# PART C

# PREHISTORIC ARTIFACT CATALOGING METHODS

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# I. ANALYTICAL METHODS

Artifact cataloging and tabulation was accomplished by a computerized relational database system developed by Berger's Cultural Resource Group. The overall database architecture contains two principal files: (1) provenience and (2) prehistoric artifacts. Additional files were also prepared for the catalogs generated by subconsultants, such as the floral analyst or faunal analyst, and for the experimental tools generated for use-wear and protein residue studies. An overview of the information in the principal files is presented below.

*Provenience*. Field provenience information is included in the provenience file and consists of: Catalog Number, Site, Unit, Unit Level, Stratum, Feature, Feature Level, Quadrant, North, and East. The majority of these fields have been taken directly from the field excavation records and are therefore self-explanatory. In the field, a numeric sequence of catalog numbers was assigned to the field provenience list, so that each unique provenience may be identified by a single number. North and East coordinates are assigned to all excavation units and are based on the grid that was established during Phase II fieldwork. Additional fields to identify excavation blocks and interpreted depositional units may be added to the provenience table to facilitate analysis of intrasite patterning.

*Prehistoric Artifacts*. Berger's cataloging system for prehistoric artifacts has been formalized in a system referred to as *Lithica* (Taylor et al. 1997). The analytical approach applied can be described as techno-morphological; that is, artifacts are grouped into Classes and are then further divided into Types based upon key morphological attributes, which are linked to or indicative of particular stone-tool production or reduction strategies. However, a function (or functions) can be assigned to each artifact class and type. More detailed functional assessments of artifacts can be made by recording specific observations about use wear and tool morphology. Data derived from experimental and ethnoarchaeological research are relied upon in the identification and interpretation of artifact classes and types. The works of Callahan (1979), Clark (1986), Crabtree (1972), Flenniken (1981), Gould (1980), and Parry (1987) are drawn upon most heavily.
Ceramics were cataloged according to temper, surface treatment, and surface decoration and assigned to formally defined ware types when possible, using local ware type designations as defined for Delaware or wares as defined for the surrounding Middle Atlantic region. In addition, all ceramics were assigned to ware groups specific to the Puncheon Run assemblage. Standard references on ceramic types are found in Custer (1984), Dent (1995), Griffith (1982), Stewart (1998), and Wise (1975). The methods used in the analysis of the ceramic collection from the Puncheon Run Site are discussed in detail in Appendix H of Volume II.

*Experimental Artifacts*. Two sets of experimental artifacts were created as control specimens for use-wear and protein residue analysis. Each artifact was assigned a catalog number within the Puncheon Run catalog system, coded according to *Lithica,* and mass analysis when appropriate, and entered into dedicated databases reserved for this use.

As lithic and ceramic artifacts were analyzed, information was recorded on analysis sheets as a series of codes; the codes were then entered into a computer database program. After completion of the artifact cataloging and data entry, a series of standard computer reports were generated and were held with the primary project materials. These standard reports include general catalog listings as well as more specialized summaries for particular tool types, raw materials, and debitage. The computer database can also be used for specialized data searches, database manipulation, analyses, and reports.

# II. UTILIZED CODES AND CATALOGING

## A. ARTIFACT CLASSES

1. *Faunal Remains* (Faunal) include both bone and shell refuse, as well as tools and ornaments. (The total number of items is recorded.)

2. *Floral Remains* (Floral) include both charred and uncharred plant materials; however, unintentional inclusions like root hairs and leaf fragments are discarded, unless other instructions are given. (The total number of items [or an estimate] is recorded.)

3. *Historics* (Historic) include all types of nonaboriginal artifacts: glass, ceramics, small finds, etc. Assemblages from contact period sites call for special consideration. (The total number of items is recorded.)

4. *Prehistoric Pottery* (Pottery or "P") includes all items of fired clay that can be determined to be aboriginal; this encompasses potsherds, as well as pieces of burned clay and daub. (The total number of items is recorded.)

5. *Debitage* (Debitage or "D") includes all types of chipped-stone refuse that has not been utilized or intentionally modified. The two basic types of debitage are flakes and shatter. (The total number of items is recorded.)

6. *Cores* (Core or "C") are nodules or blocks of raw material that have had one or more flakes detached, but they have not been shaped into tools or used extensively for tasks other than as a nucleus from which flakes have been struck. Cores come in various shapes and sizes. (The total number of items is recorded.)

7. *Unifaces* (Uniface or "U") are chipped-stone tools that include both formal tools, such as endscrapers, and informal tools, such as utilized flakes. (The total number of items is recorded.)

8. *Bifaces* (Biface or "B") are chipped-stone tools that have been shaped by the removal of flakes from both faces or sides of a cobble or large flake. (The total number of items is recorded.)

9. *Cracked Rock* (FCR) includes all fragments of lithic debris that cannot be attributed to stone tool production. Cracked rock represents cobbles and/or chunks of local bedrock that may have been used in heating and cooking activities. (The total number of items is recorded.)

10. *Cobble Tools* (Cobtool or "COB") are cobbles that were used for various tasks with little or no prior modification. These tools are commonly cobbles of igneous or metamorphic rock that were used as hammers, anvils, or grinding stones, or for a combination of functions. Battered, crushed, pitted, and/or smooth surfaces identify these cobbles as tools. Included with these cobble tools are tools that are made from blocks or slabs of bedrock. Except for items such as abrading stones, most of these bedrock tools were used for similar tasks. (The total number of items is recorded.)

11. *Groundstone Tools* (Grdstool or "GS") are formal stone tools and ornaments that were manufactured by pecking or grinding, and sometimes by flaking. Typical artifact types are grooved axes, pipes, pendants, etc. (The total number of items is recorded.)

12. *Minerals* (Mineral or "M") are unmodified or minimally modified crystals or chunks of naturally occurring chemical elements, for example, galena (lead ore), and limonite and hematite (iron ores). These materials can be manufactured into tools and ornaments, but these artifacts would then not be quantified as minerals. (The total number of items is recorded.)

13. *Unmodified Cobbles* (Unmodcob) are cobbles that exhibit no evidence of cultural use or modification. These items are of potential importance, however, because they may represent manuports and/or cached raw materials and may provide insights into depositional and geomorphological processes. (The total number and the total weight of these items are recorded.)

14. *Unmodified Pebbles* (Unmodpeb) are the same as unmodified cobbles except that they are less than 6 cm in maximum dimension. Like unmodified cobbles, unmodified pebbles can be of importance because they may provide insights into depositional and geomorphological processes. (The total number and total weight of these items is recorded.)

## B. RAW MATERIALS

Raw materials are identified on the basis of physical properties (e.g., color, texture, hardness, and inclusions). A type collection of geologic specimens is currently being developed. To facilitate the development of the type collection and to ensure greater accuracy in the identification of raw materials for any one project, it is strongly suggested that the lithic analyst and/or the Principal Investigator for a particular project survey the immediate area surrounding each site or project area, subsequent to a review of pertinent geologic maps and reports.

Raw-material types are recorded using a numeric code with a decimal point. The general material type is coded to the left of the decimal point and subtypes are coded to the right of the decimal point. Subtype codes can change from project to project. To maintain consistency, the codes for general material types (to the left of the decimal) remain the same for all projects; these codes are listed below.

| | | | |
|---|---|---|---|
| 0.0 | Indeterminate | 16.0 | Metamorphic |
| 1.0 | Chert | 17.0 | Metasedimentary |
| 2.0 | Jasper | 18.0 | Steatite |
| 3.0 | Rhyolite | 19.0 | Hematite |
| 4.0 | Argillite | 20.0 | Limonite |
| 5.0 | Quartz | 21.0 | Galena |
| 6.0 | Quartzite | 22.0 | Mica |
| 7.0 | Chalcedony | 23.0 | Copper |
| 8.0 | Ironstone | 24.0 | Igneous/metamorphic |
| 9.0 | Slate | 25.0 | Conglomerate |
| 10.0 | Shale | | |
| 11.0 | Siltstone | | |
| 12.0 | Sandstone | | |
| 13.0 | Limestone | | |
| 14.0 | Sedimentary | | |
| 15.0 | Igneous | | |

## C. THERMAL ALTERATION

There are two types of thermal alteration, intentional and unintentional (or uncontrolled). Intentional thermal alteration is commonly referred to as heat treatment and is an aspect of prehistoric chipped-stone technology. Unintentional thermal alteration is simply burning or charring. Both types of thermal alteration can be recorded. Currently, *Lithica* (Taylor et al. 1997) is set up to code the presence or the absence of thermal alteration: P = presence, A = absence, and I = indeterminate.

## D. CORTEX

The natural rind or weathered outer layer on lithic materials is called cortex. Its presence, particularly on debitage, is significant in that it denotes early-stage reduction. Because cortex is undesirable, it is usually removed from cobbles or blocks of raw materials as soon as possible. Thus, as one moves away from a lithic source area, the occurrence of cortex on artifacts should rapidly decrease. At a quarry-workshop site, for example, over 50% of the debitage should possess cortex.

Cortex is coded in two ways: as either Present or Absent; or as Absent with either Block or Cobble. If block and cobble are used in coding, Present cannot be used. Block cortex denotes lithic procurement from bedrock or primary sources and cobble cortex denotes gravel or secondary sources. Generally, block cortex is rugged and coarse textured, while cobble cortex is smooth and often polished. Cobbles frequently contain internal fracture planes, however, which when exposed by knapping, can appear similar to block cortex. Also, small patches of cortex can be difficult to evaluate. Consequently, cortex is coded as Indeterminate when it is unclear whether the cortex exhibited on an artifact is cobble or block. Cortex is coded as No Observation when the presence or absence of cortex cannot be determined. Artifacts manufactured from argillite, for example, are usually so severely weathered that it impossible to determine whether or not cortex is even present, let alone what type of cortex it is. Cortex codes and their translations are as follows:

| | |
|---|---|
| A | Absent |
| P | Present (Cannot Be Used with B and C) |
| B | Block |
| C | Cobble |
| I | Indeterminate |
| X | No Observation |

## E. CONDITION

Condition codes indicate whether an artifact is intact (whole) or fragmentary (broken). If it is a fragment of a projectile point or drill, it is further described as a distal tip, a medial section, or a proximal end or base:

| | |
|---|---|
| WHL | Whole |
| BRK | Broken |
| TIP | Distal Tip |
| MED | Medial Section |
| BAS | Proximal End or Base |

All intact portions of a broken biface or point are measured in their maximum ranges.

## F. COMMENTS

A numeric code (whole numbers) is used to record a variety of comments, which can help to assort artifacts and manipulate data. The numbers from 1 to 20 are standard Comment codes that are used in all coding systems at Berger. Comment codes that are pertinent to lithics are listed below.

| | | | |
|---|---|---|---|
| 1 | Photo, Intact | 13 | Potentially Disposable |
| 2 | Photo, Mend | 16 | From Flotation |
| 3 | Photo, Fragmentary | 17 | Estimated Count |
| 6 | Residue Analysis | 18 | Unaccounted For/Missing |
| 10 | Additional Research Needed | | |

## G. ARTIFACT TYPES

Organized by artifact classes, artifact types are listed below, followed by their code and a brief definition.

### *1. Debitage*

#### *a) Direct Freehand Percussion Flakes*

1. *Decortication Flakes* (DF) are intact or nearly intact flakes with 50% or more cortex covering their dorsal surface. These are the first series of flakes detached during lithic reduction.

2. *Early Reduction Flakes* (ER) are intact or nearly intact flakes with less than 50% dorsal cortex, very few dorsal flake scars, on the average, and irregularly shaped platforms with minimal faceting and no lipping. Platform grinding is not always present. These flakes could have been detached from early-stage bifaces or freehand percussion cores.

#### *b) Pressure and Indirect Percussion Flakes*

3a. *Biface Reduction Flakes* (BF) are intact or nearly intact flakes with multiple overlapping dorsal flake scars and small elliptically shaped platforms with multiple facets. Platform grinding is usually present. Platforms are distinctive because they represent tiny slivers of what once was the edge of a biface. Biface reduction flakes are generated during the middle and late stages of biface reduction and also during biface maintenance.

3b. *Pressure Flakes* (PF) are made using a flaker. Because the force is applied by pressing rather than striking, there are some morphological differences (Whittaker 1994) in these flakes as compared with hard and soft hammer flakes. First, the platform is not a flat surface, but a slightly crushed edge. The edge grinding appears as the result of the edge preparation procedure. Pressure flakes tend to be short and fragile. They are small and thin as compared to flakes made by the hard or soft percussion technique. They can sometimes be mistaken for percussion flakes if their length is more than 1 cm. Pressure flakes are not exactly thinning flakes because they do not remove much of the material. Notching flakes are typical examples of pressure flaking.

### c) Other Debitage

4. *Bipolar Reduction Flakes* (BP) are intact or nearly intact flakes that have been struck from a bipolar core. They typically exhibit sheared cones, diffuse bulbs, closely spaced ripples, and crushed and splintered platforms. Crushing can also occur on the termination of flakes (distal end), but it is a common misconception that platforms and bulbs are present on both ends of each flake.

5. *Block Shatter* (BS) consists of angular or blocky fragments that do not possess platforms or bulbs. Generally the result of uncontrolled fracturing along inclusions or internal fracture planes, block shatter is most frequently produced during the early reduction of cores and bifaces. Block shatter is common in bipolar reduction and is equivalent to “primary shatter” (Binford and Quimby 1963).

6. *Flake Shatter* (FS) consists of small, flat fragments or splinters that lack platforms, bulbs, and other obvious flake attributes. Flake shatter is generated throughout a reduction sequence but is most common in later stages of reduction. It is a common byproduct of bipolar reduction and is equivalent to “secondary shatter” (Binford and Quimby 1963). Trampling of debitage on living surfaces also generates flake shatter, while thermal fracturing produces both flake and block shatter.

7. *Uniface Resharpening Flakes* (UR) are small J-shaped flakes that have been removed from the margins of a uniface. Their platforms often bear traces of use damage or polish.

8. *Flake Fragments* (FF) are sections of flakes that are too fragmentary to be assigned to a particular flake type.

9. *Other Flake Types* (OF) are flakes that do not easily fit into existing types. (The note field on the analysis form is used to record distinctive attributes.)

10. *Indeterminate Flakes* (IF) are flakes that cannot be assigned to a specific type because their surface has been damaged (e.g., pot lidding) or severely eroded (e.g., argillite debitage).

Mass analysis is an alternative method for lithic analysis, and is essentially a technique of classifying debitage by size-grades (Ahler 1989; Patterson 1990). Bypassing the standard trait attributes as used in *Lithica*, mass analysis attempts to establish patterns of reduction technologies based on flake size distributions. This technique was applied during analysis of the lithic artifacts from the Whitby Branch Site (Jacoby et al. 1997), to confirm the interpretation of different activity areas within the site. Flake size-grades used for analysis were:

| | | | |
|---|---|---|---|
| 1 | <6mm | 6 | 31-40 mm |
| 2 | 6-10 mm | 7 | 41-50 mm |
| 3 | 11-15 mm | 8 | 51-60 mm |
| 4 | 6-20 mm | 9 | >60 mm |
| 5 | 21-30 mm | | |

## 2. Cores

1. *Freehand Cores* (FC) are blocks or cobbles that have had flakes detached in multiple directions by holding the core in one hand and striking it with a hammerstone held in the other (Crabtree 1972). This procedure generates flakes that can be used as is for expedient tools or worked into formalized

tools. Freehand percussion cores come in various shapes and sizes, depending upon the raw material form and degree of reduction.

a. *Bifacial Cores* (BI) are a specific type of freehand amorphous core flaked on both sides (Whittaker 1994), i.e., reduced along one or more bifacially prepared edges for the purpose of flake production. Some specific forms, such as discoidal cores (Crabtree 1972:59), can sometimes be further identified. Flaking occurs on both sides of a nodule to fully exploit the material or to avoid problematic areas exhibited on the same nodule/cobble. Some early-stage bifaces can be confused with this type, but early-stage bifaces will usually exhibit a more consistent outline form (e.g., ovoid or triangular). With bifacial cores, edge preparation is a more important consideration than outline form.

b. *Flake Cores* (FL) are made from tabular large flakes, usually flaked on one side, often with a defined flaking pattern. Some large early reduction flakes may have been used as flake cores to produce burins (e.g., burin cores [Crabtree 1972]) or flake-based scrapers.

2. *Bipolar Cores* (BC) are blocks or cobbles that have had flakes detached by direct hard-hammer percussion on an anvil: the core is placed on the anvil and struck vertically with a hammerstone (Crabtree 1972; Hayden 1980). The cores typically assume a tabular shape and exhibit heavy crushing and battering, and flake scars tend to be oriented down the long axis of the core. Because bipolar reduction is a technique for maximizing available raw materials, bipolar cores are normally smaller than freehand cores. Most flakes that are detached are suitable only for expedient flake tools.

3. *Tested Cobbles* (TC) are unmodified cobbles, blocks, or nodules that have had a few flakes detached to examine raw-material quality.

4. *Other Core Types* (OC) are cores that do not easily fit into existing types—for example, formalized blade cores. The presence of a greater variety of core classes, beyond the definitions given here, can also be expected on quarry or quarry-related sites. (The note field is used to record important attributes.)

### *3. Unifaces*

1. *Endscrapers* (ES) are formalized unifaces that have uniformly retouched edges, which creates a working edge and a standardized shape. The working edge is transverse to the long axis of the tool, and retouching often erases obvious indications that the tool is made on a flake.

2. *Sidescrapers* (SS) are formalized unifaces that have uniformly retouched edges, which creates a working edge (or edges) and a standardized shape. The working edge or edges parallel the long axis of the tool, and retouching often erases obvious indications that the tool is made on a flake.

3. *Retouched Flakes* (RF) are expedient tools that have had one or more edges retouched, either to resharpen the working edge, to create a dulled edge for grasping, or to form a specific edge angle or shape. The flake itself could have been detached from a core or a biface.

4. *Utilized Flakes* (UF) are expedient tools that exhibit traces of use damage and/or polish on one or more edges. These flakes may have been detached from cores or bifaces. The presence/absence of use wear should be determined before coding a flake into this category. A damaged edge does not always indicate that a flake has been utilized.

5. *Notched Flakes* (NF) or spokeshaves are a special type of retouched flake. The retouching of one or more flake edges into a concavity distinguishes this morphological type.

6. *Graver Flakes* (GF) are a special type of retouched flake. The retouching of one or more edges into acute projections distinguishes this morphological type from other flake tools.

7. *Denticulated Flakes* (DT) are a special type of retouched flake. They are distinctive because appropriately spaced flakes have been detached from one or more edges to form a toothed or serrated edge.

8. *Other Uniface Types* (OU) are unifaces that do not easily fit into existing types. (The note field is used to record distinctive attributes.)

9. *Indeterminate Uniface Fragments* (IU) are unifaces that are too fragmentary to be assigned to a specific type.

## *4. Bifaces*

1. *Early-Stage Bifaces* (EB) are cobbles, blocks, or large flakes that have had their edges bifacially trimmed and a few large reduction flakes detached. These bifacial blanks are equivalent to Callahan's Stage 2 bifaces (Callahan 1979). Because of their crude condition, these bifaces can be confused with freehand percussion cores and choppers. Initial trimming makes the edges of these bifaces off-centered.

2. *Middle-Stage Bifaces* (MB) look more like bifaces than those in the early stage; they have been initially thinned and shaped. A lenticular cross section is developing, but edges are sinuous (off-centered edges resemble a wavy line), and patches of cortex may still remain on one or both faces. These bifaces are roughly equivalent to Callahan's Stage 3 bifaces (Callahan 1979). Because biface reduction is a continuum, middle-stage bifaces are often difficult to distinguish from early- and late-stage bifaces, depending upon the point at which their reduction was halted.

3. *Late-Stage Bifaces* (LB) are basically finished bifaces; they are well thinned, are symmetrical in outline and cross section, and their edges are centered. Small areas of cortex may still exist on one or both faces. These bifacial preforms are analogous to Callahan's Stage 4 bifaces (Callahan 1979).

4. *Projectile Points* (PP) are finished bifaces that were usually hafted and functioned primarily as projectiles and/or knives. The most characteristic attributes of a point, e.g., an expanded-stem point, side-notched point, fluted point, triangle, etc., should be indicated in the note field.

5. *Drills* (DR) are slender bifaces that could have been used to perforate or pierce various materials.

6. *Choppers* (CP) or cleavers are sizable bifaces that may have been employed in tasks that required heavy-duty cutting, chopping, or severing. These implements are often crudely formed and can be mistaken for cores or early-stage bifaces. The use-wear pattern should be checked to determine whether a specimen has been used as a chopper. If use-wear is not present, the specimen should be coded as a biface, bifacial core, or core.

7. *Adzes* (BA) or gouges are bifaces that were hafted and used as heavy-duty woodworking tools.

8. *Other Bifaces* (OB) are bifaces that do not easily fit into the above types. (The note field is used to record distinctive attributes.)

9. *Indeterminate Biface Fragments* (IB) are sections of bifaces that are too badly damaged to be assigned to a specific type.

### 5. *Cracked Rock*

At present, no types have been established for cracked rock; all cracked rock is entered under one code (FCR).

### 6. *Cobble Tools*

1. *Hammerstones* (HS) are cobbles that show evidence of battering and crushing along their margins, indicating that they were intentionally used as percussors either for working flint or for processing other materials.

2. *Manos* (MN) or grinding stones are hand-sized cobbles with one or more flat surfaces that were used to crush and grind various materials, as is evidenced by smoothed and polished surfaces.

3. *Metates* (MT) or grinding slabs are large cobbles or blocks of bedrock with one or two flat or concave surfaces, which exhibit evidence of use for grinding and crushing.

4. *Pestles* (PT) are linear cobbles that exhibit crushing and smoothing on one or both ends or poles. Pestles can also be formalized tools that were shaped by pecking and grinding.

5. *Mortars* (MR) are large cobbles or blocks of bedrock with at least one deeply concave surface, which was used to crush and grind various materials.

6. *Anvil Stones* (AV) are cobbles or blocks of bedrock that were used as a base on which to rest materials while they were struck with a hammer. Surfaces that are interpreted as anvils tend to possess shallow, coarse-textured depressions with amorphous outlines.

7. *Pitted Cobbles* (PC) or “nutting stones” are cobbles or blocks of bedrock with at least one smooth depression no greater than about 4 cm in diameter. These depressions differ from anvil depressions in that they are smoother, often deeper, and tend to be circular or oval. These depressions are believed to be the result of processing nuts, as compared to anvil depressions, which are attributed to bipolar reduction.

8. *Netsinkers* (NS) are notched cobbles. Direct hard-hammer percussion would have been used to remove a few flakes from both ends of a cobble to facilitate attachment of the cobble to a net. Some specimens could have functioned as bolas stones.

9. *Abraders* (AB) are chunks of sandstone or related materials that were used to shape and sharpen tools made of various materials. Slotted abraders are believed to have been used in the manufacture and maintenance of bone and wood tools (e.g., needles, awls, and arrow shafts), and flat abraders are believed to have been used in the manufacture and maintenance of stone tools (e.g., chipped-stone platform preparation and polishing of groundstone tools) in addition to tools of bone and wood.

10. *Other Cobble Tools* (OT) are cobbles that do not fit into the above types. (Key attributes are recorded in the note field.) Broken cobble tools are assigned to one of the above types, or, if they are badly damaged, they are placed with the cracked rock.

## *7. Groundstone*

1. *Grooved Axes* (AX) are formal tools that were designed to be hafted, and their primary function was heavy-duty woodworking.

2. *Celts* (CL) are ungrooved axes, which were hafted, but using a different method.

3. *Adzes* (GA) or gouges manufactured from granitic materials by pecking and grinding were hafted and functioned as heavy-duty woodworking tools, much like their chipped-stone counterparts.

4. *Steatite Bowls* (SB) are stone cooking vessels that were manufactured by carving, grinding, and polishing.

5. *Other Groundstone Tools* (OG) are those tools and ornaments that are not covered by the above types, for example, bannerstones, pipes, and pendants.

6. *Indeterminate Groundstone Fragments* (IG) are sections of groundstone tools or ornaments that are too badly damaged to be assigned to a specific type.

## *8. Minerals*

Minerals is a “type” category that applies to unmodified or minimally modified minerals found at a site.

1. *Hematite* (HM) is a high-grade form of iron ore.

2. *Limonite* (LM) is a low-grade earthy form of iron ore; it is softer, lighter in weight, and lighter in color than hematite. Limonite is typically brown or yellow, while hematite is red or reddish brown.

3. *Mica* (MC) is a light-weight mineral that readily splits into thin elastic layers.

4. *Steatite* (ST) is an impure form of talc that is easily worked because of its softness and massive structure.

5. *Quartz Crystals* (QC) are transparent crystals of silica.

6. *Galena* (GL) is the principal ore of lead; its luster is metallic, and cleavage is cubic.

7. *Other Minerals* (OM) are any minerals that are not listed above.

8. *Petrified Wood* (PW) is fossilized pieces of wood

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