APPENDIX J MINERALOGY

Table J.1 Mineralogy of the Hickory Bluff Projectile Points

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0011-1	Woodland I Stemmed	light gray	translucent	waxy	dolomite euhedra, foliated	joint		3.5x1.7x.7	chert	Cambro-Ordovician	Axeman Fm	?	Great Valley of Maryland	
0112-1	Untyped-Side-Notched	Mauve	opaque	resinous	quartz sand grains		yes	4.0x2.2x1.0	orthoquartzite	Miocene	Calvert Fm		Choptank River, Maryland	
0130-2		burgundy	opaque	resinous	quartz sand			2.2x3.0x1.6	sandstone	Cenozoic				
0146-5		yellow ochre	opaque	pitchy	microfossils				Fe-chert	Cenozoic	?	?		
0186-4		maroon	opaque	pitchy	microfossils			1.7x2.1x1.9	Fe-chert	Cenozoic	?	?		
0257-1		maroon	opaque	pearly	microfossils		yes	2.7x1.4x.4	Fe-chert	Cenozoic	?	?		coastal plain
0265-1	Brewerton Side-Notched	charcoal gray	opaque	resinous, matted	quartz sand grains			4.6x2.2x.9		Cenozoic	Aquia Fm	sandstone unit	Talbot Co., Maryland	
0270-1		maroon	opaque	waxy	microfossils		yes		Fe-chert	Cenozoic	?	?		
0283-1		battleship gray	translucent	waxy	dolomite euhedra, foliated			3.1x1.4x.6	chert	Ordovician	Axeman Fm	?	Great Valley of Maryland	
0306-1	Triangle	ochre	opaque	matted	microfossils			1.9x1.4x.5	Fe-chert	Cenozoic			Not Pennsylvania or Iron Hill	Fe-chert
310-1	Woodland I Stemmed	charcoal gray	opaque	resinous	quartz sand grains			4.5x2.3x1.0		Cenozoic	Aquia Fm	sandstone unit		
0383-1	Woodland I Stemmed	maroon	opaque	waxy lustrous	?		yes	3.2x1.7x.9	Fe-chert	Cenozoic	?	?		
0384-1	Bare Island	mauve	opaque	resinous	quartz sand grains		yes	4.1x2.1x1.2	orthoquartzite	Miocene	Calvert Fm	?		
0434-5		ochre-yellow	opaque	matted	porphyritic				Fe-chert	Cenozoic	?	?		
0434-6		light gray	opaque	matted	sanidine xls, foliation			2.0x1.8x.5	dacite	Precambrian	Carolina Slate Belt		Morrow Mt.? North Carolina	
0475-25		maroon	opaque	resinous	quartz sand grains				orthoquartzite	Miocene	Calvert Fm	Miocene	Choptank River, Maryland	
0480-1		light gray->rose	opaque	waxy	dolomite euhedra				chert	Pennsylvanian	Vanport Fm		Ohio?	
0543-1	Bare Island	amber	translucent	vitreous	welded			3.0x2.2x1.0	quartz	Taconic	?	?		Cambro-Ordovician of MD, vein qtz
0582-1	Lackawaxen Expanding-Stemmed	battleship gray	opaque	matted	sanidine xls, foliation			5.2x2.6x1.3	porphyritic Rhyolite		Carolina Slate Belt		Morrow Mt., North Carolina	
0588-1		mauve	opaque	resinous	porphyritic			4.0x2.4x1.2	dacite	Precambrian	?Catoctin Fm		South Mt., Maryland	
0599-1		brown	opaque	pitted-punky	massive			2.1x1.7x.7	argillite	Triassic	Lockatong Fm		Cumberland Co., New Jersey	

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0651-1	Rossville	olive yellow	opaque	matted			yes	4.3x2.2x.8	Fe-chert	Cenozoic				Fe-rich cherts
0673-2	Bare Island	white	translucent	silky	foliated-striated			4.1x2.7x.7	mylonite	Taconic	Wissahickon Schist		Pennsylvania	Mylonite-texture fabric
0675-5	Selby Bay	olive gray	opaque	greasy	foliation	bedding		2.7x1.5x.9	chert	Cambro-Ordovician	Conococheague Ls			nodular cherts
0676-1	Woodland I Stemmed	olive brown	opaque	waxy	foliation			4.1x1.5x.5	Fe-chert					Pa. Fe-rich chert, "Pa Jasper"-?
0678-1	Untyped-Unstemmed	brown	opaque	waxy	microfossils			3.1x1.9x.4	Fe-chert	Cenozoic	?	?		coastal plain
0682-8		ash gray	opaque	matted	foliated, porphyritic				dacite	Precambrian	Carolina Slate Belt		Morrow Mt.? North Carolina	
0701-1		maroon	opaque	waxy	microfossils		yes		Fe-chert	Cenozoic	?	?		coastal plain
0704-1	Woodland I Stemmed	maroon	opaque	waxy	microfossils		yes	3.3x1.8x.7	Fe-chert	Cenozoic	?	?		coastal plain
0718-1	Meadowood	olive green	opaque	waxy	radiolarians			3.8x1.7x1.6	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
0736-12	Untyped-Straight-Stemmed	brown	opaque	matted				3.7x1.9x.7	Fe-chert	Cenozoic	?	?	Delmarva	coastal plain
0760-1		pink-gray	opaque	waxy	kaolin-clay				kaolin chert	Pennsylvanian	Vanport Fm		Ohio	
0769-8	Woodland I Stemmed	charcoal gray	translucent	waxy	foliation, oolites			4.0x1.5x.5	chert	Cambro-Ordovician	Conococheague Ls			
0774-1	Selby Bay	battleship gray	opaque	matted	sanidine feld. xls, foliation			3.8x2.2x.8	porphyritic meta dacite				Morrow Mt. ? North Carolina	N. Carolina?
0784-4		yellow-white	translucent	greasy vitreous	foliation				mylonite	Cambro-Ordovician	Taconic	Wissahickon Schist	Schuylkill, Pennsylvania	
0793-2	Adena	white	translucent	vitreous	welded			2.6x2.4x.8	quartz	Cambro-Ordovician	Taconic			hydrothermal qtz vein - Pegmatite?
0794-11	Adena	white	translucent	vitreous	welded			2.9x2.3x.6	quartz	Cambro-Ordovician	Taconic	Pegmatite	Delaware	
0810-1		white	translucent	waxy	welded-foliated			2.3x2.1x.9	quartz	Cambro-Ordovician	Taconic		Maryland	
0827-11		maroon	opaque	waxy	microfossils				Fe-chert	Cenozoic	?	?		coastal plain
0838-2		brown	opaque	waxy	foliation		yes		jasper	Cambrian	Hardyston Fm		Front Royal of Flint Run	
0862-2		brown	opaque	punky	massive			2.3x1.8x.5	hornfels	Triassic	Lockatong Fm	?	Cumberland Co., New Jersey	

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0920-1	Untyped-Straight-Stemmed	white	translucent	vitreous	welded			3.9x2.3x1.3	quartz	Ordovician	Taconic Pegmatite		Maryland	piedmont
0925-1		olive	opaque	waxy	radiolarians, foliation				chert	Cambro-Ordovician	James Run Volcanic	Gilpin Falls	Cecil Co., Maryland	
0934-1	Untyped- Side-Notched	olive gray	opaque	waxy	microfossils			2.0x1.9x.6	chert	Devonian	Esopus Shale	Onondaga	Ridge and Valley, Maryland	could be James Run
0954-4	Bare Island	white	translucent	vitreous	welded			3.0x2.1x.8	quartzite	Cambro-Ordovician	Taconic	Wissahickon Schist	Maryland, Virginia	piedmont
0961-1	Lackawaxen Expanding-Stemmed	brown gray	opaque	matted	sanidine feld. xls, foliation/jointing			5.7x2.6x.9	porphyritic silicified rhyolite felsite				Maryland or North Carolina	Maryland or N. Carolina
0970-24	Lackawaxen Straight-Stemmed	ash gray	opaque	matted	porphyritic, foliation			4.9x2.5x.8	dacite	Precambrian	Carolina Slate Belt		Morrow Mt., North Carolina?	
0998-1		light gray	opaque	waxy					chert	Cenozoic				coastal plain
1004-1		tan	opaque	waxy	microfossils			3.5x1.9x.5	Fe-chert	Cenozoic				coastal plain
1072-1	Woodland I Stemmed	maroon	opaque	waxy	microfossils			2.1x1.6x.7	Fe-chert	Cenozoic				coastal plain
1078-1	Woodland I Stemmed	tan	opaque	resinous	quartz sand grains			3.1x1.6x.7	orthoquartzite	Miocene	Calvert Fm		Choptank River, Maryland	coastal plain
1087-1	Rossville	cream-tan	opaque	waxy	clays			3.1x1.2x.8	Fe-chert	Cenozoic				clay-rich, coastal plain
1091-1	Lackawaxen Straight-Stemmed	brown	opaque	matted	massive	bedding		3.9x2.6x.9	argillite	Triassic	Lockatong Fm		New Jersey	piedmont
1110-1	Rossville	olive gray	opaque	waxy	radiolarians, microfossils			2.5x1.9x.7	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
1125-1		charcoal gray	opaque	waxy	radiolarians, foliation				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
1130-1		gray-pink	opaque	waxy	microfossils			2.6x1.7x.7	Fe-chert	Cenozoic	Aquia Fm			coastal plain
1138-1		black	opaque	waxy	radiolarians, foliation			2.0x2.1x.5	chert B	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
1144-3	Woodland I Stemmed	olive yellow	opaque	waxy	none			4.0x1.9x.8	Jasper				Pennsylvania? Front Royal?	Fe-chert, Pa? Front Royal?
1155-1		ochre	opaque	waxy	foliation				jasper	Cambrian	Hardyston Fm		Front Royal, Maryland	
1160-1	Lackawaxen Expanding-Stemmed	mauve	opaque	resinous	quartz sand grains		yes	3.6x2.3x1.3	orthoquartzite	Miocene	Calvert Fm			coastal plain

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
1187-4	Woodland I Stemmed	olive	opaque	matted	radiolarians, foliation	cobble cortex		4.1x2.2x.6	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
1200-1	Untyped-Side-Notched	ochre	opaque	waxy	clays			3.3x2.9x.8	Fe-chert	Cenozoic				coastal plain
1208-2		tan	opaque	matted	clays			2.1x1.3x.3	Fe-chert	Cenozoic				coastal plain
1218-8		maroon	opaque	waxy	foliation		yes		Fe-chert	Cenozoic				coastal plain
1224-4		black	opaque	lustrous	foliation			2.1x1.7x.2	chert	Cambro-Ordovician	Rickenbach Fm		Great Valley of Maryland	
1236-1		rose	translucent	vitreous	welded foliated			2.6x.17x.7	quartz	Cambro-Ordovician	Taconic		Virginia/Maryland	piedmont
1238-1	Teardrop	white	translucent	vitreous	welded			2.5x1.8x.6	quartz	Cambro-Ordovician	Taconic		Virginia/Maryland	piedmont
1295-1	Rossville	gray/ochre	opaque	waxy	Fe-sulfide xls			1.9x1.3x.5	Fe-chert	Cenozoic				coastal plain
1301-1		rose	opaque	matted	clay layers		yes	2.3x1.4x.8	Fe-chert	Cenozoic				clay-rich, coastal plain
1305-1	Savannah River	maroon burgundy	opaque	vitreous->resinous	sand grains w/ fossils			5.4x2.5x1.0	Ironstone	Cenozoic				coastal plain
1310-2	Untyped-Contracting-Stemmed	brown	opaque	waxy	radiolarians	cobble cortex	yes	3.4x1.9x.9	radiolarian chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls		heat treated to red
1340-1	Teardrop	cream	opaque	waxy	microfossils			2.7x1.9x.7	clay-chert	Cenozoic			Maryland	coastal plain
1340-2	Teardrop	battleship gray	opaque	waxy	microfossils			2.3x1.5x.6	nodular chert	Devonian	Onondaga Fm		Ridge and Valley, Maryland	
1349-1		olive brown	opaque	waxy	microfossils, radiolarians			1.9x1.5x.4	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
1353-1	Teardrop	rose	translucent	vitreous	welded			2.3x1.8x.7	quartz	Ordovician	Taconic		Maryland	piedmont
1359-3	Woodland I Stemmed	ochre	opaque	matted	clay-rich			3.1x1.7x.8	Fe-chert	Cenozoic			Maryland	coastal plain
1360-7		ash gray	opaque	waxy	porphyritic			2.3x1.4x.8	dacite	Precambrian	Carolina Slate Belt		Morrow Mt., North Carolina?	
1364-1		olive	opaque	matted	massive	bedding		2.3x1.4x.3	argillite	Triassic	Lockatong Fm		New Jersey	piedmont
1416-2		tan/maroon	opaque	matted	microfossils			2.9x2.2x.2	Fe-chert	Cenozoic				coastal plain
1436-2		white-rose	translucent	matted	welded			3.3x1.9x.8	quartz	Cambro-Ordovician	Taconic		Virginia, Maryland, Delaware	piedmont
1439-1	Lackawaxen Expanding-Stemmed	ash gray	opaque	matted	porphyritic, foliation			4.4x2.9x1.3	dacite	Precambrian	Carolina Slate Belt		Morrow Mt., North Carolina?	
1451-10		ochre	opaque	matted	microfossils				Fe-chert	Cenozoic				coastal plain

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
1481-1		cream->ochre	opaque	matted	microfossils, clay			3.3x2.8x.8	Fe-chert	Cenozoic				coastal plain
1485-1	Woodland I Stemmed	cream->ochre	opaque	waxy	massive-clays			3.4x2.2x.9	Fe-chert	Cenozoic				coastal plain
1568-1	Woodland I Stemmed	cream->rose	opaque	waxy	massive-clays			2.5x2.8x.8	Fe-chert	Cenozoic				coastal plain
1569-1		ash gray	opaque	matted	foliated, porphyritic			3.3x2.3x.8	dacite	Precambrian	Carolina Slate Belt			
1592-1		olive yellow	opaque	waxy	dendritic				jasper	Cambrian	Hardyston Fm		Vera Cruz	Pa series
1613-2	Teardrop	orange/black	opaque	waxy	fossiliferous		yes	3.0x1.7x.7	Fe-chert	Cenozoic				Fe-chert, "jasper"
1635-1	Selby Bay	ash gray	opaque	matted	porphyritic, foliation			3.7x2.1x1.1	dacite	Precambrian	Catoctin Fm		Catoctin, Pennsylvania	
1648-3	Lackawaxen Straight-Stemmed	rose	translucent	resinous	foliated, quartz sand grains			4.4x1.8x1.0	quartzite	Cambrian	Hardyston Fm	Gun Flint type	Virginia	piedmont
1745-8	Lackawaxen Contracting Stemmed	brown	opaque	matted-punky	massive	bedded		30x1.5x.4	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
1751-7	Untyped-Pentagonal	ochre	opaque	waxy	foliated-clays			3.6x1.8x.9	jasper	Cambrian			Flint Run, Virginia	
1770-1	Untyped-Unstemmed	cream->brown, red	opaque	waxy	fossiliferous		yes	2.6x1.9x.3	Fe-chert	Cenozoic				Fe-chert, clay-rich variety
1773-6	Selby Bay	gray brown	opaque	matted	sanidine xls, porphyritic texture, foliation			4.7x2.2x1.0	porphyritic Rhyolite				Morrow Mt. ? North Carolina	
1776-5		rose	opaque	resinous	foliated, quartz sand grains				metaquartzite	Cambrian	Hardyston Fm	Gun Flint type	?	Piney Branch type
1776-6	Adena	olive gray	opaque	matted	foliation			5.2x2.3x.9	chert	Lower Devonian	Helderberg Group		Ridge & Valley Sequence	Ridge & Valley Sequence
1803-6	Woodland I Stemmed	ochre	opaque	waxy	massive			2.2x2.1x.8	Fe-chert	Cenozoic				coastal plain
1892-6		white	translucent	vitreous	welded, foliated			3.0x1.5x.8	quartz	Cambro-Ordovician	Taconic		Virginia-Maryland	piedmont
1988-3	Untyped-Pentagonal	cream->ochre	opaque	waxy	microfossils			3.1x1.9x.8	Fe-chert	Cenozoic				coastal plain
2008-4	Selby Bay	gray	opaque	punky	massive	bedded		3.5x1.7x.8	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2017-1	Woodland I Stemmed	olive green	opaque	waxy	foliated, flow banding	cortex, phenocrysts		2.7x2.2x.6	silicified porphyritic felsite	Cambro-Ordovician	James Run Volcanics		Cecil Co., Maryland	felsite unit

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
2040-1	Lackawaxen Contracting-Stemmed	light brown	opaque	resinous	quartz sand grains		yes	3.5x2.5x1.1	orthoquartzite	Miocene	Calvert Fm		Choptank River, Maryland	
2115-1	Selby Bay	battleship gray	opaque	matted	foliated, silicified			4.3x3.1x.8	metafelsite	Cambro-Ordovician	James Run Volcanics		Cecil Co., Maryland	
2124-6	Lackawaxen Contracting-Stemmed	dark gray	opaque	punky	massive	bedded		2.6x1.5x.3	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2177-9	Susquehanna	carmine	opaque	matted	massive	bedded		3.1x2.5x.5	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2180-1		dark gray	opaque	matted	foliated			5.1x1.6x1.0	chert	Cambro-Ordovician	James Run Volcanics		Cecil Co., Maryland	
2187-4	Normanskill	battleship gray	opaque	waxy	microfossils	leisegang		3.5x2.1x.5	chert	Mississippian	Greenbrier Fm		Ridge and Valley of Maryland	
2208-4	Untyped-Side-Notched	olive green	opaque	satiny	foliated			3.4x2.5x.7	chert	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
2215-2	Susquehanna	ochre->maroon	opaque	waxy	radiolarians		yes	2.4x3.1x.6	chert	Cambro-Ordovician	James Run Volcanics		Maryland, Heath Farm	piedmont
2215-3	Susquehanna	ochre->maroon	opaque	waxy	radiolarians?		yes		chert	Cambro-Ordovician	James Run Volcanics		Maryland, Heath Farm	piedmont
2227-6	Brewerton Side-Notched	brown->maroon	opaque	resinous	quartz sand grains		yes	4.8x2.5x.8	orthoquartzite	Cenozoic	Calvert Fm			Miocene, coastal plain
2242-1		ochre	opaque	waxy	foliation			2.9x2.5x.7	Fe-chert	Cambrian	Hardyston Fm		Front Royal	
2251-1		white->rose	translucent	waxy	evaporite feature		yes		kaolin chert	Pennsylvanian	Vanport Fm		Ohio	
2295-1	Woodland I Stemmed	cream->ochre	opaque	waxy	fossiliferous			3.3x2.1x.8	chert	Cenozoic				clay-rich variety
2310-1		ochre	opaque	waxy	dendritic				jasper	Cambrian	Hardyston Fm		Pennsylvania series	
2320-1	Koens-Crispin	brown	opaque	matted	zeolite xls	bedding		4.6x2.7x2.8	argillite	Triassic	Lockatong Fm		Cumberland Co., New Jersey	
2342-1	Brewerton Eared-Notched	cream	opaque	matted	microfossils			3.4x1.9x.3	chert	Cenozoic				coastal plain
2350-2	Rossville	ochre	opaque	waxy				2.8x1.5x.4	chert	Cenozoic				coastal plain
2352-1		ochre	opaque	waxy	microfossils		yes	2.3x1.5x.3	chert	Cenozoic				coastal plain
2369-5	Woodland I Stemmed	ochre	opaque	satiny	Fe oxides xls		yes	2.9x2.1x.6	chert	Cretaceous	Iron Hill		Iron Hill, Delaware	
2369-6	Woodland I Stemmed	olive green	opaque	matted	foliation, phenocrysts			3.5x2.1x.6	felsite	Cambro-Ordovician	James Run Volcanics	Gilpin Falls		porphyritic felsite
2401-1	Palmer	tan-brown	opaque	saccaroidal	quartz sand grains			3.1x2.5x.5	orthoquartzite	Cenozoic	Calvert Fm	Miocene	Choptank River, Maryland	

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
2402-1		ochre	opaque	waxy	radiolarians				jasper	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
2403-1	Lackawaxen Expanding-Stemmed	cream->tan	opaque	satiny	microfossils	cobble cortex		5.0x2.5x1.5	Fe-chert	Cenozoic				coastal plain
2404-1	Bare Island	white	translucent	vitreous	welded	cobble cortex		3.6x2.2x1.2	quartz	Cambro-Ordovician	Taconic		Virginia-Maryland	piedmont
2405-1	Susquehanna	olive gray	opaque	punky	massive			4.2x2.2x.6	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2407-1	Brewerton Side-Notched	rose	opaque	vitreous	microfossils			3.6x2.2x.5	Fe-chert	Cenozoic				coastal plain
2408-1		dark gray	translucent	pearly	foliation			5.8x2.5x.8	chert	Cambrian	Elbrook Fm		Great Valley of Maryland	
2409-1	Teardrop	black	opaque	waxy	radiolarians			3.5x1.6x.6	chert	Cambro-Ordovician	James Run Volcanics		Cecil Co., Maryland	piedmont
2412-1	Woodland I Stemmed	cream->ochre	opaque	waxy	clay			3.5x1.9x.6	Fe-chert	Cenozoic				coastal plain
2413-1	Woodland I Stemmed	olive brown	opaque	waxy	radiolarians			2.5x1.9x.9	chert	Cambro-Ordovician	James Run Volcanics		Cecil Co., Maryland	piedmont
2414-1	Woodland I Stemmed	cream->ochre	opaque	waxy	clay			3.4x1.7x.7	Fe-chert	Cenozoic			Delmarva	coastal plain
2415-1	Teardrop	maroon	opaque	waxy	radiolarians?			3.0x1.5x.5	chert	Cambro-Ordovician	James Run Volcanics		Cecil Co., Maryland	piedmont
2417-1		olive yellow	opaque	matted	clays				Fe-chert	Cenozoic			Delaware-Maryland	coastal plain
2418-1	Woodland I Stemmed	leek green	opaque	waxy	radiolarians			3.8x1.6x.7	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	piedmont
2419-1	Brewerton Side-Notched	white	translucent	vitreous	foliation			3.8x1.9x.8	quartz	Cambro-Ordovician	Taconic		Delmarva	piedmont
2420-1	Untyped-Contracting-Stemmed	cream->rose	opaque	waxy	radiolarians ?			4.0x2.1x2.0	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
2421-1	Untyped-Straight-Stemmed	charcoal gray	opaque	satiny	radiolarians			3.4x2.8x.7	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	piedmont
2423-1	Untyped-Contracting-Stemmed	black	opaque	pearly	radiolarians			2.2x1.8x.9	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	piedmont
2424-1		charcoal gray	opaque	pearly	radiolarians			2.8x1.5x.7	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	piedmont

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
2425-1	Woodland I Stemmed	cream->ochre	opaque	waxy	microfossils			2.8x1.5x.7	Fe-chert	Cenozoic				coastal plain
2426-1	Woodland I Stemmed	gray	opaque	punky	phenocrysts			3.5x2.1x1.0	felsite	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
2427-1	Untyped-Contracting-Stemmed	white	translucent	vitreous	welded			6.8x3.8x1.3	quartz	Cambro-Ordovician	Taconic	Pegmatite	Delaware-Maryland	piedmont
2428-1	Triangle	white	translucent	vitreous	welded			5.1x3.3x.7	quartz	Cambro-Ordovician	Taconic	Pegmatite	Maryland	piedmont
2429-1		cream->ochre	opaque	waxy	clay				Fe-chert	Cenozoic				clay-rich, coastal plain
2430-1	Woodland I Stemmed	rose heat treated	opaque	waxy	microfossils		yes	3.1x2.2x.8	Fe-chert	Cenozoic				clay-rich, coastal plain
2431-1	Susquehanna	olive gray	opaque	punky	massive			3.6x1.9x.8	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2431-2		white	translucent	vitreous	welded				quartz	Cambro-Ordovician	Taconic		Delaware-Maryland	piedmont
2432-1	Woodland I Stemmed	cream->ochre	opaque	waxy	microfossils, clay-rich, leisegang			2.9x1.7x.6	Fe-chert	Cenozoic				coastal plain
2434-1	Poplar Island	pink-gray	translucent	vitreous	fossils, quartz sand grains			5.9x2.5x1.3	orthoquartzite	Cenozoic	Calvert Fm	Cohansey	New Jersey	coastal plain
2434-2	Poplar Island	pink-gray	translucent	vitreous	fossils, quartz sand grains				orthoquartzite	Cenozoic	Calvert Fm	Cohansey	New Jersey	coastal plain
2435-1		black	opaque	pearly	radiolarians			2.6x1.8x.6	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	piedmont
2436-1	Woodland I Stemmed	cream-mauve			clays				Fe-chert	Cenozoic				coastal plain
2437-1		amber	translucent		welded				metaquartzite	Cambrian	Hardyston Fm	Gun Flint type	Virginia	Piney Branch type, piedmont
2438-1	Adena	olive green	opaque	waxy	radiolarians				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	piedmont
2439-1	Jacks Reef Corner-Notched	ochre	opaque	waxy		cortex			jasper	Cambrian	Hardyston Fm		Front Royal	
2481-2		light gray	translucent	waxy	microfossils				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
2486-2		light gray	translucent	waxy	microfossils				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
2498-1		olive green	opaque	waxy	microfossils, glass shard, foliation				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
2510-1	Untyped-Straight-Stemmed	olive gray	opaque						argillite	Triassic	Lockatong Fm			
2571-1		ochre		matted	microfossils				Fe-chert	Cenozoic				coastal plain
2670-2	Woodland I Stemmed	ochre	opaque						Fe-chert	Cenozoic				coastal plain
2694-1		ochre-maroon					yes		Fe-chert	Cenozoic				coastal plain
2710-1	Untyped-Expanding-Stemmed	olive gray	opaque	punky					argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2732-1	Woodland I Stemmed	ochre-maroon	opaque						Fe-chert	Cenozoic				coastal plain
2767-1		white->rose	translucent	vitreous	welded				quartz	Cambro-Ordovician	Taconic	Pegmatite	Delaware-Maryland	piedmont
2798-1	Woodland I Side-Notched	maroon			microfossils				Fe-chert	Cenozoic				coastal plain
2851-1	Lackawaxen Straight-Stemmed	leek green	opaque		foliation				felsite	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
2934-1		leek green	opaque	waxy	radiolarians				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
2940-7	Woodland I Stemmed	brown	opaque	punky	foliation				felsite	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
2971-2	Susquehanna	brown	opaque	punky	massive	bedded			argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
3023-1	Teardrop	white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic		Maryland	piedmont
3115-1	Woodland I Side-Notched	brown-cream	opaque	waxy					Fe-chert	Cenozoic				coastal plain
3127-2									Fe-chert	Cenozoic				coastal plain
3138-1	Jack’s Reef Corner-Notched	maroon	opaque	waxy					jasper	Cambrian	Hardyston Fm			Flint Run type?
3161-3	Brewerton Side-Notched	mauve	opaque	resinous	quartz sand grains				orthoquartzite	Miocene	Calvert Fm		Choptank River, Maryland	
3165-1	Woodland I Stemmed	ochre	opaque		clays				Fe-chert	Cenozoic				coastal plain
3166-1		leek green	opaque		foliation				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
3170-1	Rossville	ochre	opaque	waxy	microfossils				Fe-chert	Cenozoic				coastal plain

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3173-1		rose	opaque	waxy	microfossils				Fe-chert	Cenozoic				coastal plain
3174-1		white	translucent	vitreous	welded				quartz	Cambro-Ordovician	Taconic	Pegmatite	N. Delaware	
3175-1		maroon	opaque	waxy	microfossils				Fe-chert	Cenozoic				coastal plain
3194-1		olive gray	opaque	punky	massive	bedded			argillite	Triassic	Lockatong Fm		New Jersey	piedmont
3194-2		olive gray	opaque	punky	massive	bedded			argillite	Triassic	Lockatong Fm		New Jersey	piedmont
3195-1	Adena	gray	opaque	matted	foliation	cobble cortex			felsite	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
3223-1	Bare Island	white-rose	translucent	vitreous	welded				quartz	Cambro-Ordovician	Taconic		Maryland	piedmont
3227-2	Untyped-Side-Notched	ochre							Fe-chert	Cenozoic				coastal plain
3229-1	Woodland I Side-Notched	ochre			fossiliferous				Fe-chert	Cenozoic				coastal plain
3230-1	Poplar Island	maroon							ironstone	Cenozoic				coastal plain
3231-1	LeCroy	ochre yellow							Fe-chert	Cenozoic				coastal plain
3284-4	Lackawaxen Straight-Stemmed	burgundy							argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
3322-8	Woodland I Stemmed	maroon							Fe-chert	Cenozoic				coastal plain
3325-1	Woodland I Side-Notched	ochre							Fe-chert	Cenozoic				coastal plain
3350-6		ash gray			radiolarians, foliated				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
3358-1	Selby Bay	olive gray			foliation				felsite	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
3358-2	Meadowood	ochre							Fe-chert	Cenozoic				coastal plain
3358-3	Woodland I Stemmed	maroon			microfossils				Fe-chert	Cenozoic				coastal plain
3359-1	Woodland I Stemmed	olive yellow				cortex	yes		Fe-chert	Cenozoic				coastal plain
3380-1	Koens-Crispin	olive gray	opaque	punky					argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
3393-10		cream->maroon	opaque		microfossils				Fe-chert	Cenozoic				coastal plain
3407-1	Woodland I Stemmed	charcoal gray			radiolarians				chert	Cambro-Ordovician	James Run Volcanics		Maryland	piedmont
3428-1		ochre	opaque	matted	microfossils				Fe-chert	Cenozoic				coastal plain

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3436-2	Lackawaxen Straight-Stemmed	carmine	opaque	punky					argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
3447-7	Woodland I Stemmed	white	translucent	vitreous	welded				quartz	Cambro-Ordovician	Taconic		Maryland	piedmont
3447-8	Lackawaxen Straight-Stemmed	burgundy							argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
3449-1		white	translucent						quartz	Cambro-Ordovician	Taconic		Maryland	piedmont
3476-1	Untyped-Contracting-Stemmed	white	translucent	vitreous	welded				quartz	Cambro-Ordovician	Taconic		Maryland	piedmont
3510-2	Koens-Crispin	gray	opaque	punky					orthoquartzite	Miocene	Calvert Fm		Choptank River, Maryland	
3526-4		charcoal gray	opaque	matted					chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
3534-2	Woodland I Stemmed	ash gray	opaque		foliation, phenocrysts, porphyritic				dacite	Precambrian	Catoctin		W. Maryland	piedmont
3554-1		white-rose	translucent	chatoyant	welded				quartz	Cambro-Ordovician	Taconic	Pegmatite	N. Delaware	
3608-23		brown							argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
3638-2	Woodland I Stemmed	ochre-cream	opaque		microfossils				Fe-chert	Cenozoic				coastal plain
3758-2	Lackawaxen Straight-Stemmed								argillite	Triassic	Lockatong Fm			
3766-11					radiolarians				chert	Cambro-Ordovician	James Run Volcanics			
3799-3	Woodland I Side-Notched								orthoquartzite	Miocene	Calvert Fm			
3840-1					foliation				felsite	Cambro-Ordovician	James Run Volcanics			
3852-1									chert	Cambro-Ordovician	James Run Volcanics			
3861-4									chert	Mississippian	Greenbrier			
3867-3	Susquehanna								felsite	Cambro-Ordovician	James Run Volcanics			
3873-1	Rossville				microfossils				Fe-chert	Cenozoic				

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3875-3									quartz	Cambro-Ordovician	Taconic			
3883-2	Adena	dk gray w/ tan mottling	opaque						chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls		
3885-6	Woodland I Stemmed	white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic			
3886-3	Woodland I Stemmed	yellow brown	opaque		microfossils				Fe-chert	Cenozoic				
3905-1		gray w/ light mottling	opaque		feldspar xls				silicified felsite	Cambro-Ordovician	James Run Volcanics			
3911-1	Bare Island	chestnut brown	opaque			minor cortex			felsite	Cambro-Ordovician	James Run Volcanics			
3924-2	Woodland I Stemmed	cream	opaque		faint lamination, quartz sand grains		minor		Fe-chert	Cenozoic				
3930-1	Poplar Island	dark gray	opaque			some cortex			ironstone	Cenozoic				ironstone
3939-1	Brewerton Side-Notched	black	opaque	waxy	radiolarians				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls		
3944-3		tan w/ cream mottling	opaque	resinous	?microfossils				Fe-chert	Cenozoic				
3965-17	Woodland I Stemmed	tan	opaque	matted	?oxide grains	cortex on base of stem			Fe-chert	Cenozoic				
3987-5		grayish brown	opaque	matted					dacite	Precambrian	Catoctin Fm		Maryland	
4009-1		yellow brown & red	opaque	waxy	microfossils		yes		Fe-chert	Cenozoic				
4018-9	Triangle	red & reddish yellow	opaque		microfossils		yes		Fe-chert	Cenozoic				
4028-4	Susquehanna	brown	opaque			cortex?			argillite	Triassic	Lockatong Fm			
4031-2	Woodland I Stemmed	yellow w/ red	opaque	matted	microfossils		yes		Fe-chert	Cenozoic				
4048-11	Woodland I Stemmed	yellow brown	opaque	matted	microfossils	cortex at base of stem			Fe-chert	Cenozoic				
4069-1	Bare Island	yellowish white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic			
4084-3	Selby Bay	charcoal gray	opaque	matted					felsite	Cambro-Ordovician	James Run Volcanics			
4085-1	Woodland I Stemmed	tan and red	opaque		liesegang banding				Fe-chert	Cenozoic				
4085-2		brownish yellow	opaque	matted					jasper		?	?	Heath Farm, Maryland	

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
4086-1	Adena	pink, tan & red	opaque	matted	microfossils		?		Fe-chert	Cenozoic				
4094-1	Selby Bay	gray	opaque		phenocrysts				felsite	Cambro-Ordovician	James Run Volcanics			
4101-4	Bare Island	white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic	Pegmatite		
4117-5	Bare Island	white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic			
4120-1	Untyped-Straight-Stemmed	black	opaque	resinous	radiolarians				chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls		
4125-1	Untyped-Straight-Stemmed	yellow brown	opaque						Fe-chert	Cenozoic				
4188-1		black	opaque	waxy	radiolarians				chert	Cambro-Ordovician	James Run Volcanics			
4191-2		dark red	opaque	matted	microfossils		yes		Fe-chert	Cenozoic				
4196-5		tan & pinkish red	opaque		microfossils		yes		Fe-chert	Cenozoic				
4247-1		gray & tan	translucent	matted	radiolarians, relict bedding				chert	Cambro-Ordovician	James Run Volcanics			
4247-2		white	highly translucent	vitreous					quartz	Cambro-Ordovician	Taconic			
4256-4		yellow brown	opaque	matted	microfossils	some cortex			Fe-chert	Cenozoic				
4281-1	Koens-Crispin	dark gray	opaque						argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	
4291-1	Lackawaxen Contracting-Stemmed	dark gray	opaque						argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	
4317-5		reddish yellow	opaque		microfossils		yes		Fe-chert	Cenozoic				
4324-2		yellow brown	opaque	waxy	microfossils				Fe-chert	Cenozoic				
4336-6		red & yellowish brown	opaque	waxy	microfossils		yes		Fe-chert	Cenozoic				
4377-1	Untyped-Contracting-Stemmed	gray	opaque	matted					argillite	Triassic	Lockatong Fm			
4378-1	Selby Bay	gray	opaque	matted	sanidine feld. xls, foliation				felsite	Cambro-Ordovician	James Run Volcanics			
4424-14	Koens-Crispin	brown	opaque						argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
4425-4	Koens-Crispin	brown	opaque						argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	
4456-1		white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic			
4463-1		black	opaque	resinous		minor cortex			chert	Cambro-Ordovician	James Run Volcanics			
4477-8		yellow brown	opaque	waxy					Fe-chert	Cenozoic				
EU/10/1/A	Teardrop	cream->ochre->red	opaque	waxy	foliated		yes	2.6x1.5x.5	chert	Cenozoic				clay-rich
EU103/1		cream->red	opaque	matted	microfossils		yes	1.9x1.4x.4	Fe-chert	Cenozoic				Fe-rich, "jasper", clay-rich
EU11/3/I	Brewerton Side-Notched	oxenblood red	translucent	resinous	quartz sand grains w/ chalcedony			4.1x2.1x.6	chert	Cambro-Ordovician	James Run Volcanics			
EU11/3/J	Lackawaxen Contracting-Stemmed	light brown	opaque	resinous	foliated			3.4x1.8x.8		Miocene	Calvert Fm		Choptank River, Maryland	
EU112/2/C	Susquehanna	brown	opaque	matted	hornfelsic	bedding		2.7x1.8x.4	argillite	Triassic	Lockatong Fm		Cumberland Co., New Jersey	
EU118/100/B	Susquehanna	brown	opaque	matted	zeolites	bedding		2.6x1.9x.6	argillite	Triassic	Lockatong Fm		Cumberland Co., New Jersey	
EU119/2/A		olive brown	opaque	waxy	radiolarians	fracture cleavage		1.3x2.3x.8	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Cecil Co., Maryland	
EU121/2/A	Bare Island	olive brown	opaque	resinous	quartz sand grains w/ chalcedony	cobble cortex		4.3x2.3x.9		Miocene	Calvert Fm		Choptank River, Maryland	
EU124/115	Lackawaxen-Contracting-Stemmed	tan	opaque	resinous	quartz sand, fossils			5.0x1.8x.9						
EU13/1/A	Levanna	ochre	opaque	waxy	leisegang rings			4.0x3.1x.5	Fe-chert	Cenozoic				Fe-rich, clay-rich
EU15/2/A	Brewerton Side-Notched	cream	translucent	waxy	microfossil-rich			3.6x1.9x.9	chert	Cenozoic				clay-rich, tallowy
EU18/2/C	Lackawaxen Straight-Stemmed	brown	opaque	satiny		bedding		3.2x1.4x.6	argillite	Triassic	Lockatong Fm			argillaceous, but plainly not NJ
EU18/3/D	Lackawaxen Expanding-Stemmed	gray olive	opaque	matted		bedding		7.8x2.6x.9	argillite					maybe not NJ, gray dropstone?
EU32/3/A	Lackawaxen Straight-Stemmed	olive gray	opaque	matted		bedding		4.3x1.9x.6	claystone					argillaceous

Table J.1 Mineralogy of the Hickory Bluff Projectile Points (Continued)

Catalog Number	Point Type	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
EU33/1/A	Woodland I Side-Notched	olive yellow	opaque	waxy	microfossils			2.1x1.9x.4	Fe-chert	Cenozoic				Fe-rich, clay-rich
EU45/2/A		white	translucent	vitreous	welded			2.7x2.4x2.7	quartz	Cambro-Ordovician	Taconic			
EU5/2/A		cream->light tan	opaque	waxy->greasy	fossiliferous			4.2x2.1x.8	chert	Cenozoic				clay-rich, tallowy
EU6/2/A	Teardrop	cream->maroon	opaque	matted	microfossils			3.5x1.8x.5	chert	Cenozoic				clay-rich, microfossil-rich
EU66/3/A		olive->red	opaque	resinous	quartz sand grain w/ chalcedony			3.9x2.3x.8		Miocene	Calvert Fm		Choptank River, Maryland	
EU67/2A		ochre->red	opaque	waxy lustrous	microfossils	cobble cortex		3.6x2.6x1.2	Fe-chert	Cenozoic				Fe-rich
EU68/1/A	Adena	white-yellow	translucent	vitreous	welded			2.9x1.7x.7	quartz	Cambro-Ordovician	Taconic			
EU7/2/D	Rossville	ochre->red	opaque	waxy->greasy	microfossils			2.3x1.6x.6	Fe-chert	Cenozoic				Fe-rich, "Jasper"
EU71/6/J	Fox Creek	cream->olive yellow	opaque	matted-waxy	microfossils			4.9x2.8x.9	Fe-chert	Cenozoic				Fe-rich, tallow
EU71/9/A		black	opaque	vitreous	microfossils->foliation			2.0x1.8x.6	chert	Lower Devonian	Helderberg Group			
EU72/2/A	Teardrop	olive yellow	opaque	vitreous waxy		cortex	yes	2.7x1.6x.5	Fe-chert	Cenozoic				Fe-rich, "jasper"
EU8/3/A	Woodland I Stemmed	ochre->cream	opaque	waxy vitreous	?			2.6x1.5x.8	Fe-chert	Cenozoic				Fe-rich, "Jasper"
EU8/5/A	Untyped-Corner-Notched	pink->gray	opaque	waxy vitreous	radiolarians, foliation, glass shards		yes	2.5x2.4x.4	chert	Pennsylvanian	Vanport Fm		Ohio	
EU88/2/A	Woodland I Side-Notched	cream-yellow	opaque	waxy vitreous	microfossils			3.2x2.5x.7	Fe-chert	Cenozoic				Fe-rich, "jasper"
EU9/1/A	Woodland I Stemmed	leek green	translucent	waxy vitreous	leisegang rings			3.4x1.9x.8	chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls		
EU93/2/C	Untyped-Side-Notched	olive->amber	translucent	vitreous-greasy	microfossils		yes	4.0x2.1x1.1	Fe-chert	Cenozoic				Fe-rich, "jasper", fossiliferous
EU96/2/A		cream->red	opaque	waxy	fossiliferous		yes	2.0x1.9x.5	Fe-chert	Cenozoic				Fe-rich, "jasper"
EU96/3/A	Poplar Island	burgundy-maroon	opaque	resinous	quartz sand grains			5.9x3.2x1.2	Ironstone	Cenozoic				

Table J.2 Mineralogy of the Hickory Bluff Bifaces

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0042-3		opaque		microfossils?	heat treated -> jasper appearance, cobble cortex pot lidding	x	2.6x3.1x1.4	Fe-chert		James Run Volcanics	Gilpin Falls	Cecil County	ferruginous chert heat treated to jasper appearance, no chalcedony, biface frag.
0065-1		translucent	saccaroidal		cobble cortex, large grains 2 mm or more, quartz veins in pelite		6.6x3.2x1.7	orthoquartzite					orthoquartzite, not a Cenozoic quartzite, saccaroidal quartz veins -> inner Piedmont
0086-1	drab olive	opaque			weathered, but no cobble cortex		3.7x2.1x.6	claystone					possibly an argillaceous sed., almost looks graywacke-like, could be marine
0104-5	pale tan	opaque			cobble cortex, surface varnish, claystone kaolin-rind on outside		2.0x1.7x.9		Cenozoic				rind = typical of Penn. Age gravels, seen in gravels through NJ coastal plain
0111-1	tan	opaque	soft	high clay content	cobble cortex and varnish		4.5x3.2x2.1	Fe-chert	Cenozoic			Pennsylvania gravels?	Delaware Chalcedony complex
0131-3	gray	translucent	saccaroidal	3-4mm grains, some muscovite in veins	close-spaced joints		6.6x4.7x2.6	quartz	Cambro-Ordovician	Taconic			biface core
0133-1	white	translucent	chatoyant				4.1x3.2x2.3	quartz	Cambro-Ordovician	Taconic			hydrothermal
0179-3	black	opaque	scintillating	sponge-spicule, foliated				chert				Great Valley of Maryland	
0225-1	cream->tan				fractures, cobble cortex			Fe-chert	Cenozoic				
0256-1	ochre	opaque	pearly	microfossils?			2.8x2.1x.9	Fe-chert	Cretaceous	?	?	Heath Farm, Maryland	
0279-1	cream->gray->yellow			fossiliferous	small cobble cortex		3.2x2.9x1.4	jasper	Cenozoic				
0334-2	cream->white, gray->maroon	translucent		quartz vugs, fossils	cobble cortex	x		chert					2 parts: 1 could be related to JRV, 2 could be Cenozoic
0360-2	gray	translucent->transparent	vitreous, resinous				3.8x2.8x.7	quartz	Cambro-Ordovician	Taconic			hydrothermal vein
0361-3	olive->yellow	opaque		highly siliceous		x							biface fragment
0367-1	tawny yellow->white	opaque	very satiny				6.1x5.2x2.7						
0383-2	olive gray	opaque	highly lustrous, wood-like	variegated	Leisegang ring	x	2.6x3.2x1.4		Siluro-Devonian				
0415-1	white	translucent		foliated			3.4x3.6x1.5	quartz	Cambro-Ordovician	Taconic			

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0433-4		opaque		highly siliceous				Fe-chert				Front Royal?	fragment
0443-1	rose->tawny	translucent	chatoyant-int/sacc-ext	strong foliation, fabric orientation			3.9x4.5x2.2	quartz			Pegmatite		
0538-1		opaque	nutty coarse	fossiliferous			4.6x2.2x.6	Fe-chert				Front Royal or Iron Hill	
0548-1	drab olive gray	opaque	massive	foliated, montmorillonite			3.7x1.9x.4	hornfelsic or metagraywacke	Cenozoic				
0555-4	ash gray	opaque	matted	porphyritic, foliation			3.6x1.7x1.0	dacite	Precambrian	?Carolina Slate Belt		Morrow Mt., North Carolina?	
0555-5		opaque		foliation, qtz sand grains, feldspar-sanidine			1.3x1.5x.5	metarhyolite		Catoctin		S.Mt. Type	
0555-6	yellow->red	opaque		Fe Cr oxides		x		Fe-chert				Iron Hill	
0607-1	black	opaque	matted	foliation, oolites			3.8x2.1x1.3						tapered Poplar Island type
0693-18	tawny brown->maroon	opaque		slickin-slide surface		x	1.5x1.9x.3	claystone or silcrete					
0754-7	charcoal gray->black	opaque		strong foliation, qtz sand grains, phenocrysts	cobble cortex			dacite or felsite				Elkton, Maryland	
0763-1	olive mottled, buff gray weath.	opaque	massive	phenocrysts of quartz	cobble cortex, weathered ?		4.3x2.7x.7		Cenozoic				phenocrysts like those on 754-7's weathered surface
0816-7	brown	opaque	punky	quartz sand grains			4.5x1.7x.9	quartzite	Cambrian	Hardyston Fm	Gun Hill variety	Maryland	piedmont
0849-5	orange-yellow&tan cortex	opaque			clay cortex, coated type		3.1x2.5x1.3	Fe-chert					
0852-1	rose tinge	translucent->transparent					3.3x1.7x1.3	quartz					vein, hydrothermal quartz
0878-5	olive->wheat w/ red	opaque		sub-angled qtz sand grains coated w/ chalcedony		x	3.3x2.2x.6	sandstone	Cenozoic			Cohansey type	
0945-3	tawny-white	translucent	saccaroidal & vitreous	qtz sand grains	cobble cortex			quartzite	Cambro-Ordovician	Taconic			vein, hydrothermal quartz
0963-3	black->maroon	opaque		qtz sand grains		x	2.8x1.8x.6	dacite					
0967-6	olive gray->gray green			microfossils				felsite or volcanic					fragment
0967-7	white-> tawny yellow	translucent	saccaroidal & vitreous				3.1x2.4x1.4	quartz					vein material
0969-1	red	opaque				x	2.5x2.1x.8	Fe-chert				Front Royal or Amtrack?	

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0976-8	dark charcoal gray w/ red	opaque			weathering	x	3.4x2.1x1.3						
0977-3	black->red	opaque		Kaolin		x		chert					
1024-2	tawny yellow w/ purple	translucent	massive	purple grains (zircons)			3.7x4.3x.5						
1033-1	tan	translucent	chatoyant	air vessels, rotting sanidine	weathered, much cortex		3.1x2.2x.7	quartz	Cambro-Ordovician	Taconic			
1035-1	dark olive gray	translucent					6.2x3.9x2.1	porphyritic felsite					
1046-1	gray	opaque	punky	massive	bedding		2.6x1.3x.4	argillite	Triassic	Lockatong Fm		New Jersey	piedmont
1073-1	olive w/ maroon	opaque		one gas hole		x		chert					could be chert layer within Pillow Basalts
1084-1	dark charcoal gray->maroon			foliated, highly siliceous, RADS.	cobble cortex	x			Cambro-Ordovician	James Run Volcanic			heat treatment on edges
1084-1	cream->rose->maroon			clay-rich	cortex		5.5x3.3x1.5	chert	Cenozoic				
1086-2	white	translucent	vitreous	foliated			2.2x1.4x.7	quartz	Cambro-Ordovician	Taconic			hydrothermal Brewerton Eared-Triangle
1089-1	brown olive->red	opaque		clay-rich	cortex	x	4.2x2.7x1.8					Front Royal or Point of Rocks Maryland	
1099-3	olive yellow mottled & red	opaque	waxy	high silica content, some clay	cortex of weathering on rind	x	3.3x1.8x1.1					Front Royal?	Rossville-like
1104-1	maroon	opaque	resinous	quartz sand grains			4.1x2.0x1.2	orthoquartzite	Miocene	Calvert Fm		Choptank River, Maryland	coastal plain
1112-1	yellow	opaque	waxy	microfossils			2.1x2.2x.7	Fe-chert	Cenozoic				coastal plain
1114-1	white and slightly rose	translucent	vitreous, chatoyant	foliated			1.9x1.8x.6	quartz	Cambro-Ordovician	Taconic			
1134-8	tallow-brown->red	opaque	waxy			x	1.3x1.8x1.6	Fe-chert	Cenozoic				
1196-1	ochre	opaque	matted	microfossils			3.8x2.5x1.2	Fe-chert	Cenozoic				clay-rich, coastal plain
1243-2	tallow->mottled of yellow	opaque	lustrous		cobble cortex								
1251-2	olive yellow	opaque		homogenous quartz				jasper				Pennsylvania type	
1318-1	olive yellow-int/cream-ext	opaque					2.4x2.6x.8						same cream->white

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
1333-1	cream->yellow->red	opaque				x						Pennsylvania type	
1361-2	pale tan-yellow	opaque		air or gas holes, clay-rich	much cortex								
1411-2	cream->maroon->rose	opaque				x						Pennsylvania type	only one quartz -
1438-8	rose	translucent	vitreous, chatoyant		cortex			quartz					hydrothermal or pegmatitic
1519-3		opaque			weathered		4.8x2.0x1.0	argillite					
1525-6		opaque		porphyritic, qtz phenocrysts, flow banding				metarhyolite	Precambrian	Catoctin			
1549-21	dark	opaque		strong phyllitic foliation									
1572-2		translucent		resealed, externally foliated-strained, oolites			3.4x2.7x1.0		Cambro-Ordovician				Connococheage type, Limeport, or Great Valley Sequence
1573-1	cream->rose->red			microfossiliferous	some cortex	x	4.6x2.5x1.3	chert	Cenozoic				
1580-1	olive gray	opaque		fossiliferous, oolite-like grains, clay			5.8x3.5x1.0						
1618-1	white	translucent	chatoyant, vitreous				2.7x2.3x1.5	quartz	Cambro-Ordovician	Taconic			hydrothermal
1624-7	tawny yellow	opaque			some cortex		4.2x2.1x.6	silicified claystone	Cenozoic				
1630-13		translucent	vitreous, chatoyant		cobble cortex		4.1x2.1x1.5	quartz	Cambro-Ordovician	Taconic			hydrothermal
1630-14	chocolate brown-weathered tan												
1751-8	rose	translucent	massive	high clay content		x	4.7x3.3x1.7		Cenozoic				
1768-2			saccaroidal	fossil fragments			2.8x2.3x1.0		Cenozoic				lobate stemmed (Poplar Island type); Aquia, Calvert, or Cohansey formation
1780-2	gray	opaque	punky	massive	bedding		4.1x1.5x1.8	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
1787-1	maroon	opaque	matted	massive-clays			3.4x2.9x1.0	Fe-chert	Cenozoic				coastal plain
1797-7	cream-int/yellow-ext	opaque		small black dots in matrix				Fe-chert				Pennsylvania type	
1800-6	charcoal gray->very blue				some cortex		3.6x2.1x.7			James Run Volcanic			

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
1806-6				coarse-medium qtz sand grains w/ chalcedony or silica			2.9x1.9x.9	sandstone	Cenozoic				Calvert, Aquia, or Cohansey formation
1830-10	gray & white	translucent	vitreous	foliated, holes of deformed oolites			2.9x1.9x.5	chert	Cambro-Ordovician			Great Valley of Maryland	
1833-7	brown	opaque	massive		little cortex on lip of platform		4.3x2.0x1.0	claystone	Cenozoic				
1892-7	rose	translucent	vitreous			x	2.6x2.1x.6	quartz	Cambro-Ordovician	Taconic			hydrothermal vein
1908-1	canary yellow			fossiliferous, oolitic			4.3x2.4x.8	jasper	Cenozoic				
1909-1	canary yellow	translucent		fossiliferous, oolitic			4.0x2.5x1.0	jasper	Cenozoic				
1937-11	gray	translucent	waxy resinous	foliated			2.5x1.8x.7	chert	Cambro-Ordovician	Beekmantown		Rockdale Run or Axeman	
1940-10	gray	translucent	fish scale texture	foliated, sanidine xls				porphyritic felsite					
1941-7	tan->rose		saccaroidal	foliated	bit of cortex, lip platform								in some respects, close to #4041-2
1964-5		mildly opaque		foliated				metarhyolite or felsite volc.					does not have characteristics of Catoctin rhyolite
1988-4	black w/ yellow cortex	opaque	vitreous	RADS., strong foliation	fracture sets, yellow jasper cortex								
1990-2	yellow	opaque					1.7x2.7x1.1	Fe-chert	Cenozoic				
2012-5		opaque	massive	brecciated, chalcedonic infillings			3.6x2.7x.6					Macungie?	
2033-1	olive gray	opaque	matted	massive	bedded		4.6x2.0x1.0	argillite	Triassic	Lockatong Fm		New Jersey-Pennsylvania	piedmont
2091-1	olive yellow	opaque		highly siliceous, high # of qtz, sand grains w/ Fe3O4 encircling				Fe-chert				Iron Hill?	
2139-1	orange->red					x		orthoquartzite	Cenozoic	Sandstone			
2161-15	mottled tan and maroon			immature, high clay content		x						Cohansey	
2207-5	white tallow-like	translucent		small oolite spheres, chalcedonic-looking									
2242-2	olive yellow			oolites	cobble cortex		2.9x1.8x.8	jasper	Cenozoic			Front Royal?	
2275-4	charcoal gray	translucent		highly foliated, spicules, scattered oolites	cobble cortex			chert	Cambro-Ordovician				
2350-3	white->flat canary yellow			minute qtz silt grains, siliceous	cortex								
2368-1	cream->yellow	translucent		fossil, oolite-like structures			3.1x1.8x1.1	jasper?	Cenozoic				

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
2406-1	olive yellow/yellow brown		massive	cream intrusion			3.0x2.1x1.4	Fe-chert				Front Royal?	tapered stem
2411-1	gray	opaque		montmorillonite-rich			5.1x2.2x.7	mudstone, NJ argillite?					tapered stem piece
2416-1	charcoal gray	opaque		soil-laden	much cobble cortex		3.1x1.6x.5	oolitic chert or porph.volc.					translucent on edge, Connococheage or James Run
2433-1	cream w/yellow, pale tan->white	trans.&opaq.	waxy	clay-rich, possible oolites	cortex		3.8x3.2x1.2						
2481-3	amber->lime						8.3x5.1x2.3	metaquartzite or orthoquartzite					more Piney Branch type
2547-1	ash gray->purple			sanidine, albite, sulfide, foliation									
2574-2	yellow->rose			highly siliceous, some biotidal chalcedonic fabric		x	4.2x1.6x1.0	Fe-chert				Front Royal?	
2574-3				ooids			4.8x.12x1.0						refit to #2574-2
2580-1	charcoal gray			foliated	fracture cleavage everywhere		3.2x1.3x.7	chert	Cambro-Ordovician				translucent on edge
2645-4	canary yellow, cream-like	opaque	flat matted	oolitic, high clay content			3.1x2.4x.6						
2645-5	yellow-white	translucent	vitreous	highly foliated					Cambro-Ordovician	Taconic			
2649-2	cream-tan int->yellow ext			many euhedral dolomite, glauconite stains	cobble cortex			Fe-chert	Cenozoic				
2655-1	yellow-white	translucent	vitreous	foliated	cobble cortex			quartz	Cambro-Ordovician	Taconic			hydrothermal vein
2656-7	cream->yellow			fossils?, oolites?	cobble cortex			banded chert				Pennsylvania type	
2668-2	cream->rose		vitreous	siliceous, fossils or oolites		x	2.6x1.7x1.0	Fe-chert					
2673-1		translucent		oolite ghosts, foliation	cobble cortex		3.9x2.6x1.0	chert	Cambro-Ordovician	Connococheage			
2673-2	yellow->white	translucent	vitreous					quartz	Cambro-Ordovician	Taconic			hydrothermal vein
2689-3	olive yellow			homogenous	much cobble cortex							Pennsylvania type	odd oxide on surface of fresh break, looks like trowel mark
2722-2	cream-colored	opaque		qtz vein ooids or fossils									translucent only on edge, white Limeport or Connococheage

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
2722-3		highly translucent	chatoyant	highly fossiliferous, spicules or shell fragments	chalcedonic cortex		4.2x2.3x1.6	jasper					special, not like Iron Hill or anything
2742-3	ash gray	opaque	matted	porphyritic, phenocrysts, foliation				dacite	Precambrian	Catoctin Fm		Maryland	piedmont
2770-3	white->light gray		chalky	fossiliferous		x		claystone	Cenozoic				biface tip
2772-1	cream->rose	opaque		clay-rich		x		chert					fragment
2789-4	flat black->olive mottled	translucent		small oolites or silicified felsite or volcanic					Cambro-Ordovician	James Run Volcanic			
2791-1				chalcedony and quartz infillings	fractures			Fe-chert or jasper					
2796-1	light gray	translucent		biotite grains, phenocrysts, or amphiboles				porph.volcanic or metavolc.					
2799-3				sphericle-rich				volcanic	Cambro-Ordovician	James Run Volcanic			
2805-1	tallowy cream	translucent		clay-rich	cobble cortex		3.5x2.7x1.3						
2824-3	rose hint		chatoyant				2.5x1.2x1.0		Cambro-Ordovician	Taconic			hydrothermal vein
2895-4	white->rose					x		quartz	Cambro-Ordovician	Taconic			hydrothermal vein
2911-1	drab olive	opaque	saccaroidal	grains are 1 mm sub-rounded	cobble cortex			orthoquartzite	Lower Paleozoic				too coarse grained for most Piney Branch types, look for another Lower Paleozoic quartzite
2911-1													
2917-8	rose	highly translucent	saccaroidal			x		qtz vein or metaquartzite		Taconic			
2951-3	olive yellow->brown		massive	siliceous, large fossil inclusions?				Fe-chert					
2961-4	white		chatoyant					quartz	Cambro-Ordovician	Taconic	Pegmatite		hydrothermal vein
2971-3	maroon or black			air holes or silica spheres			3.9x2.6x.7		Cambro-Ordovician	James Run Volcanic	Gilpin Falls		
2971-4	charcoal gray->black			tiny RAD-like spheres immersed in silica matrix			4.1x2.2x1.4						James Run Volcanic or RAD chert associated with pillow basalts
3000-3	gray->white w/ rose hint	highly translucent		foliated			5.6x3.1x1.8	quartz					hydrothermal vein
3017-1	slate green-gray						4.3x2.7x1.3	phyllitic chert					James Run Volcanic or metamorphic rock

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3021-5	cream->maroon/red					x		Fe-chert				Pennsylvania type	
3021-6	white	translucent	vitreous				3.0x1.8x1.0	quartz	Cambro-Ordovician	Taconic			hydrothermal vein
3021-7	brown olive						5.2x2.6x.7						
3025-1				foliated	jointed, much cobble cortex		6.2x5.1x1.1	quartz					flat pebble, vein
3026-1							3.3x1.7x.5						
3106-2	yellow tallowy->gray	translucent	saccaroidal	highly siliceous				metaquartzite?					
3110-2	dark charcoal gray->brown	translucent		fossils, foliated	cobble cortex	x		chert	Cambro-Ordovician				
3116-2							4.9x4.5x2.0	argillite				Lumberville Flemington type	large cache biface split in half
3145-1	maroon	opaque	waxy	microfossils		yes		chert	Cambro-Ordovician	James Run Volcanics	Gilpin Falls	Maryland	piedmont
3177-2							4.9x4.1x1.6	porphyritic argillite					
3197-4	cream->yellow brown	opaque	soft, chalky				2.8x3.2x1.0		Cenozoic				somewhat siliceous claystone or PA type chert
3197-5			silty	hematitic				ironstone	Cenozoic				
3217-2	murky oxen-blood red w/ gray			qtz sand grains		x	4.6x3.6x1.0		Cambro-Ordovician				James Run Volcanic or Leithsville or Elkbrook; super heat treated
3218-11	gray-white	translucent	vitreous, saccaroidal		much cobble cortex				Cambro-Ordovician	Taconic	Pegmatite		
3233-5	brown olive			highly fossiliferous, mica	some cobble cortex		3.5x3.2x.7	Fe-chert	Cenozoic				
3251-1	canary yellow mottled w/ cream-gray-yellow		massive		cobble cortex								core fragment
3252-2	gray cream->red			variegated, hematitic red		x			Cenozoic				
3260-3	gray	translucent		oolitic, foliated			2.9x1.8x.7		Cambro-Ordovician			Connococheage or Or3	scraper end
3260-4	olive slate green->cream->red			hematitic red, siliceous, qtz vein, variegated		x							Cenozoic or highly siliceous JRV

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3307-1		translucent		foliated	cobble cortex			quartz	Cambro-Ordovician	Taconic	Pegmatite		hydrothermal vein
3309-3	black w/ red			hematitic red, exterior foliated		x	4.6x2.5x.4		Cambro-Ordovician	James Run Volcanic			super heat treated
3310-1	black	opaque		somewhat foliated		x	2.4x1.5x.7		Cambro-Ordovician	James Run Volcanic			
3342-1				silty sand grains			6.4x3.2x.9	ironstone					
3351-1	light olive tawny brown->rose		massive, matted	oolitic, fossiliferous	some cortex	x	3.1x3.3x.6						
3353-6				hematitic			2.0x2.4x1.0	ironstone					base looks Poplar Island or Rossvile
3382-1			vitreous, saccaroidal	qtz sand pebbles, foliated	cobble cortex		7.4x4.7x3.9	quartzite	Paleozoic?				
3408-2	white w/ rose hint		vitreous, chatoyant					quartz	Cambro-Ordovician	Taconic			hydrothermal vein
3408-3	ash gray->olive gray			slaty, hornfelsic	splintery fracture		5.7x2.5x.6	mudstone	Cenozoic				
3453-7	rose hint		saccaroidal	foliated, layered	cobble cortex		4.5x3.4x1.4	quartzite					
3487-3	light rose hint	translucent	chatoyant					quartz	Cambro-Ordovician	Taconic			hydrothermal vein
3536-6	brown with lighter tan			highly fossiliferous, chalcedony veins	grainy cobble cortex		9.1x6.0x2.4	chert	Cenozoic	Calvert?			
3564-5	gray & yellow			foliated	longitudinal split		4.7x1.6x.7	chert	Cambro-Ordovician	Elbrook			
3642-2	purple			montmorillonite-rich	heavily weathered		3.6x4.6x.9	argillite?					
3733-1	rose hint	translucent	vitreous	foliated	fracture cleavage		2.7x2.1x.7	quartz	Cambro-Ordovician	Taconic			hydrothermal vein
3802-2	olive->slate green			somewhat foliated, siliceous				chert					
3818-10				fossils	highly weathered, slaty cleavage			argillite					
3837-1	olive gray		grainy, tough		some cortex		2.7x1.1x.8	turbidite or graywacke?		Austin Glenerie Fm.?			
3838-3	white w/ green holes	translucent			cobble cortex		5.5x3.1x1.2	mylonite quartzite				Pennsylvania type	
3877-2	battleship gray	translucent		oolitic, foliated			2.7x2.1x1.0		Cambro-Ordovician				Connococheage or Beekmantown
3892-2	tan-ash gray			marine sand or diatomite	cobble cortex								
3901-1	rose		massive	highly siliceous		x		chert	Cenozoic				

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3921-1	dark charcoal gray							felsite	Cambro-Ordovician	James Run Volcanic			
3929-3	olive green			clay-rich, siliceous, sandy					Cenozoic			Cohansey?	mid-section of Kirk serrated
3954-13	cream-tallow		massive	oolitic			3.3x1.2x1.1						
4022-7	cream->tallow w/ rose->gray		massive	oolitic, somewhat siliceous		x	3.3x1.4x.6						heat treated on the edge
4025-6	cream		flat matted, pearly		some cortex								
4035-2	cream->pale tan			fossiliferous		x	2.9x1.7x.5	chert	Cenozoic				
4041-2	gray->yellow->rose		vitreous, pearly, grainy	sand grains	cobble cortex		5.1x2.7x1.8	quartzine or quartzite					
4064-8	hint of rose	translucent	vitreous					quartz	Cambro-Ordovician	Taconic			hydrothermal
4071-5	tan	translucent	vitreous, resinous, greasy	strained quartz			3.1x2.2x.7	quartzite?					
4073-3	yellow			microfossil-rich	cortex			Fe-chert	Cenozoic				
4081-1	cream->white-cream->gray			siliceous				chert	Cenozoic				
4097-10	deep rose	highly translucent				x	3.6x3.5x1.4	ultra myolite					rare type of Eshback type
4178-1	tan->olive			siliceous, variegated				chert					Cenozoic chert or a jasper
4187-2	cream->tan			siliceous				jasper	Cenozoic			Pennsylvania type	
4192-2	w/ rose		massive, waxy	microfossiliferous		x		jasper	Cenozoic				small fragment
4194-2	white			foliated	fracture cleavage			quartz	Cambro-Ordovician	Taconic			hydrothermal vein
4205-2	dark olive->navy			strong foliation, sulfide-bearing, phyllitic	much cortex			metagraywacke					
4219-1	purple-brown-carmine							argillite	Triassic	Lockatong			battered, pebble
4222-2	maroon	opaque	resinous	radiolarians				chert	Cambro-Ordovician	James Run Volcanics			
4243-4	cream->yellow			fossiliferous				jasper	Cenozoic				
4245-1	charcoal gray		satiny	foliated, oolites all striated	much cortex		6.5x4.1x2.3	chert	Cambro-Ordovician				heavily deformed
4253-1	cream->yellow			microfossils, ooids									

Table J.2 Mineralogy of the Hickory Bluff Bifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
4257-1		highly translucent				x	3.1x3.6x1.0	metaquartzite or ultra myolite					could occur in pelite feldspar
4268-4	white	translucent	chatoyant		cobble cortex claystone type		4.5x2.1x1.8	quartz	Cambro-Ordovician	Taconic			hydrothermal vein
4283-1				microfossil	cobble cortex claystone type			Fe-chert	Cenozoic				
4298-2	dark brown	opaque	massive	fossil-rich	much cobble cortex		5.2x3.4x1.9	claystone type Fe-chert					
4303-4	rose hint	translucent		foliated				quartz	Cambro-Ordovician	Taconic			hydrothermal vein
4304-7	yellow->white	translucent	vitreous	foliated	fractured, cortex			quartz	Cambro-Ordovician	Taconic			hydrothermal vein
4313-1	yellow->white	translucent	vitreous	foliated	fracture cleavage		5.0x2.6x1.6	quartz	Cambro-Ordovician	Taconic			hydrothermal vein
4322-4	gray	translucent	vitreous				5.6x2.9x1.4	quartz	Cambro-Ordovician	Taconic	Pegmatite		hydrothermal vein
4325-1			massive	fossiliferous, Fe-rich, oolites?	little sign of cortex		6.0x4.1x1.9	jasper	Cenozoic			Front Royal?	
4347-1	olive gray-dark->charcoal	opaque		foliated, cherty									no structure
4416-1	white->yellow	highly translucent					4.5x2.7x.9	quartz	Cambro-Ordovician	Taconic	Pegmatite		hydrothermal vein
4434-1	cream	translucent		fossiliferous, clay-rich, Fe oxides (black ooids)	cobble cortex		5.2x4.3x1.3	chert	Cenozoic				
4446-2	tallow int./yellow ext.			fossiliferous, clay-rich interior	much cobble cortex				Cenozoic				
4455-3	deep rose				cortex	x	4.7x3.4x.9	orthoquartzite	Cenozoic				
4466-6	alternating black and olive			RADS.-bearing, variegated	w/ cortex				Cambro-Ordovician	James Run Volcanic			
4471-4	white	highly translucent	vitreous					chert	Cambro-Ordovician	James Run Volcanics			
4477-9	cream->deep rose	mildly translucent		fossiliferous		x		chert	Cenozoic				

Table J.3 Mineralogy of the Hickory Bluff Unifaces

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
0044-1	cream outside		massive	siliceous				jasper	Cenozoic				
0114-5	mottled cream->light yellow bean	opaque	massive		cobble cortex								
0132-3	maroon		massive			yes		jasper	?Cenozoic				
0142-1	yellow		massive	variegated, fossiliferous	abundant cortex			jasper	Cenozoic				
0492-3	yellow->cream->yellow				cobble cortex			jasper	Cenozoic				
0586-1	cream->pinkish	opaque	massive		small platform cortex	yes							
0592-6	red			Fe-oxide grains, highly siliceous		yes		jasper	Proterozoic				Iron Hill
0602-1	olive green->slate green		slaty	foliated	cobble cortex			?felsite	Cambro-Ordovician	James Run volcanics			
0675-4	cream			clay-rich				jasper	Cenozoic				Pennsauken type
0742-2	yellow		massive		pebble cortex			jasper					
0783-7	yellow w/ red					yes		jasper	Cenozoic				
0964-1	red	opaque	matted, massive		cortex	yes		Fe-chert	?Proterozoic				?Front Royal
1002-1	yellow-mauve->gray lavender			variegated, highly siliceous, liesegang rings	cortex			?jasper					
1169-1	cream->olive brown w/ red	translucent		radiolarians	some cortex			?jasper	Cambro-Ordovician	James Run volcanics			
1187-3	slate green->olive			radiolarians, foliated, desiccation and de-watering structures				?felsite	Cambro-Ordovician	James Run volcanics			
1243-1	cream->yellow		matted	?sponge spicules				jasper	Cenozoic				
1287-1	cream->tan, ash gray->mauve			?microfossils, variegated									
1355-1	cream->yellow			siliceous	cream cortex			jasper	Cenozoic				
1441-3	cream->tan, olive yellow		massive					jasper	Cenozoic				
1686-1	olive->slate green w/ brown cortex			radiolarians, stylolites, ?graptolites				jasper	Cambro-Ordovician	James Run volcanics			
1965-3	yellow int., cream cortex		flat, matted		cortex			jasper	Cenozoic				Pennsauken type

Table J.3 Mineralogy of the Hickory Bluff Unifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
1982-3	olive gray		somewhat slaty	phyllitic, foliated				graywacke or metaquartzite-graywacke					
2019-1	olive			med. to coarse sand w/ magnetite grains, ?glauconite, faint bedding, foliated				sandstone	?Paleozoic				
2044-6	red, tan cortex				cortex	yes		jasper	Cenozoic				
2233-2	mauve-yellow->tallow w/ brown & cream			variegated, clay-rich zones		possible		jasper	Cenozoic				?Pennsauken type
2290-2	olive brown		massive					jasper	?Cenozoic				
2307-1	olive yellow		massive	microfossils, siliceous				jasper	?Cenozoic				
2440-2	chlorite green			?glauconite, foliated	cortex			metaquartzite	Proterozoic				Piney Branch-like
2536-1	yellow->olive, tan cortex			microfossils	cortex			jasper	Cenozoic				Pennsauken type
2568-2	gray chert->yellow jasper			sponge spicule debris	?cortex on dorsal side			jasper	Cenozoic				
2645-10	gray->red		swirl pattern	variegated, highly siliceous	cortex	yes		jasper	Cenozoic				
2722-4	yellow w/ tan cortex			fossiliferous	cortex			jasper	Cenozoic				
2725-1	yellow->gray mottled	highly translucent	massive	microfossil-rich				chert	Cenozoic				
2872-2	cream->yellow			fossil molds	pebble cortex over fossil			Fe-chert	Cenozoic				Pennsauken type
2923-1	cream->yellow				cortex			jasper	Cenozoic				Pennsauken type
3020-2	black->red			highly siliceous		yes		?felsite					
3104-1	variegated, mottled			black finely disseminated oxides	cortex			jasper	?Proterozoic				could be Iron Hill
3106-6	yellow olive							jasper	Cenozoic				
3237-6	olive brown->yellow w/ tan cortex			highly siliceous				jasper	Proterozoic				
3372-1	tallow-cream->mottled brown		massive					jasper	Cenozoic				Pennsauken type
3489-1	dull cream->mottled yellow->red				some pebble cortex	yes		chert	Cenozoic				Pennsauken type

Table J.3 Mineralogy of the Hickory Bluff Unifaces (Continued)

Catalog Number	Color	Diapheneity	Texture/Luster	Internal Structure	External Structure	Heat Treated	LWT	Petrological Grouping	Age	Formation	Member	Quarry	Comments
3495-4	white->yellow tallow center							chert	Cenozoic				Pennsauken type
3642-4	tallow, yellow			microfossils	abundant cortex	yes		chert	Cenozoic				Pennsauken type
3728-5	yellow->pink->rose over cream and gray		massive	?ghosts of oolites	cortex	yes							
3730-1	tan->cream w/ red		massive	euhedral vacuoles lined w/ chalcedony fans	fracture surface	yes		jasper					
3730-2	cream->red		massive	highly siliceous				jasper	Cenozoic				
3760-3	tallow->yellow->red		massive	fossiliferous	cortex	yes		jasper	Cenozoic				
3760-4	ochre yellow		massive		some cortex			jasper	?Cenozoic				
3929-4	olive yellow w/ black			manganese dendrites, highly siliceous				jasper					Pennsylvania jasper
3999-8	olive green->slate green->orange yellow	opaque		radiolarians, variegated, liesegang rings	some cortex					James Run volcanics			
4002-2	olive brown mottled w/ gray	opaque	wood texture		cortex				Siluro-Devonian	?Greenbrier or Onondaga Fm			
4031-12	cream w/ red in center of yellow	opaque		highly siliceous	tiny cream-colored cortex patches	yes, intensive							?Pennsauken type
4043-3	gray-ashy	opaque	massive	med. grained, laminated					Cambro-Ordovician	James Run volcanics			
4072-8	olive & gray, sky blue	opaque	wood texture, lustrous	liesegang rings	cortex					?James Run volcanics			
4181-1	maroon	opaque	massive			yes		chert					?Pennsauken type
4225-1	tan cortex	opaque	massive	fossils, laminated	cortex			Fe-chert					may be fossils in cortex
4475-2	olive gray to slate	opaque	grainy granular	small spheres				graywacke or weathered felsite					
4476-3	canary yellow	opaque			small signs of cortex, massive			Fe-chert					
4478-5	olive gray->slate green	opaque	somewhat gritty	phyllitic	w/ cortex almost in place			claystone					not Iron Hill or Front Royal