

JEDAICK (SHEDIAC, NB): A NEXUS THROUGH TIME

For
Shediac Bay Watershed Association

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March 31, 2002

ORIENTATION

The receding coastline of southeastern New Brunswick is exposing artifacts left behind by former residents. Artifacts found eroded onto the shores of Shediac Bay reveal much about the activities of our predecessors. However, the artifacts should also cause us to ponder the future: objects and substances we deposit on our shore front property today will end up in the bay just as surely as the artifacts of our predecessors have.

Two hundred years from now, what will the artifacts and substances eroding onto the beaches tell the inheritors of this area about our culture? Let us hope that they do not have cause to look upon our ecological legacy with dismay.

BACKGROUND

The archaeological resources compiled for this study tell many tales but most significantly, they tell us that Shediac, or Jedaick in the original Mi'kmaq, appears to have been a transportation nexus for thousands of generations of Maritimers. For the first ten thousand years, its human inhabitants left no written accounts of their endeavours, yet their material culture lives on.

Because those pre-Contact people created tools, adornments and weapons out of stone and copper, we have a direct link to their existence in the past when we collect and analyse the artifacts. Natural processes are washing artifacts out of their original context in many locations around the bay.

The Shediac Bay Watershed Association has assisted the provincially operated archaeological resource management program by surface collecting at eroding sites and cataloguing the finds. This report describes the sites and interprets recent finds.

FINDS AND INTERPRETATION

Although artifacts from several sites are discussed here, most were recovered on the beach and in the intertidal zone at Indian Point, near the mouth of the Shediac River (figure 1). This site (CbDd-4) extends for two hundred meters along the shore but the artifacts are concentrated in a locus shown in figure 2.

This is a clay-rich clam flat where the edge of a buried soil horizon is eroding artifacts into the intertidal zone. The archaeological layer(s) are all below the water table, as demonstrated by the test pit excavated at the edge of the low dune which is seaward (east) of a small salt marsh. The water table was reached at about 90 cm below surface, still in a sand beach context (figures 3-5).

Regular monitoring over a two-year period (2000-2001) yielded over six hundred artifacts representing ten thousand years of human presence. An interpretation of this collection is presented in chronological sequence, beginning with the earliest migrants to the Maritimes, following indigenous cultural evolution until the end of the 18th century.

PALEOINDIANS APPEAR AND ADAPT

When global climate warmed and the Pleistocene ice age ended, modern humans were already in the Americas. A distinctive stone tool called the Clovis point found in sites as widely separated as Arizona and Nova Scotia demonstrates the rapid spread of a group of hunter-gatherers into the newly exposed landscape of North America. They reached Maine by over 11,000 years ago¹ and Debert, Nova Scotia not many years later.

The Paleoindians were efficient pioneers, able to locate key natural resources needed for their

¹ In radiocarbon years (BP or before present), used throughout the report; calendar year equivalent is about 12,500 years ago.

survival, such as outcrops of good-quality flint (chert) for making a range of tools. A Clovis point from Debert with a concave base and the distinctive flake scar running from it toward the weapon's tip (the "flute" in a fluted point), is illustrated in figure 6 (MacDonald 1968). A similar specimen from Vail, the 11,000-year-old site in Maine (Gramly 1982) is also shown.

The landscape in the relief map in figure 6 is at 11,000 BP, when relic ice caps still lingered in the highlands, placing the Maritimes in a periglacial environment similar to the tundra north of the present tree line in Canada. To get from Maine to Nova Scotia, the Paleoindians probably passed through southern New Brunswick. Fluted points found along the province's Fundy coast at Quaco Head and New Horton Beach trace this path in figure 1.

If the Paleoindians followed the coast of the Bay of Fundy, they could have found Debert, on a sandy plateau overlooking the vast lowland tundra plain that is now the Minas Basin, without passing through Shediac where, at that time, the shoreline was close to its present location (figure 6).

During the centuries of Paleoindian occupation, the environment changed rapidly as the Holocene climate warmed. Coastlines expanded seaward as the earth's crust rebounded with the melting of the immense ice caps (Rampton 1982). By 9000 years ago (figure 9), Shediac was in the foothills of the Fundy highlands, a terminus on a natural corridor from the northern tip of the Bay of Fundy.

Lowland plain spread northeastward, encompassing all of the Northumberland Strait and Prince Edward Island. It was a lowland that became increasingly veined with streams after isostatic rebound hit a maximum and the crust began to sink again. By 6000 years ago (figures 10 & 11), the narrow isthmus that bridged the gap with the mainland was breached and the strait began to widen.

The land mass continues to sink, with an average horizontal loss of 30 cm of shoreline per year during the 20th century on Skull Island (Leonard 1996). With eustatic sea level rising due to global warming causing glacial melting, the rate of shoreline recession is accelerating.

Understanding paleoenvironmental conditions at the two sites that have yielded Paleoindian artifacts in the Shediac area, as described below, is key to facilitating interpretations of site use.

The fact that CbDd-4, an eroding site, has yielded such a diversity of material from a range of thousands of years, raises the issue of why, if the site's location vis-à-vis the coastline was changing, was this same spot re-occupied over at least the past 4000 years, as well as about 10,000 years ago. Precise answers will only be found through detailed paleoenvironmental reconstruction for specific times.

For example, the head of tide on a river is where the salt water meets the fresh, bringing two ecological systems into contact. Mi'kmaq ancestors are known to have maintained large encampments at these ecotones where they harvested nature's bounty from both ecozones. Determining where the head of tide was located along a river through the Holocene period (12,000 BP to present), as sea level fluctuated, is a central factor that needs to be worked out.

Since the indigenous people of the Maritimes subsisted by extracting and exploiting natural resources, they tended to locate habitation sites at hubs in transportation routes. They were obliged to follow these in order to harvest seasonally available resources. The head of tide on a river that was frequently traveled due to its strategic location with respect to transportation and exchange networks may have become a nexus. When, why, and for how long Jedaick was a nexus remain to be worked out in detail,

but the artifact interpretation presented below provides some preliminary guidelines.

Two probable Paleoindian and two possible Paleoindian artifacts from sites CbDd-4 and -8, are illustrated in figures 7b, 12b, and 14. During a previous coastal survey, a small, red, pointed scraper fragment in a local collection came to attention (Leonard 1988). Turned up by the plow in a garden at Bateman's Mills (CbDd-8 in figure 1), this is the tip of a limace, a tool type unique to Paleoindian sites in the local culture history sequence. It is shown in figure 7 along with an analogue from the Vail site. The CbDd-8 limace fits in the size and shape parameters for Kraft's (1973:98) Type 29a (hump-back scrapers) from the Paleoindian Plenge site in New Jersey.

A second form of uniquely Paleoindian scraper is marked by a spur (or spurs) on the distal (front) corner edge, like the four examples from the Vail site in figure 13. A similar specimen found on the beach at CbDd-4 is shown in Figure 12, along with a broken, reworked biface. Both tools are made from a coarse black chert with a matte lustre, characteristic of outcrops in the Gaspé highlands (Chalifoux 1999). Paleoindian exchange patterns, as revealed by distribution of chert, provide insights into their manner of adaptation to the dynamic Holocene environment.

ARCHAIC TRANSITION

As coastal ecology stabilized, the Paleoindians began intensively extracting marine resources. This is reflected in changing technology, as the lanceolate Clovis points broaden to become more robust projectile points, perhaps used as end blades on harpoons or spears driven into sea mammals (Keenlyside 1985). Large ground stone tools including axes and gouges appear in sites, as forest replaces tundra. This change in technology, resulting from changing climate

promoting estuary development and forest growth, marks the beginning of the Archaic period of adaptation.

Finds from Newfoundland to Maine have led to the recognition of the Maritime Archaic tradition in this region as being similar to westerly populations but with a uniquely Maritime technology. For example, the large ovate biface found on a dune near the mouth of the Aboushagan River (figure 15), in Robichaud, N.B., is a large flensing knife ideal for processing sea mammals. Similar knives found elsewhere in Atlantic Canada are classified as part of the Late Maritime Archaic tradition (Tuck 1991).

By 6000 years ago, the climate was warmer than today and the indigenous population appears to have expanded. The Late Archaic period, from about 5500 BP to 3500 BP, is represented by artifacts in the CbDd-4 collection as well.

As noted above, the hallmark of the Archaic is the use of ground stone tools such as axes (symmetrical bit), adzes (beveled bit), and gouges. This begins about 8000 BP. The beach at CbDd-4 has yielded several complete specimens and many broken pieces of ground stone tools. Some appear to be Late Archaic, others are from the subsequent Woodland period.

The most informative specimens are illustrated in figure 16, where items d, e, f, and h are most likely Late Archaic. Note that the poll (opposite of bit) of one adze (d) is made from two separate fragments, one found in 2000, the other in 2001. Conjoined, they clearly form the poll of an Archaic adze, probably even larger than the one below it in figure 16e. Both are made of dark basalt.

The Late Maritime Archaic culture has been popularized as the Red Paint People. An intrepid archaeologist, W. K. Moorehead, unearthed dozens of graves in Maine in the early 20th century, all rich with powdered red ochre, along with artifacts now

recognized as Late Archaic, giving rise to this popularization (Bourque 2001). Important finds near the Mouth of Grand Lake, N.B. (Sanger 1973), and in Newfoundland (Tuck 1976) expanded our knowledge of this archaeological tradition.

Nodules of soft, iron-rich rock that have been abraded to produce red ochre powder have been found at CbDd-4 as well as CbDd-1, and -2 (figure 1). The use of red ochre extends back at least 8000 years in Atlantic Canada (Tuck and McGhee 1976). Paleoindians probably used it too, as did hunter-gatherer peoples worldwide. The specimens found in the intertidal zone at CbDd-4 cannot yet be assigned to a specific time but three with distinct wear facets or grooves are shown in figure 17.

TRANSITIONAL ARCHAIC TO EARLY WOODLAND

By 3000 years ago, when the climate began to cool, we see evidence of populations shifting in the northeastern part of North America. For instance, pottery spreads up from the southeast and copper arrives from the Great Lakes region. Both materials appear in New Brunswick about 2700 years ago.

There is evidence that about 2900 BP the Mi'kmaq language split from Proto Eastern Algonquian. That language, spoken during the Archaic period, is the predecessor of Maliseet, Abenaki, Massachusetts, Mahican, and 14 other languages in the Maritimes and New England (Goddard 1978). Based on compared word lists, it appears that Proto Eastern Algonquian developed north of the Great Lakes and diffused eastwards (Fiedel 1990), coincidental with the movement of pottery and copper artifacts that distinguish the Early Woodland period sites from the previous Transitional Archaic (3500 BP – 2700 BP) in the Maritimes.

It seems that the ancestral Mi'kmaq language arrived here along with pottery and copper technology. However, this does not imply replacement. The Late

Archaic population appears to have dwindled after 3500. Some may have migrated elsewhere while others may have remained and merged with newcomers from the west, adopting new technology and language.

Evidence of occupation at CbDd-4 is scant for the Early and Middle Woodland periods. However, a few sherds of dentate stamped and pseudo-scallop shell impressed pottery were found in CbDd-2 on Shediac Island (Leonard 1996), demonstrating presence at that time (2700 BP to 1100 BP).

LATE WOODLAND GROWTH

Occupation of the Shediac coastal area seems to have been most intense in the Late Woodland period, from 900 AD to the 1500's (Petersen and Sanger 1991). Evidence from the CbDd-4 site corroborates findings at CbDd-1 and -2 (Leonard 1996) in this respect.

A warming event in the Northern Hemisphere lasted from about 900 AD to 1200 AD (Lamb 1982). The Norse expansion into Greenland and subsequent abandonment when climate cooled was one response. It appears that human population expanded in the Maritimes at that time as well, since Late Woodland sites are more plentiful than those from other periods (Allen 1981).

How populations compare between the Late Woodland and the earlier Late Archaic florescence is not readily determined, partly due to the erosion of coastal sites occupied during the Late Archaic. As noted above, sites like CbDd-4 that are on the coast now may have been at the head of tide of rivers during the Late Archaic, thereby accounting for the Archaic presence.

Although copper was used during the Archaic farther west, it can be argued that the 14 copper artifacts illustrated in figure 18 date to the Late Woodland period. The CbDd-4 copper assemblage includes seven nuggets: the top row and the left specimen in the second row. The rest of the middle row are

fragments of worked copper, possibly byproducts of the hammering, folding, annealing and grinding process employed to manufacture finished tools and beads. The four items in the bottom row are parts of finished tools, rod-shaped artifacts that originally may have looked like specimens d and e in figure 19. Copper is relatively soft and wears with use and resharpening.

Although copper artifacts appear in the Maritimes in the Early Woodland, it appears they were imported, along with other commodities such as stone tools and pipes, from the Great Lakes region via the cultural centers emerging along the Ohio River. Only Late Woodland sites have yielded evidence of local copper artifact production in the Maritimes, including that presented in figure 18. Besides CbDd-4, evidence of copper working was also recovered from the Late Woodland burial site on Skull Island, excavated in 1990-91 (figure 19).

Copper was but one natural resource among many in aboriginal exchange networks. Reciprocity was the economic principle at play. The Late Woodland community in Jedaick held a strategic position on the northern terminus of a convenient canoe route from the Northumberland Strait to Shepody Bay. The easiest route between two great hydrographic basins, the Gulf of St. Lawrence and the Gulf of Maine, passes through Shediac Bay. To ecologically adapted people such as the Mi'kmaq, Jedaick was, in a sense, a culturetone, the equivalent of an ecotone.

The fact that crossing the Isthmus of Chignecto alleviates the need to circumnavigate Nova Scotia when traveling between these two bodies of water was no more lost on the canoe-dependent Mi'kmaq travelers than it was on Hank Ketchum. He had a canal three-quarters of the way across the isthmus for the Chignecto Ship Railway in 1881 when his British bankers failed to extend his line of credit, forcing abandonment (Webster 1941:41).

The development of the birch bark canoe, perhaps 3000-3500 years ago (Leonard 1996) is marked by a reduction in the number of axes, adzes and gouges, which had been needed to make the dugout canoes of the Archaic period (Bourque 2001). This was part of the Archaic-Woodland transition. Former coastal routes accessible by heavy dugouts expanded westward up the rivers with the acquisition of light, easily portaged bark canoes. The consequence was increasing contact with societies in the North American interior, as far as the Ohio Valley, in the Early and Middle Woodland periods.

Being on the northern terminus of the Shediac-Petitcodiac and Scoudouc-Memramcook river portage routes (figure 20), Jedaick was a mutually agreeable meeting place for parties from communities along the southern Gulf of St. Lawrence basin. Being on the shortest route from the Gaspé and northern New Brunswick to the Bay of Fundy assured a steady stream of travelers. People from western Prince Edward Island would also find Jedaick a convenient route south to the Bay of Fundy. During good weather seven hundred years ago, the bay probably had the same sort of cosmopolitan, trade-fair atmosphere as it has had in its recent history, where people meet and mingle in the idyllic Shediac summer.

Archaeological evidence for pre-Contact exchange is found at CbDd-4. For example, the aforementioned copper, which is only available in basalt outcrops around the Bay of Fundy, was brought to Jedaick for economic purposes. The most prolific source for native copper is at Cape D'Or, Nova Scotia, at the eastern end of the Bay of Fundy, where copper nuggets rain from the soaring 200-foot cliffs to the cobble beach below like pennies from heaven.

The predominance of scrap copper suggests that nuggets may have been collected from sources around the Bay of Fundy and brought to Jedaick, where it was fabricated into artifacts. At a transportation bottleneck, Jedaick offered access to higher volumes

of potential exchange partners, and would have been a magnet for individuals participating in such activity.

The diversity of rock types in the CbDd-4 chipped stone tool assemblage bears witness to this interpretation. Tools from Gaspé chert, Ingonish Island rhyolite (Cape Breton), Minas Basin agates, and Washademoak Lake chert, as well as others yet unidentified, are included.

Most numerous are artifacts made from Washademoak chert. This group is illustrated in figure 21. The presence of a fist-sized cobble of raw chert, along with many cores and flakes but few tools, indicates this material was carried to Jedaick in bulk.

The journey from Jedaick to Washademoak Lake was on a heavily traveled route from Nova Scotia to Quebec via the St. John River. Ascending the Shediac River, then portaging to Halls Creek, canoeists would await the tidal bore, and then ride it up to the head of tide on the Petitcodiac at Salisbury. Ganong's (1899) map shows the route (figure 20). The portage went from there to the headwaters of Nevers Brook, then to the Canaan River and so into Washademoak Lake.

The presence of the Late Woodland projectile point (figure 21a) places the use of Washademoak chert in temporal context.

One category of material for stone tools is available locally: white quartz. Artifacts made from this material are far more numerous than any other type at CbDd-4. However, they are mainly debitage flakes from flint knapping, the process used to make finished tools like those shown in figure 22.

Artifacts of non-local chert include examples from multiple sources around Nova Scotia's Minas Basin, distinguished by agate banding around quartz geodes, among other characteristics. Flakes and tool fragments are shown in figure 23.

In figure 24, item a is made from a coarse dark rock, possibly basalt, which is very uncommon. It is also longer, the basal notching is from the side, and not very deep. In contrast, the other specimens in figure 24 are notched in the corners, and quite deeply. Items b, c, d, and e are all typical Late Woodland, but the age of a is unknown, though it may be Archaic. Geological sources include: b, Washademoak chert; c, Minas Basin jasper; d, Minas Basin agate; and e, unknown.

Figure 25 shows bifaces, a class of artifacts that includes finished knives and arrowhead blanks that have not yet been notched. Only two of the six are from the same type of rock (a and b).

Unifaces, or tools that have only been flaked on one side, are illustrated in figure 26. The eleven specimens from CbDd-4 are made on at least eight different types of rock. This diversity suggests many opportunities to trade with fellow Maritimers existed in Jedaick in the half-millennium before European arrival.

EUROPEAN ARRIVAL

When the fur trade began in the early 1500's (Whitehead 1991), the Jedaick portages became even more heavily traveled. The French used the Shediak River route in 1750 to transport materials and weapons to build and defend Fort Beauséjour (Brun 1995).

During the mid-18th century, the "Jedaick Tribe of Mi'kmaqs," led by Chief Claude Atanaze, fought the British as allies of the French and Maliseet. Gunflints found at CbDd-4 testify to the continued use of stone tools by the Mi'kmaq at that time (figure 26). These artifacts were made by European flint knappers on European flint. The Jedaick Mi'kmaq got them by trade, as they acquired arrowheads from visitors to their bay before Europeans arrived.

Other vestiges of the historic period include several glass beads, also acquired by trade (figure 28). Furs were the principal, but not exclusive, commodity traded by the Mi'kmaq for such items.

In 1761, Chief Atanaze signed one of the Treaties of Peace and Friendship with King George III of England. This paved the way for colonization by British subjects. Sometime after 1797, the British penny in figure 29 was lost by someone at the CbDd-4 site at the mouth of the Shediac River. It signals a shift from an economy based on reciprocity to one based on currency.

CONCLUSION

The shores of Shediac Bay continue to reveal clues to a ten thousand year legacy of human adaptation to changing environmental and economic conditions. The Shediac Bay Watershed Association has taken a role in mitigating the inevitable loss of our shared human heritage in this rapidly eroding corner of the province. Their efforts have resulted in the compilation of this collection that tells us something of our past.

The fact that these artifacts were found eroded onto the beach should tell us something about our future.

ACKNOWLEDGEMENTS

The provincial SEED Program enabled the hiring of Mathurin LeBlanc, who assisted with the project for six weeks in 2001. The Shediac Marina, Town of Shediac, provided transportation to and from islands in the bay. Most of the artifacts from CbDd-4 were found by Sandra Leonard. The Shediac Bay Watershed Association provided logistical and financial support for this research.

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Figure 15. Archaic Period biface made from Ramah quartzite, a distinctive rock from a quarry on the north coast of Labrador. Artifacts of this circulated as far south as the Hudson River at the height of the Late Archaic period (5500 to 3500 BP). This artifact, found on a sand bar in Robichaud, N.B., is shown at actual size.



Figure 12. Biface and spurred endscraper from CbDd-4, both possibly made from Gaspé chert.

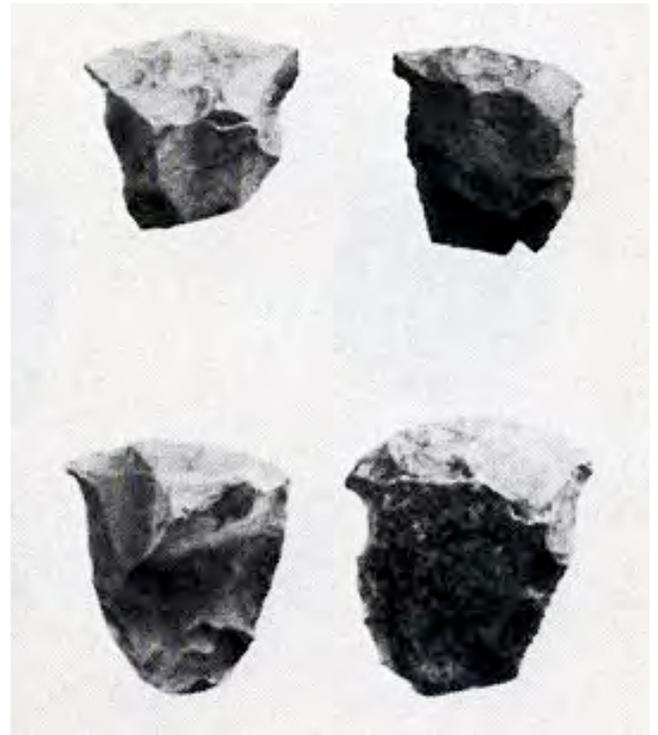


Figure 13. Spurred endscrapers from the Vail Paleoindian site in Maine.



Figure 14. Flake tools from CbDd-4, possibly Paleoindian. Combination scraper, cutter, piercer, graver tools.



Figure 8. 10,000 years ago



Figure 9. 9000 years ago



Figure 10. 8000 years ago.



Figure 11. 6000 years ago.

The shoreline of the Maritimes advanced following de-glaciation as the earth's crust rebounded with the melting of the Pleistocene ice caps, as depicted in figures 8 and 9. For the past 9000 years, the sea-level has risen and the land mass of the Maritime provinces has subsided. The coastline is still retreating. The modern shoreline is shown as a white line. Base maps by Dr. John Shaw: (<http://agc.bio.ns.ca/COASTWEB/sealevel/index.html>).

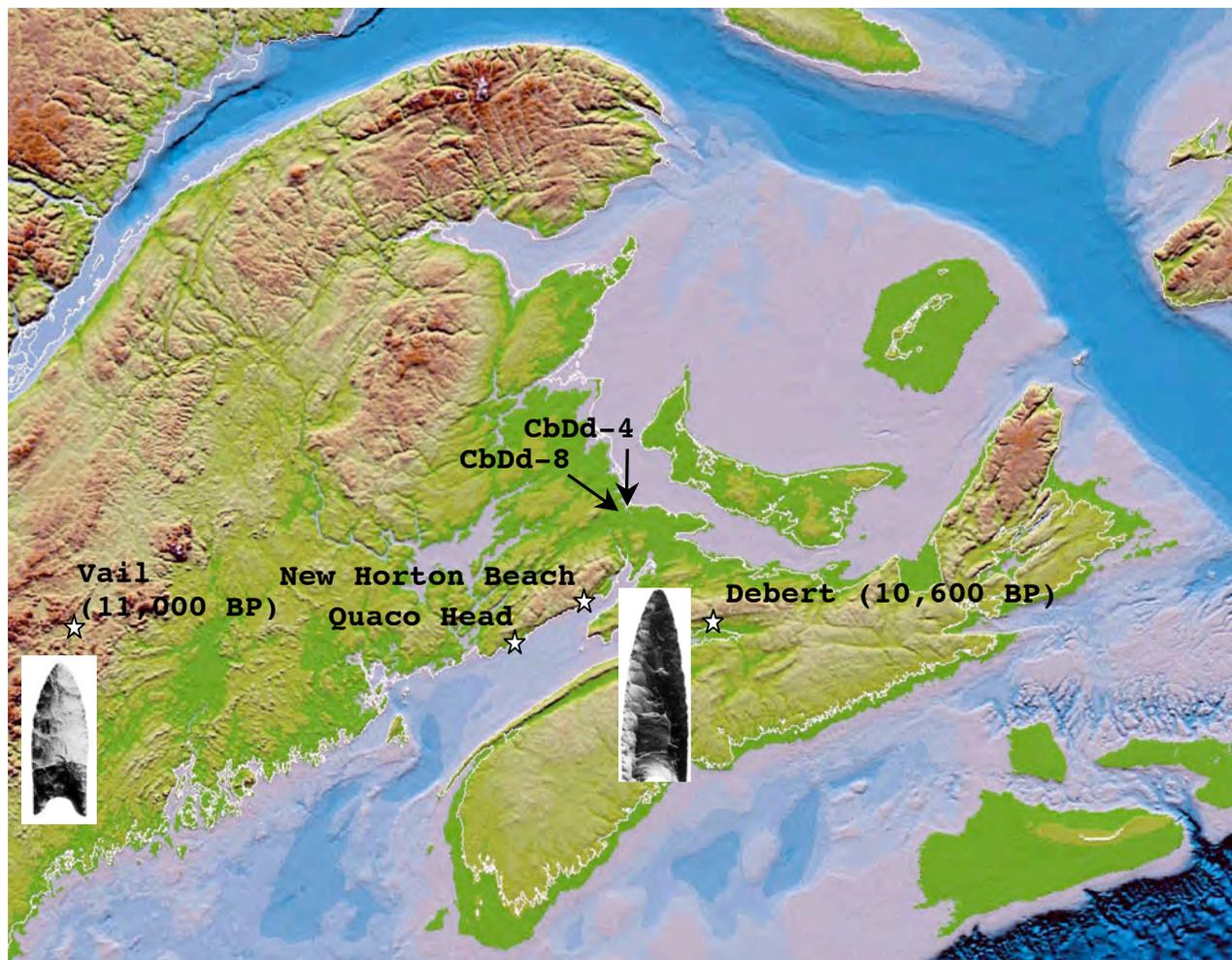


Figure 6. The Maritimes shoreline 11,000 years ago. Glacial ice caps are not depicted. Locations of Paleoindian sites and fluted point finds indicated.

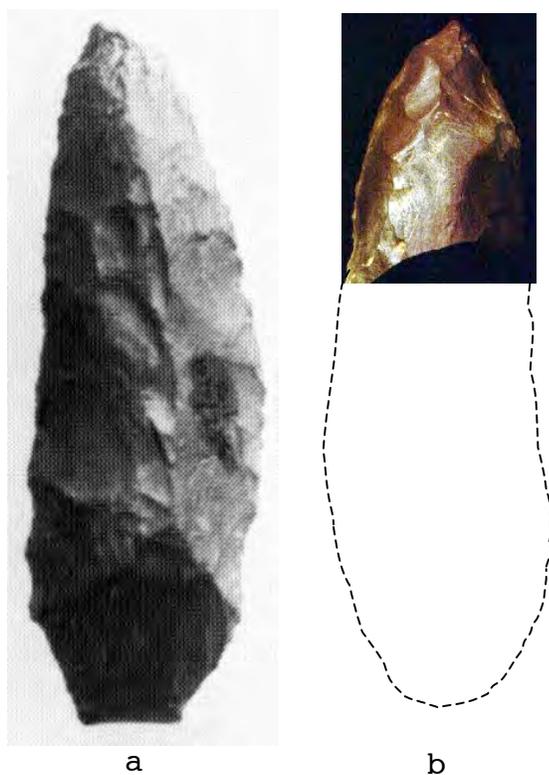
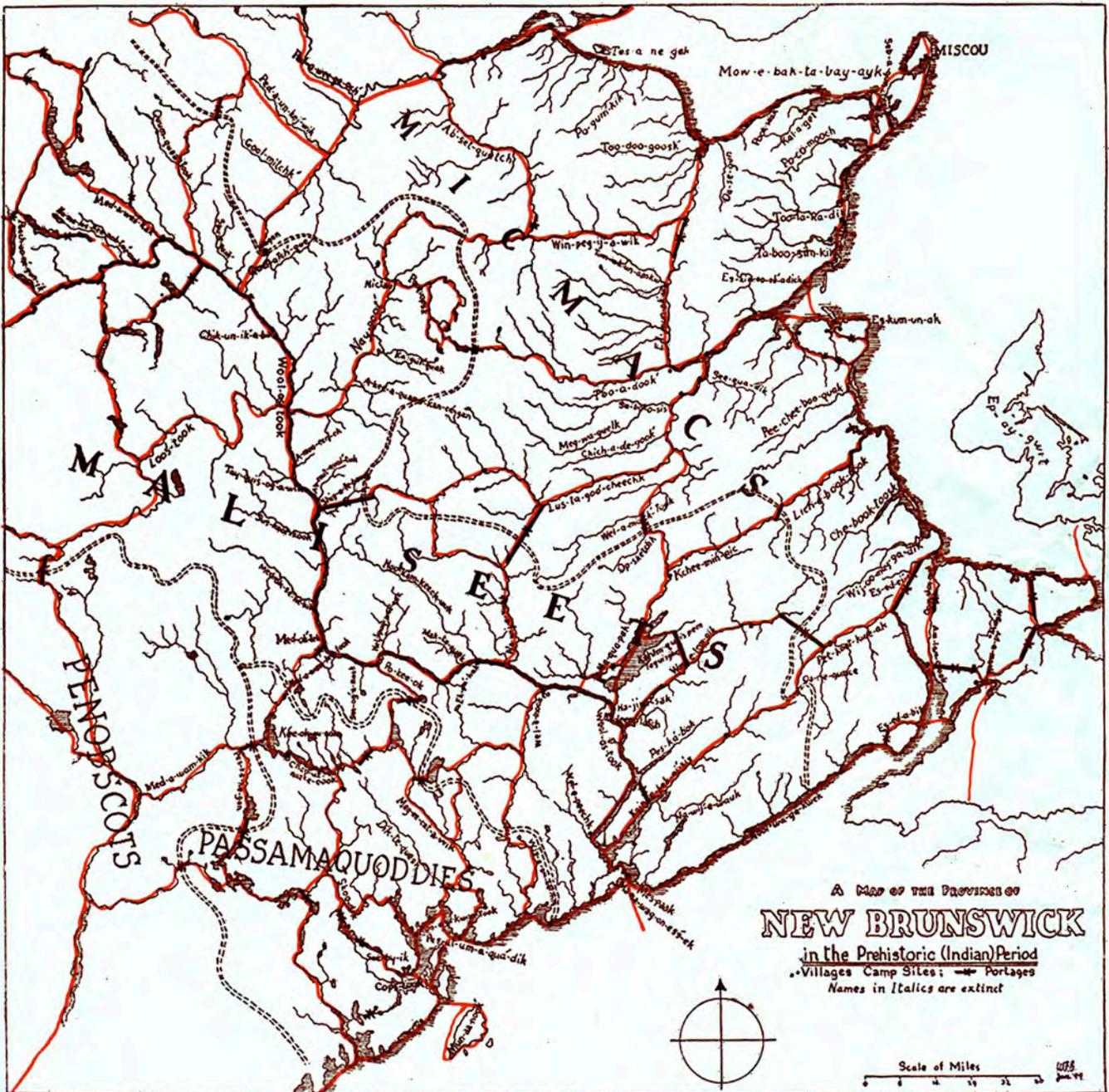


Figure 7. The stone tool at far left (a) is a limace from the Vail site. At right (b) is the tip of a limace from the Plow site (CbDd-8) in Bateman's Mills. Limaces (French for garden slug, which they resemble) are unique to the Paleoindian time period in the Maritimes.



Figure 21. Washademoak chert artifacts from CbDd-4. Items b and c, two scrapers, may be on a similar chert from a different source; further testing is required. However, based on comparison with specimens collected at Washademoak Lake, the remaining artifacts are from there. Given the preponderance of cobbles, cores and flakes, as opposed to finished tools, it seems to have been transported to Jedaick in bulk and worked there into artifacts such as the corner-notched Late Woodland (AD 900-1500) arrowhead (a). The colour ranges from brilliant orange to pearly translucent, but the waxy lustre is uniform.



MAP OF NEW BRUNSWICK IN THE PREHISTORIC PERIOD

Indian routes of travel shown in red

(By courtesy of Dr. W. F. Ganong)

Figure 20. Pre-Contact transportation routes marked in red by Ganong (1899). The more traveled routes are indicated by wider lines.



Figure 17. CbDd-4 rocks abraded to produce red ochre (actual size).

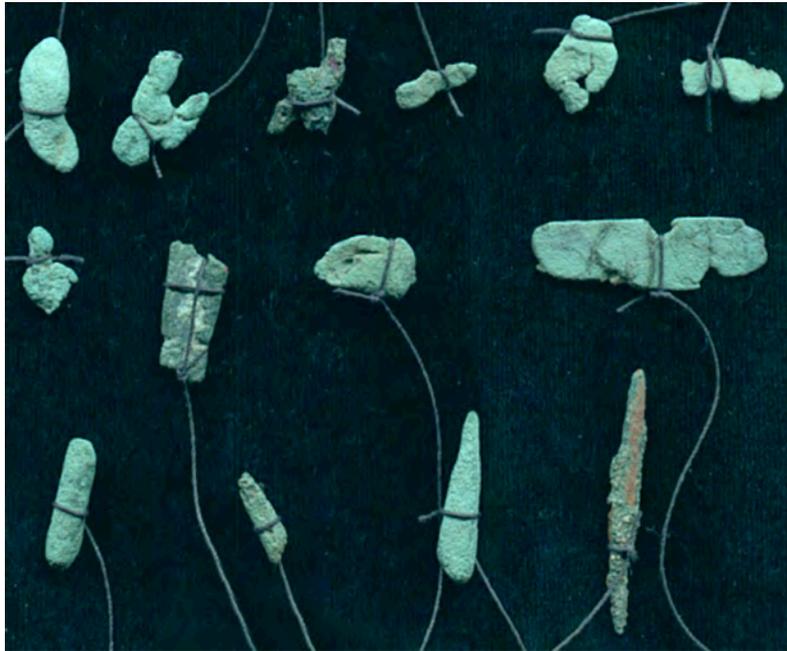


Figure 18. Copper artifacts collected at CbDd-4 (actual size).

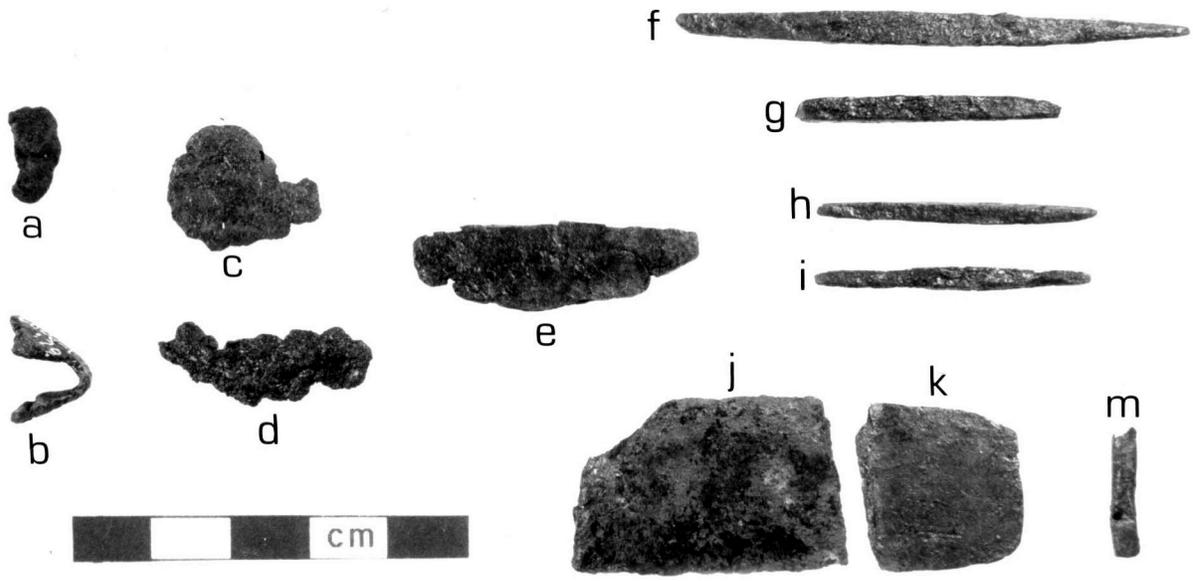


Figure 19. CbDd-1 and -2 copper artifact production sequence (Figure 42 in Leonard 1996:291).

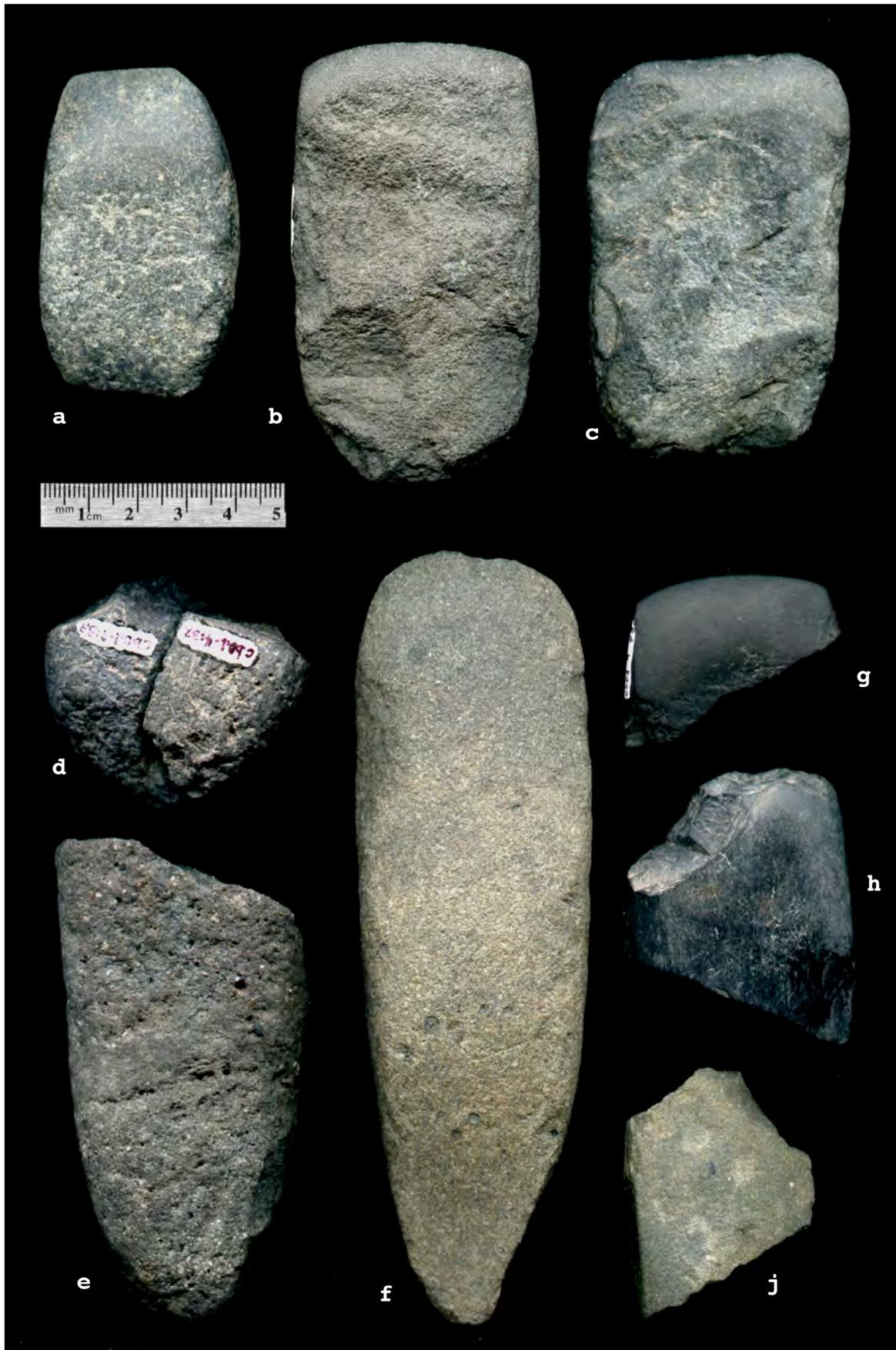


Figure 16. Ground stone tools from CbDd-4.



Figure 27. Gunflints from CbDd-4 (except h, from CbDd-1).

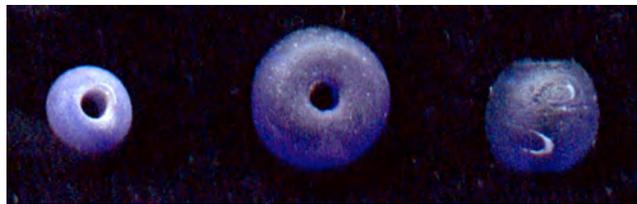


Figure 28. Glass trade beads from CbDd-4. Middle one is 1 cm diameter.



Figure 29. British "Soho" penny with profile of George III on obverse and Britannia, 1797 on reverse. 35 mm diameter.

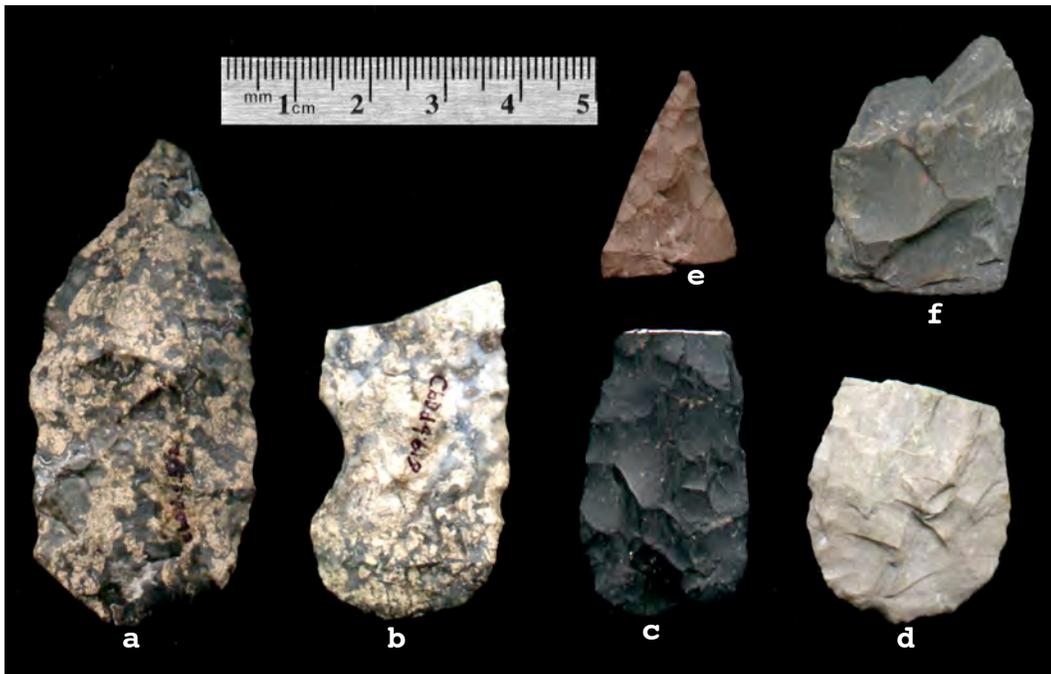


Figure 25. CbDd-4 bifaces. Item b was converted to a spokeshave, for trimming arrow shafts, presumably after the tip broke.



Figure 26. Scrapers from CbDd-4 on at least eight different cherts.



Figure 23. Tool fragments and flakes on jasper with agate banding around geodes (center) from the Minas Basin area of Nova Scotia.

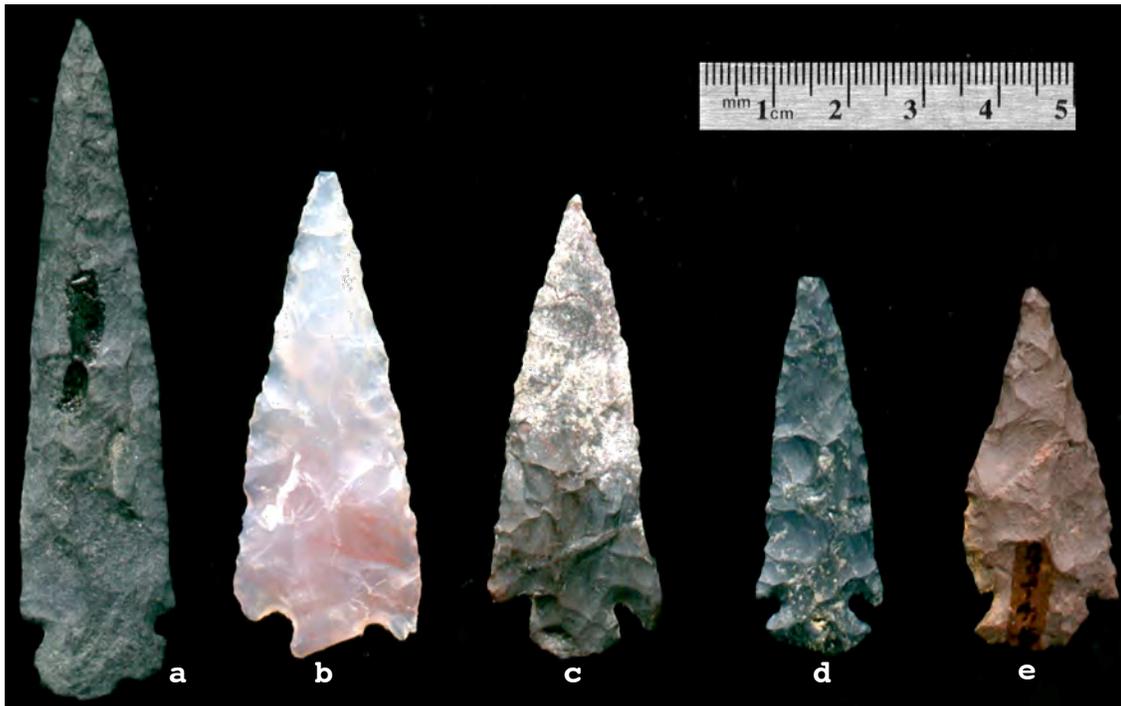


Figure 24. Projectile points from CbDd-4. Form and material of all but a are typical of the Late Woodland period. All on rock from different sources.



Figure 22. Quartz artifacts from CbDd-4. Top row from youngest to oldest: a, Late Woodland; b, Late Woodland; c, possibly Middle Woodland; and d, Late Archaic. Row e includes bifacial knife fragments; rows f and g are scrapers.