

CERAMICS INDUSTRIES OF ANCIENT SOUTH ASIA AND THEIR TRACES IN KAGHAN VALLEY, MANSEHRA, PAKISTAN

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ABSTRACT

Old South Asian pottery has come down to the present era from pre-historic age and with time the pottery has been passing through innovation. Contemporarily, the pottery made in the ancient South Asia has been classified as water pots (jars, mataka, etc.), domestic utensils (for cooking meat, rice, etc. some dishes for various purposes and cooking panes), wine pots (mostly jars), storage jars, pots for measuring and religious purposes as well as flower pots. The coloring and decoration including the oil painting and rubbing of the ancient pottery has been reported in the Jataka's and Jain canonical literature. A deep study of the excavations carried out over the past years strongly suggests the inter-cultural contacts of South Asia with the west and also the socio-economic condition of the potters. Current study is based on finds of potsherds with contemporary impressions on it, especially human figures, full or a body part such as face. This has found to be one of the major characteristics that were used in the finishing of ancient South Asian pottery with its industry called Red Ware Industry. It covers the Saka, Sunga, and Kushana periods from BC 200 to AD 600 at Rugar, Hastinapur, and Patna.

Key Words: Contemporary, Petrography, Red ware, Human figures, Gangetic plain

INTRODUCTION

At any archaeological site, the ceramic assemblage or potsherd is the foundation of research that plays an important role in the defining cultures, cultural complexities, trading, subsistence, utensil function, market economies and much more (Shirvalkar et al., 2010).

There were a number of pottery industries that have been working in the ancient India for example (Ansari, 1961: 70-85);

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1. Black and Red ware industry in Central Ganga Basin at Patna, in Rajputana at Ahar and in Western Central India at Saurashtra. The texture found in the pottery of these areas varies from coarse to medium, coarse to fine and exclusively medium respectively. The clay used in this kind of pottery is mostly of the secondary level where, it is generally mixed with sand, hay and sometimes ash. Typologically, the characteristic features of this pottery are collared or thickened rim, bowls with almost straighter sides and globular jars with high and narrow neck. Similarly, differences in decoration and painting have also been noticed. The overall use of the pots was for drinking or cooking etc. without being used for storage purposes. This industry has been attributed to the era between BC 200 and BC 100. Mostly, the double firing technique has been used by potters whereby the red or black pot was produced and then making the black at their edges by inverted cooking or applying the charcoal (Sharma, 1953: 147-161).
2. Megalithic – Black and red ware industry at Brahmagiri, Arikamedu, Chandravalli and Sisupalgarh. It is a wheel-made, polished, thin-sided and low temperature-fired pottery. Fabric texture of these wares varies from coarse to medium. Graffiti, a post firing scratching is a common feature of the pottery from these industries. It was predominantly produced in South India but also reported in the North as well. This industry has been attributed to the era between BC 200 and AD 300 (Ansari, 1953: 109-111).
3. Red ware industry covers the Saka, Sunga and Kushana periods from BC 200 to AD 600 at Rupar, Hastinapur and Patna. It appeared in Taxila, Sirkap, Bhirimound, Shaikhan Dheri and Charsadda of the present day Pakistan. The texture of this pottery varies from coarse to fine, fired at medium to high temperature with un-oxidized smoky core. Most of these wares were manufactured as kitchen wares. It also contains either the whole human figure or sketches of human body parts on their surfaces. This pottery appeared in the Shaikhan Dheri has very close resemblance with the pottery discovered from the Gangetic Plain. Stamps were also used in this pottery. Designs of these stamps were mostly geometrical for example, opposed triangle, horizontal line filled alternately, wedge pattern, etc. Similarly, religious motifs are also seen on this pottery (Sharma, 1953: 116-159).
4. Black ware industry covers the pottery with fine fully polished surface dating back to the black and red ware group. It uses coarse clay fired at high temperature. Main features of this pottery are square rims, cooking pots with carinated necks, ledged shoulders and lids with knobs (Ansari 1966: 61-72).
5. Painted gray ware industry appeared to be ill-fired and belonged to pre-Kushana period (Sharma, 1953: 171).
6. Gray ware industry dates back to BC 200 to AD 300. Its texture is coarser to thin and shapes are same as found in the Gangetic pottery (Sharma, 1953: 179).

7. Northern black polished ware industry mostly belongs to the Ganga Basin belongs to the period from BC 500 to AD 500. It has been found from northern to western regions of the IndoPak which refers it as the item of commodity and was imported throughout the country from Gangetic Valley. Its texture reveals that the raw material has probably included the silty sand collected from the Gangetic basin and the shapes are limited to the small vessels.
8. Andhra ware industry refers to the sophisticated type of pottery dating back to the middle of first century AD. It belongs to South India and sticking feature is Kaolin paintings on red-ochre washed surface, special technique of firing resulting in shining and glazing surface. This pottery was produced and dried to leather hard state and then painting in Kaolin with various designs applied.
9. Imported wares refer to the extensive trade contact of India with the western world during the Cristian era. It includes arretine wares, reulleted ware, amphorae and red-polished ware (Sinha 1967: 175-176, 275).

METHODOLOGY

SAMPLING

A total of fifty seven (57) samples have been selected from seven most significant areas of the Kaghan Valley using the judgment sampling approach (Fig. 1) (Sinopoli, 1991: 46-49):

- a. Ghanool: 28 sherds
- b. Ratta Nullah: 5 sherds (only one sherd is included on the basis of petrography)
- c. Shogran: 6 sherds
- d. Tarla Paror: 5 sherds
- e. Ashanra: 6 sherds
- f. Tarli Batta Kundi: 6 sherds
- g. Morad Vega: 5 sherds

From all selected sites potsherds found in Ghanool (GNL) give a variety of attributes for which, intentionally, the sample size has been increased. Moreover, among all the mentioned sites Ghanool is the most vast and urban area from which a very dynamic, scattered and peculiar data was expected.

THIN SECTIONS PREPARATION

Thin sections were prepared from all the potsherds and geological samples as given below:

Each sample in the powdered form was put into a plastic form having a diameter of 3 centimeters and fixed with UHU (a synthetic resin). Once hardened and dried, standard 3 to 30 micrometer thin sections were prepared (Sinopoli, 1991: 58).

PETROGRAPHIC ANALYSES

It is a critical and important process because of a huge number of non-plastic inclusions in the potsherds. The potsherds to be studied are categorized as coarse wares and for such material the petrographic analysis plays a key role in understanding the chemical patterns and for proper grouping of the samples (Maggetti, 1974: 45-57; 1982: 121-133, 1994: 23-35; Whitbread, 1992: 297-306; 2001: 367-377; Goren, 1995: 287-305; Szakmany, 1996: 143-150; 1998: 77-83). Petrographic analysis may be used for identifying tempering materials on regional basis. It helps in tracking the probable locations of their origin/production (Sinopoli, 1991: 104).

The technique is based on light interaction with the crystal through which it passes in thin sections. Light acts like a wave with peaks and valleys at right angle to the direction in which it is moving. On the basis of the speed of incident and reflected/refracted light speed, the object material is divided into isotropic (if there is no change in the speed of light) or anisotropic (if there is a change in the speed of light). When polarized light passes through the anisotropic material it splits into two rays which, on interference, gives the characteristic colour of the mineral in the thin section (Banning, 2000: 165-166).

Much important information about the temper (non-plastic inclusions) is provided by the petrographic properties. These properties when compared to the known or determined geological features are helpful in deducing the source and the place of production (Maggetti, 1994: 23-35).

The grouping of the material under investigation accounts for mixing of the clays and tempers in order to identify the clay (Rice, 1987: 191). Fabric characterization through the optical techniques is the most useful for studying the raw material especially, to identify the clay source (Banning, 2000: 165).

Images of thin sections (Petrographic images) are presented as figures (Fig. 2 – 5) whereas potsherds are presented as plates (Pl. I – IV). Classification of distinctive groups of potsherds is presented as Appendix – I whereas potsherds typology in Appendix – II.

RESULTS AND DISCUSSION

RELATIONSHIP OF THE POTTERY FROM KAGHAN VALLEY WITH CONTEMPORARY POTTERY INDUSTRIES IN ANCIENT INDIA

If these potsherds are related to the contemporary pottery industries mentioned above, it may be concluded that the potsherds may be related to;

1. The Black and Red ware industry in the Western India (refer to the era between BC 200 and BC 100) in a number of aspects for example,
 - The texture of this pottery is coarser (Petrography)
 - Clay used in this pottery is of secondary level (mixed with sand, ash, hay, etc.)
 - Rim potsherds found from this area are generally thickened
 - Rim diameters demonstrate the narrow necks and straighter walls which refer to long globular jars for transportation of water (Sharma, 1953: 147-161)
2. Megalithic – Black and red ware industry at South India (refer to the era between BC 200 and AD 300) in a number of aspects for example,
 - Pottery is wheel made
 - Somewhere polished and thin sided as well
 - Texture is coarser (Petrography) (Ansari, 1953: 109-111)
3. Red ware industry at most of the areas of Indo-Pak India (from BC 200 to AD 600) in a number of aspects for example,
 - Texture is coarser (Petrography)
 - Fired at medium to high temperature
 - Core is smoky
 - Fired in reducing conditions
 - Cooking ware
 - Contain human body part or stamped with an angular shape

This pottery is similar to the pottery found in the Gangetic plain and is found in most areas of the present Pakistan such as, Taxila, Sirkap, Bhirmound, Shaikhan Dheri and Charsadda covers the Saka, Sunga and Kushana periods (Sharma, 1953: 116-159).

4. Black ware industry in terms of
 - Polished surface (somewhere)
 - Coarser texture (Petrography)
 - Cooking pots (Ansari 1966: 61-72)
5. Painted Gray ware industry in terms of ill-firing in some samples (Sharma, 1953: 171)
6. Gray ware industry in terms of coarser texture (Petrography) and resemblance with the red and black ware industry in the Gangetic plain belongs to the period from BC 200 to AD 300 (Sharma, 1953: 179)
7. Northern black ware polished industry in terms of silty sand (Petrography) used in the raw material and smaller vessels belongs to the period from BC 500 to AD 500 (Sinha, 1967: 175-176, 275).

CONCLUSION

The resemblance of one or more than one aspects of this pottery with various ware groups (ware industries) all over the sub-continent highlights the immense importance of this valley as a route from North-Western area to Gangetic Plain as well as the Central

India. People of this area (in any of the era discussed above) may have adapted (or tried to adapt) the pottery making techniques by acquiring or collecting the thrown/ broken pottery that may have been brought to the region by traders, immigrants, invaders or any possible source from the areas of above-mentioned industries.

Similarly, a potsherd in the Hazara University Museum (Pl. IV) collected from Bedadi (Mansehra) a small town situated on Silk Route also belongs to Red ware industry at most of the areas of South Asia (from BC 200 to AD 600). This potsherd is in broken condition where the upper portion is showing a fighting scene where a man is on horseback while the opponent stands in front with a sword in hand wearing a bill-cotton shirt looks like Scythian dress. The lower part of potsherd has depiction of vine grapes (grape bunch).

This pottery is similar to the pottery found in the Gangetic plain and is found in most of the areas of the present Pakistan such as, Taxila, Sirkap, Bhirmound, Shaikhan Dheri and Charsadda covers the Saka, Sunga and Kushana periods (Sharma, 1953: 116-159). This also ascertains that both Pakhal Valley and Kaghan Valley were important destinations and/ or routes of traders, immigrants or invaders.

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PLATES AND FIGURES

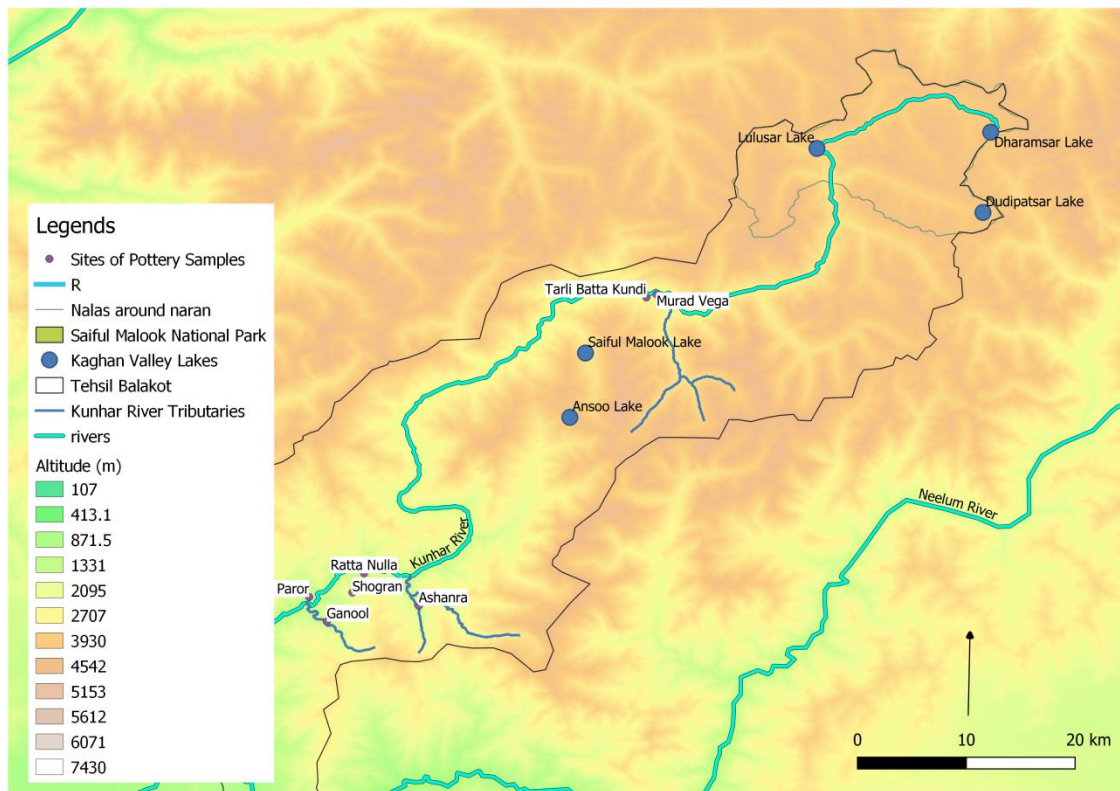


Fig. 1: Map of the Study Areas in Kaghan Valley



Pl. I: (Kaghan Valley, Mansehra): Potsherds collected from Ganool



Pl. II: (Kaghan Valley, Mansehra): Potsherds collected from Ashanra and Ratta Nulla



Pl. III: (Kaghan Valley, Mansehra): Potsherd collected from Ganool (GNL-24)



Pl. IV: Potsherd from Hazara University, Mansehra Museum -Accession No. 467; Source: Excavations 2008 from Kandari, Bedadi (Mansehra); Material: Terracotta

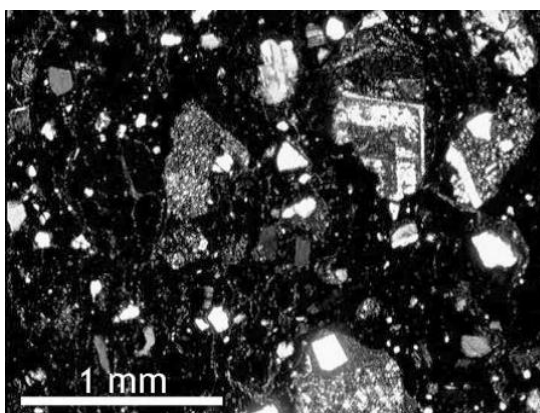


Fig. 2: Petrographic Image of sherd collected from Ganool (GNL-1): Volcanic clasts containing plagioclase

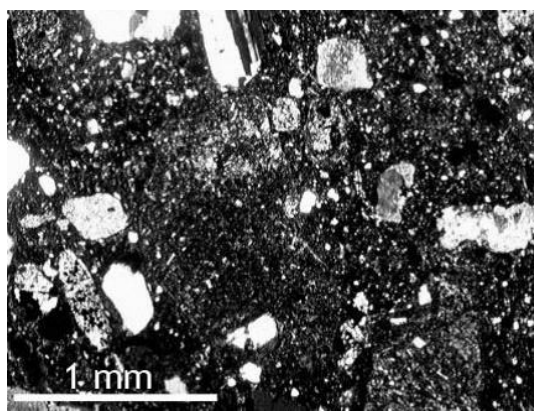


Fig. 3: Petrographic Image of the Petrographic Group 1; Subgroup 1A; Type 1A/2; Sherd No. GNL-24 (Ganool): monoquartz, plagioclase, recrystallized volcanite fragment

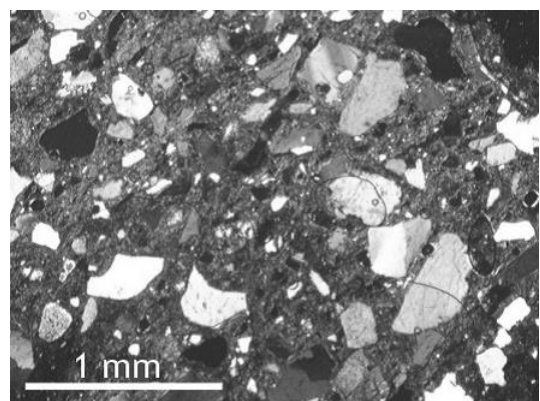


Fig. 4: Petrographic Image of the Petrographic Group 3; Subgroup 3A/1; Sherd No. TRP-1 (Tarla Paror): monoquartz, K-feldspar, hornblende and epidote

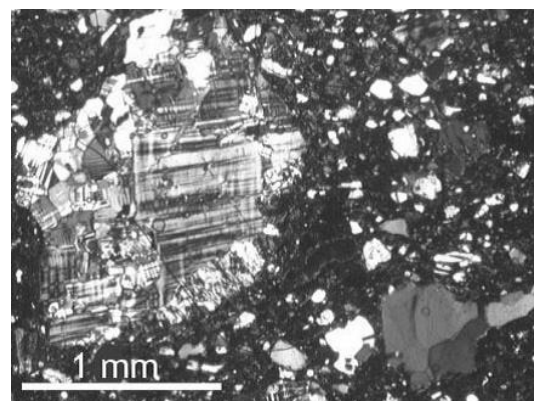


Fig. 5: Petrographic Image of the Petrographic Group 4; Subgroup 4A; Type 4A/1 Sherd No. ASN-1 (Ashanra): Monocrystalline quartz, polycrystalline quartz, plagioclase, plutonite with microcline

Appendix I: Typological Classification of Samples

Sample ID	Area of find	Fabric	Surface treatment	Firing Atmosphere	Cooling Atmosphere	Forms	Texture
GNL-1	Ganool	Mixed clay with tempering material	Unburnished	Reducing	Reducing	Body Sherd	Coarse
GNL-2	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to medium
GNL-3	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Body Sherd	Coarse to fine
GNL-4	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Body Sherd	Coarse
GNL-5	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse
GNL-6	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to fine
GNL-7	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Base fragment	Coarse to fine
GNL-8	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Medium to fine
GNL-9	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to medium
GNL-10	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Body sherd	Coarse to medium

Sample ID	Area of find	Fabric	Surface treatment	Firing Atmosphere	Cooling Atmosphere	Forms	Texture
GNL-11	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Body sherd	Coarse to medium
GNL-12	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to medium
GNL-13	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to medium
GNL-14	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Rim Fragment	Coarse to medium
GNL-15	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Body Sherd	Coarse to fine
GNL-16	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Medium to fine
GNL-17	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse
GNL-18	Ganool	Mixed clay with tempering material	Burnished	Reducing	Oxidizing	Body sherd	Coarse to Medium
GNL-19	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to Medium
GNL-20	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to Medium
GNL-21	Ganool	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body Sherd	Coarse to Medium

Sample ID	Area of find	Fabric	Surface treatment	Firing Atmosphere	Cooling Atmosphere	Forms	Texture
GNL-22	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to Medium
GNL-23	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to Medium
GNL-24	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to fine
GNL-25	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to Medium
GNL-26	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Base Fragment	Coarse to fine
GNL-27	Ganool	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body Sherd	Coarse to Medium
GNL-28	Ganool	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body Sherd	Coarse to Medium
RTN-1	Ratta Nulla	Mixed clay with tempering material	Burnished	Reducing	Reducing	Rim Fragment	Coarse to Medium
SGN-1	Shogran	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to Medium
SGN-2	Shogran	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body sherd	Coarse to Medium
SGN-3	Shogran	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body sherd	Coarse to fine

Sample ID	Area of find	Fabric	Surface treatment	Firing Atmosphere	Cooling Atmosphere	Forms	Texture
SGN-4	Shogran	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Base Fragment	Coarse to fine
SGN-5	Shogran	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body sherd	Coarse to fine
TRP-1	Tarla Paror	Mixed clay with tempering material	Burnished	Reducing	Reducing	Rim Fragment	Coarse to fine
TRP-2	Tarla Paror	Mixed clay with tempering material	Burnished	Oxidizing	Oxidizing	Body sherd	Coarse to fine
TRP-3	Tarla Paror	Mixed clay with tempering material	Burnished	Oxidizing	Oxidizing	Rim Fragment	Coarse to medium
TRP-4	Tarla Paror	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body sherd	Coarse to fine
TRP-5	Tarla Paror	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body sherd	Coarse to fine
ASN-1	Ashanra	Mixed clay with tempering material	Unburnished	Reducing	Reducing	Body sherd	Coarse to fine
ASN-2	Ashanra	Mixed clay with tempering material	Unburnished	Oxidizing	Reducing	Body sherd of a closed vessel	Coarse to fine
ASN-3	Ashanra	Mixed clay with tempering material	Unburnished	Oxidizing	Reducing	Body sherd	Coarse to fine

Sample ID	Area of find	Fabric	Surface treatment	Firing Atmosphere	Cooling Atmosphere	Forms	Texture
ASN-4	Ashanra	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to fine
ASN-5	Ashanra	Mixed clay with tempering material	Unburnished	Oxidizing	Reducing	Body sherd	Coarse to fine
ASN-6	Ashanra	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to fine
TBK-1	Tarli Batta kundi	Mixed clay with tempering material	Unburnished	Reducing	Reducing	Body sherd	Coarse to fine
TBK-2	Tarli Batta kundi	Mixed clay with tempering material	Burnished	Oxidizing	Oxidizing	Body sherd	Coarse to fine
TBK-3	Tarli Batta kundi	Mixed clay with tempering material	Burnished	Reducing	Reducing	Body sherd	Coarse to fine
TBK-4	Tarli Batta kundi	Mixed clay with tempering material	Unburnished	Oxidizing	Oxidizing	Rim fragment	Coarse to fine
TBK-5	Tarli Batta kundi	Mixed clay with tempering material	Unburnished	Reducing	Oxidizing	Body sherd	Coarse to fine
TBK-6	Tarli Batta kundi	Mixed clay with tempering material	Unburnished	Reducing	Reducing	Body sherd	Coarse to fine
MVG-1	Morad Vega	Mixed clay with tempering material	Unburnished	Oxidizing	Reducing	Body sherd	Coarse to fine
MVG-2	Morad Vega	Mixed clay with tempering material	Unburnished	Reducing	Reducing	Body sherd	Coarse to medium

Sample ID	Area of find	Fabric	Surface treatment	Firing Atmosphere	Cooling Atmosphere	Forms	Texture
MVG-3	Morad Vega	Mixed clay with tempering material	Unburnished	Oxidizing	Reducing	Body sherd	Medium to fine
MVG-4	Moral Vega	Mixed clay with tempering material	Unburnished	Oxidizing	Reducing	Body sherd	Coarse to fine
MVG-5	Morad Vega	Mixed clay with tempering material	Unburnished	Reducing	Reducing	Body sherd	Coarse to fine
MVG-6	Morad Vega	Mixed clay with tempering material	Burnished	Oxidizing	Reducing	Body sherd	Coarse to fine

Appendix II: Petrographic Classification/ Grouping of Samples on the Basis of Distinction

Sr. No.	Petrographic Group (Subgroup) /Type	Potsherds Samples	Distinction
1	1A/1	GNL-1, GNL-2, GNL-3, GNL-5, GNL-13, GNL-16, GNL-19, GNL-27	Serpentinite Absent
2	1A/2	GNL-24	Serpentinite Present
3	1A/3	GNL-20	Extensive monocrystalline quartz
4	1B/1	GNL-4, GNL-11, GNL-14, GNL-15, GNL-17, GNL-21, GNL-22, GNL-23, GNL-25	Volcanic glass less than 50% by volume
5	1B/2	GNL-6, GNL-7, GNL-9, GNL-10, GNL-12, GNL-18, GNL-26, GNL-28	Volcanic glass more than 50% by volume
6	1C	GNL-8	extensive volcanite fragments in recrystallized form
7	2	RTN-1	huge amount of calcite fragments
8	3A/1	TRP-1, TRP-3, TRP-4, TRP-5, SGN-2, SGN-3, SGN-4, SGN-5	Presence of Hornblende
9	3A/2	TRP-2	Less recrystallized volcanic rock fragments
10	3B	SGN-1	More recrystallized volcanic rock fragments
11	4A/1	ASN-1, ASN-2, ASN- 4, ASN-5	contains a significant concentration of magmatic and metamorphic rock fragments
12	4A/2	ASN-3	contains mica and mica schist
13	4B	ASN-6	contains the volcanites and minerals of the volcanic origin
14	5A	TBK-1, TBK-2, TBK-5	volcanites in some samples (upper Kaghan Valley)
15	5B	TBK-3, TBK-4, TBK-6	lowest percentage of non-plastic inclusions and the presence of clay pallets
16	6	MVG-1, MVG-2, MVG-3, MVG-4, MVG-5 and MVG-6	Presence of olivines