

**CACTUS HILL, RUBIS-PEARSALL AND BLUEBERRY HILL:
ONE IS AN ACCIDENT; TWO IS A COINCIDENCE; THREE IS A PATTERN –
PREDICTING "OLD DIRT" IN THE NOTTOWAY RIVER VALLEY OF
SOUTHEASTERN VIRGINIA, U. S. A.**

Submitted by Michael Farley Johnson to the University of Exeter
as a thesis for the degree of
Doctor of Philosophy in Archaeology
in December 2012

This thesis is available for Library use on the understanding that it is copyright material
and that no quotation from the thesis may be published without proper
acknowledgement.

I certify that all material in this thesis which is not my own work has been identified
and that no material has previously been submitted and approved for the award of a
degree by this or any other University.

Signature.....

Abstract

This thesis covers more than thirty years of the author's research into the Paleoamerican period of the Middle Atlantic Region of North America, including the last 19+ years of focused work on the Cactus Hill site (44SX202) and replication of the Paleoamerican occupation discovered there. Using a landform and geology based predictive model derived from the Paleoamerican occupation at Cactus Hill, the author directed preliminary archaeological testing in three other areas of the same Nottoway River Valley, where Cactus Hill is located. These areas were the Barr site, located 11 miles (18 km.) downriver from Cactus Hill; the Chub Sandhill Natural Resource Conservation Area, located 19 miles (30 km.) downriver from Cactus Hill; and the Blueberry Hill site (44SX327), located approximately 1,000 feet (300 meters) east of Cactus Hill. The latter two produced OSL dated, pre-Younger-Dryas landforms, as predicted. The Rubis-Pearsall site (44SX360), located in the Chub Sandhill preserve also produced a buried Paleoamerican, Clovis age cultural level confirming the model. In addition to the OSL dates, Blueberry Hill also produced a distinct and apparently discrete activity surface with a possible pre-Clovis age Cactus Hill point at the same depth as the Paleoamerican levels at Cactus Hill and Rubis-Pearsall.

Table of Contents

Abstract	2
Table of Contents.....	3
List of Figures.....	6
List of Tables.....	9
List of Appendices.....	10
List of Abbreviations.....	11
Acknowledgments	12
Preface	13
Chapter 1: Introduction	
1.1: Background.....	15
1.2: Research context.....	18
1.3: Research question.....	21
1.4: Method/methodology.....	23
Chapter 2: The Cactus Hill Model	
2.1: Lines of evidence.....	27
2.1.1: Geomorphology.....	27
2.1.2: Bioturbation.....	31
2.1.3: Stratigraphic consistency of diagnostic artifacts.....	33
2.1.4: Cultural integrity.....	35
2.1.5: Raw material differences.....	37
2.1.6: Stone tool differences.....	38
2.1.7: Radiocarbon dates.....	39
2.1.8: Luminescence dates.....	40
2.1.9: Phosphate analysis.....	42
2.1.10: Phytolith analysis.....	42
2.2: Cactus Hill Pre-Clovis age critique.....	43
2.2.1: "Absence" of Late Paleo occupations.....	44
2.2.2: Sedimentation issues.....	44
2.2.2.a: Clovis-Early Archaic age sedimentation gap.....	44
2.2.2.b: Variable sedimentation rates.....	45
2.2.3: Hardaway "blade" comparison.....	45
2.2.4: Cactus Hill points as "preforms".....	46
2.2.5: "Appomattox" point question.....	47
2.2.6: Artifact down-drift.....	48
2.2.7: Spurious C-14 dates.....	48
2.2.8: Debitage pattern.....	49
2.3: Developing the model.....	51
2.4: The model.....	59
2.4.1: Well-drained living surface.....	60

2.4.2: Exposure to strong (north) winds.....	60
2.4.3: Flash flood threat.....	60
2.4.4: Younger-Dryas scouring.....	61

Chapter 3: Chub Sandhill

3.1: Overview.....	62
3.1.1: Regional paleoenvironmental context.....	62
3.1.2: Local paleoenvironmental context.....	66
3.1.3: Archival analysis.....	67
3.1.4: Soil analysis.....	68
3.2: Koestline Site (44SX332).....	72
3.2.1: T-3 auger transect.....	72
3.2.2: Test trench K1.....	73
3.2.3: Test trench K2.....	77
3.3: Watlington Site (44SX331).....	78
3.3.1: T-4/T-5 auger transect.....	78
3.3.2: Block A.....	82
3.3.3: Block B.....	90
3.4: Rubis-Pearsall Site (44SX360).....	95
3.4.1: Auger sampling.....	95
3.4.2: Test trench overview.....	98
3.4.2.a: Trench RP1.....	101
3.4.2.b: Trench RP2.....	103
3.4.2.c: Trench RP3.....	105
3.4.2.d: Trench RP4.....	106
3.4.2.e: Trench RP5.....	109
3.4.2.f: Trench RP6.....	110
3.4.2.g: Trench RP7.....	110
3.4.2.h: Trench RP8.....	115
3.4.2.i: Trench RP9.....	118
3.4.2.j: Trench RP10.....	121
3.4.2.k: Trench RP11.....	123
3.5: Summary and conclusions.....	126
3.5.1: Koestline.....	127
3.5.2: Watlington.....	128
3.5.3: Rubis-Pearsall.....	129
3.5.4: Conclusions.....	131

Chapter 4: Blueberry Hill (44SX327)

4.1: Overview.....	134
4.1.1: Local paleoenvironmental context.....	135
4.2: 2002 test excavations.....	144
4.2.1: Trench BBH1.....	144
4.2.2: Trench BBH11.....	148
4.2.3: Trench BBH12.....	152
4.2.4: Trench BBH10.....	154

4.3: 2010 test excavations.....	158
4.3.1: Auger sampling.....	158
4.3.2: Test trench overview.....	159
4.3.2.a: Trench BBH2.....	161
4.3.2.b: Trench BBH3.....	162
4.3.2.c: Trench BBH4.....	169
4.3.2.d: Trench BBH5.....	170
4.3.2.e: Trench BBH6.....	172
4.3.2.f: Trench BBH7.....	176
4.4: Summary and conclusions.....	180
4.4.1: Distribution.....	180
4.4.2: Coarse sand/pebble analysis.....	183

Chapter 5: Summary, conclusions and implications

5.1: Synthesis.....	192
5.1.1: Cactus Hill.....	192
5.1.1.a: Geomorphology.....	192
5.1.1.b: Bioturbation.....	193
5.1.1.c: Stratigraphic consistency of diagnostic artifacts.....	195
5.1.1.d: Cultural integrity.....	195
5.1.1.e: Raw material differences.....	196
5.1.1.f: Stone tool differences.....	197
5.1.1.g: Radiocarbon dates.....	197
5.1.1.h: Luminescence dates.....	198
5.1.1.i: Phosphate analysis.....	198
5.1.1.j: Phytolith analysis.....	199
5.1.2: Rubis-Pearsall.....	199
5.1.2.a: Geomorphology.....	200
5.1.2.b: Bioturbation.....	200
5.1.2.c: Stratigraphic consistency of diagnostic artifacts.....	201
5.1.2.d: Cultural integrity.....	202
5.1.2.e: Raw material differences.....	203
5.1.2.f: Stone tool differences.....	204
5.1.2.g: Radiocarbon dates.....	204
5.1.2.h: Luminescence dates.....	204
5.1.2.i: Phosphate analysis.....	205
5.1.2.j: Phytolith analysis.....	205
5.1.3: Blueberry Hill.....	206
5.1.3.a: Geomorphology.....	206
5.1.3.b: Bioturbation.....	209
5.1.3.c: Stratigraphic consistency of diagnostic artifacts.....	209
5.1.3.d: Cultural integrity.....	212
5.1.3.e: Raw material differences.....	212
5.1.3.f: Stone tool differences.....	213
5.1.3.g: Radiocarbon dates.....	215
5.1.3.h: Luminescence dates.....	215

5.1.3.i: Phosphate analysis.....	216
5.1.3.j: Phytolith analysis.....	216
5.2: Conclusions.....	216
5.2.1: Methodology.....	216
5.2.2: Research.....	219
5.3: Implications.....	221