasn't transported to India, as there are samples of Torpedo Jars from Western India where the bitumen has seeped into the fabric of the sherds, which indicates bitumen in liquid form. But it is difficult to say whether this type of Torpedo Jar with liquid bitumen wasn't reused.

Figure 5.4: Sasanian Metal Wine Ewer at display in the Reza Abbasi Museum, Tehran (Courtesy: Trustees, Reza Abbasi Museum, Tehran)