Chapter 13

Chipped Stone Bifaces as Cultural, Behavioural, and Temporal Indices on the Central Canadian Plateau

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Over the last three and a half decades, archaeological investigations on the Canadian Plateau have resulted in definition of several ubiquitous and distinctive chipped stone formed bifacial projectile point and knife types. Many have been successfully employed as temporal horizon markers for relative dating, others for interpreting and reconstructing past human behaviour, and a few have been used for developing models of cultural/ethnic group origins, identity, and inter-regional group interaction. This chapter provides general and detailed descriptions of recognized "diagnostic" biface types found on the central aspect of Canadian Plateau (Figure 1) over the last 11,000 years. It also summarizes what is currently known about initial appearance and termination dates for various bifacial implement forms and their persistence through time; suspected and/or demonstrated functions or activities related to specific biface types; and models put forth to explain and account for culture change, ethnic group origins and migrations, and participation in inter-regional interaction spheres.

The study area includes the central aspect of the Canadian Plateau, which is comprised of the Mid-Fraser, Thompson, North and South Thompson, Shuswap, North Okanagan, and South Chilcotin/Cariboo drainage regions (Figure 1). Here, a suspected 11,000 year-long succession of unique hunter-gatherer-fisher cultures introduced, invented, and/or adopted a myriad of successful technological, subsistence, and settlement strategies employed to successfully extract and utilize resources within a wide range of local environmental niches, and to cope with significant environmental and climatic changes spanning many millennia. Chipped stone bifaces were an important and integral aspect of these cultural and technological systems, and with the proper reconstruction and understanding of their role(s) and significance, a great deal of behavioral and ethnic information can be inferred from them.

The Early Prehistoric (pre-contact) Period from ca. 11,000 to 7000 BP is still very poorly understood, nevertheless, both solid and tenuous data have been gathered. Rousseau (1993) and Stryd and Rousseau (1996:179–185) have summarized what is currently known, and additional information is presented herein. Knowledge about the Middle Prehistoric Period (ca. 7000 to 3500 BP) is grounded and reconstructed from a more extensive and reliable sample of empirical data, but even so, much remains to be learned and clarified about this time as well. Most of what we can confidently reconstruct and extrapolate from Canadian Plateau biface technologies relates to the Late Prehistoric Period (ca. 3500 to 250 BP), as most investigated and recorded sites fall within this age range.

Early Period Bifaces (11,000 to 7500 BP)

Early Holocene peopling of South Central BC may have begun as early as 11,500 BP. This conjecture

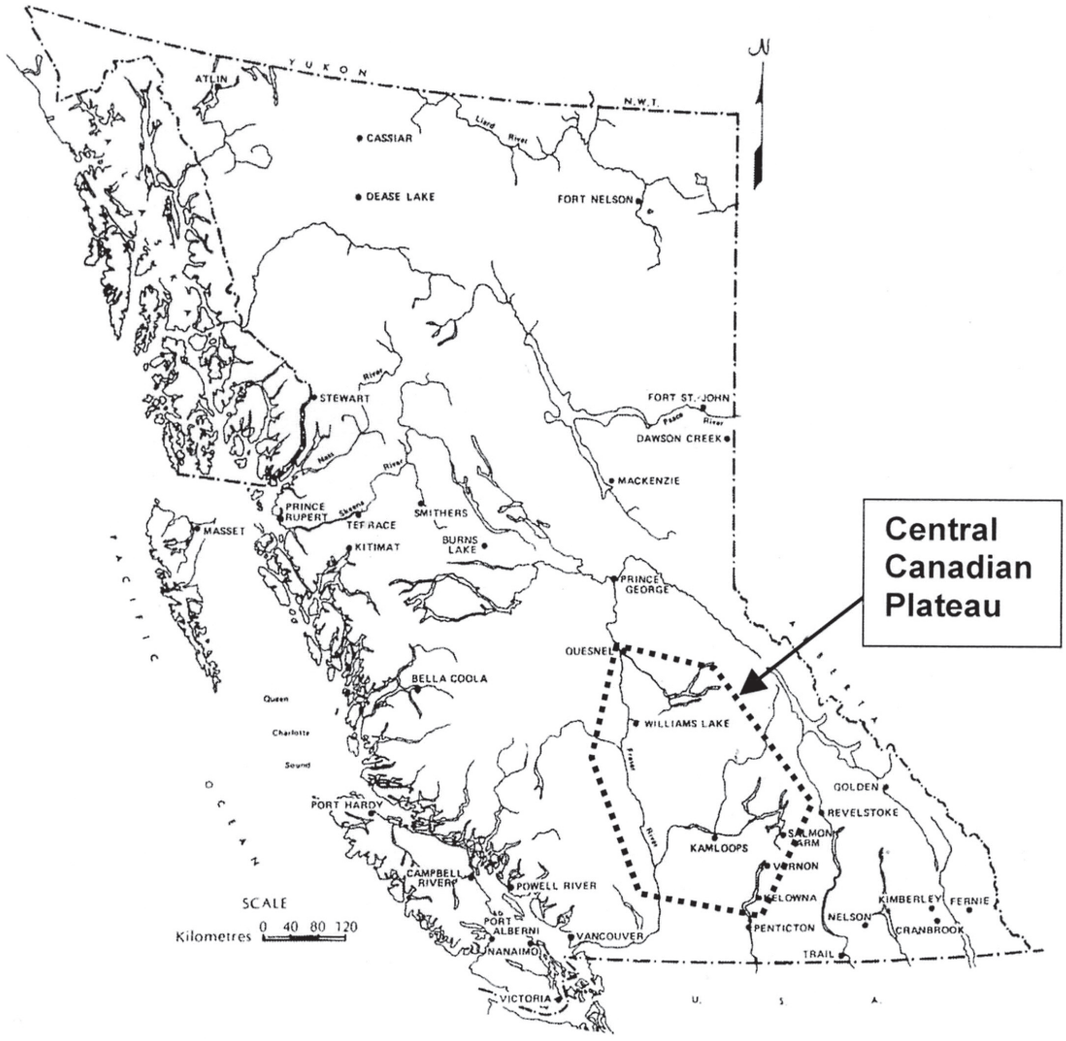

Figure 1. The Central Canadian Plateau in south-central British Columbia.

is based partly on paleoenvironmental studies that indicate flora and fauna were well established by this time and many local environments could have supported highly mobile big-game hunters (Clague 1981, Hebda 1982, Mathewes 1984, Mathewes and Rouse 1975). Several medium-size and large bifaces observed in several southern B.C. museums and private collections have marked striking resemblance with forms attributable to the Western Fluted Point, Intermontane Early Stemmed Point, Plano, and Early Pebble Tool technological traditions (Carlson and Dalla Bonna 1996). Some specimens I have encountered over the years are shown and discussed here, and undoubtedly there is a wealth of untapped additional evidence and information in private and museum collections throughout southern B.C.

Western Fluted Point/Post-Clovis Biface Tradition (10,700 to 9500 BP)

Components containing bifaces attributable to the "Western Post-Clovis" period dating from about 10,700 to 9500 BP have not been conclusively identified during any detailed archaeological excavations undertaken on the Canadian Plateau. What we currently know about it in the Pacific Northwest has been provided by data from Charlie Lake Cave in north-central B.C. (Fladmark et al. 1988; Fladmark 1996; Driver 1996), the Minne-

wanka Site in Banff National Park in the Canadian Rockies (Fedje 1996), Pink Mountain in northeast B.C. (Wilson 1996), Sibbald Creek in the Alberta foothills, (Gryba 1983, 1985; Vickers 1986) and the Ritchie Clovis cache on the northern Columbia Plateau near Wenatchee (Mehringer 1988; Gramly 2004). A summary overview and insightful discussion of Pacific Northwest fluted and basally thinned triangular points dating from 11,000 to 9500 years BP has also been presented by Carlson (1991). Despite the present absence of excavated data for this period on the Canadian Plateau, I believe it can be confidently expected that components belonging to this early tradition do indeed exist, since medium-size and large biface forms closely resembling other Post-Clovis "Western" variant basally thinned points have been identified in museum and private collections (Figure 2) (Copp, this volume).

In the Kamloops locality, two large, well-made, triangular chalcedony bifaces with V-shaped concave basal margins (Figures 2a,b) are presently being stored at the Kamloops Museum. The exact recovery provenience for these two bifaces is not known, but the remainder of the associated donated collection is comprised of common local artifact types and lithic raw materials, thus there is no reason to suspect that these items were acquired extra-locally. These two specimens bear similarity to some of the large fluted points found with the Richie Clovis cache (Gramly 2004). Both have been resharpened, and they were probably much longer originally. A unique feature is asymmetric basal-lateral "ears", and multiple sequential large thinning flakes initiated along the basal margins (Figure 2a, b). Slight to moderate edge grinding is also evident along basal and basal-lateral margins. The source of the high quality, semi-translucent, mottled white/brown chalcedony is not known, but it may have been quarried locally from the Arrowstone Hills northwest of Kamloops, or Ducks Range/Monte Lake area to the southeast, since similar high-quality siliceous lithic materials are found there in small quantities. It is also possible that the chalcedony was derived from more southerly and distant sources on the Columbia Plateau, since these high quality materials are known to be much more naturally common there, and it is not unusual to link fluted points with lithic sources that may be several hundred kilometers distant from their recovery location.

There are two more triangular bifaces from the Shuswap Lake locality that exhibit some "Classic Clovis"-like formal characteristics. The first specimen (Figure 2c) is from a private Shuswap Lake collection donated to the Kamloops Museum, but its exact recovery location on the lake is not known. It is a nearly complete specimen made from an exotic mottled and banded opaque orange/brown/yellow/white chalcedony. The source of this very distinctive material is not known to me, but again, a Columbia Plateau origin is possible. This specimen also exhibits bifacial sequential removal of multiple basal thinning flakes from along the slightly concave basal margin, but it lacks any obvious basal edge grinding. Formally, it is very similar to many of the bifacial blades associated with the Richie Clovis Cache, and with a Western Fluted Point specimen (Figure 2f) recovered from a gravel quarry in Grand Forks, B.C. (Copp, this volume).

The second Shuswap Lake specimen (Figure 2d) was recovered about 50 cm below ground surface immediately above glacial gravels during the hand-excavation of a deep pit at a site on Quaaout Indian Reserve No. 1 at the west end of Shuswap Lake (Equinox Research and Consulting Ltd. 2004:27–28). It is a medium-size, triangular biface made from a high quality semi-translucent orange/yellow chalcedony. The raw material is not locally familiar, and it may have an origin on the Columbia Plateau where similar orange and caramel chalcedonies are known to be abundant. Its lateral margins suggest that it was resharpened at least once, and that originally it was slightly longer. Multiple basal thinning flakes along an irregular basal margin are evident, but are not pronounced. Future detailed excavations at this site should be initiated to determine whether or not an intact Western Fluted Point tradition component exists there.

A small, triangular, semi-translucent, white speckled chert fluted point (Figure 2e) found on the east side of Ellison (Duck) Lake in the North Okanagan region is in a donated private collection at the Kelowna Museum. It is virtually identical to several of the small fluted/thinned points found at the Minnewanka site in Banff National Park (Fedje 1996:41). The site from which the point was collected is known, but no formal archaeological investigations have been conducted there. Multiple basal thinning flakes are present along a shallow concave margin. The raw material is not relatable to any

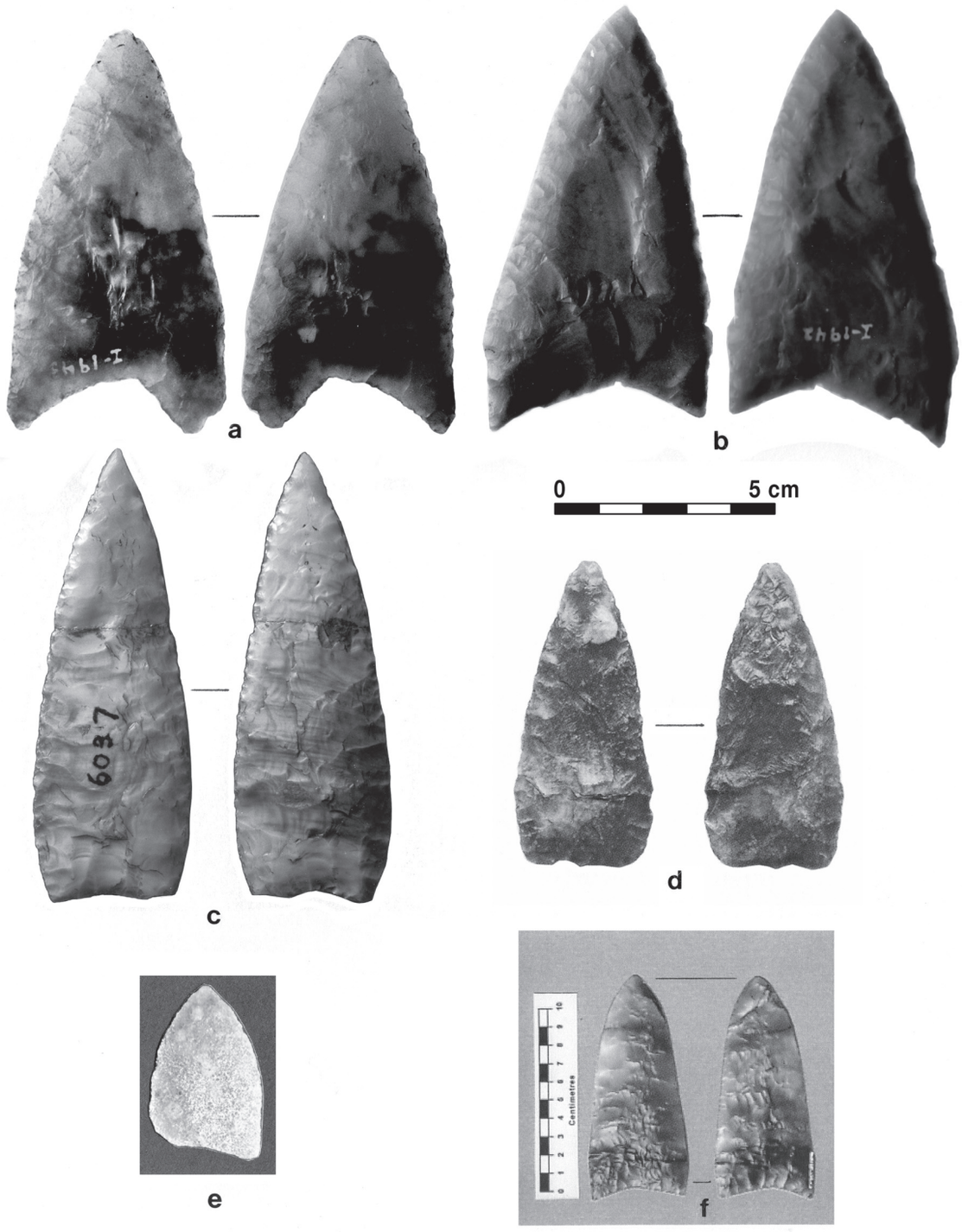

Figure 2. Canadian Plateau bifaces provisionally assigned to the post-Clovis Western Fluted Point Tradition (10,700–9500 BP). a, b: Kamloops locality (Kamloops Museum); c: Shuswap Lake area (RBCM collections); d: Quaaout Indian Reserve near the western end of Little Shuswap Lake (Little Shuswap Indian Band collections); e: Ellison (Duck) Lake near Winfield (Kelowna Museum collections); f: a very well-made specimen from Grand Forks (see Chapter 14).

known local lithic sources, but may have a northern B.C. origin (Fladmark, pers. comm. 2003).

Carlson (1991) has presented a good case for the presence and persistence of "Clovis-like" biface technology in the Pacific Northwest from about 10,500 to 9500 BP, and he surmises that regional expressions are direct "derivatives" of earlier Classic Clovis fluted point technology. Bifaces of this post-"Classic Clovis" period have been referred to as "basally-thinned triangular" (Vickers 1986), "basally-thinned broad" (Gryba 1987), "multiple-fluted/basally thinned" (Carlson 1991), and "Western Fluted" (Rousseau 1993, 1996). It is my opinion that these monikers are somewhat cumbersome, a bit misleading, and also overemphasize the significance of basal thinning. Perhaps "Western Post-Clovis" is a better and simpler term for these lanceolate and triangular basally-thinned point types.

It is clear that much remains to be learned about the post-Clovis "Western Fluted Point Tradition" on the Canadian Plateau. Nevertheless, the scant evidence coupled with solid excavated data from surrounding culture areas suggests that there may be a unique regional expression of this post-Clovis tradition in the Fraser, Thompson, and North Okanagan drainages. Future research may reveal that small to medium-sized lanceolate and triangular points with multiple bifacial basal thinning flakes are common in components in the Canadian Plateau and in central and northern B.C. between about 10,500 and 9500. Larger chalcedony forms with asymmetric basal "ears" such as those evident on the two large bifaces from the Kamloops locality (Figures 2a,b) may be slightly earlier (11,000 to 10,000 BP); and the "asymmetric ears" and V-shaped basal margin may represent trait variations that are exclusively unique to the Canadian Plateau at this time.

Early Intermontane Stemmed Point Tradition (10,500/10,000 to 8500 BP)

No intact components attributable to the Early Intermontane Stemmed Point Tradition have been identified or investigated in South-Central B.C. However, several private and museum collections contain large stemmed bifaces (Figure 3) with formal similarity to early stemmed points found in the Great Basin (Bryan 1980), the Columbia Plateau (Carlson 1983a; Leonhardy and Rice 1970; Lohse, this volume; Moody 1978; Rice 1972), Kootenay area (Choquette 1987, 1996), and in Banff National Park (Fedje 1996:41). Some (Figure 3a–g) are identical or very similar to "Windust" forms of the Lower Snake River and others are large lanceolate forms with contracting stems and incipient shoulders (Figure 3h,i). Many of the specimens shown in Figure 3 lack known site-specific provenience, but they are from private collections donated to local museums throughout southern B.C. Some general location information is available, but to my knowledge no professional efforts have been made to pursue these leads.

Complete specimens are typically large (>10 cm long), moderately to relatively thick (0.5 to 1.0 cm), with overall lanceolate forms (Figure 3) and lenticular cross-sections. Shouldering is slightly to moderately pronounced, and moderate to pronounced edge-grinding is present on lateral margins, and along straight, slightly concave, and convex basal margins. Some specimens are heavily patinated (e.g., Figure 3h) and/or weathered and worn by chemical and abrasive processes (e.g., Figure 3a, d, e, g), attesting to their appreciable age. These bifaces undoubtedly functioned as both thrusting spear tips and knives, and resharpening and/or refurbishing is indicated on some specimens (e.g., Figure 3b, d, f). Lithic raw materials types are variable, with some known local types (e.g., basalt/dacite) being represented. A specimen from the Lytton locality (Figure 3e) is made of jet black obsidian.

While there is still ongoing unresolved debate as to whether Early Stemmed Point tradition(s) of the Pacific Northwest pre-date or ante-date the Western Fluted Point Tradition, future research may confirm the rare presence of components belonging to the Early Stemmed Point tradition on the Canadian Plateau from 10,500/10,000 to 8500 years BP. I suspect that any such components will be best represented in the North Okanagan, Shuswap Lakes, and Thompson River regions, as they have direct geographic contiguity with the Columbia Plateau to the south where this early tradition is well known and documented.

Plano Tradition (9500 to 8000 BP)

In numerous southern B.C. museum and personal collections there are low numbers of well-made bifaces (Figure 4) displaying very prominent tech-

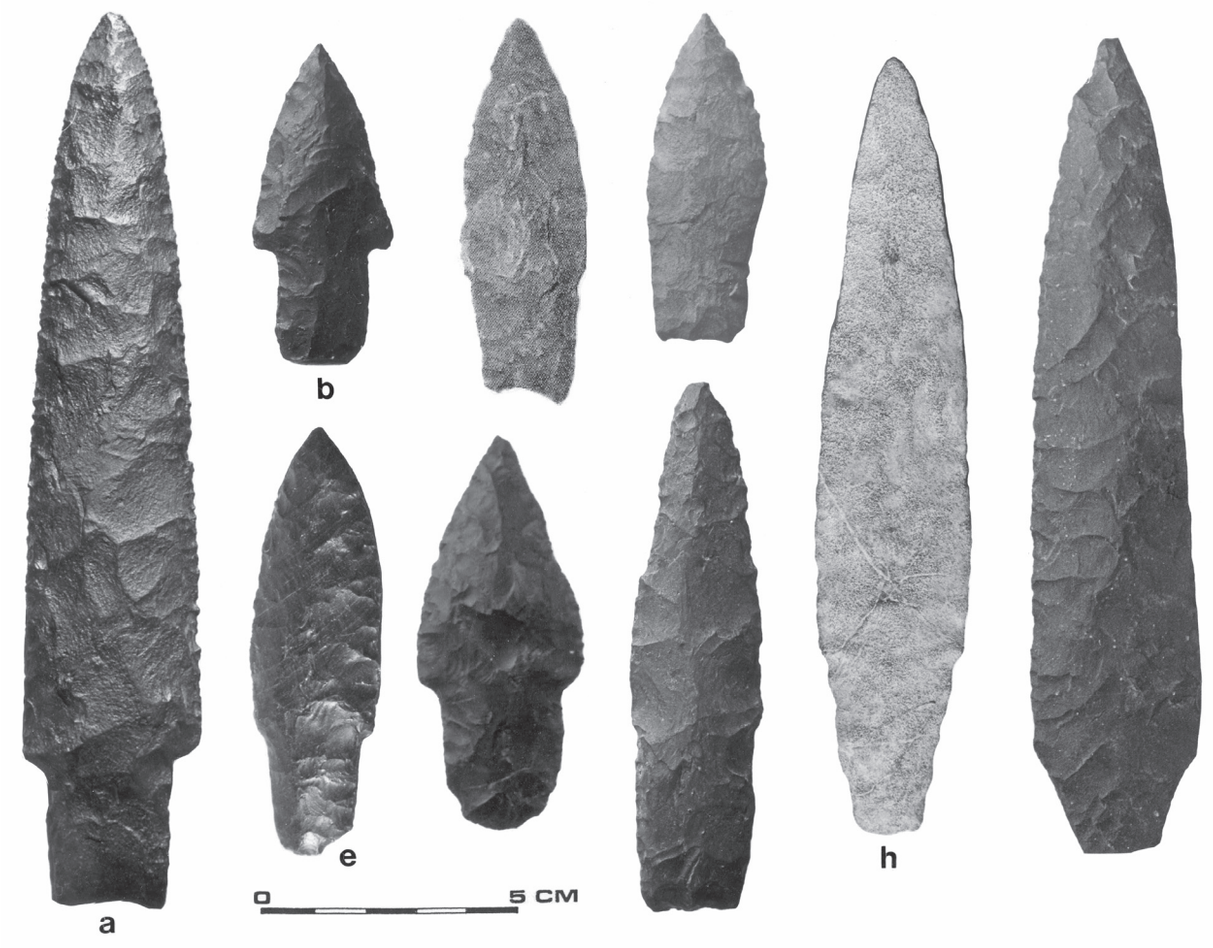

Figure 3. Bifaces assigned to the Early Stemmed Point Tradition (11,000/10,500–9000 BP). a: Chase locality (Chase Museum collections); b: site EdRa–1, South Thompson River; c: Shuswap Lake area; d: Bridge Lake locality; e: Lytton locality; f: Cache Creek locality; g: Lillooet locality; h: Skaha Lake locality; i: Kamloops locality.

nological and formal similarity to those defined for the Plano Tradition of the Northern Plains dating between ca. 10,000 to 9,000 BP (Wormington 1964, Wormington and Forbis 1965, Frison 1978, 1983). Components attributable to the Plano Tradition have yet to be identified and investigated in south-central B.C., but they are known from the northern half of the province (Howe and Brolly, this volume; Magne and Matson, this volume; Wilson 1996), and "Plano-esque" bifaces have also been recovered from sites in Banff National Park (Fedje 1996), and on the eastern slopes of the Rockies.

Most of the specimens shown in Figure 4 were selected from numerous collections originating from the Thompson River drainage area, and several can be linked with known sites. Many of them are identical to, or within the formal range of variability known for specific classic formal types such as Alberta/Scottsbluff (Figure 4a–e), Agate Basin/Eden/Lusk (Figure 4f, j) and Hell Gap (Figure g–i). Most specimens display well-controlled, successively initiated, parallel or collateral pressure flaking (Figure 4b, d, e–f); which is very characteristic of Plano biface technology. Edge-grinding is evident along the baso-lateral and basal margins of the majority of the specimens. Both local basalts/dacites and "exotic" cryptocrystalline silicate lithic raw material types are represented, and there is an obvious selective preference for chalcedonies and cherts.

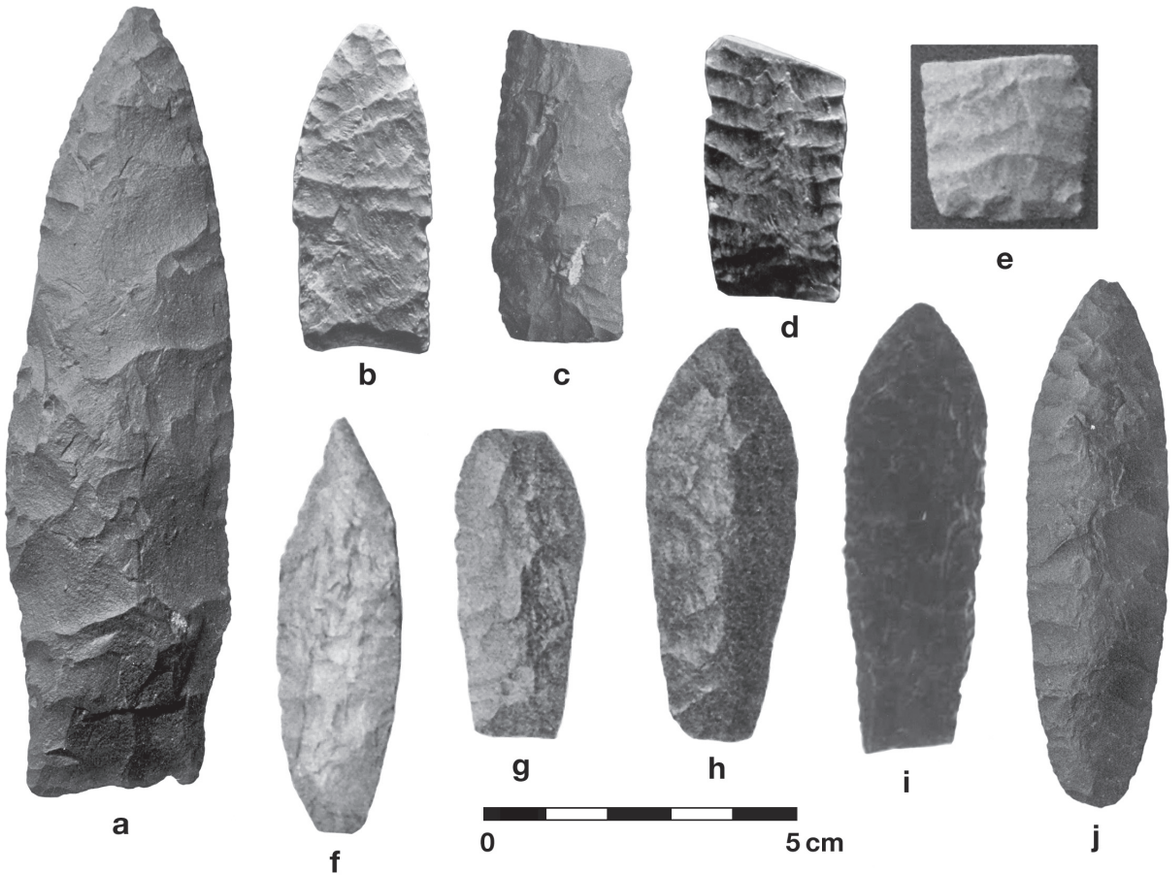

Figure 4. Bifaces of the Plano Tradition (9500–8000 BP). a: Lytton Locality; b: Chase locality; c: Clinton locality; d–f: Chase locality; g: Pavilion locality; h: site EdRk–8, Texas Creek locality; i: site EfRo–10, Dragon Lake; j: Kamloops locality.

Of interest is a biface (Figure 4i) recovered during a detailed excavation undertaken at site EfRo 10 located at the south end of Dragon Lake near Quesnel (Lawhead 1980:26). It is a large well-made lanceolate point with close formal resemblance to Hell Gap forms on the Northern Plains. Associated items include a triangular biface and several other large biface fragments that may also have considerable antiquity. Unfortunately this assemblage has not been analyzed in detail, and no radiocarbon dates are available. Lawhead (1980:65) remarks that several local collections from nearby sites contain "early" point styles, and microblade technology is represented.

While current evidence is scant for conclusive presence for "pure" Plano biface technology on the Canadian Plateau, I suspect one or two sites containing bifaces with Plano-like technological attributes will eventually be found and investigated within the next couple of decades. I offer that the Shuswap and North Okanagan regions hold the most promise for Plano components, which should date to the 9500 to 8000 BP range. Also, it has been noted by several researchers that the large well-made bifaces of the Early Nesikep Period (see below) have several attributes similar to Plano biface forms of the Northern Plains and elsewhere in the Pacific Northwest. It may be that some technological aspects of Early Nesikep Period biface technology were derived directly or indirectly from people participating in the Plano tradition prior to 8000 BP.

Old Cordilleran/Early Pebble Tool Tradition (9000 to 6000 BP)

Known by many names, this early cultural manifestation has been identified at a large number

of sites on the Columbia Plateau, Lower Fraser River region, and along the southern and central Northwest Coast (Borden 1968, 1975; Butler 1961, 1965; Carlson 1983a, 1983b, 1996; Fladmark 1982; Haley 1996; Lohse, this volume; Matson 1976, 1996; McLaren and Steffen, this volume; Mitchell and Pokotylo 1996). Hallmark diagnostic implement forms belonging to this simple and limited lithic technological tradition includes cobble/pebble chopper/cores; medium-size and large flake tools and accompanying secondary lithic reduction waste; and large leaf-shaped, lozenge-shaped, and elongate tear-shaped knives with basal-lateral edge grinding (Figure 5).

The best-known and most extensively investigated component of this tradition was identified at the Milliken Site (DjRi 3) near Yale on the lower Fraser Canyon, where large foliate bifaces were recovered from components dating between 9000 and 8500 years BP (Borden 1968, 1969, 1975; Mitchell and Pokotylo 1996). The Milliken Site lies just outside the study area in the Lower Fraser Canyon, which is contiguous with the Mid-Fraser River region, where I believe this early technological tradition is well represented (see Chapter 1). Components belonging to the Early Pebble Tool Tradition have not been excavated on the Canadian Plateau, but it is important to note that with exception of the Lillooet and Lytton localities, vast portions of the relatively undeveloped Mid-Fraser River region remain to be subjected to archaeological investigations of any kind, and it is likely that occupations relating to this early technological tradition are deeply buried and difficult to identify.

Large, heavily patinated and weathered, leaf-shaped and elongate tear-shaped bifaces similar to those recovered from the Milliken Site and other Pebble Tool Tradition sites on the Lower Fraser River, have been observed by several researchers and myself at sites in early Holocene geologic contexts at disturbed and exposed sites in the Mid-Fraser and Thompson River regions (see Chapter 16). Many private and museum collections from these drainages also contain large bi-points that may be linked with this early technological tradition. Examples of selected random museum collection specimens, and bifaces from the Dutch Lake locality in the North Thompson River valley (Sanger 1970) are shown in Figure 5.

Many "Old Cordilleran" bifaces are moderately to fairly thick (0.5 to 1.0 cm), and were produced from large blade-like flake blanks using primarily

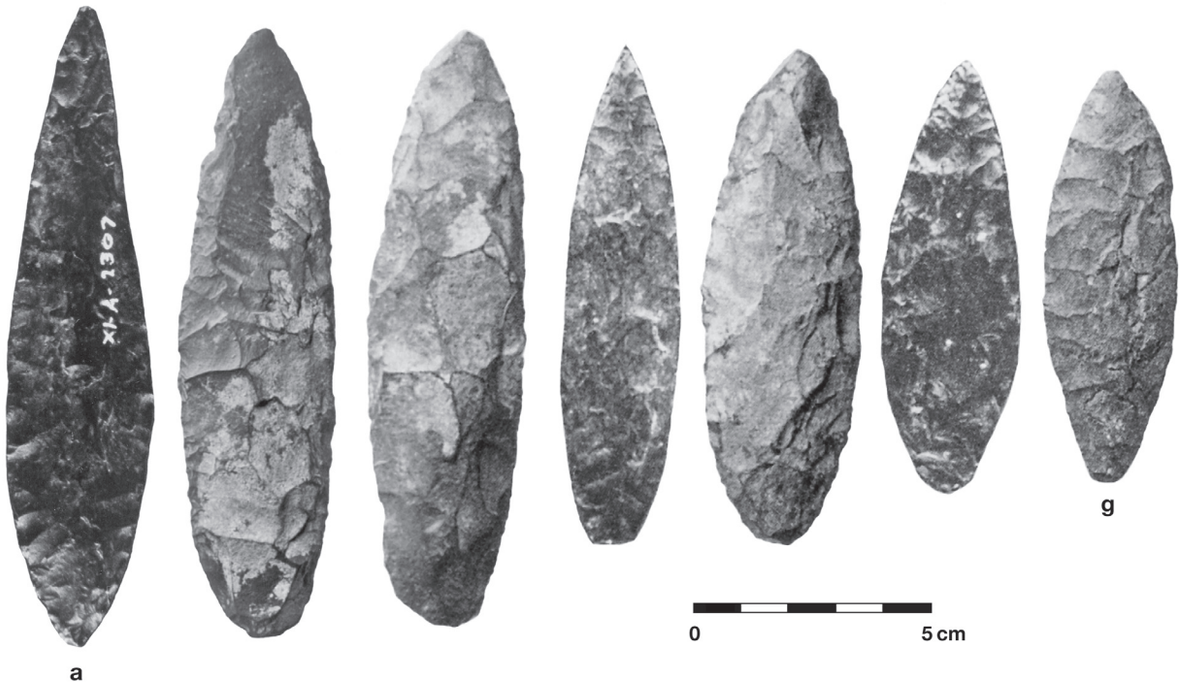

Figure 5. Large foliate bifaces of the Old Cordilleran/Early Pebble Tool Tradition (9000–6000 BP). a, d, f: Dutch Lake locality, North Thompson River; b: Lillooet locality; c, e, g: Lytton locality.

direct freehand hard-hammer percussion, with some pressure flaking being executed to finish and/or resharpen some specimens. Slight to pronounced basal and basal-lateral edge grinding is evident on many bifaces. A very slight or barely perceptible indent or "shouldering" is sometimes evident along one lateral edge about ⅓ the way up from the base. Patina development on some examples is moderate to advanced (Figure 5b, c, e), lending further (albeit somewhat contentious) support to the suspicion that some of these early foliate points have a respectable antiquity. Most of these large foliate bifaces were made from locally quarried, fair to good quality, metamorphosed siliceous siltstones and fine to medium grained basalts/dacites. Use of exotic silicates is very rare. Their overall form suggests primary use as knives; presumably to process primarily salmon and large game, but no doubt they were also used to execute a wide variety of everyday cutting-related tasks.

Nesikep Tradition Bifaces of the Middle Period (7500/7000 to 4500 BP)

The Nesikep tradition was first defined by Sanger (1969, 1970), who proposed a 7000 year-long cultural continuum culminating in ethnographic Interior Salish culture. This tradition has been shortened and redefined by Stryd and Rousseau (1996:187–191) and Rousseau (2004a:4–12). Excavated reliable data secured from Nesikep Tradition sites are sparse, but they allow a general reconstruction of subsistence and settlement (see Lawhead and Stryd 1985; Rousseau et al. 1991; Rousseau 2004a:3–12; Sanger 1970; Stryd 1972; Wilson 1991). The initial appearance, cultural origins, and duration of the Nesikep Tradition remains unknown, although it may have emerged in the Mid-Fraser and Thompson River drainages as early as 7500/8000 BP. However, this remains to be shown and supported by reliable excavated data and radiocarbon age determinations.

The mere handful of excavated Nesikep Tradition components, and data secured or observed at several sites during routine site surveys and inventories conducted in the Thompson and Mid-Fraser River drainages, permit a basic reconstruction of Nesikep Tradition technologies, adaptive strategies, and other aspects of their lifeways (see Gehr 1976; Lawhead and Stryd 1985; Lawhead et al. 1986; Rousseau 1991, 2004a; Rousseau and Richards 1988; Rousseau et al. 1991; Sanger 1970; Stryd 1972; Stryd and Rousseau 1996; and Wilson 1991). The Nesikep Tradition is further divided into the *Early Nesikep* period (7500/7000 to 6000 years BP), which is followed by the *Lehman Phase* (6000 to 4500 BP) (Rousseau 2004a:4–12; Stryd and Rousseau 1996:187–197). A culture history schematic for the Middle and Late Periods is presented in Figure 6.

Bifaces of the Early Nesikep Period (7500/7000 to 6000 BP)

For the Early Nesikep period (ca. 7500/7000 to 6000 BP) biface assemblages include very distinctive, medium-size to large, thin, finely flaked bifaces (Figure 7) that attest to superb technical skill and close adherence to a specific formal and functional theme that persisted for at least one millennium, and possibly considerably longer. Most complete bifaces are well-made, relatively thin, lanceolate in overall formal outline, have straight, slightly convex or recurved lateral margins, and thin lenticular cross-sections. A few specimens (~10%) have micro-serrated edges (e.g., Figure 7h, l, q, gg), presumably to enhance internal cutting and/or hemorrhaging efficiency. Distinctive attributes of Early Nesikep Period bifaces include: (1) V-shaped corner notches that create shoulders with slight to pronounced "hooked" lateral barbs; (2) parallel to slightly expanding basal-lateral margins; (3) straight or convex basal margins; and (4) slight to pronounced basal and basal-lateral edge grinding. Other bifaces associated with Early Nesikep occupations include un-notched triangular (Figure 7ll) and ovate forms that are likely point/knife performs or unhafted knives.

Intentional bifacial basal thinning by sequentially removing large pressure flakes from along straight or concave basal margins is readily evident on many of the examples shown in Figure 7. Moderate to pronounced basal edge grinding facilitated successful removal of these large pressured thinning flakes, and strengthened and dulled this margin for optimal hafting considerations. Viewed end-on, most bifaces have remarkably straight or slightly bowed lateral margins. Superb technical skill is also reflected in the flaking patterns and remarkable thinness of many items. Transversely snapped specimens often have impact damage along break margins, and many shorter examples suggest having

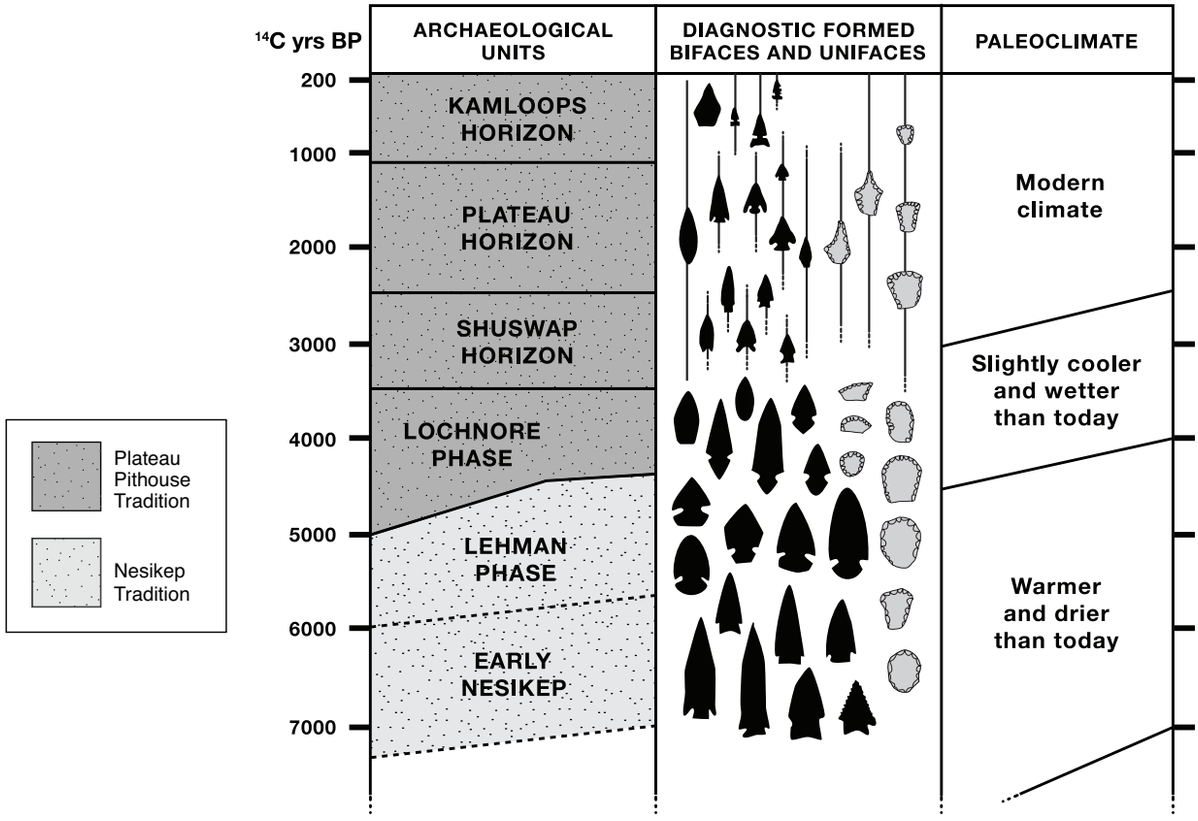

Figure 6. Schematic of archaeological units, common diagnostic biface and uniface forms through time, and paleoclimatic sequence for the last 7000 years on the Canadian Plateau.

been reworked (re-tipped) after distal portions had snapped off. Accidental breakage and/or successive resharpenings resulted in loss of overall blade length, and commonly resulting in reduction of basal-lateral barb size and prominence.

Some larger complete bifaces have recurved edge outlines (e.g., Figure 7a–d, g) suggesting that their initial form was designed to maximize mid-blade width so that successive resharpening episodes could be possible on breakage or edge dulling. This trait is more consistent with intended use as a knife rather than as a projectile tip. I submit that "complete" or "initial form" bifaces of the Early Nesikep period were designed with both projectile tip (i.e., spear and atlatl dart point) and cutting tool in mind. These dual purpose bifaces probably tipped short stout dart or spear shafts, and subsequent to dispatching a quarry, it could be then used as a knife by snapping the wooden projectile shaft to a manageable manipulative length. This weaponry and butchering tool system would have been a practical, efficient, and important technological strategy for people participating in the highly mobile big game hunting and foraging economy that characterized the Early Nesikep period (Rousseau 2004a; 2004b).

Medium and fine-grained basalt/dacite was the most commonly used lithic raw material during the Early Nesikep. Medium to high density natural concentrations of this excellent stone are available as float pebbles and cobbles in glacial till over large mid- and high altitude areas in the Maiden Creek Valley and Arrowstone Hills near Cache Creek, and in the Penask Lake and Sunset Lakes localities between Merritt and Kelowna. Exploitation of these sources indicates regular visitation and knowledge of mid-altitude and upland areas, and Early Nesikep bifaces are commonly found in all environments on the Canadian Plateau. The fine and medium-grained basalts/dacites from these sources have lamellar planar groundmasses that allowed successful pro-

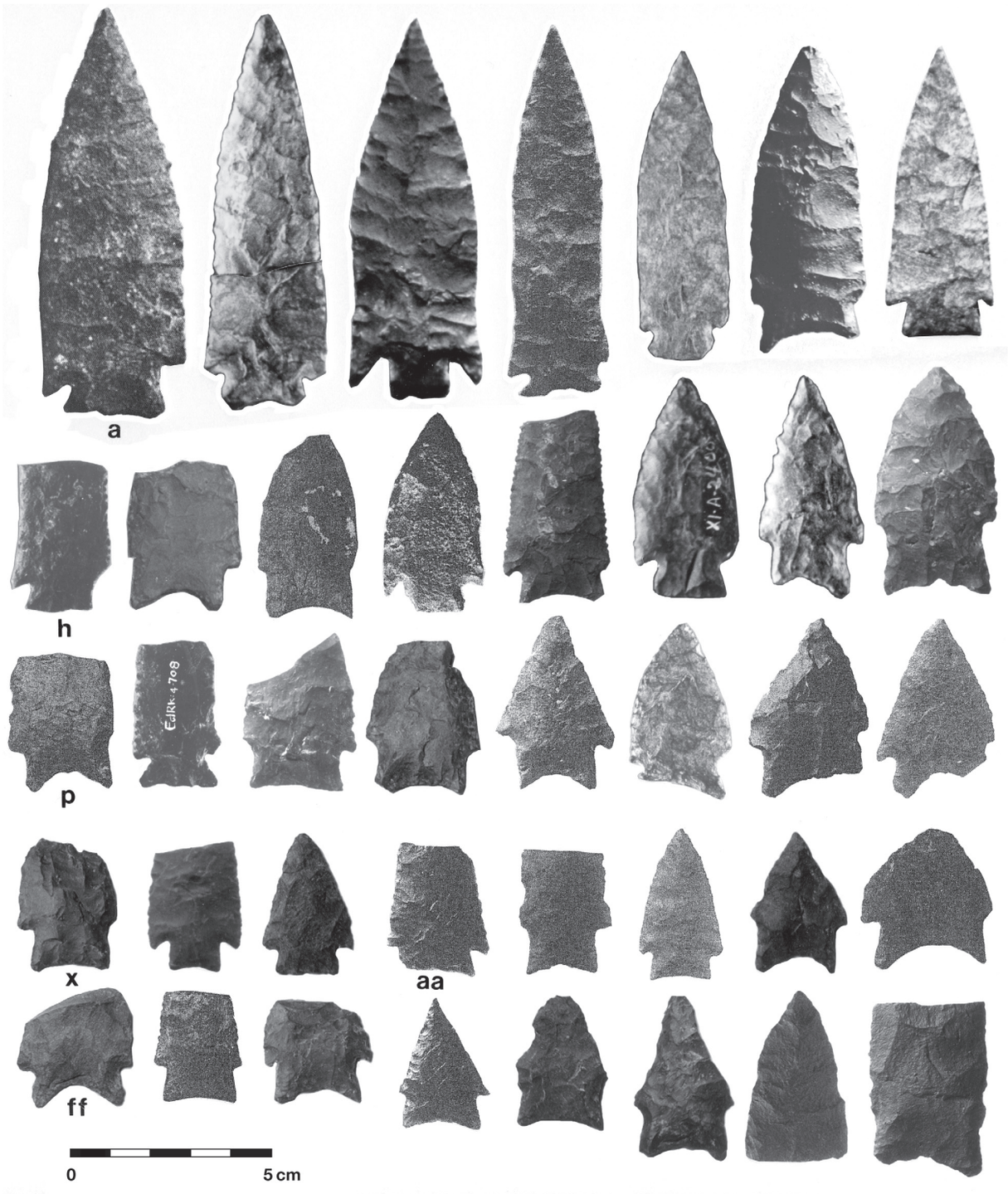

Figure 7. Selected examples of Early Nesikep Period (7500/7000–6000 BP) bifaces found during archaeological excavations and surveys, and in private collections. Most are from the Mid-Fraser and Thompson River regions, although these bifaces are found throughout the Canadian Plateau in all altitudes and environmental contexts.

duction of very large thin flake blanks with relative ease. People participating in the Early Nesikep took full advantage of this physical trait to consistently manufacture the well-made medium-size and large bifaces typical of this period.

Early Nesikep bifaces display a high level of chipped stone technological proficiency and other distinctive traits that Sanger (1970:122, 127) thought were somehow ultimately derived from early Plano traditions of the Northern Plains. While an apparent "lingering" of Plano Tradition technological traits is plausible, there is currently a perceived 1500 to 2000 year gap between these two archaeological constructs that challenges Sanger's argument for direct ancestral or sustained cultural continuity. It may be that similarities reflected in both Plano and Early Nesikep biface forms are simply coincidental, being the result of parallel technological innovation or functional necessity rather than from direct ethnic/cultural ancestry. It is interesting to note that on the Northern Plains, medium-sized, well-made corner-notched points are sometimes found in early Mummy Cave Complex components dating to between 7750 and 7000 (Reeves, pers. comm. 2005), and there may be a possible interactive link with people of the Northern Plains that needs to be considered and explored. Another curious observation is that the few Western Fluted Point tradition bifaces found in B.C. (Figure 2) have multiple basal thinning flakes and occasional edge grinding; traits that are shared with the Early Nesikep notched bifaces. While it is tempting to speculate that the lithic technological tradition of the Early Nesikep period may owe its origins to the Western Fluted Point Tradition, this scenario requires the acceptance that the early Nesikep Period commenced around 9000 BP, a hypothesis that seems improbable and is unsupported by any current reliable data.

As mentioned earlier, a commencement date for the Early Nesikep Period has not been determined, although I submit that it clearly represents an *in situ* development of a very unique cultural system with its own unique technological traditions and trait signatures resulting from, and involving, an interactive admixture of early Pacific Northwest cultural groups and material traits. This melding of several early technological and cultural traditions probably began sometime around 7500 years ago, with the unique "Early Nesikep" cultural pattern being fully developed and widespread over a vast area by at least 7000 years BP. A great deal remains to be learned about the Early Nesikep Period, and as a start, we desperately need radiocarbon dates and much more empirical data from several well-excavated components to disclose its approximate commencement and termination dates.

Bifaces of the Lehman Phase (6000 to 4500 BP)

The Lehman phase was initially identified and defined on the basis of excavations conducted at the Oregon Jack Creek and Rattlesnake Hill sites near Ashcroft, and several sites in the nearby Highland Valley (Lawhead and Stryd 1985, Lawhead et al. 1986; Rousseau and Richards 1988). Several other Lehman phase components have since been investigated and reported (see Rousseau 2004a; Stryd and Rousseau 1996:189–191, 201–204). Available radiocarbon dates from excavated sites suggest it began sometime around 6000 BP and ended by 4500 BP. There is little doubt that Lehman phase people were direct descendants of people participating in the Early Nesikep period, as indicated by clear continuities in technological traits, lithic tool type repertoires, subsistence practices, and consistent seriation and clustering of radiocarbon dates. Transition from the Early Nesikep to Lehman phase cultural patterns appears to have been gradual and relatively seamless, and there are many shared and persistent commonalities, especially with respect to biface production modes and general formal attributes.

Lehman phase chipped stone biface assemblages often include: (1) relatively high numbers of medium-size and large, relatively thin, pentagonal and tear-shaped knives/points with obliquely oriented, shallow to very deep V-shaped, U-shaped, corner or side notches (Figure 8); (2) occasional simple un-notched ovate and broad leaf-shaped forms with straight cortex-bearing bases; and (3) low numbers of simple triangular elliptical and leaf-shaped forms. Distinctive "*Lehman phase obliquely-notched*" bifaces (Figure 8) (Rousseau 2004a:7; Rousseau and Stryd 1996:189, 194) are considered solid diagnostic temporal horizon markers exclusive to Lehman phase occupations. Basal and baso-lateral margin edge grinding is moderate to pronounced on almost all bifaces, a trait also common to Early Nesikep Period and Lochnore phase biface technology.

Remarkably narrow and deep notching on large bifacial knives found in Lehman phase (ca. 6000

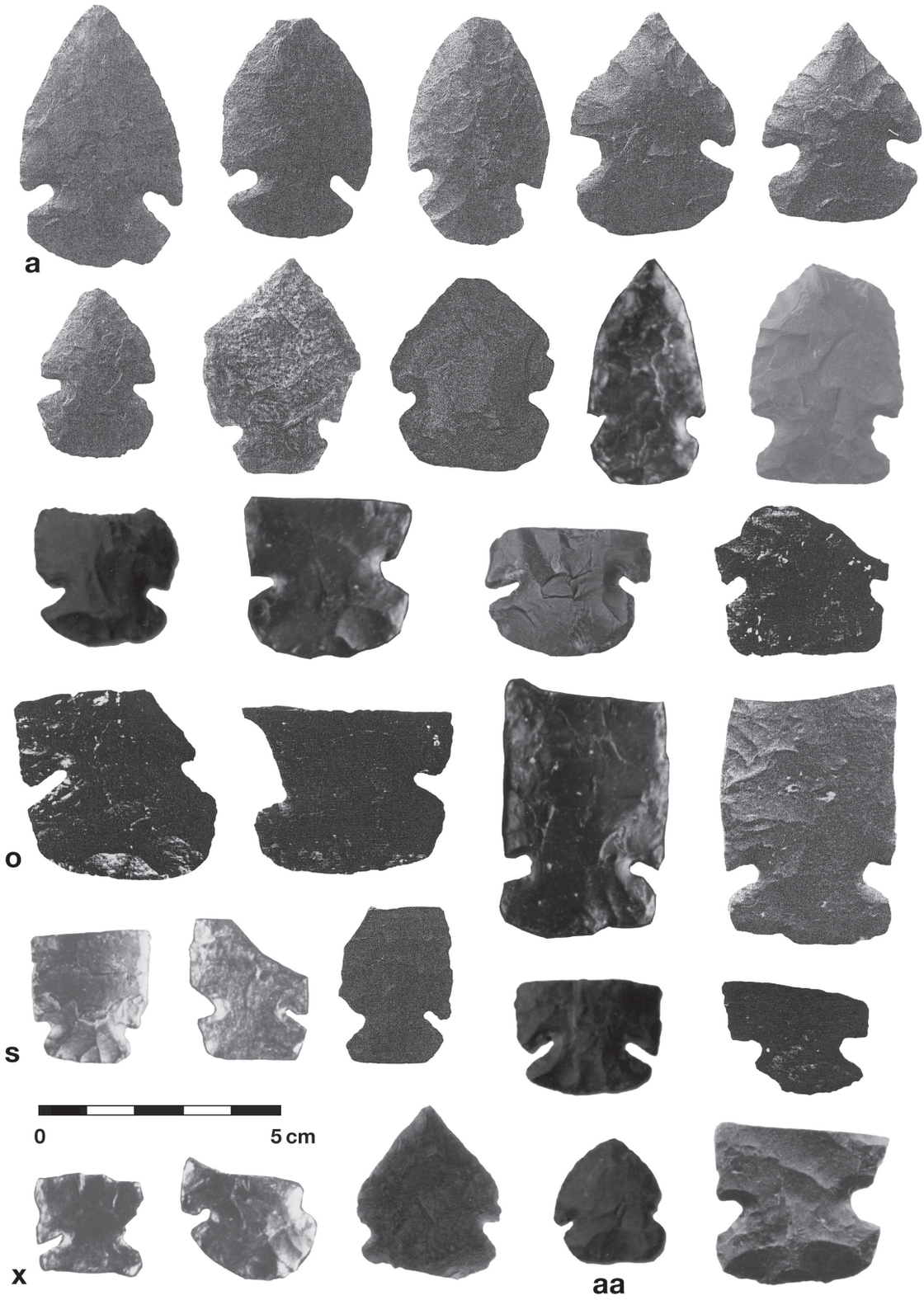

Figure 8. Bifaces of the Lehman Phase (6000–4500 BP) from excavated sites and surface collections in the mid-Fraser and Thompson drainage regions.

to 4500 BP) components (Figure 8) indicates that 3 to 4 mm-thick strips of hide or sinew binding were used to fix blade to haft. Notching on some specimens is often quite deep (0.5 to 1.0 cm), and was probably accomplished with a narrow awl-like indenters made from slivers of mammal longbone or antler. While notches up to 7 mm wide are present on some Lehman phase blades, fairly narrow widths (3 to 5 mm) seem to be the norm. The inter-notch width on most examples suggests these blade inserts were made to accommodate hafts varying from 1.5 to 2.2 cm in diameter.

The "Lehman phase obliquely-notched point" is a very unique bifacial tool form that I perceive to be most aptly suited for cutting rather than for tipping projectile darts or thrusting spears. I am not implying they were never used to dispatch game, but I suspect they were most often used as knife blade inserts for composite knives (Rousseau 2004b). This becomes logically evident when one considers that the degree of edge resharpening on some bifaces is extreme, creating very obtuse blunted distal ends that are clearly unsuited for effective projectile penetration of animal skin and flesh.

Common and consistent use of large quantities of vitreous, fine and medium-grained basalts/dacites quarried from the Arrowstone Hills area north of the lower Thompson River is abundantly evident, and this raw material was preferentially sought for the same technological and functional reasons outlined for the Early Nesikep period. At some sites, locally available, inferior quality, fine and medium-grained siliceous siltstones were used; presumably because better quality materials were unavailable.

It is worth noting that the typical "Lehman obliquely-notched" biface type has several technological and formal similarities with bifaces of the coeval Cold Springs horizon on the Columbia Plateau, where they are called "Cold Springs Side-Notched points" (Andrefsky 2004; Lohse, this volume; Womack 1977). It may be indicative that there was some level of direct physical interaction between peoples of the Canadian Plateau and Columbia Plateau groups from ca. 6000 to 4500 BP. Indeed, it is even possible that highly mobile groups of culturally and genetically related people could have used and frequented many resource-rich areas of the entire Interior Plateau Culture Area at that time. Alternately, the obvious close formal similarity in large side-notched bifaces from these two cultural subareas may actually be owing to simple inter-regional trait/tool diffusion that was driven by widespread acceptance of some important technological or subsistence advantage(s) afforded by use of large hafted bifaces.

Plateau Pithouse Tradition Bifaces of the Late Period (5000/4500 to 200 BP)

The Plateau Pithouse Tradition (PPT) of the Late Prehistoric Period spans at least five millennia, beginning with the Lochnore phase (5000 to 3500 years BP), followed by the Shuswap (3500 to 2400 BP), Plateau (2400 to 1200 BP), and Kamloops (1200 to 200 BP) cultural horizons (Figure 6) (Richards and Rousseau 1987:49–52; Rousseau 2004a:13–21; Rousseau and Richards 1985; Stryd and Rousseau 1996:197–198). Among many salient traits that persisted throughout its duration, this cultural tradition is hallmarked by the appearance of small seasonal (winter) pithouses sometime around 4500 BP (Golder Associates 2005; Wilson et al. 1992), broad-spectrum fishing, hunting and gathering economies, increased semi-sedentism and inter-regional cultural diversity, and an *in situ* development of adaptive practices, technological innovations, and subsistence and settlement patterns that are solely unique to the Canadian Plateau culture sub-area.

Formed Bifaces of the Lochnore Phase (5000 to 3500 BP)

The commencement date of the Lochnore phase is still shrouded in uncertainty and consternation, and there are a number of radiocarbon dates from excavated contexts suggesting it may have initially appeared in the Mid-Fraser and Thompson River drainages possibly as early as 5500 BP (Stryd and Rousseau 1996:204). Dates between 5000 and 4000 BP are most common for excavated components, and the data indicate it was clearly well-represented in these regions by 5000 BP. The presently perceived temporal overlap of the latter part of the Lehman phase and the early part of the Lochnore phase (5500 to 4500 BP) has been the recent focus of considerable speculation and debate (Prentiss and Kuijt 2004:49–63; Rousseau 2004a:8–13, and is discussed further in the final section of this chapter.

Distinctive Lochnore phase formed biface types and their associated technological traits include: (1) the commonly represented "Lochnore side-notched" or "Lochnore turkey-tail" bifaces, which are typically large and medium-sized, lanceolate, leaf-shaped, thin to moderately thick, lenticular cross-sectioned points/knives with wide, shallow to moderately deep, opposing U-shaped side notches, heavy basal edge grinding, and pointed or markedly convex basal margins (Figure 9a–o); (2) large and medium-size un-notched leaf-shaped bifaces with straight or slightly convex basal margins (Figure 9p–x); and (3) low numbers of elliptical, oval, and tear-shaped bifaces. Microdenticulation of lateral blade margins is evident on a few specimens. The size of opposing notches can vary considerably on Lochnore phase side-notched bifaces, ranging from very subtle (2 mm wide by 1 mm deep), to pronounced (up to 12 mm wide by 3 to 10 mm deep).

Lanceolate "Turkey Tail" bifaces with wide and moderately deep notches (Figure 9b–n) may have been most popular between 5000 and 4500 BP, and after that, smaller foliate versions with smaller notches prevail in assemblages. Un-notched foliate forms are more common during the latter half of the Lochnore phase, suggesting that by that time, secure notching may have been viewed as an optional feature that was dependent on personal preferences, the nature of the haft and means used to fix the blade securely in place, and/or the nature of tasks to be performed.

Lithic raw materials used to produce Lochnore phase bifaces in the Mid-Fraser River and Thompson River regions commonly included vitreous, fine-grained and medium-grained basalts/dacites derived from the Arrowstone Hills and Maiden Creek sources near the town of Cache Creek. Here, and in many other adjacent regions, poorer quality siliceous siltstones and cherts were also commonly obtained as randomly dispersed float cobbles from exposed glacial outwash deposits and river/stream beds on valley bottoms. Frequent use of inferior quality locally quarried lithic materials to produce bifaces, is another commonality shared between Lochnore phase people and their Coast Salish contemporaries in the Lower Fraser River.

It is significant to note that Coast Salish people occupying the Lower Fraser River region between 6000 and 3500 BP consistently produced small and medium-size foliate points that are virtually identical to those found in Lochnore phase components (McLaren and Steffen, this volume; Mitchell and Pokotylo 1996). The most salient difference is that many Lochnore phase bifaces are notched, but coeval points and knives from the Lower Fraser River region are not. It may be that notching was a trait that upstream penetrating riverine-adapted Coast Salish people borrowed directly from Lehman phase folks, who were very proficient at notching, and practiced it with great regularity. If so, it can be held as additional direct evidence supporting a suspected co-existence and technological information exchange between these cultural groups from 5000 to 4500 BP.

Lochnore phase assemblages in slow-moving riverine environmental contexts (i.e., the entire Thompson River drainage), sometime contain low numbers of small and medium-size (2.5 to 6.0 cm long), elongate, narrow (0.5 to 1.25 cm wide) formed bifaces with thick (0.5 to 1.0 cm) lenticular cross sections (Figure 10). Most of these distinctive items are best described as elongate "cigar" or "torpedo" shaped bipoints, others are awl-like or "pick-like", and a few resemble small crescents. While some of these bipoints may have tipped projectiles, I offer that most of them actually functioned as chipped stone fish gorges. The majority of identified fish gorges encountered in the archaeological record on the Canadian Plateau are made of mammal bone or antler, but it is perfectly logical to expect that chipped stone versions were made and used, since they sink to the river bottom where large fish lie. Long, thin, strong leader lines were attached to the middle of the bifacial bipoint (Figure 10f), and bait (e.g., fish roe and/or entrails, animal flesh) was secured on the biface so that the pointed distal ends protruded from the bait wad. A long line is set in deep, slow moving water, and when a large fish ingests the bait, the gorge becomes lodged in its gullet or stomach. It could then be retrieved. Several excavated assemblages suggest that occasional use of stone gorges may have also persisted into the following Shuswap horizon (Rousseau and Richards 1982), but they seem to be rare after about 2400 BP.

Formed Bifaces of the Shuswap Horizon (3500 to 2400 BP)

The Shuswap horizon corresponds with a period of cool and wet conditions that prevailed from

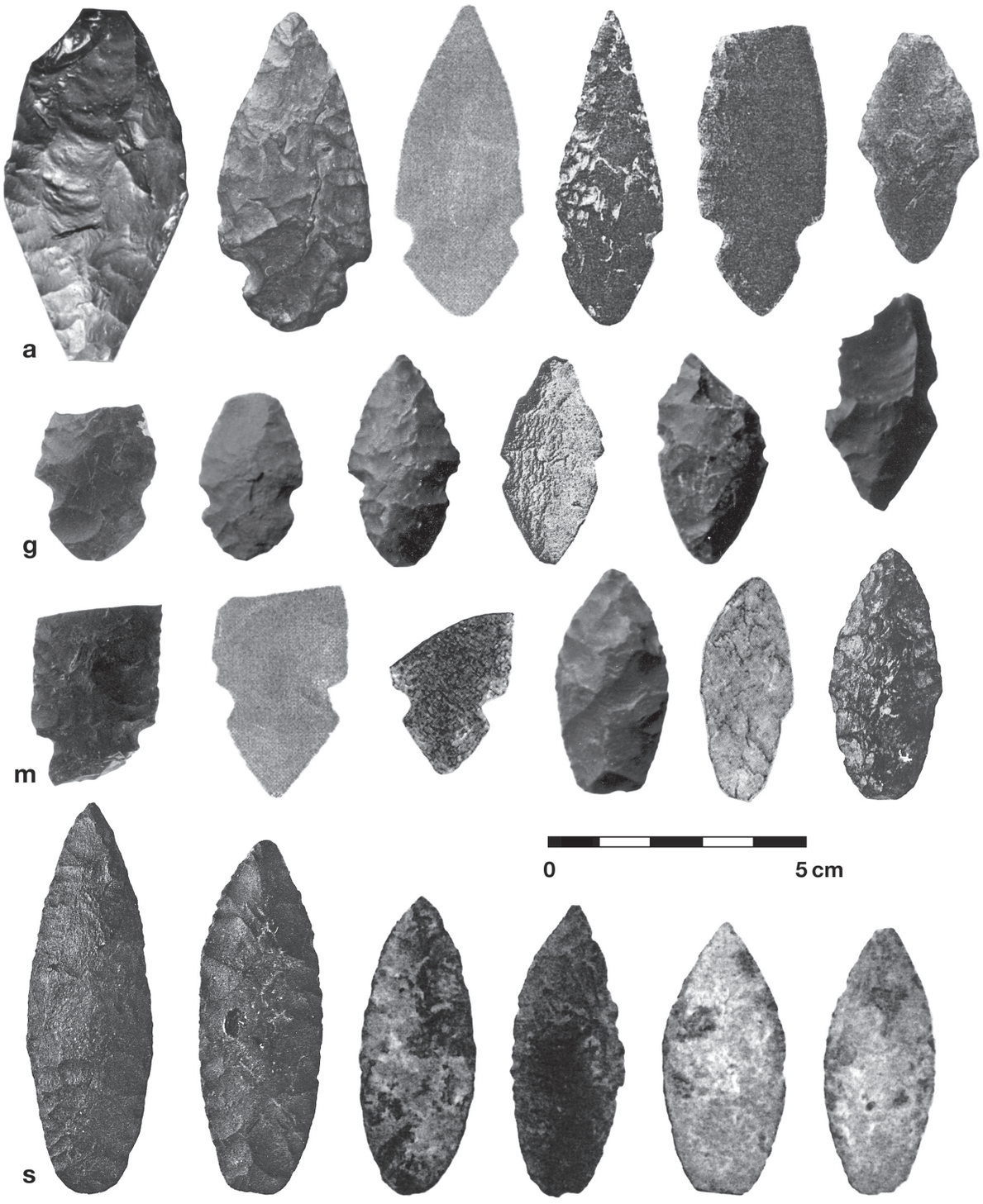

Figure 9. Lochnore Phase (5000–3500 BP) bifaces from excavated sites and surface collections in the mid-Fraser and Thompson drainage regions.

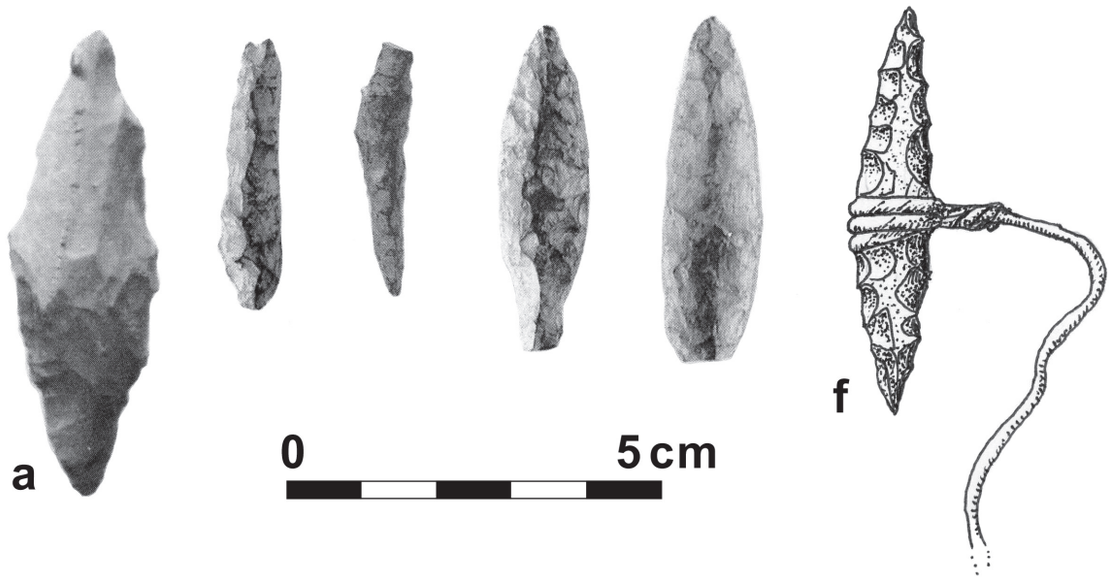

Figure 10. Chipped stone fish gorges associated with riverine sites in the lower Nicola Valley (a), and Ashcroft Locality (b–e). Item (f) shows typical line attachment.

about 4000 to 2500 BP. Highly productive forests expanded into valley bottoms, and sometime around 3500 BP, this very successful semi-sedentary cultural system emerged in the Shuswap Lakes and South Thompson regions (Richards and Rousseau 1987:22–31; Rousseau 2004a:15–16). Several Shuswap horizon pithouses have been excavated, and most of what we know about it has been derived from data secured from this site type.

Shuswap horizon formed bifaces include a variety of stemmed, basally-indented, shouldered, and corner-removed projectile points, and leaf-shaped knives (Figure 11) (see also Richards and Rousseau 1987:26; Rousseau 2004a:9). Many are lanceolate or triangular in general outline, and they range from small to quite large (2.5 to 10 cm long). Thickness varies, but for most bifaces it ranges from 0.4 to 1.0 cm. Basal and lateral edge-grinding has yet to be observed on any Shuswap horizon bifaces, and it seems that this common and persistent Middle Period technological trait was discontinued after 3500 BP. Medium size and large foliate, tear-shape and oval knives (Figure 11a–i) are also present in low to moderate numbers in assemblages, and in many respects these items are very formally similar to those of the preceding Lochnore phase.

A wide variety of lithic raw materials were employed for biface production, with extra-local exotic silicates (chalcedony and cherts) and basalt/dacite, and local poor to fair quality stone being represented in many assemblages. Technical proficiency of knappers ranges from fair to good. The suite of markedly varying point styles reflects a high degree of residential group mobility and contact with neighboring groups, personal point style preferences, and/or possibly experimentation with several types for different prey.

As mentioned above, many Shuswap horizon projectile point forms (Figure 11j–p, w, ee, ff) are strikingly similar to Oxbow and McKean-Hanna-Duncan complex atlatl points found during the Middle period the Northern Plains (Reeves 1969, 1983; Richards and Rousseau 1987:30–31; Vickers 1986). To me, this suggests direct or indirect interaction occurred with Plains groups to the immediate east, inciting adoption of basic Plains point styles and possibly other traits. Early housepit sites near Banff in the Rocky Mountains (Langemann 1998, 2002; Langemann and Perry 2002) contain projectile points attesting that Shuswap horizon groups occasionally visited and wintered on the western fringe of the Northern Plains. These same highly mobile Plains-influenced groups also resided in many other prime resource rich areas of the Canadian Plateau, as indicated by the ubiquity and inter-regional consistency in common use of

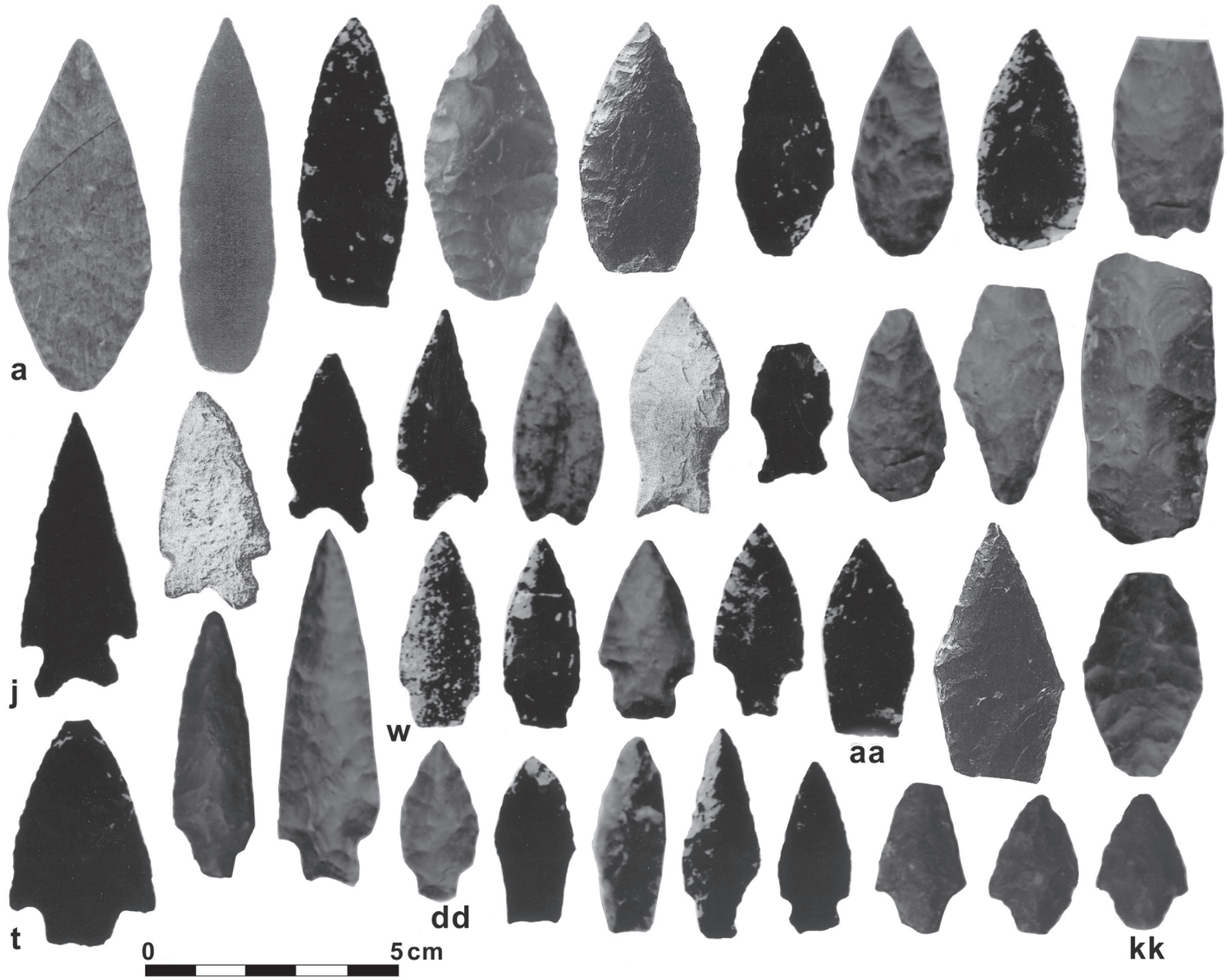

Figure 11. Selected bifaces of the Shuswap Horizon (3500–2400 BP) from excavated sites in the Kamloops, Shuswap Lake, Ashcroft, and Kelowna localities.

these Plains-like point forms at that time. Interestingly, there is a temporal discrepancy of about 1000 years between the initial appearance of Oxbow and Duncan/Hanna/McKean complex point styles on the Northern Plains compared to their debut on the Canadian Plateau. Later western adoption of these styles suggests a slow temporal cline originating from the Plains in the east, through the Rockies, and then west onto the Canadian Plateau by about 3500 BP. A similar temporal and distribution cline occurs for the ensuing Pelican Lake phase of the Northern Plains (Reeves, 1983) and the coeval Plateau horizon of the Canadian Plateau.

Contracting stemmed Shuswap horizon points (Figure 11r, t, u, z, dd, gg, ii–kk) are more common in assemblages after about 2800 BP, attesting to common use of stemmed point styles and other biface forms that were common on both the Columbia Plateau and South Coast at this time. This is particularly true in the North Okanagan and Shuswap Lakes regions which are contiguously linked to the Columbia drainage via the Okanagan River and Arrow Lakes Valleys. Low numbers of contracting stemmed points in the Mid-Fraser and Thompson regions may also reflect long-standing interaction with Lower Fraser River groups where stemmed points dominate assemblages dating between 3500 to 2500 BP (McLaren and Steffen, this volume).

Formed Bifaces of the Plateau Horizon (2400 to 1200 BP)

The Plateau horizon represents the climax of Canadian Plateau cultures, which is why it is so named (Richards and Rousseau 1987:32–41; Rousseau 2004a:16–19). It was a period of rapid human population growth, peaking around 2000 BP; declining steadily thereafter until 1200 BP. Components of this horizon are abundant in the archaeological record, and they are found in all environmental settings. Large permanent villages were established and occupied continuously for hundreds of years. Inter-regional exchange systems were highly organized and maintained, involving and providing ready access to large quantities of high quality basalt/dacite and cherts and chalcedonies from the Maiden Creek, Hat Creek, Arrowstone Hills, Ducks Meadow, Penask Lake and Salmon River (Falkland) sources. The high quality materials from these sources were used to produce well-made projectile points, knives, and bifacial drill bits. Very high levels of technical proficiency is evident on many bifaces, and in some communities there may have been specific lithic specialists that were regularly involved in acquisition of extra-local silicate materials, and/or in production of "commercially available" bifacial points and knives that were often exchanged with fellow village members for other commodities.

Plateau horizon projectile points are typically triangular in overall outline with convex and straight basal margins, and most have moderate to very pronounced lateral barbs created by deep corner or basally initiated notches (Figure 12). Unnotched triangular bifaces (Figure 12mm, nn) are also present in low numbers, but these are probably unfinished point preforms or knife blades. Basally-notched and corner-notched forms are both common from 2400 to 2000 BP, but corner-notched forms typically dominate assemblages from 2000 to 1200 BP. Rare leaf-shaped and stemmed points are also sometime found, and most of these probably functioned as knives or were scavenged from sites predating 2400 BP. Corner and basally-notched projectile points are found throughout the entire Pacific Northwest between about 2500 and 1000 BP. The predominant use and widespread adoption of this point style over such a large area is significant, and was probably due to greater hunting success that prominent barbs provide, and/or perhaps from development or adoption of an improved atlatl weaponry system.

A progressive reduction in point size is evident during the latter part of this horizon, particularly after 1600 BP when bow and arrow technology became the dominant hunting weapon system on the Canadian Plateau (Richards and Rousseau 1987:34; Rousseau 2004a:17). This very efficient weapon system was clearly present on the Northern Plains by about 1700 BP (Vickers 1986), spreading westward onto the Canadian Plateau sometime around 1600 BP, and into the Great Basin by 1350 BP (Bettinger and Eerkens 1999). Chatters (2004) argues for a 2000 BP introduction on the Columbia Plateau, but notes it was not commonly used until several centuries later. This technology is hallmarked by appearance of small (<3.0 cm long and <1.0 cm neck wide), triangular, corner-notched point forms (Figure 12y–l). Their progressively frequent appearance coincides with a concomitant steady decline in the relative frequency of larger atlatl dart points

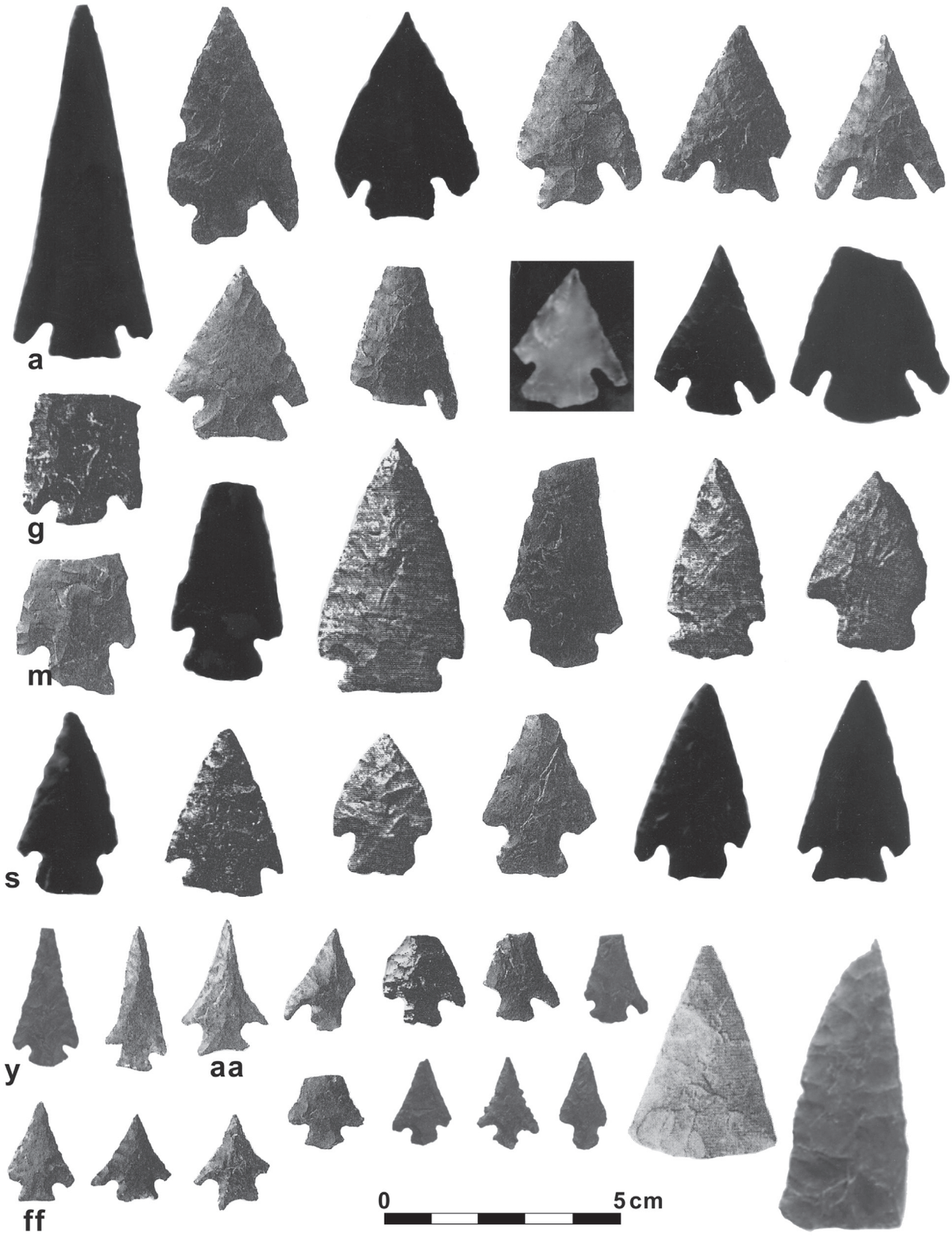

Figure 12. Selected bifaces of the Plateau Horizon (2400–1200 BP) from numerous excavated sites in the Thompson River and mid-Fraser drainage regions. y–ll: arrow points dating between 1600 and 1200 BP. mm, nn: typical un-notched projectile point preforms.

from 1500 to 1200 BP, suggesting the atlatl was used concurrently with the bow and arrow for several hundred years, but was phased out shortly after 1200 BP.

Occasionally, very large (>8 cm long), ovate, tear-shaped, pear-shaped, and sub-rectangular bifaces have been found associated with Plateau horizon earth-oven (roasting pit) depression sites where balsamroot and bitterroot shoots were processed. Examples are shown in Figure 13. These bifaces often display very pronounced rounding and unidirectional striations along the widest (usually basal) margin, indicating significant use of force involving hard contact materials. While many researchers would probably suggest they functioned as large knives, most are quite thick and have edges clearly unsuited for effective cutting. I offer that they were used as hoe blades that were fixed to hafts in a spatulate or adze-like fashion (Figure 13e, f), and they were used to harvest roots by hacking and/or prying them from the ground. This accounts for their overall formal attributes which are very well-suited for this activity, and for extreme use-wear evident on functional margins, since they were in regular forceful contact with silt, sand, pebbles, etc. while in use. These hoes are functionally compatible with root digging sticks, which also initially appeared at the commencement of the Plateau horizon (Richards and Rousseau 1987:39), and I suspect that both digging implement types were used concurrently during this horizon.

Formed Bifaces of the Kamloops Horizon (1200 to 200 BP)

The Kamloops horizon is well-represented in the archaeological record on the Canadian Plateau, and many sites have been subjected to detailed excavations (Richards and Rousseau 1987:41–49; Rousseau 2004:19–21). Regional populations were lower than the preceding Plateau horizon, but most regions and large established village sites continued to be occupied up to Euro-Canadian contact (200 BP). Biface technology during the Kamloops horizon was well-developed and well-represented, although many assemblages and bifaces reflect only mediocre to fair technical ability compared to the preceding Plateau horizon.

Of significant importance during the Kamloops horizon was the initial appearance and dominant persistence of "Kamloops side-notched" arrow points (Figure 14a–z). They are typically small (1.5 to 3.0 cm long), triangular in outline, relatively thin, and have small laterally-initiated opposing U-shaped notches of varying widths and depths. Larger (3.0 to 4.5 cm long) versions appear in assemblages during the last 400 years of this horizon, but they are present in small numbers. Most were produced from vitreous and fine-grained basalt/dacite, although exotic cherts and chalcedonies were sometimes used.

During the latter part of the Kamloops horizon, appearance of "multi-notched" variants with two or more notches along one lateral blade margin or micro-denticulated lateral blade margins (Figure 14aa–ii) are more than just curious, and deserve special future research attention. It may be that they were designed and primarily intended for use in situations involving serious interpersonal conflicts, since extra notches and micro-serrated edges promote greater damage to flesh during arrow penetration and subsequent attempted forceful removal. Also, thin points with multiple notches are more prone to break on impact and during extraction attempts, thereby causing the distal ends of these points to remain in the wound to promote infection and further physical damage. Most of these points are found in the Mid-Fraser and Thompson River regions associated with components dating between 400 and 200 BP, suggesting perhaps, that inter-regional group conflicts and tensions may have been common just prior to arrival of Euro Canadian settlers.

Medium-size and large bifacially flaked, unnotched, leaf-shaped, ovate, triangular, asymmetrical tear-shaped, incipiently stemmed, and "boat-shaped" bifacial knife blades also appear in Kamloops horizon components; many of which likely functioned as knives. Of particular interest are "Kamloops horizon pentagonal bifaces/knives" (Figure 15b–g) (Richards and Rousseau 1987:45; Rousseau 2004b:14–16). This tool form has been formally recognized as being a fairly reliable temporal horizon marker or index for the Kamloops horizon, and for some researchers it is considered to be on diagnostic par with the "Kamloops side-notched point". I submit that most Kamloops horizon pentagonal bifaces functioned primarily as knife blades, and that their initial "complete" forms were often fairly long (5 to 10 cm), with foliate and tear-shaped outlines and straight

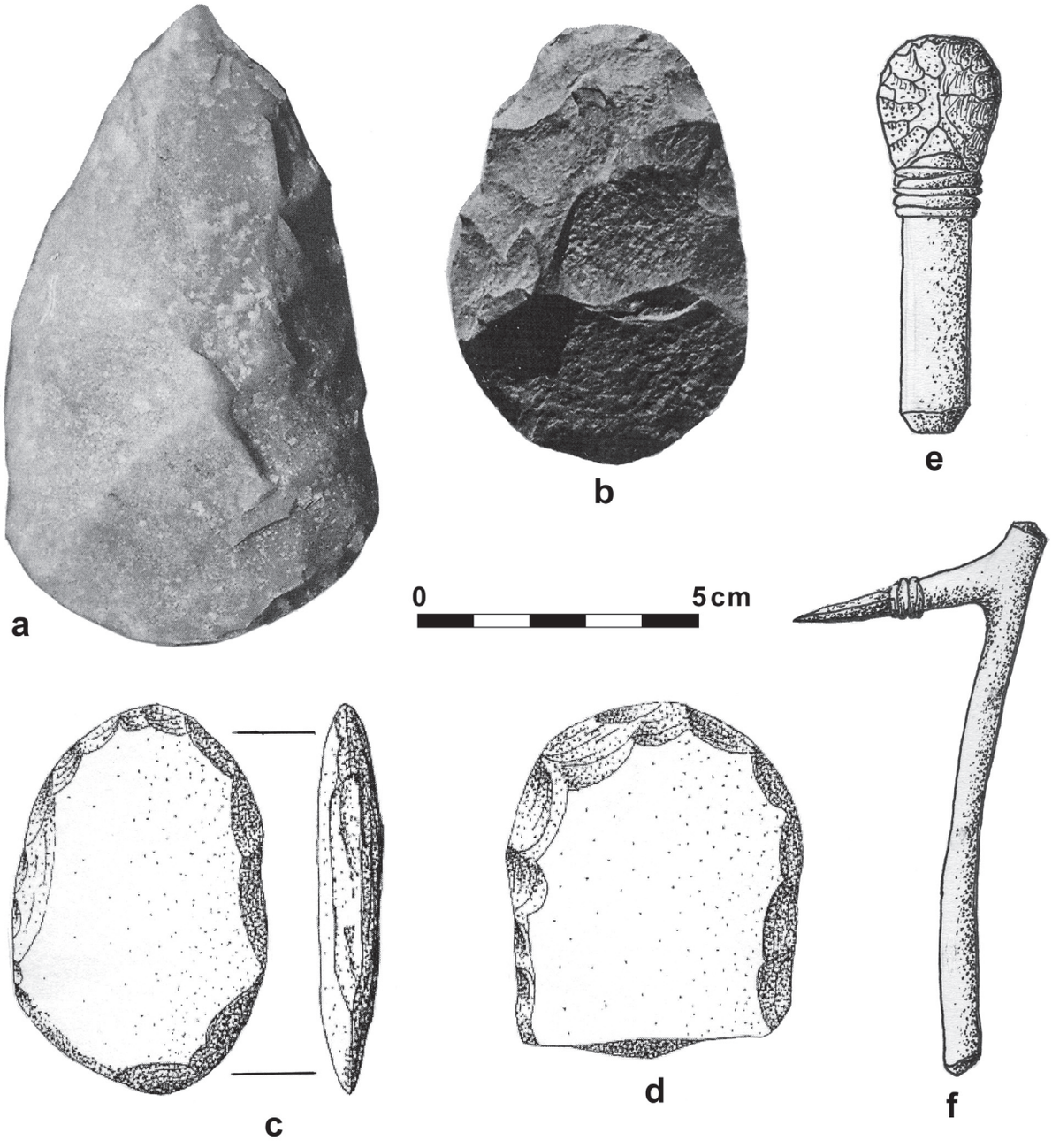

Figure 13. a–d: Examples of large bifaces associated with Plateau Horizon earth oven features from the north Okanagan (a, c, d), and Lytton Locality (b). Their recovery contexts, overall form, and use-wear patterns indicate they were blades for hoes used to harvest balsamroot and bitterroot. Suggested hafting configurations are indicated by (e) and (f).

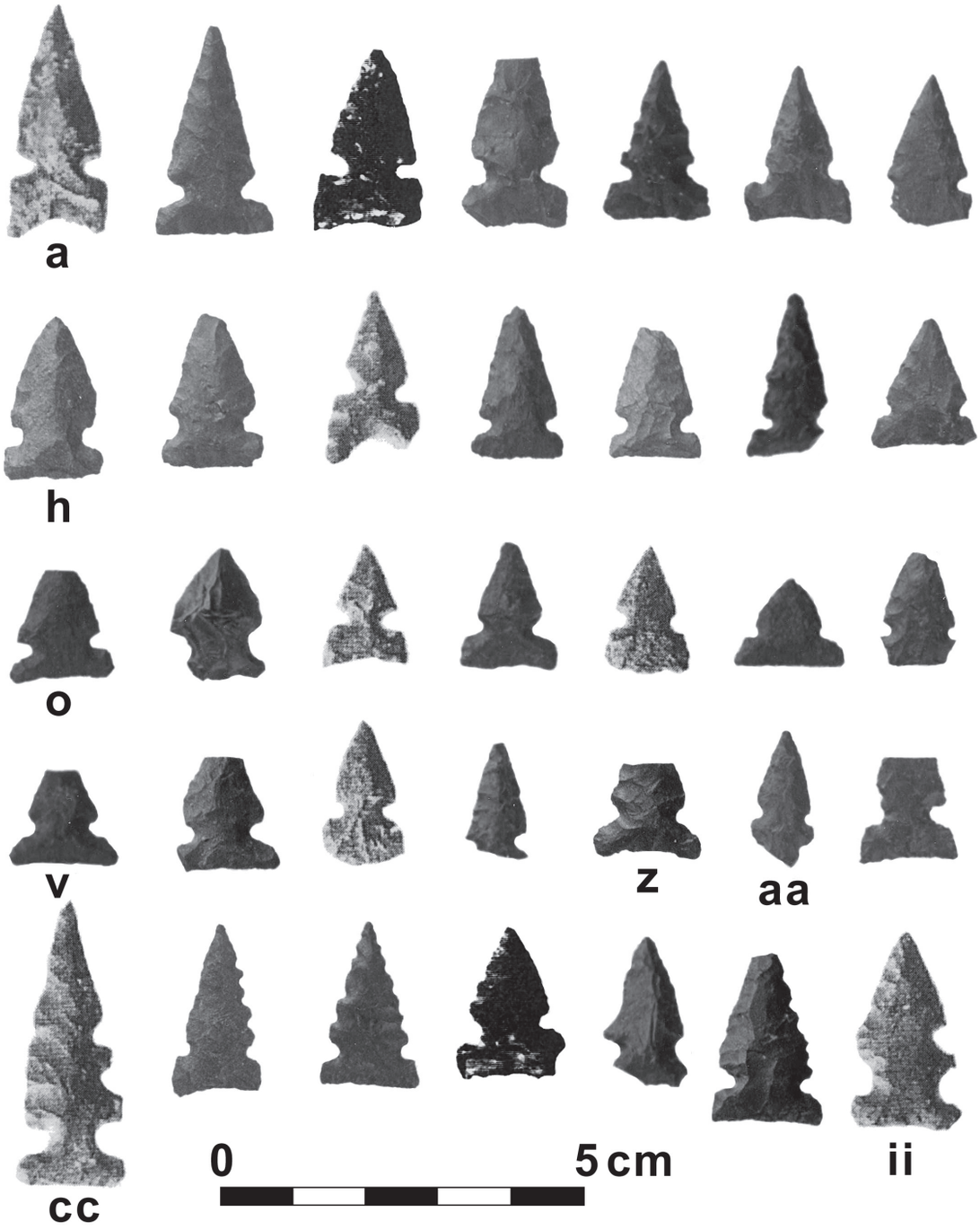

Figure 14. Arrow points of the Kamloops Horizon (1200–200 BP) from Canadian Plateau excavated sites.

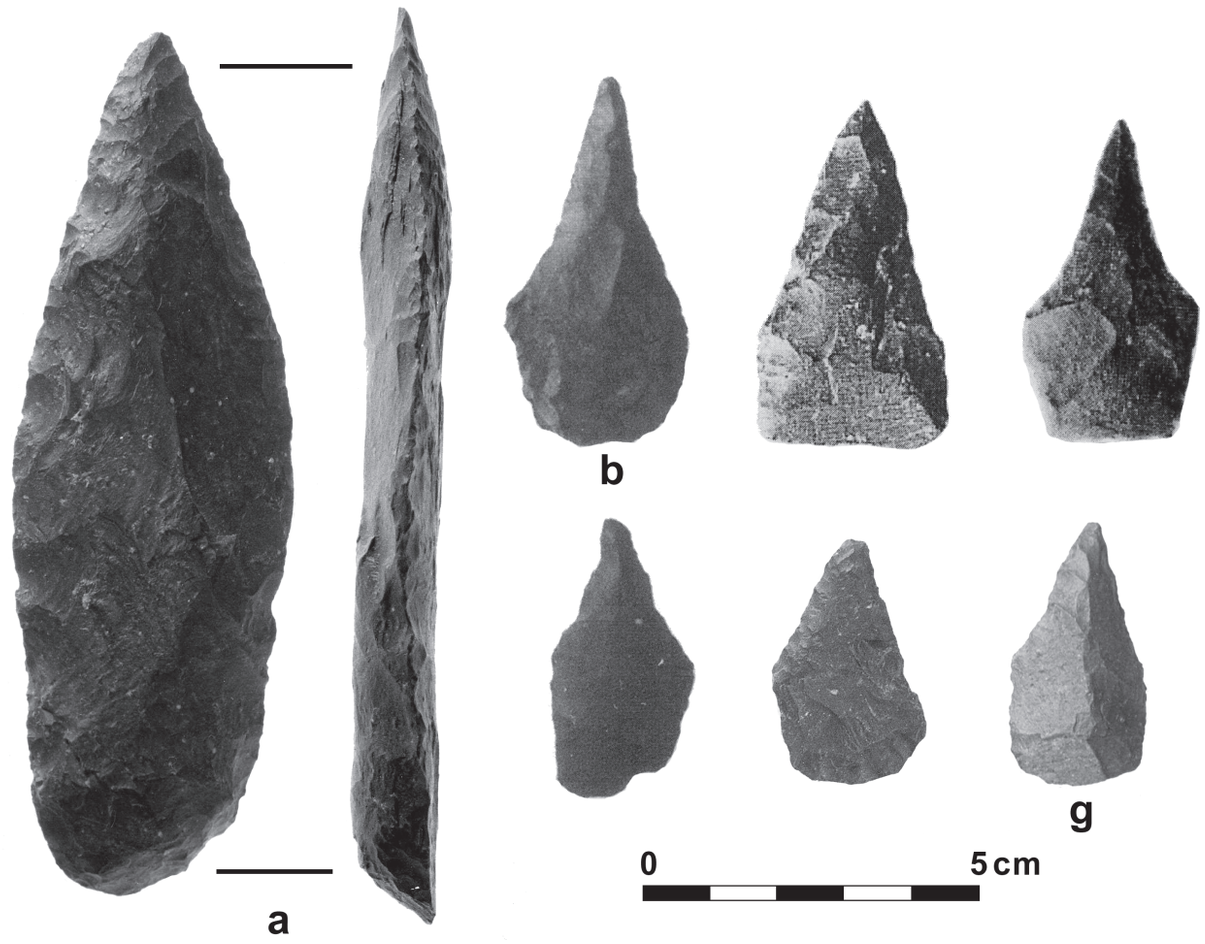

Figure 15. Examples of Kamloops Horizon "Pentagonal Knives" (b–g) from sites in the mid-Fraser and Thompson drainage regions. Item (a) is an example of a typical initial biface form before being resharpened.

or slightly convex basal margins (e.g., Figure 15a). Repeated resharpenings caused lateral margins to eventually converge in a progressively obtuse manner, thus creating the general pentagonal outline and reducing cutting efficiency and manipulability. Once functionally exhausted, pentagonal-shaped "slugs" were removed from hafts and discarded.

Summary Discussion and Suggestions for Future Research

Biface technologies have been an important and integral aspect of Canadian Plateau cultural systems for over 10,000 years, and consideration and definition of various biface types and traits have provided a wealth of information about initial peopling, cultural identities and group mobility, subsistence practices and their related resource extraction and processing activities and tasks, and as evidence for direct and indirect interaction between neighboring groups. Many biface forms, particularly projectile points, are reliable indices for relative dating of sites and their components, although for Early and Middle Prehistoric Periods, there are many issues relating to appearance and persistence of specific formal biface types that remain to be documented, studied, and resolved. Some of the more interesting and contentious aspects of Canadian Plateau archaeology relate specifically to inferences drawn from the appearance, persistence, and function of various biface formal types. Some of the more salient and topical issues are presented below.

For the Early Prehistoric Period, evidence for initial human occupation and use of the Canadian

Plateau is scant, and most of what we can reconstruct and conjecture is based solely on specimens in museum and private collections. Concerted efforts should be made to locate and excavate sites dating to this period, which are few and often concealed beneath several meters of Holocene colluvial, fluvial and aeolian sediments. At present, and into the foreseeable future, our best chance of finding Early Period sites rests with fortuitous encounters during heavy machinery land-altering activities associated with development projects. Funds necessary to launch and support a purely academic effort to locate and investigate sites belonging to the Early Period would be substantial, and consequently very difficult to secure. Also, it might be a risky and fruitless endeavor that may ultimately prove to be disappointing unless considerable forethought is invested in predicting locations with early site potential, and effective deep-probing site discovery methodologies are employed (see Rousseau 1993:175–177). Regardless, I am confident that over the next few decades, several Early Period sites will be identified and excavated, and bifaces will play a major role for inferring relative ages of the occupations, and for assigning ethnic/cultural origins of the people involved with initial occupation of the Canadian Plateau.

Over the last decade, Middle Period bifaces have been used to help decipher and explain temporal, technological and cultural/ethnic relationships between the Lehman and Lochnore phases. Radiocarbon dates for assemblages assigned to these two phases overlap from about 5500 to 4500 BP (Prentiss and Kuijt 2004:61, 62; Stryd and Rousseau 1996:203–204), suggesting a coeval but independent existence of these two markedly different cultural patterns during that time. The "Coast Salish incursion model", the up-river spread of the Salish from the Coast to the Interior rather than vice versa, was first proposed by Carlson (1983a:90, 1983b:19). There has been further expansion and discussion of the archaeological evidence for this model by Lawhead and Stryd (1985), Stryd and Rousseau (1996) and Rousseau (2004a) who maintain that sometime around 5500 BP, small, highly mobile, riverine adapted Coast Salish groups whose primary winter residency was in the Lower Fraser River and Fraser Canyon regions (and perhaps also from the Lower Columbia River region), began venturing upstream and inland along major drainages and their secondary tributaries on a fairly regular basis. They were adept fishers, and for several centuries they regularly launched progressively deeper penetrations into the interior river systems to claim and secure prime salmon fishing stations and nearby village sites that were being largely ignored or only occasionally used by the indigenous Lehman phase people, who were primarily opportunistic hunters and foragers.

The model maintains that direct physical interaction between Coast Salish and long-established non-Salish Lehman phase groups persisted and intensified between about 5000 and 4500 BP (Figure 6), resulting in mutually beneficial exchanges of technological systems and traits, knowledge of successful subsistence practices, language, and genes. The melding and mutual acculturation of these two "parent" groups was a relatively slow transitional process lasting several hundred years, and by 4500 BP, the basic Lochnore phase pattern proved to be the more dominant successful strategy for coping with onset of wetter and cooler environmental conditions at about that time. The eventual result was a "homogenous" and ubiquitous basic Lochnore phase adaptive pattern that prevailed on the Canadian Plateau from 4500 to 3500 BP. Overall, the Salish-incursion hypothesis is generally consistent with Elmendorf's (1965) model of Interior Salish origins and migrations based on linguistic considerations, and it provides an explanation of why Interior Salish dialects differ from those of their Coast Salish relatives.

Alternatively, Kuijt and Prentiss (2004), and Prentiss and Kuijt (2004), propose that a seamless direct cultural and ethnic continuity exists between the Lehman phase and the Lochnore phase (see below), with the later being directly ancestral to the former, and the late Lochnore phase being derived from groups originating from the Columbia Plateau (see also Wilson et al. 1992:189–190). They maintain that differences in material culture traits and patterns of adaptation between these two archaeological entities are not significant enough to infer existence of any cultural or ethnic disparity. I submit that differences between them are actually quite marked, particularly with regard to formal and technological aspects of biface manufacture and use, unifacial scraper forms, selection and employment of lithic materials, and exclusive presence of large edge-ground discoidal cobbles, cobble cores, fish gorges, and unilaterally barbed bone and antler harpoon points in Lochnore phase components (see below). I argue that upon close consideration

of formed bifaces of the Lehman phase, it is readily evident that they are quite similar to those made by people participating in the preceding Early Nesikep period. However, Lochnore biface forms, which began appearing on the Canadian Plateau as early as 5500/5000 BP, are much more similar to those found on the South Coast, with the most obvious difference being the presence of side notches, a trait that Lochnore phase people likely borrowed from Lehman phase neighbors.

It could also be argued that these two distinctive assemblage patternings reflect two sets of different activities engaged by a single cultural group. This explanation has little merit, since both assemblages are too dissimilar in content, contain different lithic raw material types and relative frequencies, and are sometimes found together at the same site as discrete stratigraphically alternating occupation episodes (see Lawhead and Stryd 1985). Sorting out and reconstructing cultural and technological relationships between groups during the Middle Period should continue to be a primary focus of academic research on the Canadian Plateau. We require more excavated and dated components from all regions for the Lehman to Lochnore transition between 5500 to 4500 BP before the debate will be adequately and confidently resolved.

First-hand experience with many assemblages dating between 5000 and 2500 BP leads me to conclude that peoples participating in the Shuswap horizon were direct descendents of well-established resident Salish-speaking Lochnore phase groups. There are many salient trait and behavioral commonalities, although admittedly some important differences do indeed exist (Rousseau 2004a; Stryd and Rousseau 1996:191–197). In contrast, Prentiss and Kuijt (2004:49–63) have suggested that onset of the Shuswap horizon should more correctly be regarded as the initial significant Coast Salish incursion beginning around 3500 BP. However, to my knowledge, there are no projectile points from contemporaneous South Coast and Lower Fraser River regions that reflect any obvious similarity with Plains-like point forms, thus a clear direct cultural or technological link between South Coast and Northern Plains groups cannot be asserted on the basis of biface forms. It seems more logical and probable to me that ancestors of Shuswap horizon people must have already been permanent Canadian Plateau residents for at least several hundred years before the onset of the Shuswap horizon. They regularly interacted with highly mobile hunting groups living on the western fringe of the Northern Plains and Rocky Mountains, resulting in absorbance of some aspects of hunting weaponry systems, one of which was the adoption and use of a variety of Plains-like projectile point forms.

Adoption and use of projectile point styles during the Plateau and Kamloops horizons indicate participation in stylistic traditions that encompassed the entire Pacific Northwest, with basally-notched and corner-notched points being exclusively represented in the Plateau horizon occupations, and side-notched points being dominant during the Kamloops horizon. In this regard, they are of limited value for attempting to isolate and confidently identify cultural/ethnic movements and/or regional residency. However, some specific attributes of side-notched points have been used to infer southern movement of Athapaskan people during the last 1200 years (Copp, this volume; Magne and Matson, this volume).

The suspected debut of bow and arrow technology around 1600 BP during the Plateau horizon on the Canadian Plateau is an important technical and cultural milestone, as it signals the beginning of a new hunting technology that dramatically enhanced hunting efficiency, and subsequently triggered a number of important changes during the latter part of the Plateau horizon and ensuing Kamloops horizon (Rousseau 2004a). Chatters (2004) has suggested that bow and arrow technology was being used on the Columbia Plateau as early as 2000 BP, and if future research continues to support this observation, we will need to explore and determine why it does not show up before 1600 BP on the geographically contiguous Canadian Plateau. I believe that the latter commencement date is correct, as it conforms nicely to a temporal cline that began in southeastern North America sometime around 1700 BP, then spread into the Northern Plains and Canadian Plateau about 100 years later, and eventually to the South Coast by 1500 BP.

Chatters also discusses the bow and arrow's role in inter-personal conflict during the Late Period on the Columbia Plateau, and no doubt groups on the Canadian Plateau also had their fair share of intergroup skirmishes during that time. I submit that the appearance of Kamloops multi-notched points (Figure 14aa–ii) in the Mid-Fraser and Thompson

drainages from 600 BP to Contact at 200 BP may be indicative of defensive or offensive readiness for warfare during unsettled acrimonious times. This is an interesting possibility that deserves future attention, and may be eventually linked to inter-regional and intra-regional resource stresses, maintenance and protection of territorial boundaries, or migratory movement of non-Salish people through the Canadian Plateau (Copp, this volume; Magne and Matson, this volume).

There are a number of important basic research questions that still need to be addressed for the Canadian Plateau, and I believe that successful interpretation of information provided by studying distinctive biface forms will be instrumental in helping to solve many of them. Specifically, we need to: (1) ascertain commencement and terminal dates for the Early Period and Middle Period archaeological constructs; (2) give more attention to examining and reconstructing the functional importance, stylistic variations, and cultural/ethnic implications of Nesikep Tradition bifaces; (3) improve our understanding of the "Lehman-Lochnore" transition through intensive detailed comparisons of biface forms and associated artifact assemblages; (4) further explore the nature, intensity, and duration of interaction and contact with groups on the Northern Plains, Columbia Plateau, Southern Coast, and central B.C.; and (5) continue to attempt to address problems related to group ethnicity, territoriality, migrations, dispersal and settlement.

It is hoped that future researchers will find this chapter helpful for identification of specific "diagnostic" biface forms in Canadian Plateau assemblages so that temporal and functional assignations or inferences can be made and/or argued with some degree of confidence. A great deal remains to be disclosed about the culture history of the Canadian Plateau, and I am confident that future detailed inquiries into biface technologies will greatly improve our understanding of British Columbia's past, and yield a few significant and unexpected surprises in the process.

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