An Agate Basin Point Site in Sask.

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INTRODUCTION

Striking lanceolate points and fragments have been found over the last few years by several collectors at a surface site nine miles south of Moose Jaw, Saskatchewan. F. H. H. Roberts (Smithsonian Institution, United States National Museum, has examined some of these points (1957) and he sees considerable resemblance to Agate Basin Points (in Wyoming), to which he assigns a guess date of 7,000 to 8,000 years (Roberts, 1943, 1951). The occurrence of considerable numbers of this specific point-form within a small area with relatively few other point-forms (according to informants) indicates that this site is largely limited to a single culture-complex.

Artifacts reported from the site were generously loaned or donated to the Museum by Austin Ellis, Ron Hill, J. R. Gagné (all of Moose Jaw) and W. F. Judkins, former owner of the site. The land is now owned by E. L. Parkhill who kindly permitted us to examine the area on several occasions in the spring and summer of 1957 when we collected 19 additional items (three lanceolate point fragments, eight end-scrapers, eight knives and retouched flakes). At various times I visited the site accompanied by Ellis, Hill, Judkins, and the following members of the Museum staff: Richard W. Fyfe, Fred W. Lahrman, Bruce A. McCorquodale, Wolfram Niessen and Bruce Shier.

Thanks are due Dr. Marie Wormington, Denver Museum of Natural History, and Dr. William J. Mayer-Oakes, University of Toronto, who kindly examined the manuscript; I am particularly grateful to Dr. Richard G. Forbis, Glenbow Foundation, Calgary, for his conscientious criticism of every aspect of the paper. In addition I should like to thank the many persons at the Society for American Archaeology meeting in Madison, Wisconsin in June, 1957, who examined the material and who encouraged the preparation of this paper.

THE SITE

The Parkhill site occupies an area of about one-half acre (sec. 16, T. 15, R. 26, W of 2nd). It is on a slight north-south ridge which dips gently toward the north into a shallow valley carrying runoff waters north and east to Moose Jaw Creek. Moose Jaw Creek flows north and east and eventually joins the Qu'Appelle River.

The general area is one of low undulating ridges formed of beach sands which are believed to have fronted glacial Lake Regina. Distinct strand lines are not apparent since the fine deposits have been reworked by wind, probably many times. According to Judkins the area was badly blown during the great drought of 1930-39; it remains barren, treeless and windswept. The Parkhill site, judging from the amount of flint debris (including many fine, thin flakes) and the number of point bases, was a camp-site. The large amount of burned flint (18 per cent of the artifacts) suggests the possibility of subsurface remains, especially hearths, though no ash, charcoal or hearth stones are visible on the surface. Whether subsurface features still exist on the site is unknown, no testing having yet been conducted.

ARTIFACTS

Agate Basin Points (Figs. 1, 2): Of 85 determinable-form projectile points or fragments, 65 (76 per cent) may be identified as of lanceolate form. Only 11 points are complete (Fig. 1: A1-5, B1-6). Agate Basin Points are readily identifiable by shape, chipping, and ground lateral edges, a definitive feature of this point form. Although the Parkhill points appear to be rather short, the longest piece (A1) being 73 mm. (2 13/16") in length, wide and thick basal fragments found at the site (Fig. 2: A1-4) clearly indicate that a larger form of lanceolate point is a part of the complex. Resharpening of points with broken tips probably accounts for the frequent blunt and foreshortened appearance.

Photo by R. W. Fyfe

Figure 1. Agate Basin points from the Parkhill Site. (A1 is slightly over 2¾ inches in length).

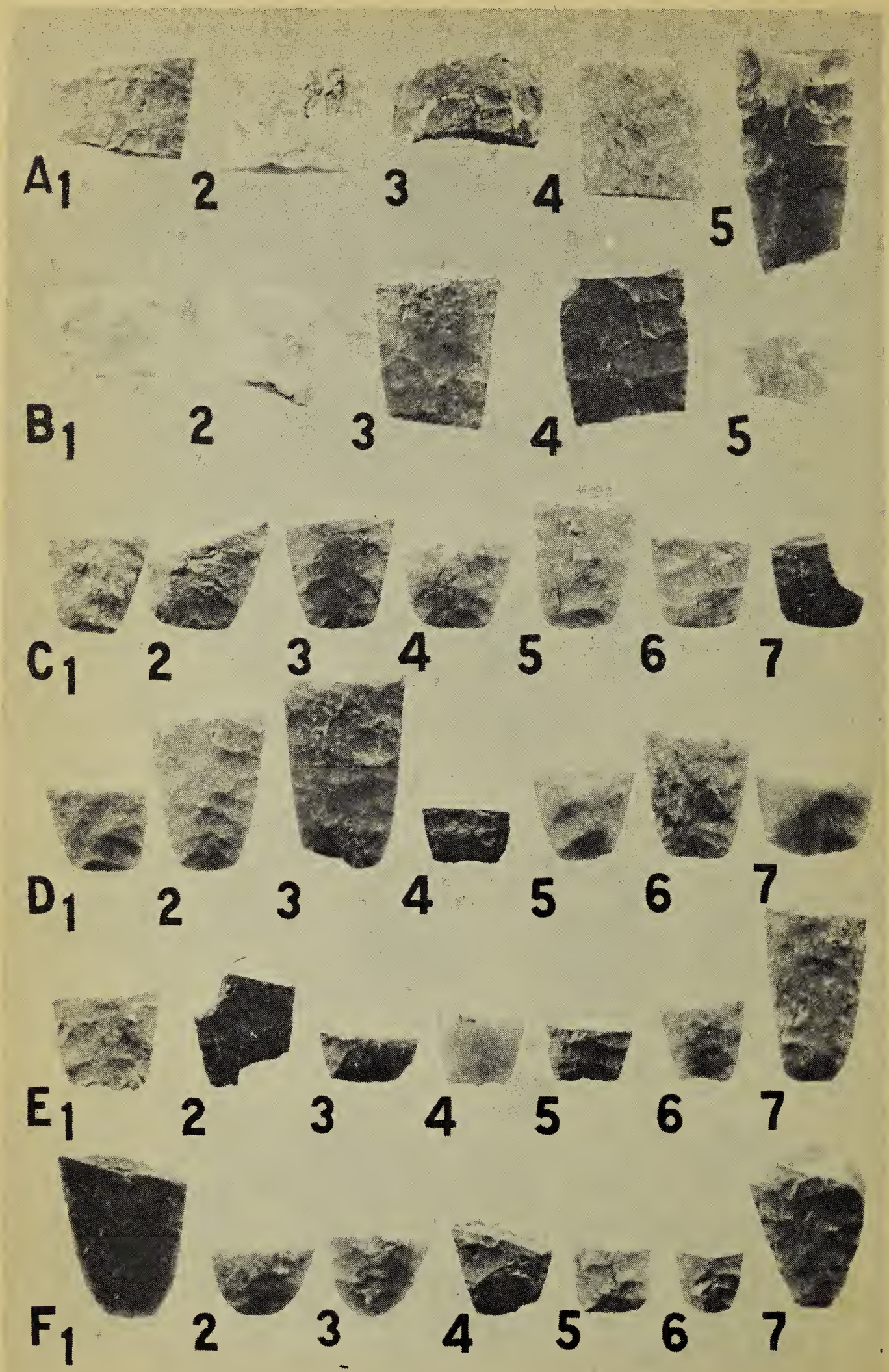

Photo by R. W. Fyfe

Figure 2. Agate Basin points fragments. (A5 is 1¾ inches in length).

For the most part, Agate Basin Points from the Parkhill site have broad, shallow flake scars at right angles to the edges. Flake scars are usually irregular (sometimes parallel) and frequently extend to and even past the midline; but on the whole suggest a carefully controlled technique. Diagonal or "ripple-flaking is present on two points: one is rather atypical and shows only slight grinding (Fig. 1: A3). The other is fragmentary but well-ground (Fig. 1: D4).

In longitudinal section all the points are lenticular, generally thickest at the widest portion (anterior to the midpoint). Cross-sections are also lenticular. Four points have very slight shoulders either on one edge (Fig. 1: D2; Fig. 2: A2), or both (Fig. 1: D3; Fig 2: B1). The ground edges extend to the shoulders.

On four of the basal fragments there appears to be a remnant of a large primary flake scar extending from the base edge up to 10 mm. and as wide, or nearly so, as the base (Fig. 2: C5, F4). These flat surfaces may indicate that the lanceolate points were made from large blades struck from a core.

Basal grinding of lateral edges is characteristic of certain Paleo-Indian points (Wormington, 1957:38). Smoothing of the edges on the present material must have been intentional, resulting not only in dulling the edge but also in straightening it. In experimental attempts to produce ground edges it was found that best results were obtained by rapidly moving a point back and forth against a flat stationary object; a crosswise motion caused undesirable chipping of the edge. A number of possible grinding substances were tested for this use, including bone, sandstone, quartzite, granite and chert (dull, opaque flint). Chert proved to be the only satisfactory material of those tested and showed no perceptible sign of wear. The sharp edge of the hard flint simply sawed through the other materials, and the edge was barely dulled. But when the point was similarly rubbed against a chert flake the edge of the point was ground down very rapidly. Knife River flint and similar material proved too slippery to permit use as a grindstone.

The smoothed edge resulting from this experimental grinding appeared identical to the ground edges of the lanceolate points (straight outlines, longitudinal scratches, indentations missed, flat surface abraded). The slight amount of effort necessary to produce a ground-edge in this fashion suggests that Agate Basin Points were finished by a similar if not identical technique for rapidly grinding a flint edge to specific desirable forms. It may be assumed that Agate Basin Points were ground to conform to a desired pattern. Thus a detailed analysis of the basal form of the lanceolate points should be of some archaeological significance.

As the illustrations show, the basal portions of many points have rather straight lateral edges converging towards the base. This particular outline, roughly obtained by chipping, was refined by grinding. Grinding of the basal edge occurs about half the time, but usually is slight. Base-edge grinding is generally heaviest on points which exhibit the heaviest grinding on the lateral edges. The base edge is usually straight (for 15 points) to slightly convex (17) with gently rounded rather than abrupt corners. The base is thin, sometimes left sharp.

I suggest that a certain relationship exists between basal width and the angle of convergence of the sides. The **angle of convergence** (Fig. 3:A) was rather quickly measured by placing individual pieces on a chart of a series of angles drawn at five degree intervals and moving them about until the best fit was obtained. (Most bases could be fitted fairly well into a particular angle; the whole series that I measured was tested by my wife, Ruth Nero, who obtained similar results.) The angle of convergence could then be readily observed; a straight line drawn at a right angle to the mid-line of each point and in contact with the base of the point permitted measurement of the **"ideal" basal width** (Fig. 3:B). Actual basal width was difficult to measure since most of the Parkhill site lanceolate points have gently rounded corners. The angle of convergence varied from 15 to 35 degrees and a large proportion measured 15 and 20 degrees. "Ideal" basal width ranged from 9 to 15 mm. In these points, as the angle of convergence increases, ideal basal width tends to decrease (Table 1).

Table 1—Basal Measurements of 32 lanceolate points or fragments

Number of points or fragments	8	11	5	3	5
Angle of convergence of sides in degrees	15	20	25	30	35
Average "ideal" basal width in mm.	15	13	12	13	9

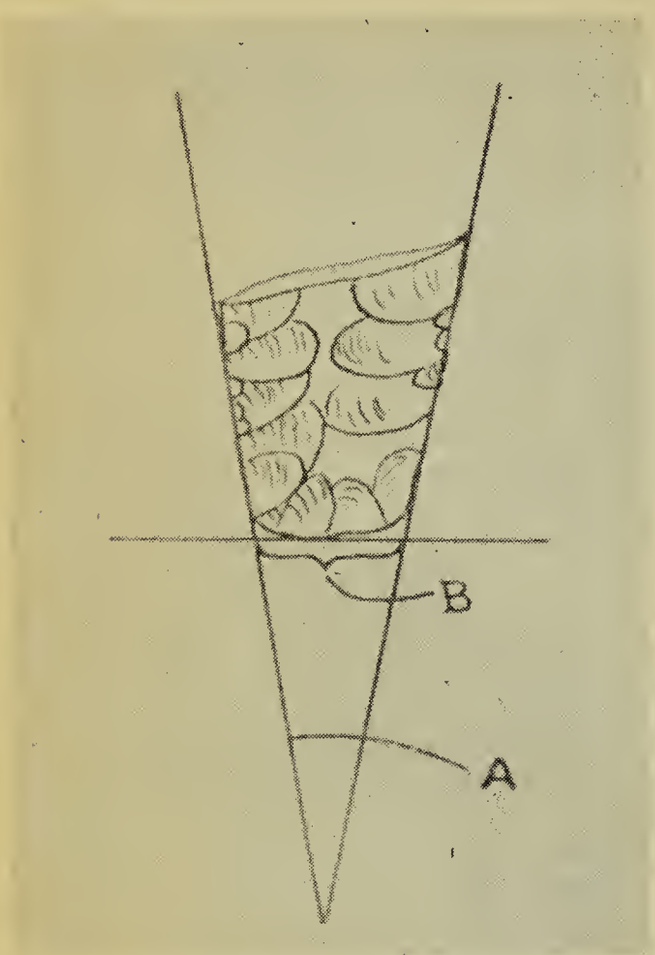

Figure 3. Method of measuring angle of convergence and "ideal" basal width.

I am inclined to believe that heavy grinding on Agate Basin Points was intended more to shape the edge to a specific outline than to dull it. The difficulty of hafting points with abruptly tapered bases would seem to be considerable. Ground edges would only increase the difficulty. I have therefore been led to consider the possibility that the points were hafted in a socket and that the points were shaped to fit a permanent socket. A socketed attachment would allow the shaft to be disengaged from the point after penetration and would make it possible to use repeatedly simply by replacing the points.

Miscellaneous Points: All 20 points found at the Parkhill site other than Agate Basin are shown in Fig. 4. Two have slightly ground edges (D4, 5) but appear to be related to the unnotched, triangular and parallel-sided points of the group (A1, B3, 5) rather than to Agate Basin Points. Eight side-notched points were found; five others may have been side-notched or stemmed. One point (A5) bears on the reverse side two longitudinal and parallel flake scars running the entire length down the center from the base; the other side shows a broad original flake surface and extensive thinning at the base. The form of thirty-three other point fragments could not be determined. Several may be fragments of Agate Basin Points. Two strongly resemble Eden Points.

End-scrapers: The 78 end-scrapers from the site can be divided into two main groups: **Group 1** (45 in number) are generally rectangular or trapezoidal in outline and are of roughly the same thickness throughout. One or more broad flake scars run from end to end. They have been subdivided according to size. Subgroup 1A (20) often have parallel sides (8) (Fig. 4: E2) but usually the sides converge toward the base (12) (Fig. 4: F2). Beveling and retouching of both lateral edges is common. The proximal end may retain a bulb of percussion. Subgroup 1B (25) are thicker than the above and are often thickest at the distal end (Fig. 4: E3, F3). The edges converge toward the base, in a few cases to a point. Retouching occurs along both sides but is rarely extensive. One, however, has flake scars reaching nearly to the center. **Group 2** scrapers (24) have either longitudinally-ridged backs (Fig. 4: E4, 5) or irregular forms resulting from heavy irregular flaking (Fig. 4: F4, 5). The latter two have dressed backs. A few lack retouching on one or both edges (3). All are noticeably thick at the distal end, and have a slightly rounded to round bit which may merge imperceptibly with the edges. Eight have a somewhat pointed base.

Scrapers with ground and worked lateral edges: Eighteen end-scrapers are ground on one or both edges (8 in sub-group 1A; 7 in 1B; 3 in group 2). Smoothing is longitudinal and apparently deliberate. Usually the ground edge is the left one and the right edge shows more undercutting, as if by use.

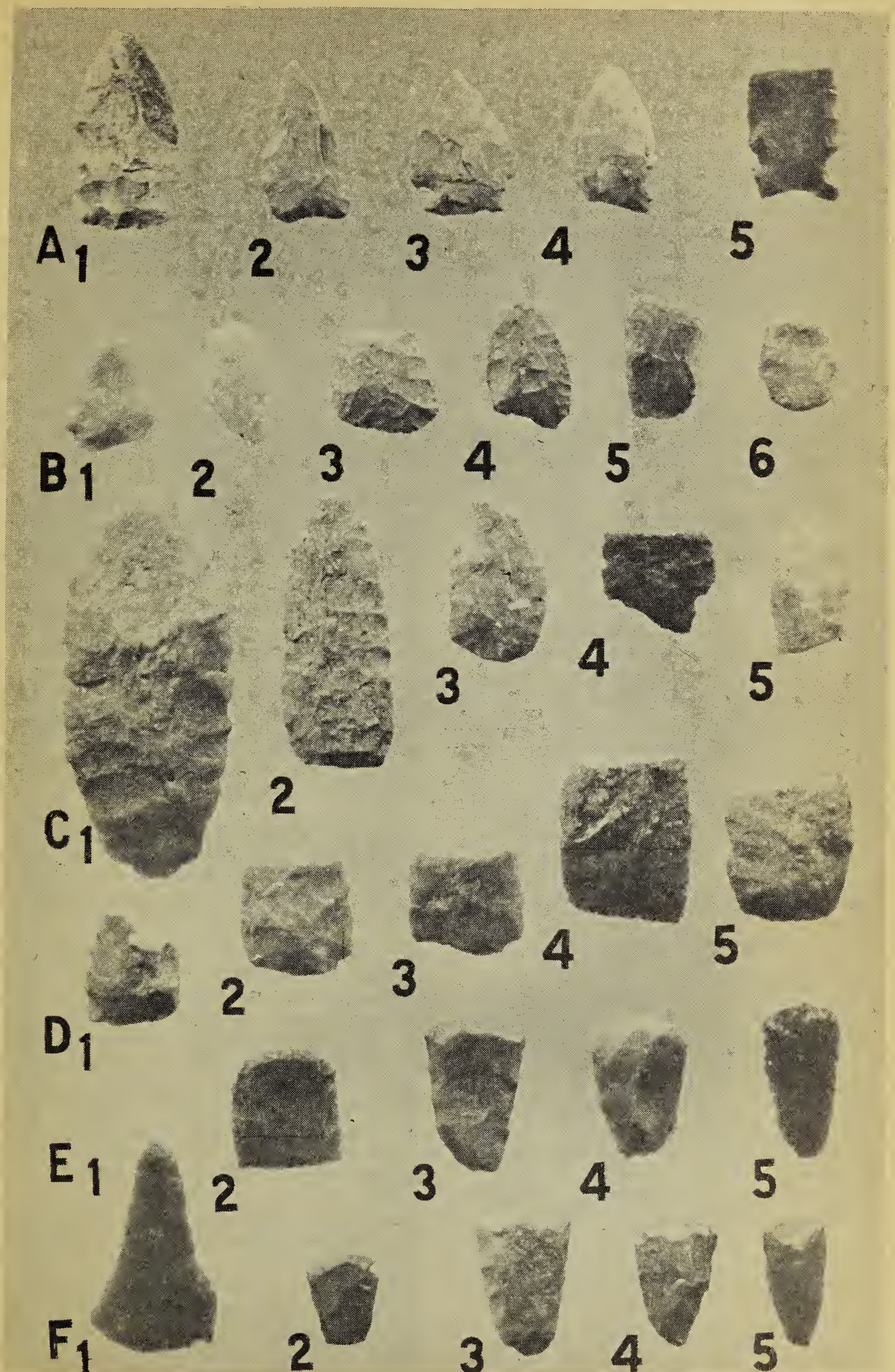

Photo by R. W. Fyfe

Figure 4. Miscellaneous points and scrapers from the Parkhill Site. (A1 is 1½ inches in length).

Examination of all the end-scrapers revealed the occurrence of 21 of these combination forms. In all except three the right edge was the more heavily undercut. It may well be that the side retouching represents preparation of the edge for a cutting or a scraping function rather than for securing a desired shape.

Spurred scrapers: Small, sharp corners or "spurs" occur on 14 end-scrapers (Fig. 4: E3, F3). They may have been formed secondarily as a result of resharpening hafted scrapers.

Two end-scrapers each have notches, in one case on the bit (shallow but well-defined); in the other case on a broken base (shallow and broad).

Gravers: A single well-defined graver was found. It is a multiple type consisting of two tiny graver points based on a very thin primary flake. The distance between the point tips is seven mm., and they are each about one mm. in length. Another possible graver occurs on a crude point which has elsewhere been reworked to a scraper. A lanceolate basal fragment (Fig. 2:F7) has been reworked on one corner to produce an angular projection which may have served as a graver.

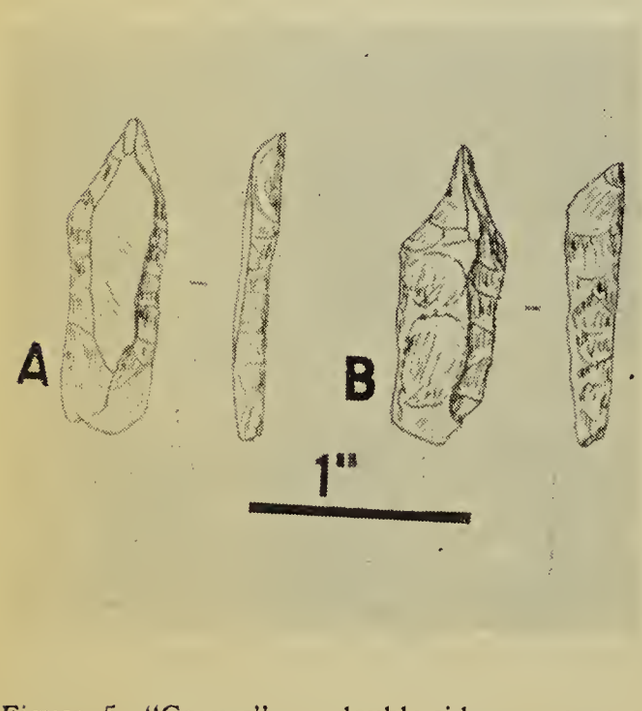

Figure 5. "Graver" — double-side — scrapers from the Parkhill Site.

"Graver" - double - side - scraper : Two narrow, unifacially chipped implements worked along nearly parallel edges each have a graver-like point on one end. One has a flat back (Fig. 5:A), the other is ridged (Fig. 5:B).

Drill (?): A single drill-like implement, bifacially-chipped, is well worked. Its unusual shape suggests a drill or combination tool of some sort (Fig. 4:F1).

"Side-scrapers" and flake knives: A variety of unifacial,, retouched-edge flake or blade implements prepared for a cutting or a scraping function were found. These range from thick, massive flakes trimmed irregularly around the perimeter (1), on one edge (6), or on two sides (3), to smaller, thinner, more flattened flakes made from more tractable materials and with finer retouching on one side (16) or two sides (11) (one with a ground edge). Some thin flakes are carefully (deliberately?) drawn, exhibit broad flake scars on the back, and have more or less parallel edges, often trimmed quite straight, running the length of the flake. A few have a paper-thin edge and were undoubtedly knives. In nearly every case retouching is directed from the plane surface.

Forty-six other irregularly shaped flakes bear secondary retouching and appear to have been used for scraping or cutting. They are random flakes.

Two tiny primary flakes about the size of a small fingernail bear minute unifacial retouching along the edge opposite the bulb of percussion. These are very similar to implements from surface sites in Wisconsin (Nero, 1948). Two retouched flake scrapers also have small notches on one edge. Possible "spokeshaves" also appear on two large side-scrapers and on two end-scrapers.

Bifacial blades: Three complete (and eight fragmentary) bifacially-worked knives (?), generally symmetrical in form, are large and generally crude. One is nicely pointed. Another has a carefully and symmetrically-rounded base. Still another, ovoid in shape, is either a well-made knife or an unfinished projectile point.

TABLE 2—Basal measurements (in mm.) of lanceolate points from three sites.

Site	"Ideal" basal width	Angle of convergence of sides 10	15	20	25	30	35	40	No. of pts.
Havey	13 to 20; avg. - 16	4	1	2	1	—	—	—	8
Parkhill	7 to 18; avg. - 12	—	8	11	5	3	5	—	32
Jameson	8 to 18; avg. - 12	—	—	6	5	3	4	3	21

Pebble-flake scraper: One scraping implement is made from a large flake struck from a quartzite pebble. It has nearly parallel sides. The slightly convex distal end is smoothed crosswise to the edge evidently through use. All retouching is unifacial.

Kinds of stone used: More than 60 per cent of the artifacts (75 per cent of the lanceolate points) from the Parkhill site consists of a fine, white chert (dense, opaque variety of flint). Close to 30 per cent (20 per cent of the lanceolate points) are comprised of brown chalcedony ("Knife River flint"). A few are made of burned shale, quartzite, agate, petrified wood and obsidian (two flakes). One lanceolate point is made of shale which appears to have greatly altered since manufacture of the point (Fig. 1: B1). It has a dark brown surface which can easily be scratched to reveal a yellowish interior.

SIMILAR SASKATCHEWAN MATERIAL

Lanceolate projectile points have been found on the surface over most of the southern half of the province (Wettlaufer, 1951; and recent records from **Blue Jay** correspondence). A variety of types is apparent and it will be necessary to classify these in the same cautious manner as has been done with, for example, side-notched points. Nevertheless, Agate Basin type points are discernible throughout the area, being common at sites near Lajord, McCord (L. L. Dewalt collection) and Jameson. Points collected by Eric Bowman (Regina) from an extensive surface site near Jameson are clearly Agate Basin type but still are not identical with those from the Parkhill site. Probably a camp-site, the Jameson site covers an area of several acres. It was heavily blown during the "thirties," attracting several collectors. According to Mr. Bowman, two concentrations of burned bone fragments—possible hearths—were noted on the site. Twenty-three lanceolate points and basal fragments from Bowman's Jameson collection were examined in detail. Only one of these was made of Knife River flint, the others being of various kinds of chert. The material used for some is nearly identical with material from the Parkhill site, but most of the stone has poorer chipping qualities, possibly accounting for the generally rougher appearance of Jameson points. They also tended to be thicker in cross-section, especially toward the base, than those from Parkhill. Eighteen had a straight base; five had concave bases, all more deeply concave than were any of the Parkhill points. One had slight but definite shoulders, formed largely by the grinding of the edge. Basal measurements are given in Table 2. Jameson points, it will be noted, had generally more abruptly converging sides (wider angle of convergence). Several points appeared foreshortened, evidently as a result of reworking the tip. The total length of one point was 81 mm. Others ranged from 32 to 83 mm. (the latter broken) in total length.

DISCUSSION

The lanceolate points from the Parkhill site closely resemble Agate Basin Points. Both are of well-made, lanceolate form with sides converging to narrow, truncated base; straight to slightly convex or (rarely) rounded base; heavy and extensive basal grinding; neat flaking resulting in a rather smooth surface; rarely, a slight shoulder; and wide range in size. Since no detailed description of Agate Basin Points or the associated artifacts is yet available further comparison between the sites is difficult.

Resemblances between the Parkhill site and the Havey site near Madison, Wisconsin (Nero, 1955) are particularly striking. Lanceolate points from these two sites are very

similar in their general form and especially in the shape and position of the flake scars, although the Havey site points tend to have more nearly parallel edges (narrower angle of convergence, see table 2). A reworked point or "graver" on a lanceolate basal fragment (Fig. 2:F7) has a parallel at the Havey site. The single distinct graver found at the Parkhill site is identical with gravers from the Havey site where they were especially plentiful (Nero, 1957) and seemingly associated with the lanceolate points. Of possibly more significance is the occurrence at Parkhill of a generally rare artifact: the distinctive "graver - double - side - scraper", some of which were also found at the Havey site (compare Fig. 5:A,B, with the "narrow, double-edged side-scrapers," in Nero, 1955: Fig. 4i, j, k). Both sites contain a high proportion of end-scrapers, not only with trimmed edges, but also with ground edges. Even certain points other than Agate Basin Points from the two sites resemble each other (Fig. 4:A2, 4, 5) suggesting the occurrence of approximately similar complexes. I think that the sites are closely related.

Havey site lanceolate - points, gravers and ground-edge scrapers appeared to be part of a single complex related to eastern late Paleo-Indian and Early Archaic complexes, with a strong affinity with the latter particularly. A number of similarities were found with the Reagen site in Vermont (Ritchie, 1953) and Starved Rock site in northern Illinois (Mayer-Oakes, 1951). Lanceolate points from the Parkhill site appear more closely related to the Havey site lanceolate points than to those from Starved Rock.

I am inclined to consider the occurrence of non-lanceolate points at the Parkhill site as significant and indicative of Early Archaic relationships. There is recent evidence from the Oxbow site and the Long Creek site in southeastern Saskatchewan of similar side-notched points of Archaic type at an early time period (5200 ± 250): Nero and McCorquodale, 1958); 4650 ± 150: Wettlaufer, 1958). Archaic materials, i.e., side-notched points or non-Paleo-Indian items, probably extend to an even earlier period and it seems likely that Robert's guess-date of 7000-8000 years for Agate Basin Points will hold for the Parkhill site lanceolate points as well. Of course, it is to be expected that in time similar materials will be found *in situ* and then a specific date and a broader cultural inventory will probably be obtained. The Parkhill site can further be considered on a typological basis to belong to an early stage of the "Plains Archaic" as outlined by Mayer-Oakes (1956). This lithic tradition, based on Paleo-Indian units such as Scotsbluff and Plainview, bridges the gap between Paleo-Indian and eastern Archaic cultures and is evident as far east as the upper Ohio River valley. The Havey site in Wisconsin has been designated as Plains Archaic by Mayer-Oakes (*op. cit.*); presently expressed relationships between the Havey site and the Parkhill site help strengthen this bond with the Plains.

SUMMARY

1. Sixty-five lanceolate points or fragments found on the surface of the Parkhill site, near Moose Jaw, Saskatchewan, closely resemble Agate Basin Points, and are so designated.

2. Only 20 other points of various types (mainly side-notched) were found on the site. This and other evidence suggests that the site is primarily an Agate Basin Point site.

3. The Agate Basin Points and some associated artifacts from this site closely resemble material from the Havey site, a surface site near Madison, Wisconsin.

4. There is a further similarity in the total complex found at each of these sites, indicating Early Archaic relationships.

5. The juxtaposition of lanceolate and non-lanceolate materials at both sites may be accidental, but it is suggested that this is indicative of a relatively close relationship in time or continuity.

6. The complex of material from the Parkhill site may be designated Plains Archaic (with a preponderance of Agate Basin Points).

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The Spadefoot Toad in Saskatchewan

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Photo by R. W. Fyfe

Close-up of SPADEFOOT TOAD (August, 1958). Note vertical pupil.

While collecting small mammals in the general vicinity of the South Saskatchewan River at Elbow in the summer of 1958, Fred W. Lahrman and I were fortunate in finding several specimens of the Central Plains Spadefoot (*Scaphiopus bombifrons* Cope). This interesting toad, as its name suggests, is found throughout the central plains from Northern Mexico to Canada. R. C. Stebbins (1951. Amphibians of Western North America. University of California Press) failed to mention any Canadian records but E. B. S. Logier and G. C. Toner (1955. Checklist of the amphibians and reptiles of Canada and Alaska. Contrib. Royal Ontario Museum of Zoology and Paleontology, No. 41) list six Canadian localities, five in Alberta and one in Saskatchewan (see map). The Saskatchewan record was obtained by Dr. E. J. Moore at Alsask on June 25, 1951. However, the Museum has an earlier record for Saskatchewan that has not been published: what is apparently the first spadefoot for the province was collected on July 25, 1949, by Lahrman at Bengough near the Big Muddy Valley. This toad was found at night with the aid of a flashlight.

In the morning of July 14, 1958, we found a spadefoot caught in a mousetrap set overnight at the base of a large sand-hill six miles southeast of Elbow, Sask. It seems likely that it was attracted to the trap by ants and other insects feeding on the