ARCHAEOLOGICAL SURVEY OF ALBERTA

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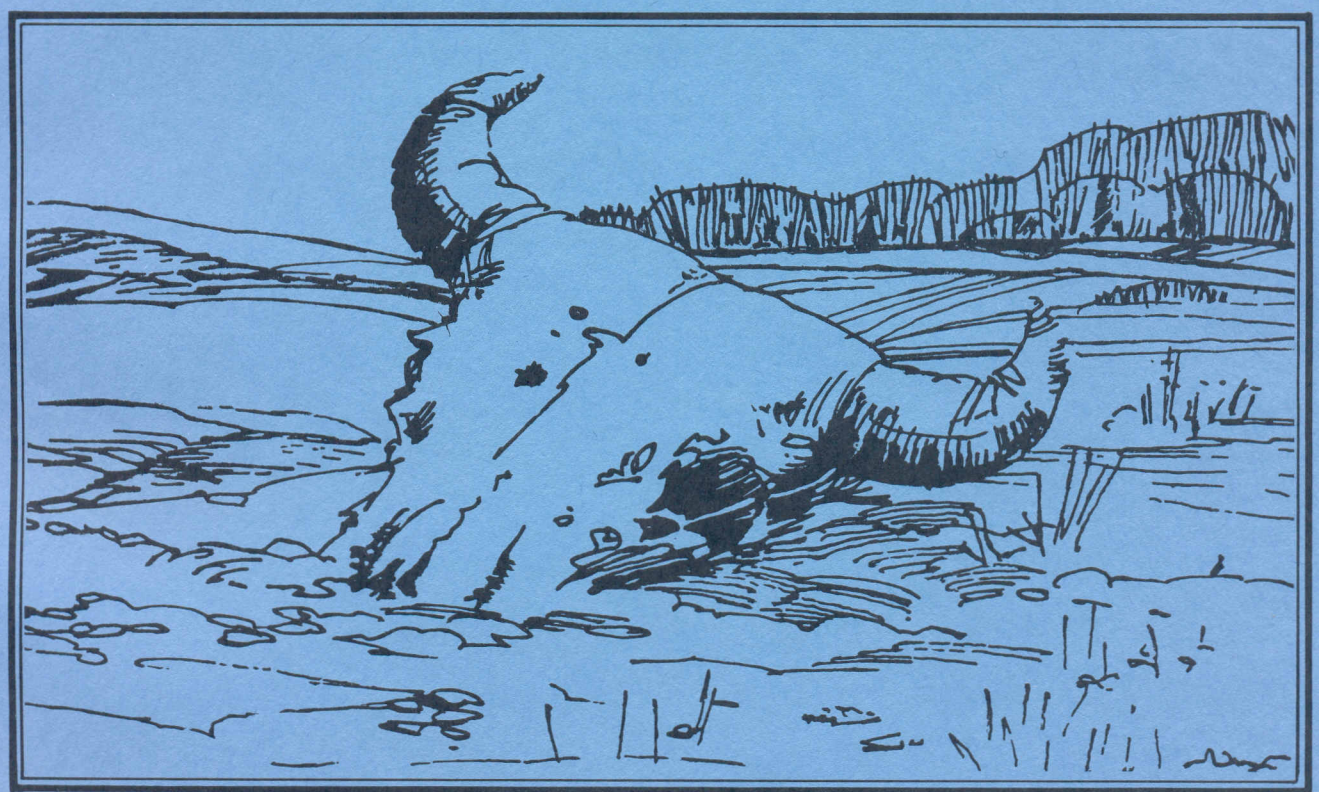
ARCHAEOLOGY IN ALBERTA 1978

J. M. Hillerud



Alberta
CULTURE
Historical Resources

ARCHAEOLOGY IN ALBERTA, 1978

Compiled by
J.M. Hillerud

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Objectives

These Occasional Papers are designed to permit the rapid dissemination of information resulting from Historical Resources' programmes. They are intended primarily for interested specialists, rather than as popular publications for general readers. In the interests of making information available quickly to these specialists, normal production procedures have been abbreviated.

ABSTRACT

In 1978, the Archaeological Survey of Alberta initiated and administered a number of archaeological field and laboratory investigations dealing with a variety of archaeological problems in Alberta. The majority of these investigations were supported by Alberta Culture. Summary reports on 21 of these projects are presented herein. An additional four "shorter contributions" present syntheses of data, and the conclusions derived from them, on selected subjects of archaeological interest. The reports included in this volume emphasize those investigations which have produced new contributions to the body of archaeological knowledge in the province and progress reports of continuing programmes of investigations.

TABLE OF CONTENTS

PAGE

LIST OF TABLES

LIST OF FIGURES

ARCHAEOLOGICAL INVESTIGATIONS IN ALBERTA, 1978

W.J. Byrne
Archaeological Survey of Alberta

Since the publication of the last annual review of the progress of archaeology in Alberta, and specifically the activities of the Archaeological Survey Branch of Alberta Culture, many new initiatives have been taken to improve the state of knowledge of the archaeology of the province and to strengthen the efforts to preserve and understand Alberta's valuable prehistoric and historic archaeological heritage. Once again, these initiatives have involved the cooperation of both the government and non-government archaeological communities, various administrative and regulatory agencies, and public and private development interests. Such progress as has been recorded can in no small measure be attributed to the continued successful cooperation of the different individuals and interests which have recognized the importance of the archaeology of the province, and have accordingly made the appropriate contributions and concessions to maximize the preservation of archaeological resources and the continued investigation of the prehistoric heritage.

Directed or mitigative research projects, undertaken in reaction to planned developments which will entail ground surface disturbance, continue to dominate the list of archaeological research permits for which applications were made in 1978 (Table 1). Of a total of 116 permit applications, no fewer than 92 were granted for investigations necessary to locate, assess and/or investigate archaeological resources situated on properties to be severely impacted by a variety of modern developments, while 21 projects were initiated as basic research projects and the remaining three were not actioned. The continued growth in the number of archaeological research projects undertaken in response to development pressures is an extremely heartening trend, as all of the results of these studies constitute contributions to archaeology which would never have occurred as recently as five years ago.

Of the many development-related investigations, 61 were entirely funded by private industry, the bulk of them being power transmission, pipeline and pipeline-related projects. These latter studies have a

TABLE 1: 1978 PROJECT PERMITS ISSUED BY THE ARCHAEOLOGICAL SURVEY OF ALBERTA

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-1	Lifeways	Pan Canadian pipeline survey Countess
78-2	Aresco	AGTL pipeline survey, Suffield Reserve
78-3	Lifeways	AMOCO Canada pipeline survey, Fox Creek
78-4	Aresco	AGTL lateral surveys, Killam, Ester and Acadia
78-5	Lifeways	City of Calgary Roads Department survey, Deerfoot Trail
78-6	R. Heitzmann	Genstar Development survey testing: Edmonton - Clareview
78-7-C	T. Losey (U. of A.)	Fort George excavations and field school. (This permit was cancelled and replaced with No. 78-22-C)
78-8	J. Wood (A.S.A.)	Alberta Forest Service campgrounds survey, northwestern region
78-9	J. Wood (A.S.A.)	Research survey, Buffalo Head Hills (no work done under this permit)
78-10	J. Wood (A.S.A.)	Research location and assessment of sites in the Peace and Clear River areas
78-11	I. Wilson (Aresco)	Calgary Power Transmission line survey, Janet to Red Deer
78-12	I. Wilson (Aresco)	C.V. Engineering pipeline survey Fort McMurray
78-13	J. Brumley	Anadarko Petro Canada Ltd. wellsite survey
78-14	J. Brink (A.S.A.)	Alberta R.P.W. provincial parks survey, Eastern Slopes
78-15	J. Brink (A.S.A.)	Alberta Transportation, Smith-Dorrien Road and Hwy. 940, Kananaskis
78-16	J. Brink (A.S.A.)	A.F.S. campgrounds survey, Eastern Slopes
78-17	J. Brink (A.S.A.)	Research Smoky River-Jackpine River valleys survey, Grande Cache.

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-18	I. Wilson (Aresco)	Qualico: test excavation of sites at Queensland Downs
78-19	M. Wilson	Congress Resources development survey
78-20	E. McCullough (Lifeways)	Dome Petroleum pipeline survey, Waterton-Cochrane
78-21	J. Pollock (A.S.A.)	Strathcona Science Park test excavations
78-22-C	C. Wilson (U. of A.)	Fort George field school excavations, Dept. of Anthropology (This permit replaced cancelled permit 78-7)
78-23	J. Brumley	Alberta Eastern Gas Ltd. wellsite survey and salvage
78-24	M. Quigg (A.S.A.)	Research excavation of sites in Hardisty region
78-25	(Project cancelled)	
78-26	B. Reeves (Lifeways)	Westview Investment: Village IIa, Lethbridge survey
78-27	J. Calder (Lifeways)	Shell Canada Resources Ltd: Peace River area plant survey
78-28	E. McCullough (Lifeways)	AGEC pipeline survey, Joffre - Fort Saskatchewan
78-29	R. Forbis/M. Wilson	Taber Child Site; excavation
78-30	J. Wood (A.S.A.)	Alberta R.P.W. provincial park survey, Young's Point
78-31	B. Wright (Aresco)	South Sundance and Keephills excavation
78-32	J. Fromhold (A.V.C.)	Imperial Oil survey, Judy Creek Coal Lease, Swan Hills
78-33	I. Wilson (Aresco)	Kananaskis Lakes - Lac Des Arcs survey/excavation
78-34	B. Wright (Aresco)	Petro Canada Schuler plant survey
78-35	B. Reeves (Lifeways)	Shell Canada survey, Limestone Mountain - Clearwater River
78-36	M. Doll (P.M.A.)	Research excavation, Buffalo Lake Métis cabins, Boss Hill site
78-37	M. Quigg (A.S.A.)	Alberta R.P.W.: survey of provincial parks, southern Alberta

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-38	J. Brumley	M-P Petroleum, wellsite survey
78-39	W. Elliot	Upland Management Ltd. survey, Crooked Creek near Waterton
78-40	M. Wilson	Research excavation, EgPm-127, Calgary
78-41	A. Bryan (A.R.I.)	Qualico Woodlands survey, St. Albert
78-42	A. Bryan	Excavation, Crowsnest Cave (No work done under this permit)
78-43	(Project cancelled)	
78-44	I. Wilson (Aresco)	Beak Consulting: roadway and parking development survey/monitoring, Kananaskis Country
78-45	J. Calder (Lifeways)	Bow Valley Exploration, pipeline survey, near Airdrie
78-46	J. Fromhold	Imperial Oil transport route survey, Judy Creek Coal Unit, Swan Hills
78-47	J. Calder (Lifeways)	Aquitane Company of Canada Ltd. gathering system pipeline survey
78-48	J. Pollock (A.S.A.)	Alberta Transportation, highway surveys, northeast Alberta
78-49	J. Pollock (A.S.A.)	Alberta R.P.W. survey of provincial parks, northeastern Alberta
78-50	J. Pollock (A.S.A.)	Research survey, Isle Lake, Lac St Anne, Sturgeon River valley to North Saskatchewan River
78-51	M. Forsman (A.S.A.)	Alberta Transportation, highways salvage/excavation, Passburg, Crowsnest Pass
78-52	M. Forsman (A.S.A.)	Alberta Transportation, highways salvage/excavation, Old Frank, Crowsnest Pass
78-53-C	R. Heitzmann	Highways mitigation survey, south Alberta
78-54	R. McPhee (Aresco)	Golf course area survey, Kananaskis Country
78-55	W. Davis	Excavation of Hudson's Bay Post (GeOx-13), Lac La Biche

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-56-C	E. Gryba	Highways mitigation survey, Northern country
78-57	J. Brumley	Sun Oil pipeline survey, Jenner
78-58-C	(Project cancelled)	
78-59	D. Crowe-Swords	University of Calgary Field School excavation (DjPo-47), Crowsnest Pass
78-60	B. Wright (Aresco)	AGTL pipeline survey, Two Hills
78-61-C	R. Heitzmann	Research excavation, Fort Chipewyan
78-62	B. Wright (Aresco)	Edmonton Power, Rossdale Power Station cable, monitoring
78-63	B. Reeves	Research excavations, Canada Council, Crowsnest Pass
78-64	E. McCullough (Lifeways)	Dome Petroleum pipeline excavations, Waterton-Cochrane
78-65	J. Hillerud (A.S.A.)	Faunal remains exploration and salvage, Gwynn, Alberta; Terwilliger Park, Alberta
78-66	B. Reeves (Lifeways)	Coleman Collieries transport road R.O.W., Racehorse Creek, Crowsnest Pass
78-67	J. Driver	Archaeological Society of Alberta Calgary Branch, research survey, City of Calgary
78-68	J. Calder (Lifeways)	Calgary Power transmission line, Janet to Lethbridge
78-69	R. McFee (Aresco)	Golf course area extension survey, Kananaskis Country
78-70	B. Newton	Research excavation/monitoring, Fort Victoria Clerks' Quarters
78-71-C	E. McCullough (Lifeways)	Alberta Transportation: highways mitigation excavations, northwestern Alberta
78-72-C	E. McCullough (Lifeways)	Alberta Transportation highways mitigation excavations, central Alberta
78-73-C	J. Brumley	Alberta Transportation highways mitigation excavations, southern Alberta
78-74-C	R. McFee - I. Wilson (Aresco)	Alberta Transportation highways mitigation excavations, Alberta foothills

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-75	R. McFee (Aresco)	Algas Co. pipeline survey, James River - Crowsnest Pass
78-76	B. Wright (Aresco)	Algas Co. pipeline survey James River - Empress
78-77	J. Calder (Lifeways)	Gulf Oil pipeline survey, Provost
78-78	J. Brumley	Acadia Valley Gas Processors Ltd. station site survey
78-79	J. Calder (Lifeways)	Gulf Oil pipeline survey, Big Valley - Drumheller
78-80	M. Quigg (A.S.A.)	Ross Creek S.D. survey/investigation, Medicine Hat
78-81	J. Hillerud (A.S.A.)	Research-stratigraphy investigation, Duffield #3 fossil bison site
78-82	J. Brumley	Ocelot Industries wellsite survey, Brooks
78-83	G. Fedirchuk (A.R.C.)	Akley Design S.D. survey, Alberta Beach
78-84	T. Losey	Tomahawk S.D. survey
78-85	I. Wilson (Aresco)	Alberta Environment, Langdon Reservoir survey
78-86	J. Calder (Lifeways)	Pan Canadian Petroleum pipeline survey, Standard
78-87	R. Heitzmann	Genstar: Riverbend S.D. survey, Edmonton
78-88	E. McCullough (Lifeways)	Calgary S.D. survey, Beddington Creek
78-89	B. Wright (Aresco)	Genstar: Castledowns II S.D. survey, Edmonton
78-90	E. McCullough (Lifeways)	CIL Calgary: Canadian Freehold Properties, Lands - Barlow survey
78-91	M. Quigg (A.S.A.)	Research excavation, the Stampede site DjOn-26, Cypress Hills
78-92	G. Fedirchuk (A.R.C.)	City of Edmonton: Mill Woods Ridgewood S.D.
78-93	E. McCullough (Lifeways)	Pan Canadian Petroleum power transmission line survey, Syncrude area, Fort McMurray
78-94	D. Steer	Seafort Gas Plant pipeline survey/ monitor, Rocky Mountain House

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-95	E. McCullough	Archaeological Society of Alberta Calgary Branch, mapping of Carsland Medicine Wheel
78-96	B. Wright (Aresco)	Calgary Power Ash Lagoon development survey, Keephills area
78-97	B. Wright (Aresco)	Genstar S.D. development survey, St. Albert
78-98	S. Van Dyke (Lifeways)	AGTL Alaska Highway Pipeline Project #1 survey - Peace River - Athabasca River
78-99	S. Van Dyke (Lifeways)	AGTL pipeline survey Elmworth Lateral, Peace River
78-100	E. McCullough (Lifeways)	Alberta Power transmission line survey, Vegreville - Hairy Hill
78-101	E. McCullough (Lifeways)	AGTL Alaska Highway Pipeline project #2 survey, west - central Alberta
78-102	J. Calder (Lifeways)	City of Calgary, Nose Hill Park survey
78-103	B. Reeves (Lifeways)	University of Calgary survey, Pekisko Creek area
78-104	G. Fedirchuk (A.R.C.)	Alberta Environment survey, Red Deer River Dam
78-105	I. Wilson (Aresco)	Alberta Transportation highways mitigation excavations, Kananskis Country
78-106	A. Bryan (A.R.I.)	Underwood-McLellan (1977) Ltd. Mayerthorpe development area survey
78-107	A. Bryan (A.R.I.)	International Environmental Consultants, Obed and Marsh blocks survey, Hinton
78-108	I. Wilson (Aresco)	AGTL pipeline survey, Grande Prairie - Gordondale and Valhalla Lateral
78-109	B. Wright (Aresco)	AGTL pipeline survey, Camrose pipeline, Ferintosh North Lateral
78-110	T. Losey	Can-Quest Property S.D. survey, Stony Plain
78-111	J. Calder (Lifeways)	Gulf Oil pipeline survey, Oyen
78-112	B. Wright (Aresco)	Calgary Power transmission line survey, Janet to Lethbridge

PERMIT NO.	ARCHAEOLOGIST	PROJECT
78-113	R. Heitzmann	Development surveys, Lac Ste. Anne S.D., Frankl S.D. - Ononway
78-114-C	B. Reeves (Lifeways)	Assessment survey, S.R. 516 near Head-Smashed-In
78-115	I. Wilson (Aresco)	AGTL Mikwan pipeline survey
78-116-C	M. Wilson	Alberta Transportation, Highways excavation/assessment, S.R. 590, Elnora bison bone bed

considerable theoretical archaeological value, inasmuch as they constitute a series of virtually random transects through all parts of the province. The Resource Management Section of the Archaeological Survey of Alberta has initiated a systematic monitoring programme on the results of the pipeline survey projects, and though the results are far from complete the study is already providing valuable insights into settlement pattern variations throughout Alberta. Projections based in part on this information are useful not only in the interpretation of prehistoric lifestyles, but also in the determination of critical archaeological resource management decisions.

Of increasing importance as well, in the private sector, is the growing incidence of studies related to major urban and rural subdivisions. Some 17 large subdivision projects were scrutinized by means of historical resource impact assessments conducted over the past year by archaeological consultants employed by the developers, and a considerable number of prehistoric and historic archaeological sites were located and evaluated. Reviews of these various projects by the Archaeological Survey of Alberta have identified a number of sites of sufficient worth to require further investigation before they are destroyed through housing construction, and at least one developer is exploring the possibility of modifying his original subdivision plan in order to preserve in situ one of the most important sites located. This is a significant step inasmuch as it has always been the policy of Alberta Culture to promote the preservation of archaeological sites in development zones by avoidance whenever possible, though the developer retains the option of investigating and subsequently destroying those sites which do not qualify for designation as Provincial Historic Resource Sites.

It should be pointed out that much of the activity surrounding subdivision projects is a direct result of a pilot project being undertaken between Alberta Culture and the Edmonton Regional Planning Commission. The latter agency is the regulatory authority responsible for subdivision approval in a large area surrounding the city of Edmonton, and, commencing January 1, 1978, it undertook to screen all of its subdivision applications according to criteria established by Alberta Culture, and to forward to the Archaeological Survey of Alberta all of those applications

which would consequently be deemed of interest. These criteria were designed to isolate those applications for developments of sufficient size and nature that they probably constituted a threat to historical resources, since of the over 1,000 subdivision applications annually received by the Edmonton Regional Planning Commission, only about 10% involve any disturbance of a significant land area.

These latter applications were then reviewed by the Archaeological Survey of Alberta, and the applicants for those projects consequently deemed to be in areas where archaeological sites were known or suspected to occur were subsequently advised of the need for historical resource impact assessments to be conducted in conjunction with their proposed developments. Since many of the development projects were not slated for immediate commencement, and many others never did receive the approval of the Edmonton Regional Planning Commission, not all of the recommended impact assessments have been conducted to this date. However, of those projects undertaken, there has been a high rate of return in terms of the number of archaeological sites located, and, as a result, there have been considerable gains made in terms of planning for subsequent investigations to recover information from these sites before they are destroyed by the developments. These results are being closely scrutinized at this time to determine the feasibility of extending the process province wide to the other regional and municipal planning commission areas, a decision which would have far-reaching implications for archaeological resources in this province, since it is estimated that there are approximately 7,000 subdivision applications submitted in Alberta each year.

Archaeological assessment and mitigative projects in conjunction with developments in the public sector have also been conducted with considerable success during 1978. Once again, highway-related projects have dominated the scene, with a total of six survey and nine excavation investigations having been undertaken in cooperation with Alberta Transportation during the summer of 1978. These projects ranged in location from the Athabasca River valley in the north to the Crowsnest Pass region in the south, and, like the power transmission and pipeline-related investigations in the private sector, they are of particular interest by virtue of the diversity of territory they transect. Most of these projects are dealt

with in preliminary fashion in this volume, and of particular interest in this regard might be the excavations conducted by Michael Forsman, a staff archaeologist with the Archaeological Survey of Alberta, at the early coal mining communities of Frank and Passburg (Figure 1).

The remaining assessment projects conducted in the government sector centered on the investigation of properties identified for development as camping or park facilities. While none of these were particularly remarkable, they did serve to confirm the observation that localities selected for their utility as campgrounds by modern planners were obviously favoured by prehistoric man as well. A number of excellent archaeological sites were located in this fashion, and plans are now progressing for preservation or continued investigation at some of these. An outstanding example is the Oxbow site located in the Strathcona Science Park, reported on in this publication by John Pollock (Figure 1). In addition, the contributions by Ian Wilson of ARESCO and Jack Brink of the Archaeological Survey of Alberta include some discussions of the work progressing in Kananaskis Provincial Park, a major new provincial park development in the southwestern part of the province, which is rapidly becoming recognized through these studies as the scene of major long-term exploitation and occupation by prehistoric peoples.

The remaining archaeological investigations conducted in the province during the past field season, many of which are also discussed in introductory fashion in this volume (Figure 1), were directed at a wide range of basic archaeological research problems and themes. The programmes varied widely from the attempts to establish preliminary occupational strategies in areas of the province previously never visited by archaeologists, as undertaken by Jack Brink and Jim Wood in the western portion of Alberta; to the compilation of structural and cultural information on early historic fur forts, as exemplified by the efforts of Rod Heitzmann at Fort Chipewyan and Tim Losey at Fort George; to the investiation of internal cultural relationships in tipi ring sites, as illustrated by J.M. Quigg. Many of these studies are still preliminary in nature, as is evident from the reports included in this publication, but the results are uniformly encouraging and justify the planning for expanded investigations in the coming year.

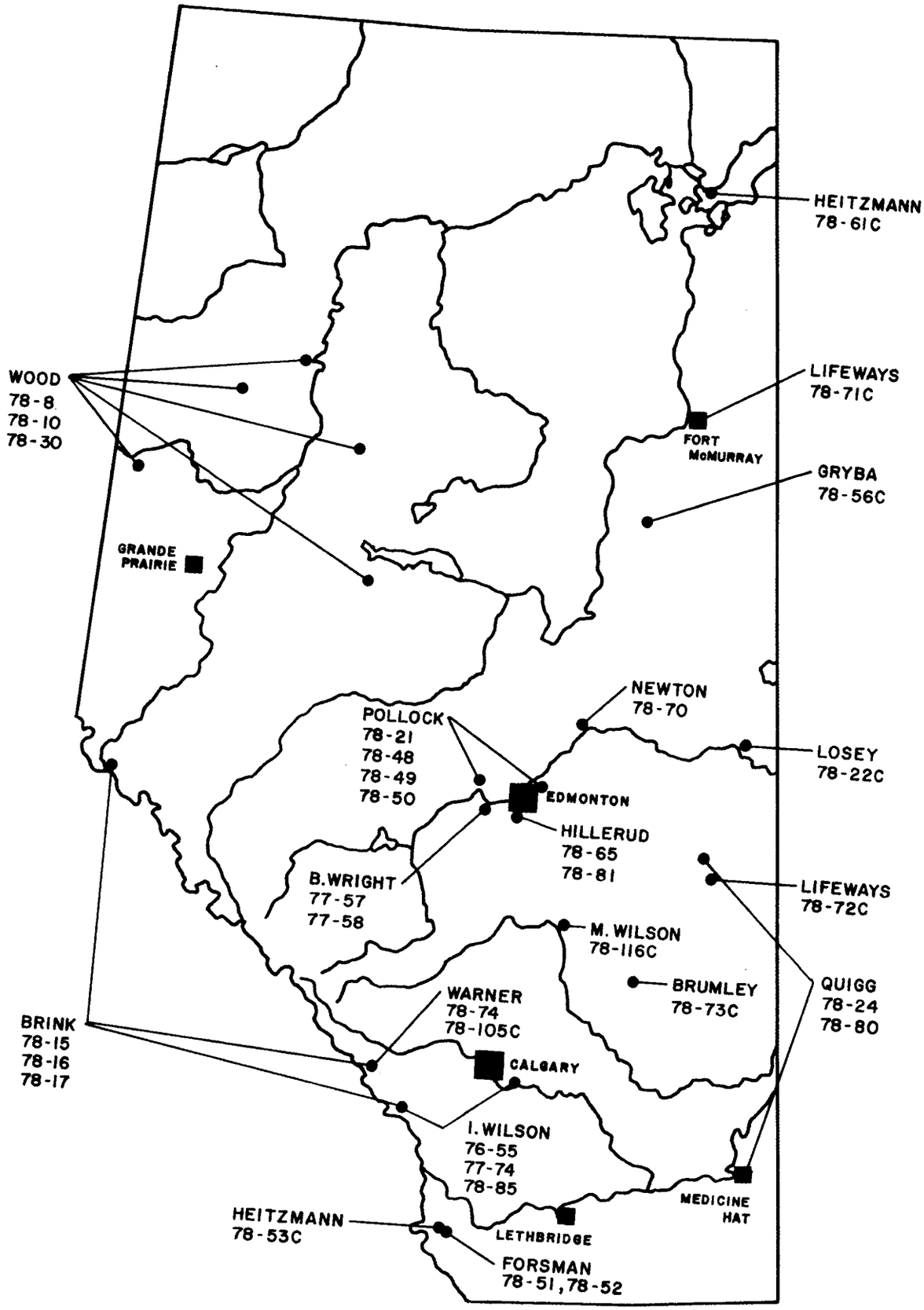


Figure 1: Archaeological investigations, 1978.

In summary, the 1978 field season has again been one of continued activity in terms of archaeological research in Alberta. The reports included in this volume testify to the wealth of the prehistoric heritage of the province, and the continuing efforts to recover and interpret it through archaeological investigations. This observation should in no sense be taken as an indication of complacency on the part of archaeologists operating in Alberta with regard to the level of effort being expended in this regard, for the very people engaged in the administration and implementation of archaeological investigations here are the ones

However, it is most heartening to see the level of archaeological activity growing and strengthening every year, with concomitant improvements in the methodologies and management strategies being applied to the investigations and the resource, for there is no question but that a maintenance of initiatives of this order in the discipline will enable archaeology in Alberta to continue to prosper to the benefit of professional and public interests alike.

HISTORICAL RESOURCES ASSESSMENT, FORT CHIPEWYAN III, 1978

Project 78-61-C

Roderick J. Heitzmann

Introduction

In July and August, 1978, an historical resources assessment of Fort Chipewyan III, was carried out by Roderick J. Heitzmann and John Priegert under contract with the Archaeological Survey of Alberta, Alberta Culture. This project was necessitated because numerous development projects are proposed for the site.

The purposes of the project were a) to establish the presence of historical resources on the site; b) to record historical resources present; c) to assess the value of any resources located; and d) to make recommendations on the future use of the site.

Historical Summary

Fort Chipewyan III was established about 1802, on the north shore of Lake Athabasca by the North West Company. The fort was the successor to a long line of earlier fur trade posts located on the south shore of Lake Athabasca, the first of which was established by Peter Pond in 1778. The move to the north shore of the lake was considered desirable because of an earlier spring break up there.

During the early part of the 19th century, Fort Chipewyan III faced stiff competition from the Hudson's Bay Company which established nearby rival posts, Nottingham House (1802-1806) and Fort Wedderburn (1814-1821). In 1821 the two companies combined and Fort Chipewyan became one of the most important fur trade centres in North Western North America. Fort Chipewyan, as headquarters for the Athabasca District, was a major supply post and distribution centre for a wide area, serving posts along the Mackenzie and Peace Rivers as well as the east end of Lake Athabasca. All supplies in the early years were carried to Fort Chipewyan by canoe or York boat from Hudson Bay, up the Churchill River, across Methy Portage, and then down the Clearwater and Athabasca Rivers. The furs were returned by the same route.

Throughout most of the nineteenth century Fort Chipewyan maintained a dominant position in the north as the centre for the northern fur trade and missionary activity. It was also an important supply and departure point for many explorers.

In 1883, Fort Chipewyan became a major stopping point for the S.S. Grahame, the first of many steamships to run northward from Fort McMurray. However, as settlement, roads and railroads developed in the south, the relative importance of Fort Chipewyan began to decline. Nonetheless, Fort Chipewyan is still an important and viable fur trapping area today.

Some data on two major building periods is available for Fort Chipewyan III. The original fort, built about 1802, is known by a sketch by James Keith, drawn in 1822 after coalition of the Hudson's Bay and North West Companies. This sketch, not drawn to scale and without reference points, is very important to the location and identification of the early 19th century buildings. The diagram shows a large rectangular compound with major buildings located along the east, west and north sides, with the entire area surrounded by a palisade and bastions.

In 1870, Roderick McFarlane, chief trader, had the fort rebuilt on a different plan. This is the fort that is seen in many early photographs (Tyrell 1898, Chalmers 1971). A surveyed plan of this fort was prepared for the Hudson's Bay Company in 1898 by George Bayne, DLS. This plan plus the photographs show that the later fort consisted of a large number of buildings set in a line parallel to the lake shore but with the major buildings located in the general area of the original fort. The last of these buildings to stand on the site was dismantled in 1964. At least one of these buildings was moved to another location in the town.

Current Site Description

Perhaps the greatest misconception about historic Fort Chipewyan is that it was built on an "...iron-hard granite site..." (Chalmers 1974:55). In actual fact most of the site is built upon late glacial or post glacial sands and gravels. Only a few buildings relating to the later period of the site as well as the National Historic Sites cairn are located on the granite ridge along the eastern edge of the site. Even on this ridge sufficient soil build up has occured to warrant excavation in some places.

The site itself slopes towards the lake on the southern edge of the site. On the north side of the site is a sharp drop of approximately 5 m to a broad sandy level area that is the main area of the town of Fort Chipewyan today, and was a useful agricultural area in the recent past. The eastern edge of the site drops steeply to a protected bay, while the western side of the site slopes gently along the lake shore. The surface of the site is a series of gradual steps (possibly multiple beach levels) which may have been modified into platforms for the various buildings (Figure 2).

Prominent on the site are a number of large cellars and building platforms. These are the foundations of the 1870's buildings. In some places there are linear rock foundations which clearly delineate the size and shape of the buildings. In other areas only shallow depressions indicate the existence of former buildings.

The surface of the site has only scattered vegetation, although at the time of the construction of the original fort it was probably covered with pine forest similar to the vegetation of the surrounding area today. Current vegetation consists of short grasses, sage, and a few raspberry and gooseberry bushes. The site is crossed by many automobile tracks, an historic roadway and contains a bulldozed area.

Preservation Status

Not all of historic Fort Chipewyan has survived. Our excavations located a number of the early 1800's fort buildings but some of these have been destroyed, in whole or in part by later construction. This is especially so for part of the main Summer and Winter House which has probably been destroyed by construction of the 1870's Dwelling House. It appears, however, that most of the early nineteenth century building foundations are or will be locateable.

The 1870's period of buildings covered a much larger area, being spaced out along the lake front for approximately 350 m. The 250 metres on the west part of the site has subsequently been subdivided and redeveloped for later buildings. This has led to the probable destruction of eight out of 24 building foundations identifiable from Bayne's 1898 survey. This is especially so when one considers that much of the area above the

lakeshore has been used for drainage fields and other modern uses which have undoubtly caused considerable destruction to these foundations and associated features.

The area that has been maintained as reserve land, is the location of the original fort and the central area of the later 1870's buildings. This area cannot however be considered as being untouched since the time of abandonment. The area has suffered from a number of common destructive processes including surface disturbance from automobile tracks (Figure 3), natural surface erosion and relic collecting.

Nonetheless, the site contains considerable historical resources that could be easily destroyed without immediate protection.

Objectives and Methods

Three specific objectives for work at Fort Chipewyan III were formulated. Firstly, the surface features were to be mapped, photographed, recorded and if possible, identified. Secondly, the archaeological potential of these features was to be assessed. Thirdly, early structures that might relate to the earlier occupations of the site were to be located, identified and assessed.

The identification of most surface features was a relatively easy task. Many of these features were identifiable from George Bayne's 1898 survey (Figure 4). Those that could not be identified from that survey were often apparent from the wealth of photographs and drawings that are available. In addition, discussions with many of the long time residents proved extremely valuable and interesting. Several of the people we talked to, lived or worked in these buildings.

Determining whether these buildings had archaeological potential was also a relatively easy task. A simple inspection of the surface features revealed that the buildings and middens present have potential to yield information about the construction, use and material culture of the people of historic Fort Chipewyan. For example, the Blacksmith Shop, although not excavated, had considerable debris eroding around its foundations. This wealth of iron, brass and lead refuse could be the subject of many years of archaeological research. One building mound, the Depot, was tested. This mound is one of the largest on the site, measuring

18.4 x 8.7 x 0.6 m. A small excavation in the north west corner of this mound uncovered a low stone wall running along the edge of the mound. In the corner of the mound was a large post (21 x 16 cm) set into the ground approximately 70 cm below the level of the building floor. The fill excavated from this area contained large amounts of pre-1900's materials. The excavation of this mound alone would be a major research project.

The final objective of the assessment at Fort Chipewyan was to determine if archaeological remains of earlier buildings existed on the site. Such early buildings would be indicated by the presence of wooden construction in the mortice and tenon method, stone hearths, and early 19th century artifacts. Two methods were used to locate such early buildings. Since all of the most obvious surface features could be identified to be from the 1870's or later, the site was carefully examined for traces of non-obvious surface indications such as minor vegetation changes and slight surface undulations. This method was very successful, especially under oblique daylight and high contrast moonlight, when many soil and vegetation patterns became more obvious. The second method was to attempt to locate palisade trenches by running long excavation units across marginal areas of the site, at approximately right angles to the supposed palisade. This method was also successful in locating features. One of the problems, however, was that these excavation units tended to cross more than one such trench, and the limited area exposed generally provided insufficient information to allow placement of the trenches in chronological order. Apparently the palisade and later fences were rebuilt frequently and in similar but parallel locations.

Once a number of early buildings and trenches had been located it became relatively easy to identify these buildings with the aid of James Keith's 1822 diagram of Fort Chipewyan. The excavations located portions of foundations of several early buildings including the Depot Summer House, Depot Summer House Kitchen, Men's House and Blacksmith Shop and several palisade trenches. One early nineteenth century building was also located south of the palisade (Figure 5) which is as yet unidentified.

Results

Significant information about the historical resources at Fort Chipewyan has been recorded. Close to 50 surface and subsurface features have been identified, ranging in age from the early 1800's to recent times. As almost all of these features have considerable potential to yield historical and archaeological information, Fort Chipewyan III, must be considered one of the major historical resources sites in the Province of Alberta.

Recommendations

Although analysis of artifacts and the preparation of the final report have not been completed, several recommendations are apparent from the assessment carried out in 1978. The following preliminary recommendations shall be followed by more detailed ones in the final report.

1. No development of any kind can be undertaken on the site proper until much more archaeological and historical research is carried out. However, some areas peripheral to the site could be used for developments considered compatible with the site proper.
2. Steps should be taken to have the site declared a "Provincial Historic Resource" under the Alberta Historical Resources Act (1973).
3. The site should become the responsibility of one of the government agencies responsible for the protection and proper management of historical resources.
4. Immediate steps should be taken to protect the site and the owner should be required to stop all vehicular traffic on the site under Section 22, Subsection 2(c) of the Alberta Historical Resources Act (1973).

Figure 2: General view looking west of historic Fort Chipewyan.

Figure 3: Surface disturbance of an early nineteenth century stone hearth caused by automobile traffic.

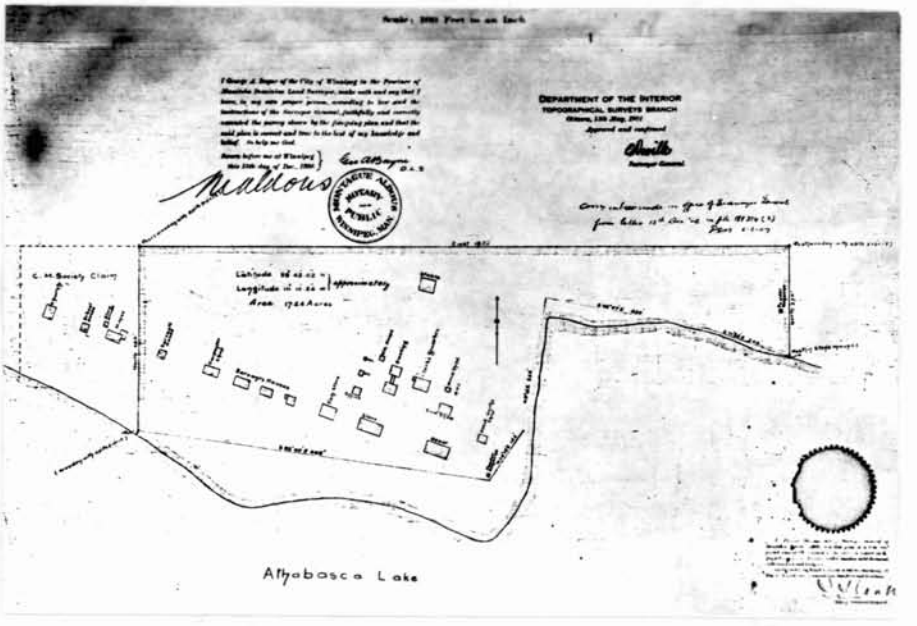


Figure 4: Part of a survey plan of Fort Chipewyan prepared by George Bayne (1898).

Figure 5: The north east corner of an unknown early building at the site.

ALBERTA FOREST SERVICE CAMPGROUND SURVEY
NORTHWESTERN ALBERTA - 1978
Permit 78-8
and
ALBERTA PROVINCIAL PARKS BRANCH PARKS SURVEY
NORTHWESTERN ALBERTA - 1978
Permit 78-30

William J. Wood
Archaeological Survey of Alberta

INTRODUCTION

Under the terms of reference of the captioned permits, three proposed Alberta Forest Service campground expansions or proposed developments and one Alberta Parks Branch park expansion were the subjects of historical resource impact assessments during the 1978 field season in northwestern Alberta (Figure 6). These existing or proposed facilities were identified by the respective agency as areas where potentially-significant ground-disturbance operations may occur and, in the opinion of the Archaeological Survey of Alberta, offered a threat to historical resource values if present.

The targeted areas were as follows:

Alberta Forest Service

Sulphur Lake: Township 89, Ranges 2 and 3, W6
Twin Lakes: Township 97, Range 22, W5
Cadotte/Otter: Township 86, Range 16, W5

Alberta Parks Branch

Young's Point: Township 71, Range 24, W5

Generally, these field assessments were intended to be impact-specific. That is, it was not the intent to provide a comprehensive assessment of the entire facility, but rather, the field work was directed toward those areas within the facility where specific impacts will occur.

PROCEDURES

Field operations are here only superficially discussed. Generally,

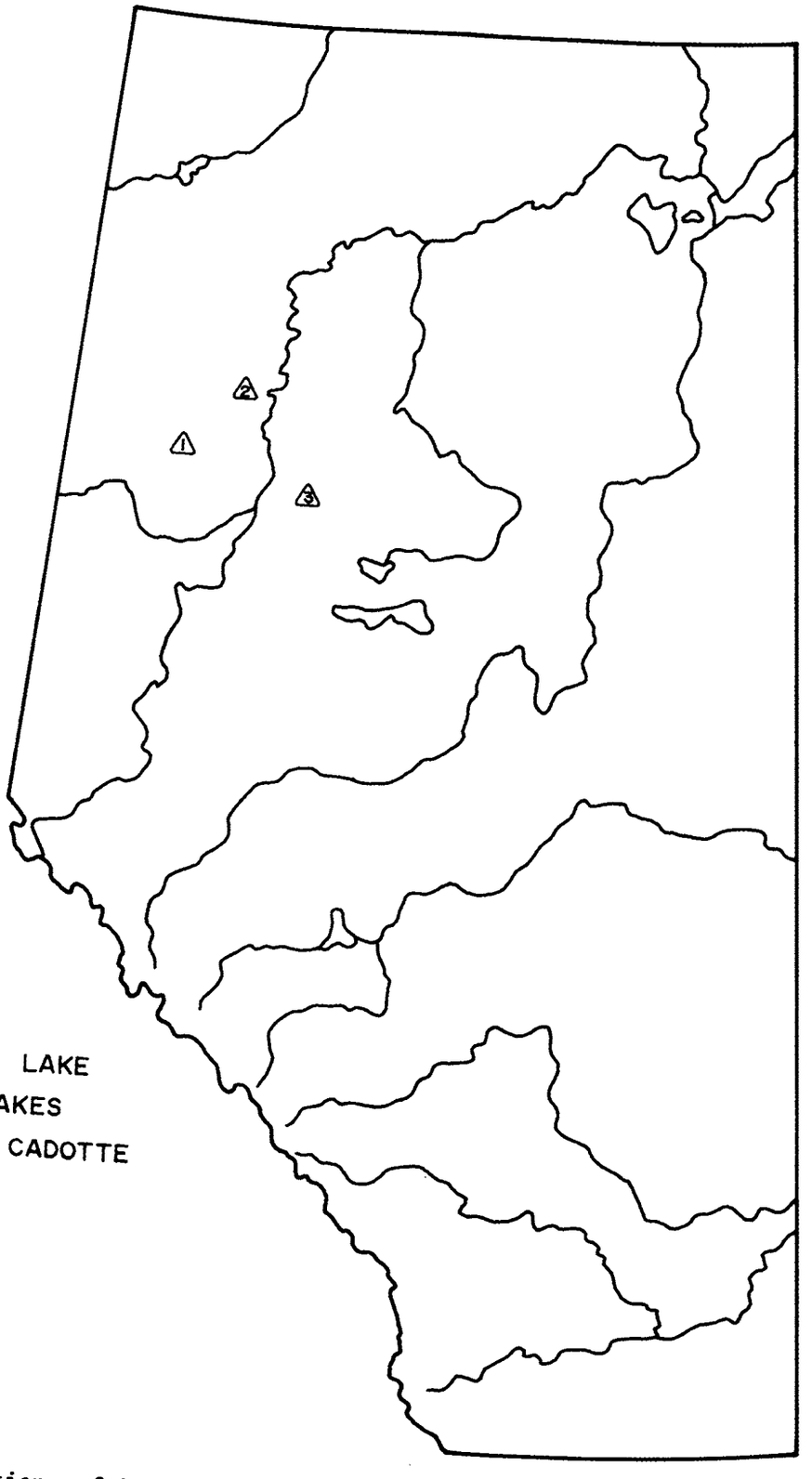


Figure 6: Locations of Provincial Parks campground mitigation study areas.

once the area of impact was located in the field, systematic shovel hole testing was initiated. Holes were placed with respect to an approximate 10-meter grid-pattern, i.e., an approximate 25^3 cm hole was placed at the point of intersection of hypothetical lines running at right angles to an "x" and "y" axis every 10 meters. This method was found particularly convenient, as not only did this technique provide adequate coverage of the target area, but also defined a Transect Internal Sample (Chartkoff 1978) when cultural material was found.

RESULTS

At Twin Lakes and Sulphur Lakes, no evidence of a prehistoric occupation was found. Because the survey area was small, few inferences can be made with respect to the negative results.

Tests at the confluence of the Otter and Cadotte Rivers, on the other hand, were productive, if only in a marginal way. The area which was intuitively felt to be the most high-probability site for occupation during prehistory was a terrace above the Cadotte River flood-plain. In this area, approximately 150 subsurface tests were placed as described above. Recovered were 37 cultural items (35 flakes and 2 bone fragments) which were found to be distributed, while not necessarily at random, with no obvious indication of clustering. This was recorded as HcQc-1.

Young's Point Provincial Park was similarly productive. Extensive subsurface testing of the south side of Young's Point along a major older terrace revealed bone fragments and a very small number of flakes thinly distributed over a very large area. This was recorded as GgQj-10.

CONCLUSIONS

Surveys in Young's Provincial Park conducted sporadically over the past several years have resulted in a very limited understanding of the archaeology of the locale (Sturgeon Lake). For example, it appears that the relatively early occupations of the lake shore, or at least at Young's Point, were on the beach and/or the immediate shoreline area while the late occupations (Late Prehistoric) were well above and beyond the lake on high terraces. If future work validates this hypothesis of distribution, a number of interesting questions arise, concerning the

changing of settlement-subsistence systems through time.

With the preliminary data at hand there is one other rather significant conclusion to be drawn which relates to both projects. The latter sites at Young's Point and the specimens obtained at the confluence of the Otter and Cadotte Rivers are similar insofar as they are very minimal expressions relative to the total site recovery area involved. If this pattern is validated, i.e., if the common pattern of archaeological settlement in this area is a series of major localities with only marginally-productive sites, then techniques will have to be devised to deal with these localities as legitimate cultural resource entities. The locality-dominent small sites cannot be dismissed as being of 'low' value, as has frequently been done, when they represent the nature and the whole extent of the data-base.

THE UPPER PEACE RIVER, ALBERTA

Permit Number 78-10
William J. Wood
Archaeological Survey of Alberta

INTRODUCTION

During the past five decades, the Peace River and adjacent regions (Figure 7) have been visited by archaeologists no fewer than eleven times. The intensity of their investigations has ranged from a casual visit by Junius Bird (1938) to an intensive site survey (Acres Consulting Services, Ltd. 1976) and a rigorous exploration of a single large site by Ross Thomson (1973). The accumulated results of these investigations has been the generation of intuitive notions and assumptions, and the recognition of the Peace River as one of the last major Canadian drainages with an unknown prehistory.

The field work designed and implemented in 1978 is here viewed as the first stage of an extended project to develop a more complete perspective of the regional prehistory and archaeology of the Upper Peace River district (Figure 8).

Setting

The Peace River enters Alberta from British Columbia at 120^{o} west longitude and near 56^{o} north latitude. Although the Upper Peace River and its environs tend to be lumped into broad environmental constructs, i.e., the Interior Plains (Environcon, Ltd. 1976), the Western Plains (Green and Laycock 1967:70), these terms mask the physiographic and environmental variability of the area. I propose in this report to view the area in terms of three physiographic divisions: the river valley, the prairie and the uplands.

The region generally experiences an annual mean temperature of 2^{o}C, with a January low of -20^{o}C and a July high of 17^{o}C. The mean annual precipitation is 57 cm, with an annual winter snow fall of 175 cm.

Topographically, the region includes level plains, gentle slopes, deeply-incised valleys and higher plain remnants. The level plain

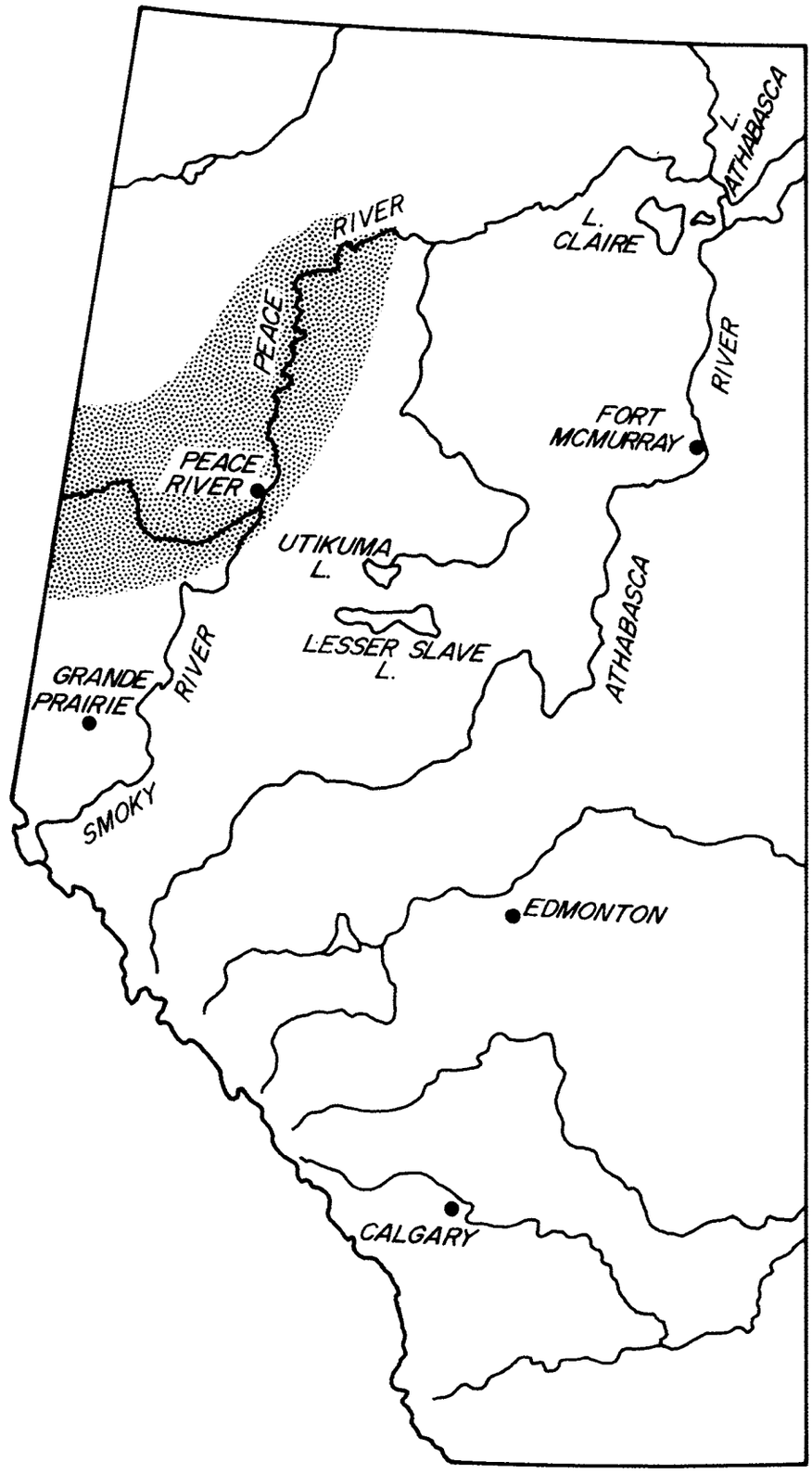


Figure 7: Study-area, Peace River project.

Figure 8: Topography and drainage, Peace River system.

bordering the Peace River is c. 610 MASL, while the valley bottom, i.e., the river level, is c. 365 MASL (Envirocon, Ltd. 1976).

FIELD OPERATIONS

Within this broad and diversified physiographic setting, the 1978 field operations included three general activities: site survey, transect-interval sampling, and test excavations, all conducted with the intent of answering some rather fundamental but necessary questions. At this stage, the determination of aspects of the following statements was of interest:

1. The reliability of the information collected from previous field programmes and presented in their several reports.
2. The relative and absolute numbers of archaeological sites in the region.
3. The degree of variability expressed in the archaeological record.
4. The physiognomy of the sites; this may relate to future excavation approaches.
5. The distribution of known sites; this would suggest courses for intensive regional sampling programmes.
6. The degree to which erosion and slumping has affected the resource base.

With the possible exception of (3), the information sought with respect to the above is primarily oriented toward the management of the resource. As concerns (3), the significant bias here is with respect to the hypothesis that the regional archaeological variability, synchronically and diachronically, is a function of environmental diversity. Therefore, baseline ecological observations were made as they would relate to the acceptance or rejection of this hypothesis. At the time of the field operations, this perspective was employed primarily as an heuristic device. Continued post-field season research may indicate that this perspective will serve as a mode of explicaton.

Field Results

The following statements are here presented as preliminary conclusions only. The paragraphs below relate sequentially to the statements presented in the preceding section on Field Operations.

1. The information in existing reports appears to be of varying reliability. For example, in a previous assessment (Acres Consulting Services, Ltd. 1976) two sites located on an intermediate terrace of the Peace River were reported as "stratified" (HaQx-2) or "very significant and yielding concentrations of material over a large area" (HaQw-4). A transect interval sample (Chartkoff 1978) was employed to assess these sites. This technique was found to be very useful as a tool for site assessment purposes. The results conclusively indicated that HaQx-2 is not stratified and has, for all intents and purposes, been destroyed by erosion and slumping. Transect interval sampling at HaQw-4, while confirming that archaeological material is spread over a fairly large area, demonstrated that the material is thinly and extensively distributed without a noticable tendency for concentration.

2. The data collected to date has not been of a nature appropriate to respond to the question of absolute and relative numbers of sites. I can, however, report that 47 historical resource sites have been recorded in the fourteen borden blocks which include the study area.

3. With regard to the observed variability of the archaeological record in the Upper Peace River, I can examine the data on two levels; the sites, and the material cultural remains. The prehistoric sites can range from seemingly single-component, very small, localized occurrances of a very few items (HbQv-1) to large, buried, multi-component sites which contain several thousand cultural items. The range of lithic materials represented and their relative occurrance is summarized in Table 2, and the recovered finished bifaces are illustrated in Figure 9. The material was recovered from several sites on the intermediate terraces of the Peace River. The writer believes, at this preliminary stage, that the tools depicted in Figure 9 are indicative of only one of several aspects of the regional archaeological variability.

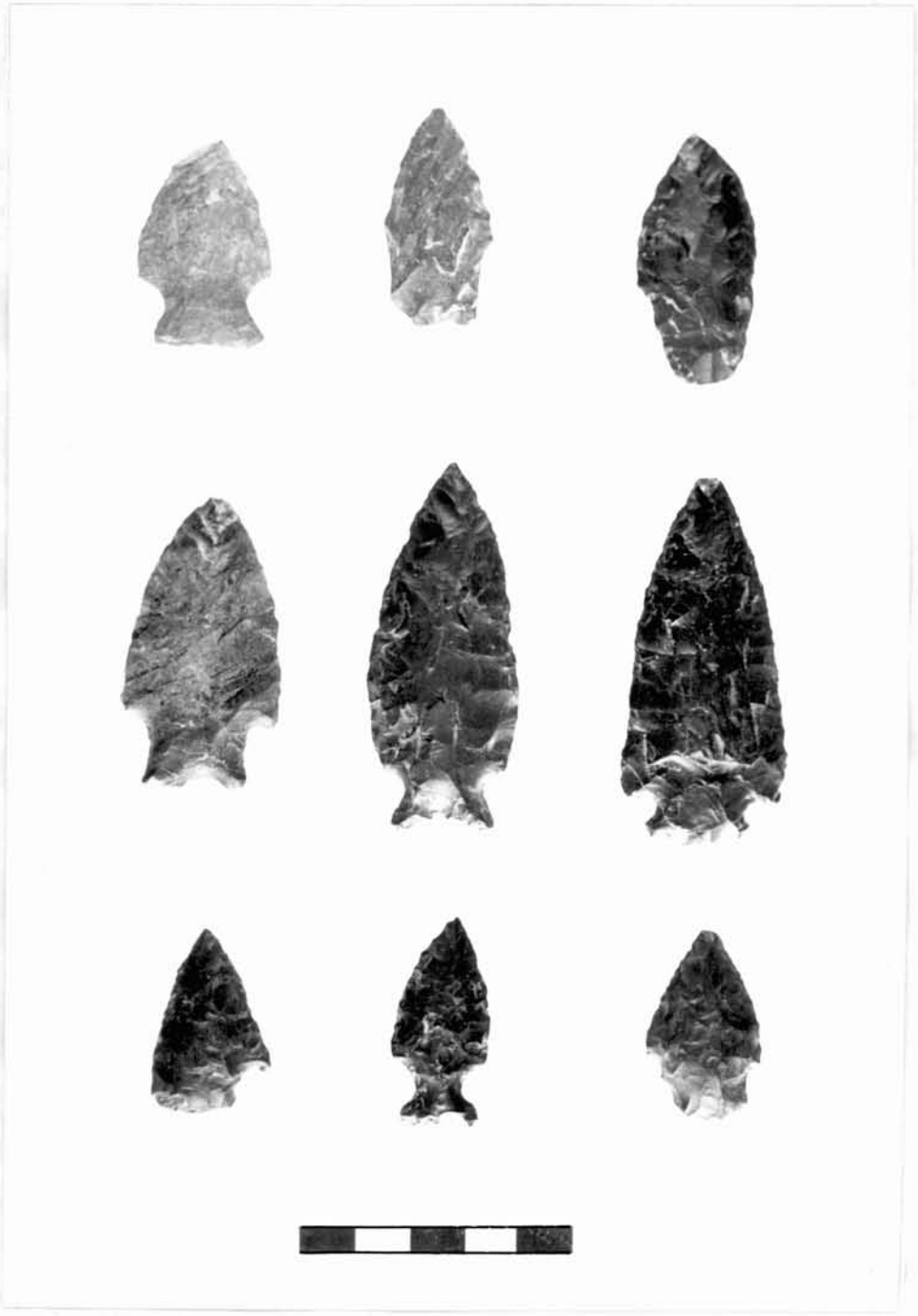


Figure 9: Finished bifaces from Upper Peace River Region.

TABLE 2: FREQUENCIES OF LITHIC MATERIAL, PEACE RIVER SITES

MATERIAL	PERCENT LITHIC ASSEMBLAGE	PERCENT TOOL ASSEMBLAGE
Chert	25.10%	52.25%
Argillite	63.77%	32.88%
Quartzite	3.91%	13.06%
Quartz	1.10%	0.00
Sandstone	2.07%	0.45%
Rhyolite	0.06%	0.45%
Granite	0.13%	0.45%
Volcanoclast	0.06%	0.00
Basalt	0.06%	0.00
Obsidian	0.13%	0.45%
Ochre	0.03%	0.00
Shale	0.03%	0.00
Unknown	0.50%	0.00

4. The investigated sites tend to be shallow and non-stratified with few exceptions. In many instances, the soil matrix is highly acidic, promoting rapid and fairly complete dissolution of perishable materials. Most of the bone encountered is fragmented and calcined, and charcoal is visually apparent merely as black stains.

5. It would appear, based on the known distribution of sites in the river valley, that one might reasonably expect to find a site almost anywhere on the terraces as long as the slope is fairly level and the drainage is adequate. This intensity is not evident along the valley rim, however; although, at this point, insufficient data to allow for the forcasting of likely valley-rim site locations have been secured. Similarly, the nature of the distribution of sites on the prairie level and in the hills is at present unknown. Perhaps the river terraces could most

profitably be investigated systematically while the hills and prairie level will require large-scale probability samples when future surveys are attempted.

6. It became quite apparent during the course of the time spent in the Upper Peace district, that erosion, and, to a greater degree, slumping, are continuing processes which have destroyed a great many archaeological sites.

CONCLUSIONS

It is quite apparent that the Upper Peace River region will provide the archaeologist with a long and complex record and an environmental diversity sufficient to allow prehistoric man to develop for a variety of adaptive strategies. I hope to combine the existing archaeological data with the available data on the regional ecological parameters in an effort to provide a theoretical and methodological paradigm which will be tested by future fieldwork and the interpretation of the resulting data.

1978 HIGHWAYS MITIGATION
NORTHEASTERN ALBERTA
Project 78-71

T. Head
Lifeways of Canada Limited

INTRODUCTION

During fall, 1978, archaeological tests were undertaken at a series of sites located on the east side of the Athabasca River, approximately 50 miles north of Fort McMurray. These sites (HhOv-13, 14, 15, 16, 23 and 24 [cluster A]; HhOv-8 and 9 [cluster B]; HhOv-3, HhOv-4, HhOv-7, and HhOv-66) were previously recorded during an examination of Shell Lease 15 by C. Simms in 1973 and on the archaeological reconnaissance of Highway project 963:12 and 14 by Lifeways of Canada Limited in 1977. Highway construction will impact a number of sites in the area, some of which are of further value, requiring subsurface test excavations to evaluate their significance.

Site Description

The sites are located on the east side of the Athabasca River, just downstream from Fort McKay. In general, the area can be characterized as gently rolling outwash sands reworked into dunes. Bedrock protrudes through this overlying cap of sand in a few isolated locales, as in the case of HhOv-66. A number of small streams transect the area, draining west into the Athabasca. West of the sand ridges, wetlands predominate. Vegetation along the upper portions of the sand ridges is generally an open pine and poplar forest, while low lying areas are covered by spruce and poplar.

Resource exploration by energy companies has left the well drained areas criss-crossed by various cutlines and winter roads. Disturbance from these sources varies greatly. It is only of a minimal nature in comparison to that which will result from construction of the proposed highway, which will obliterate the majority of known sites in the area.

RESULTS

The test evaluation program was designed to assess the value of the undisturbed portions of each site contained within the proposed highway right-of-way, as delineated on aerial mosaics. Standard two-by-two meter excavation units were opened up by a three to four person crew employing shovel-shaving techniques. Excavation proceeded using arbitrary levels until culturally sterile deposits were reached. All sediments were screened through 1/4-inch mesh motorized screens, except where soil conditions were such that the matrix balled up in the screen. In such cases, the matrix was sorted by hand. The two-by-two meter pits were located so as to maximize the return of information. In order to accomplish this, small shovel tests were generally employed to locate areas of artifact concentration. As patterns of cultural use of specific areas began to develop, some pits were randomly placed (with mixed results). A total of 20.5 two-by-two meter units or equivilants were excavated at the six sites with the following results:

HhOv-3

A single two-by-two meter unit was excavated on the north side of a small stream along the west side of the right-of-way. The pit varied in depth from 15-22 cm below surface, and 1,340 artifacts were recovered.

HhOv-4

Three units were excavated, consisting of two two-by-two meter units (#1 and #3) and a single one-by-two meter unit (#2). The three units were located along the crest of a northwest-southeast trending ridge astride the centreline of the proposed highway. The three units varied in depth from 22 to 31 cm below surface and contained 481, 92 and 543 artifacts, respectively.

HhOv-7

Three units, comprised of a single two-by-two meter pit (#1) and two one-by-two meter pits (#2 and #3), were excavated at this site. The units were located along the western edge of the right-of-way. One thousand, seven hundred and forty-five artifacts were collected

from test one, including the only projectile points found during the testing program, and from test two and three respectively, 25 and 34 artifacts were collected. The tests varied in depth from 20 to 40 cm below surface.

HhOv-8, 9 (Cluster B)

Four two-by-two meter units were dug at this locale. Tests one to three were placed in fairly low locales, while test four was located on a fairly high sand ridge. Depths for the units varied from 20 to 45 cm below surface. Artifacts recovered from the four units numbered 266, 25, 411 and 3, respectively.

HhOv- 13, 14, 15, 16, 23 and 24 (Cluster A)

Nine two-by-two meter units were dug at "cluster A" and, with the exception of test eight, yielded cultural material (cultural material was noted immediately adjacent to test eight). The remaining eight tests varied in depth from 35 to 75 cm below surface and yielded 2,354, 1,013, 317, 182, 784, 101, 1,065 and 2,499 artifacts respectively. Of the eight productive tests, tests seven and nine are the most interesting; test nine because of the presence of cultural material to a depth of 65 cm below surface, and test seven because of the presence of one definite buried soil (with a high concentration of artifacts) and indications of possibly two other buried soils. The tests were located at various locations within the proposed right-of-way.

HhOv-66

Eight one-by-one meter units were dug to bedrock (generally less than 10 cm). No cultural material was encountered in any of the units.

SUMMARY ASSESSMENT

Analysis of data recovered during the testing program while at a preliminary stage suggests the following:

-In excess of 13,000 artifacts were recovered and, with the exception of limited fire-modified rock (which probably relates to lithic heat treatment), consisted entirely of lithics;

-With few exceptions, the lithic sample is comprised almost entirely of material elsewhere identified as Beaver Creek quartzite;

-Tools consisting of retouched flakes, preforms, bifaces, wedges and a single projectile point have been identified and apparently number less than one or two percent of the total sample;

-The single projectile point has not been identified, but appears to be an atlatl dart point relating to the Middle Prehistoric;

-Remaining lithics consist of cores, core fragments and various types of flakes;

-With the exception of test seven, "cluster A", no indication of natural or cultural separation was encountered at any of the sites;

-While the sites were previously identified as campsites, the percentage of lithic debitage compared to tools suggests that the sites were workshops;

-No indication of the quarry source or sources was uncovered (excavations at the bedrock source previously identified as HhOv-66 were negative).

The above data indicate the existence of a significant set of Historical Resources within the planned Highway SR 963 project area. The sites relate to the quarrying and subsequent working of a distinctive lithic type known as Beaver Creek quartzite. The density and distribution of materials indicates this to be a major activity focus in this area, and of overall higher interpretive/ scientific value than other known and studied sites in the area.

Highway construction will largely obliterate the majority of known sites, and additional work will be required at all the sites except HhOv-66. Extensive excavations are warranted to explore and delineate activity areas, manufacturing stages, etc.

ARCHAEOLOGICAL SALVAGE EXCAVATIONS AT FORT VICTORIA

Project 78-70

Barry Newton
Archaeological Survey of Alberta

In the course of excavating a cellar for the reconstruction of the Clerk's Quarters at Fort Victoria, the backhoe cut through a series of historic features associated with the original building. These features were brought to the attention of Frank Korvemaker, Chief of Research, by Jerry McCluskey, Site Operations Technician, Historic Sites Service, who requested that they be evaluated before backhoe operations were continued. A total of three features were observed; two in the north wall of the excavation, which represented cellar depressions recorded during the 1977 field season, and a third in the partially-excavated south wall which was previously unrecorded.

DESCRIPTION AND PROCEDURES

The south wall feature consisted of a 2 meter x 1 meter remnant block of cultural material extending to a maximum depth of 1.72 meters below ground surface and situated just to the southwest of the southeast corner of the cellar depression beneath the Clerk's Quarters. The feature had obviously been truncated both to the north and south by backhoe operations, leaving in essence a remnant pillar of cultural deposition.

Both the south and east faces of the feature were cleaned, photographed and profiled. In section, the feature was found to consist of thick deposits of yellowish-brown mottled clay (Munsel 10 YR 5/4), interspersed with thin, dark-grey lenses of clay and ash (Munsel 10 YR 4/1), overlaying a series of logs and lumps of clay in the basal stratum (Figures 10, 11). The feature was excavated to base by natural strata. Very little cultural material was found during excavation, but the artifacts recovered represented a diverse temporal and cultural range. Included among these artifacts were a number of cut nails, several fragments of window glass, a styrofoam cup, a dust filter mask and several cigarette butts.

Upon reaching the basal stratum of the deposit, the soil was carefully cleared away from the logs, exposing the remains of an east-west and a

north-south wall which met at and abutted against an upright timber at an angle of roughly 90^{o} (Figures 12, 13, 15).

The east-west base log consisted of a squared timber 12 cm wide, 7.5 cm thick with a remaining length of 1.08 meters. The eastern end of the timber at the corner of the two walls had a tenon 4.0 cm wide x 4.5 cm long, intended to fit into a groove in an upright timber in the manner of the horizontal-filler logs in the post-on-sill construction of the Clerk's Quarters proper. The north-south base log had also been squared but not tenoned, and measured 13.5 cm wide x 10.0 cm thick, with a remaining length of 30.0 cm. The half-round upright timber which formed the corner of the walls measured 16.0 cm in width x 8.0 cm in thickness. There was no evidence of plank flooring remaining, as was present in the adjacent cellar structure.

INTERPRETATIONS AND CONCLUSIONS

When the horizontal location of the corner of the structural remains was plotted by a survey team from Historic Sites Service, it was found to be approximately 44.5 cm west and 9.30 cm south of the southeast corner of the original cellar as previously recorded (Figure 16). However, in terms of the vertical position of the feature, it was found to be virtually identical to that recorded for the original cellar. (1.60 and 1.50 metres respectively). Similarily, the tenoned east-west base log of the excavated feature complimented the mortice-and-tenon corner construction recorded for the upper tier of logs in the original cellar retaining wall construction (Figures 13, 14). Based on these striking similarities, and despite the discrepancies in horizontal placement, it would seem logical to conclude that the structural remains excavated by the archaeological crew represent the basal stratum of the retaining wall in the southeast corner of the cellar present beneath the Clerk's Quarters.

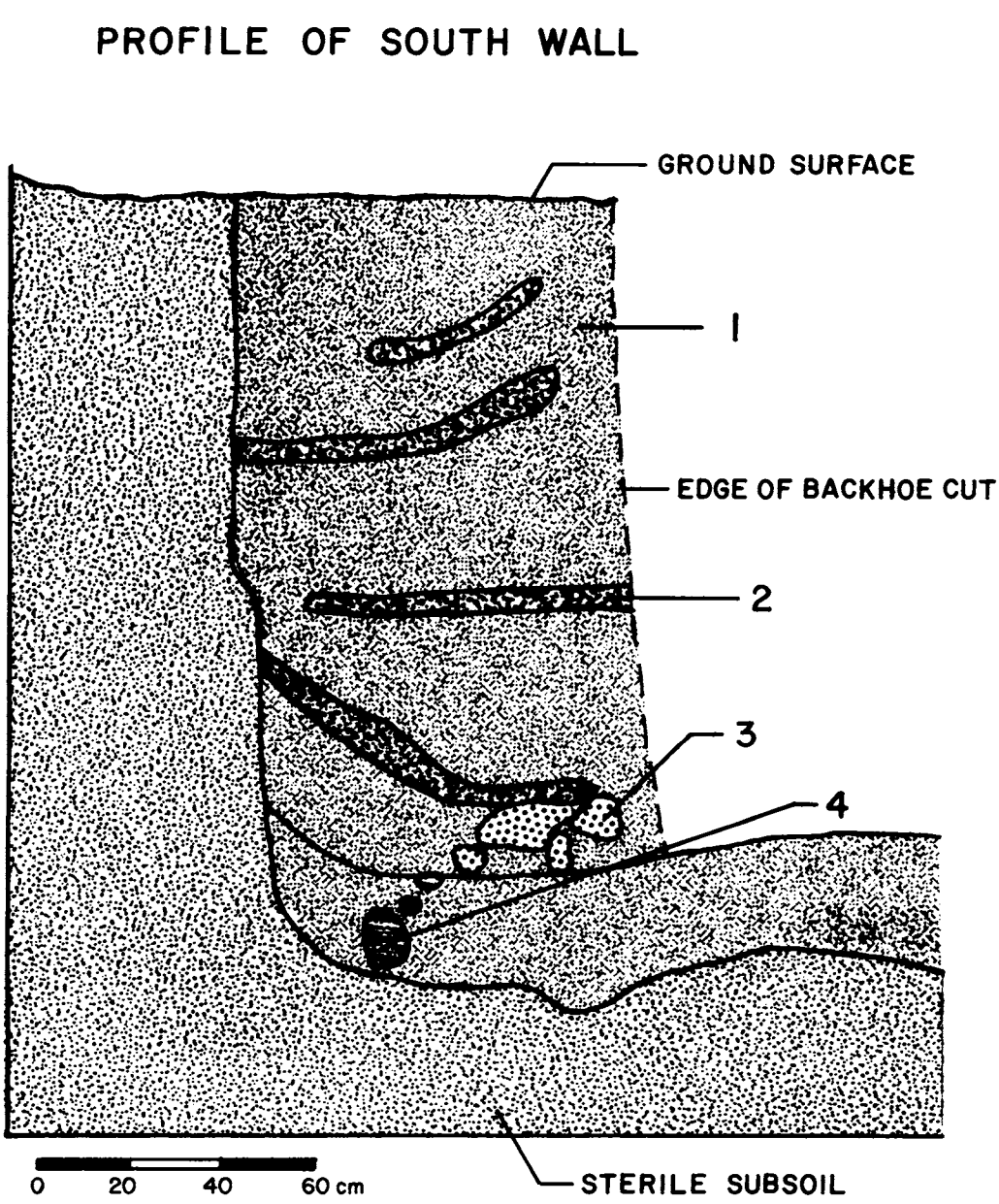


Figure 10: Profile of south wall of feature.

Figure 11: Photography of south wall profile.

Figure 12: Close-up of structural remains showing tenoned base log.

Figure 13: Exposed corner post detail at southeast corner of cellar top tier. (Historic Sites Service photograph Cat. No. R2M-1118-M).

Figure 14: Exposed corner post detail at northeast corner of cellar top tier. (Historic Sites Service photograph Cat. No. R2M-1120-M).

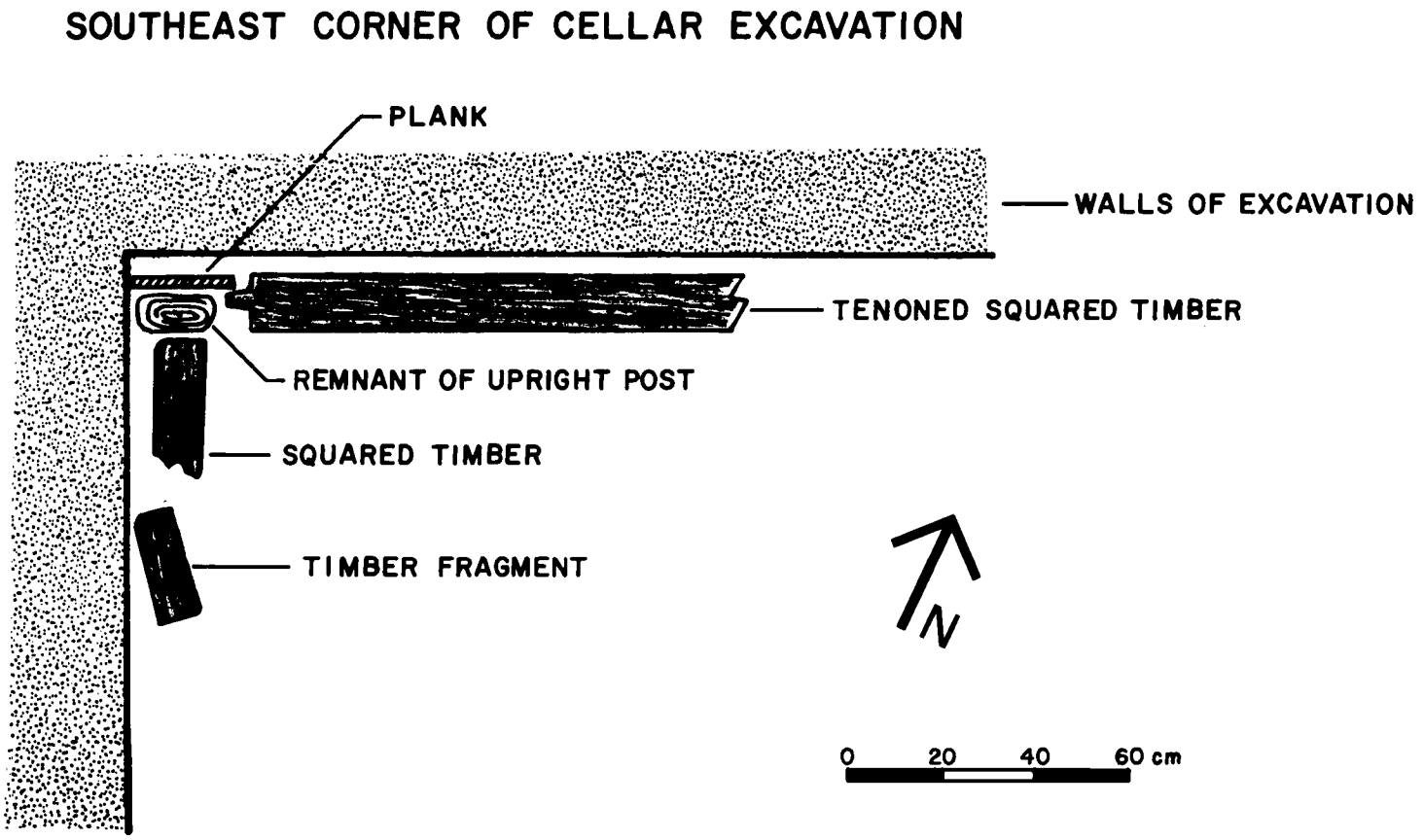


Figure 15: Plan view diagram of structural remains, southeast corner of cellar excavation.

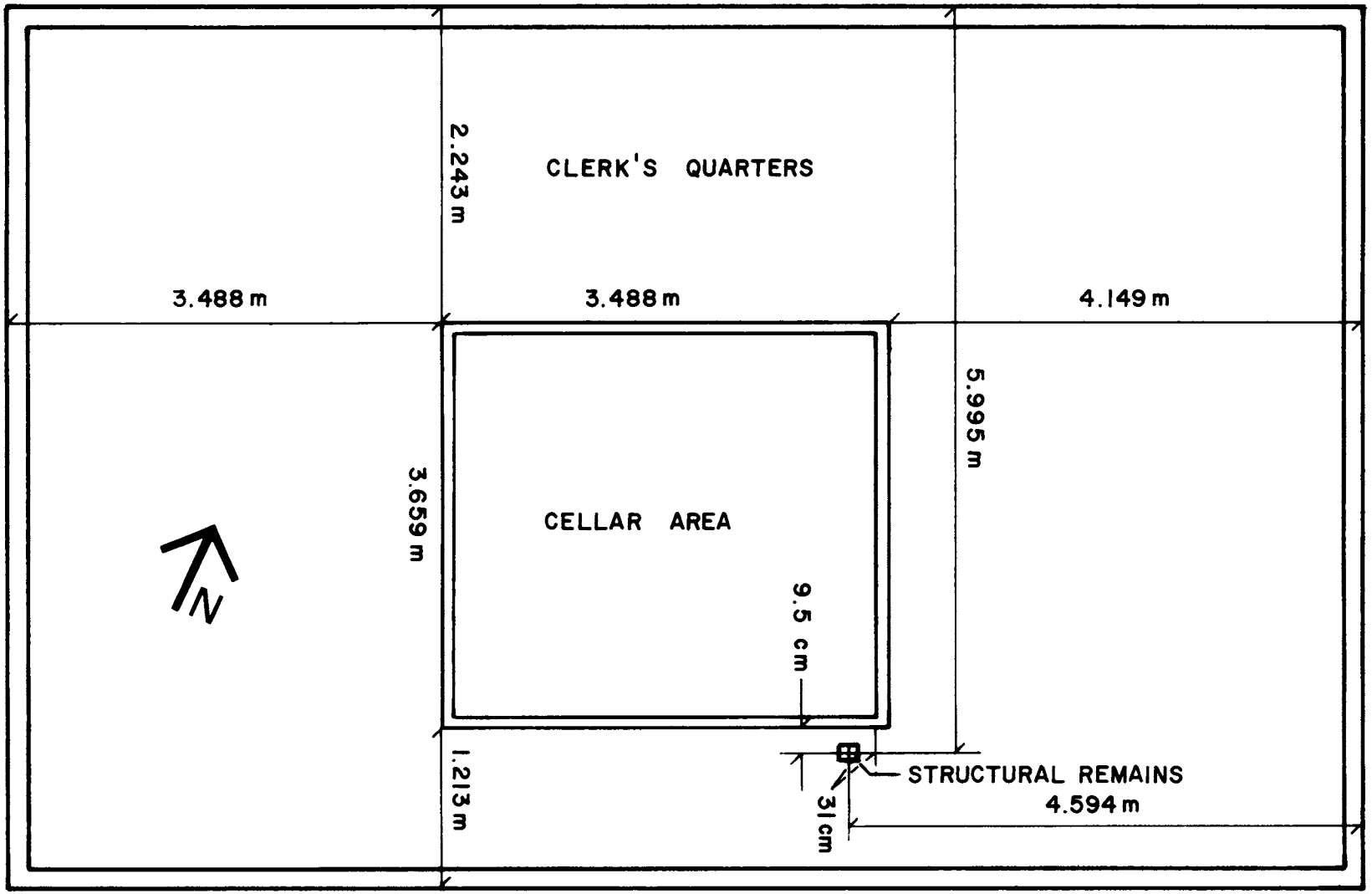


Figure 16: Plan view diagram of Clerk's Quarters showing location of cellar with respect to the feature (Historic Sites Service).

HIGHWAY ARCHAEOLOGICAL SURVEY OF NORTHERN ALBERTA, 1978

Project Number 78-56-C

Eugene M. Gryba

INTRODUCTION

From the latter part of June to the middle of September, 1978, the writer carried out archaeological reconnassiance along 132.24 miles of new and existing highways and service roads throughout the northern half of the province. The individual highway projects are listed in Table 3. They were distributed from the town of Calmar on the south to the High Level - Ft. Vermilion area on the northwest and Ft. MacKay on the northeast.

Seventeen Prehistoric Period sites were discovered within the survey areas and an additional three were found outside the designated areas. Also, two Historic Period sites, a previously-recorded fur-trade post and an early oil exploration site and equipment, were located and recorded.

PROCEDURES

The field work for this highway archaeological survey was carried out solely by the writer in a series of uninterupted three - four week stretches. The abnormally dry season proved favourable for archaeological survey and as a consequence, only an insignificant number of days were lost on account of inclement weather.

Foot traverse and visual inspection of natural and man-made exposures was the normal strategy followed in examining the cultivated lands bordering the highways. Out of due respect for the farmers, fields that were in crop were avoided; those few which were examined were done so in the company of the land owners.

Intact forest areas, particularly those believed to hold high archaeological potential, were shovel-tested. The shovel-test procedure used involved cutting out rectangular blocks of sod measuring about 50 by 70 centimeters, flipping the block over manually, and then troweling the mineral soil to check it for traces of cultural material.

The shovel tests were frequently selectively placed, with stream

TABLE 3: SUMMARY OF HIGHWAY ARCHAEOLOGICAL SURVEY PROJECTS (NORTH) COVERED BY GRYBA, 1978

Highway Project	Project Location	Mileage Project	Mileage Covered	Sites Loc.	Borden Designation
58:08	E. of High Level to W. of Ponton River	11.81	12.00	0	
58:08	W. of Ponton River to Jct. Highway 67	11.50	11.00	0	
2:62	West of Peace River Hill	2.50	2.50	0	
940	Economy Creek Crossing (S. of Debolt)	1.00	1.00	0	
SR 686	S. of Three Creeks to Three Creeks Ranger Station	8.66	5.75	1	HbQg-2
Bridges	Beaver Creek & tributaries (S. of Whitecourt)	3.00	3.00	1	GaPv-1
16:12	E. of Gainford to E. of Entwhistle	9.40	9.40	9	FjPq-8-10 FjPr-5-10
39:10	Drainage ditch from Calmar to Conjuring Creek	1.00	1.00	0	
2.34 & 36	St. Albert to Morinville	10.00	10.00	2	FkPj-2 & 3
2.52	High Prairie to Triangle	10.22	7.00	1	GiQd-1
SR 749	S. of High Prairie to N. of High Prairie	9.79	9.79	0	
967:06	Jct. SR 750 to Jct. SR 686	15.00	15.00	1	HbPu-1
967:14	S. of Wabasca River to N. of Senex Creek	15.40	15.40	0	
36:26	Jct. SR 662 to Lac La Biche	11.00	11.00	2	GdOx-6 GeOx-47
963:14	E. of Ft. MacKay to W. of McClelland Lake, and new bridge over Athabasca R. S. of Ft. MacKay	18.40	18.40	1	HgOv-50

banks and conspicuous knolls in particular receiving careful attention. Most of the sites located during the reconnaissance by this method were discovered in the first or second attempt. In all cases where no cultural material had been discovered after a half-dozen shovel-tests, subsequent tries simply reaffirmed the established pattern even though the the locality appeared to be suitable for site location. For example, Senex Creek (north of Wabasca River) and a large unnamed stream northeast of Bitumount did not yield any traces of cultural material, despite extensive shovel-testing and their misleading appearance as high-potential areas.

The reconnaissance was not restricted to the highway right-of-way. Attention was focused also on those areas adjacent to the highway projects which appeared suitable for archaeological site occurrence. The best example of this is the area between Gainford and Entwhistle. Here, the forested knolls bordering the highway right-of-way were examined because it was evident that they would be affected as "back slope" areas by the leveling of the terrain by the highway. This resulted in the discovery of sites FjPq-9 and FjPr-10.

CHALLENGES AND PROBLEMS

Many of the highway projects were within the agricultural districts of the province and thus were easily accessible. But three projects, 967:06, 967:14 and 963:14, could only be reached by means other than a regular automobile. A small all-terrain tricycle was found to be most suitable for the task, not only because it provided excellent mobility on trails normally restricted to winter traffic, but it was small enough to be easily manoeuvered across streams, muskeg and windfalls, and yet was light enough to be transported without too much difficulty from project to project.

The use of a boat was necessary to get to one of the projects. A resident of Ft. MacKay was hired to transport the writer downstream to Bitumount, the disembarking stage for a project located on the east side of the Athabasca River.

The relative lack of significant exposures of mineral soil and the relatively small extent of the prehistoric sites presented problems of

a magnitude similar to those relating to accessibility in the northern part of the province. Almost fifty miles of highway survey was through forested lands. The most frequent exposures of mineral soil were on bulldozer trails. The urge to stray far from the right-of-way and trails to what seemed to be, on the maps and air photos at least, more promising terrain was often dampened by the thought of becoming hopelessly lost. In Projects 967:06 and 967:14, the right-of-way, where it had not been utilized as a winter logging road, had become overgrown with brush to the point where it was barely discernible. The complex networks of logging trails and oil exploration cut-lines that criss-crossed the survey areas simply increased the problems.

The problems relating to accessibility and lack of sufficient ground exposures were overshadowed at times by two others. These were the seemingly-unending onsaught of black flies in the latter part of the season and the abundance of bear sign in the forested areas. The writer experienced four rather close encounters with bears (Ursus americanus) in the Wabasca and Bitumount areas.

RESULTS AND OBSERVATIONS

As mentioned earlier, twenty Prehistoric and two Historic Period sites were recorded. A number of tentative observations are presented. In assessing them, the reader should keep in mind the linear and restrictive nature of the highway survey and the preliminary nature of the sample from each site.

Prehistoric sites were located where there was marked environmental diversity. The clearest expression of this was in Project 16:12, west of Lake Wabamun. Here features such as a large water body (Isle Lake), a modest-sized stream (Sturgeon Creek), rugged terrain, and a plentiful stock of lithics were undoubtedly the important factors which combined to concentrate prehistoric human population settlements at the southwest end of Isle Lake.

Prehistoric settlements in the post-Pleistocene lake basins in the northwestern part of the province were located primarily along streams. For example, Projects 58:08 (both sections), 2:52, SR 686 and SR 749 were all within these project areas, HBQg-2 and GiQd-1, were both situated along

drainage courses that were rather conspicuous for their respective areas. The streams served as ecological corridors penetrating the flat lake-basins, from the valley of the Peace River (as in the case of site HbQg-2), and from the adjacent uplands (as in the case of site GiQd-1).

Prehistoric settlement of the lacustrine selt-mantled plain away from the stream courses might have taken place but, if this were so, it is likely that they would not contain the relative abundance of lithic waste discarded during the primary stages of stone tool manufacture and thus would be very difficult to spot. While this observation might hold true for the local scene, it may not necessarily reflect accurately the regional prehistoric settlement pattern. It may be that prehistoric population concentrations were greater in the surrounding uplands and along the major river systems, for example, the Peace River, and that the flat-lying lake-plains served mainly as game resource areas.

On the whole, the prehistoric sites discovered during the highway survey appear not to suffer from any abundance of cultural material. Wood (1978: 15) suggests proximity to available raw lithics to be an important factor in the accumulation of prehistoric campsite litter. The writer's experiences in northern Alberta, and, for that matter, the Northern Plains in general, would tend to support that statement. The sparse nature of cultural material and small areal extent of some northern sites has also been reported by Sims (1977: 18) in his work along Highway 967. Undoubtedly, these characteristics are a reflection of the relatively low human population density of northern forests.

The artifacts and debitage recovered were overwhelmingly of quartzite and, to a lesser degree, of chert. No lithic material thought to be foreign in northern Alberta was recovered from any of the sites. The majority of the artifacts were relatively crude; the quality of the workmanship certainly being a factor of the lithics available. The only time-, or tradition-, diagnostic artifact found during the survey was the blade portion of a notched projectile point. It came from the site FjPr-10. With the base broken off, specific temporal or cultural assignment of the point is not attempted.

Intact areas were present at all those sites which have been recommen-

ded for excavation. All reflect the shallow, unstratified nature which is typical of many of the archaeological sites of the northern forest region. The implications of this as to the ability to isolate the various components present and to interpret the cultural material are obvious.

RECOMMENDATIONS

Further work has been recommended for several sites. For site FjPr-8, controlled total surface collection is recommended. Test excavations are recommended for sites FjPq-9, FjPr-6, FjPr-7, FjPr-10, and HgOv-50. The remaining prehistoric sites are either too sparse in cultural material or too far removed from the area that will be impacted by construction to be of immediate concern. The two Historic Period sites are both outside the highway right-of-way.

ARCHAEOLOGICAL RESEARCH IN THE PARKLAND AND NORTHEASTERN BOREAL FOREST 1978

Permit Numbers 78-21, 78-50, 78-48, 78-49

John W. Pollock
Archaeological Survey of Alberta

During 1978, some twenty-eight sites were recorded under the above research permits held by the writer, who was assisted in the field by Mr. Wayne Gibbs and Mr. Barry Newton. Major excavations were conducted under Permit 78-21 (Strathcona Science Park) while the other three permits represent survey projects. Further information is presented beginning with the Strathcona Science Park Site.

Excavations at FjPi-29, Strathcona Science Park, Edmonton

This site, a large, primarily single-component site, is located on the east bank of the North Saskatchewan River just outside Edmonton City boundaries in the county of Strathcona. The site lies on the valley rim and is concentrated on a slight promontory jutting out into the main valley (Figure 17). The southern boundary of the site is formed by a deep and steeply-walled side valley formed by "Pine Creek," a local name. The east limits of the site are unknown as a large landfill operation has destroyed all evidence in this area (Figure 18). At present the area is covered by a medium to dense growth of young aspen trees. Fortunately, the site has never been ploughed, which is unusual in the Edmonton region, and this greatly increases the site's potential value. However, some tree clearing was undertaken several years ago. This clearing of mature aspen trees (as evidenced from a small windrow of burned logs) may have been done during winter as the amount of surficial disturbance appears to have been minimal and no disturbance of cultural remains resulted. Other minor disturbances consist of what is assumed to be a former radio transmission or power tower of wood, which no longer exists. All factors considered, the site is relatively undisturbed. Even now (1978), the site receives very little use, there are no noticable human footpaths and numerous grouse, rabbits, deer and hawks are found in the area.

Figure 17: View of the south-half of FjPi-29, looking west.

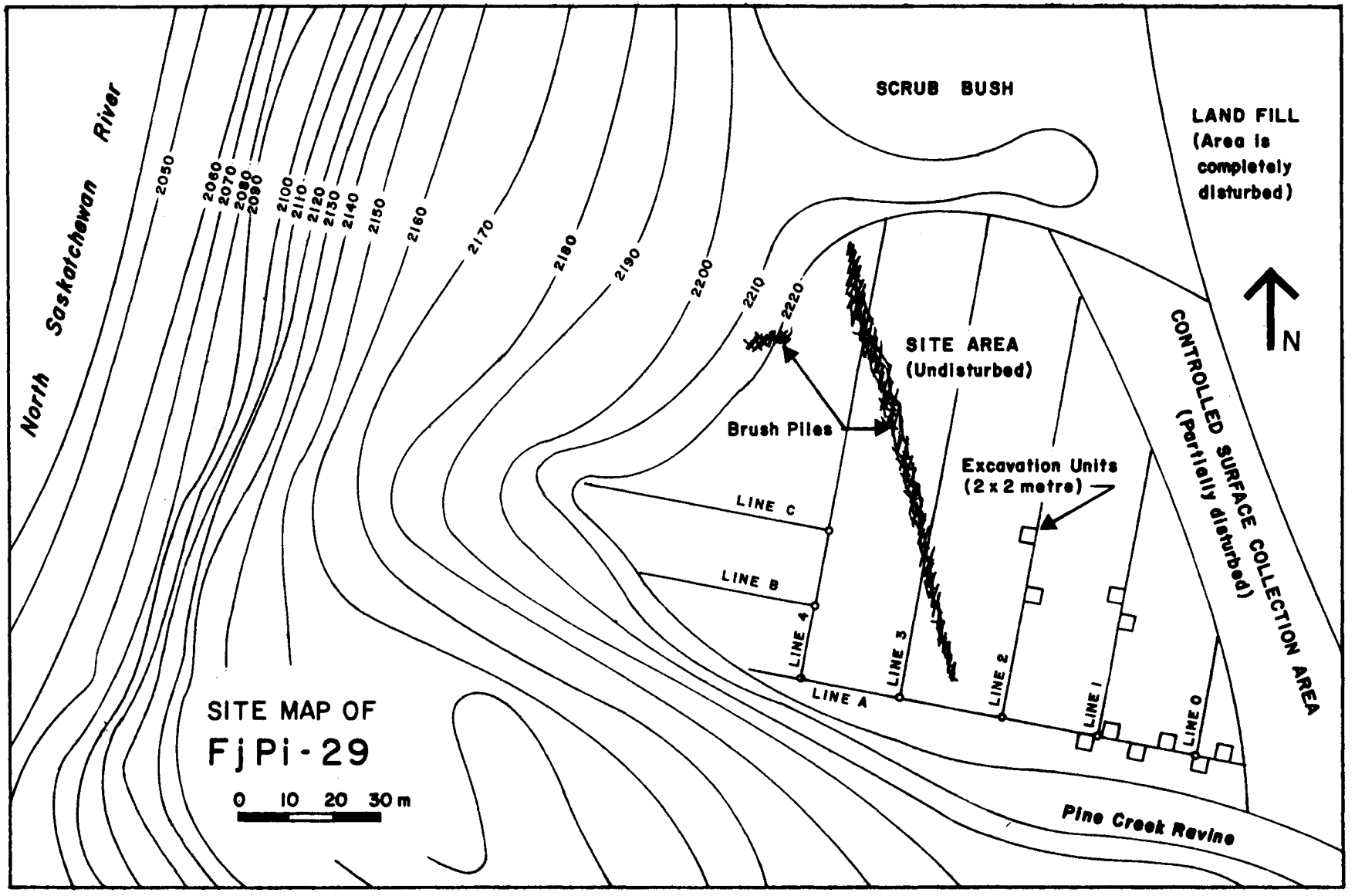


Figure 18: Site map of FjPi-29, Strathcona Science Park.

Historic debris are rare, and the few items found seem to relate to early coal-mining activities in the river valley just north of the archaeological site.

The Strathcona Science Park site was first recorded during a survey of the Capital City Recreation Parks System by ARESCO Ltd. of Calgary. Subsequently, and acting upon their recommendations, the writer initiated extensive testing operations during May and June, 1978. The sampling of the site involved two strategies. One was to survey a number of transects twenty meters apart across the site (Figure 18). A power auger was used to drill standard 8-inch holes along these lines. The horizontal location, depth of hole and artifacts recovered were recorded. This gave a preliminary idea of the density and distribution of cultural material across the site as well as the extent of the site itself. Secondly, as the eastern edge of the site was specifically under threat of impact by park development, controlled block excavations were undertaken in this area (Figure 18). Altogether, ten 2 x 2 meter units were sunk to an average depth of 40-50 cm. A potential 3,000 excavatable 2 x 2 meter units remain to be excavated at the site. All squares were productive and a total of over 3,500 cultural specimens were recovered, including projectile points, bifaces, unifaces, scrapers and faunal remains. Extensive evidence for on-site manufacture of tools exists, including the bi-polar breaking of quartzite cobbles and the shattering of petrified wood nodules. Petrified wood is a material which is difficult to work. Preliminary analysis indicates that nodules of the material were simply shattered and the resulting flakes were utilized directly or with simple retouch (i.e., scrapers). Use of this material may be concentrated in major riverine situations where downcutting has exposed the deep-seated Saskatchewan Sands and Gravels, which stratum is a probable source matrix for petrified wood (Rick Bramm: personal communication).

Several lines of evidence can be used to argue the hypothetical single-component nature of the site, especially in levels below a 10 cm depth. First, all of the artifacts recovered from the excavated units would seem to relate to an Oxbow-like artifact assemblage (Figure 19, c-l). Secondly, the only late prehistoric material recovered (Figure 19, a-b) came from an area of shallow surface disturbance (Figure 18). Data from a controlled surface pickup utilizing triangulation within 10 meter squares also indicates that the late prehistoric materials may be scattered across the site in a discontinuous horizontal pattern. The deeper Oxbow materials are, however, present throughout the site area. A third line of evidence is provided by utilizing data on the percentage frequency of lithic debitage raw material type by 10 cm level and unit within a sample universe consisting of ten 2 x 2 meter excavations. These data, compiled by Barry Newton, have been plotted on a triangular co-ordinate graph (Figure 20). The resulting tight clustering of data tends, in our opinion, to reflect a homology indicative of a single cultural/linguistic group. One unit, 45-23, is aberrant in that two of four levels contain a higher than usual percentage of petrified wood (Figure 19: item g). This may indicate a special activity area or an individual's preference for this material. A fourth line of evidence for a single-component occupation will be available when radiocarbon dating results are available from several large long-bone elements. Dating of material from different levels is expected to give a date for the initial habitation and perhaps some idea of the temporal range as well.

Faunal remains present in the site were moderately well preserved and analysis of the 1978 specimens should be available by late Spring 1979.

Although no significant features were located during the 1978 testing operations, it can be expected that further work will produce data with regard to these potentially important sources of information.

Several soil samples for palynological analysis were collected for analysis and it is hoped that these will allow at least a partial reconstruction of changing vegetational patterns, as it is speculated that the area may have had a drier grassland environment during most of the archaeological occupation.

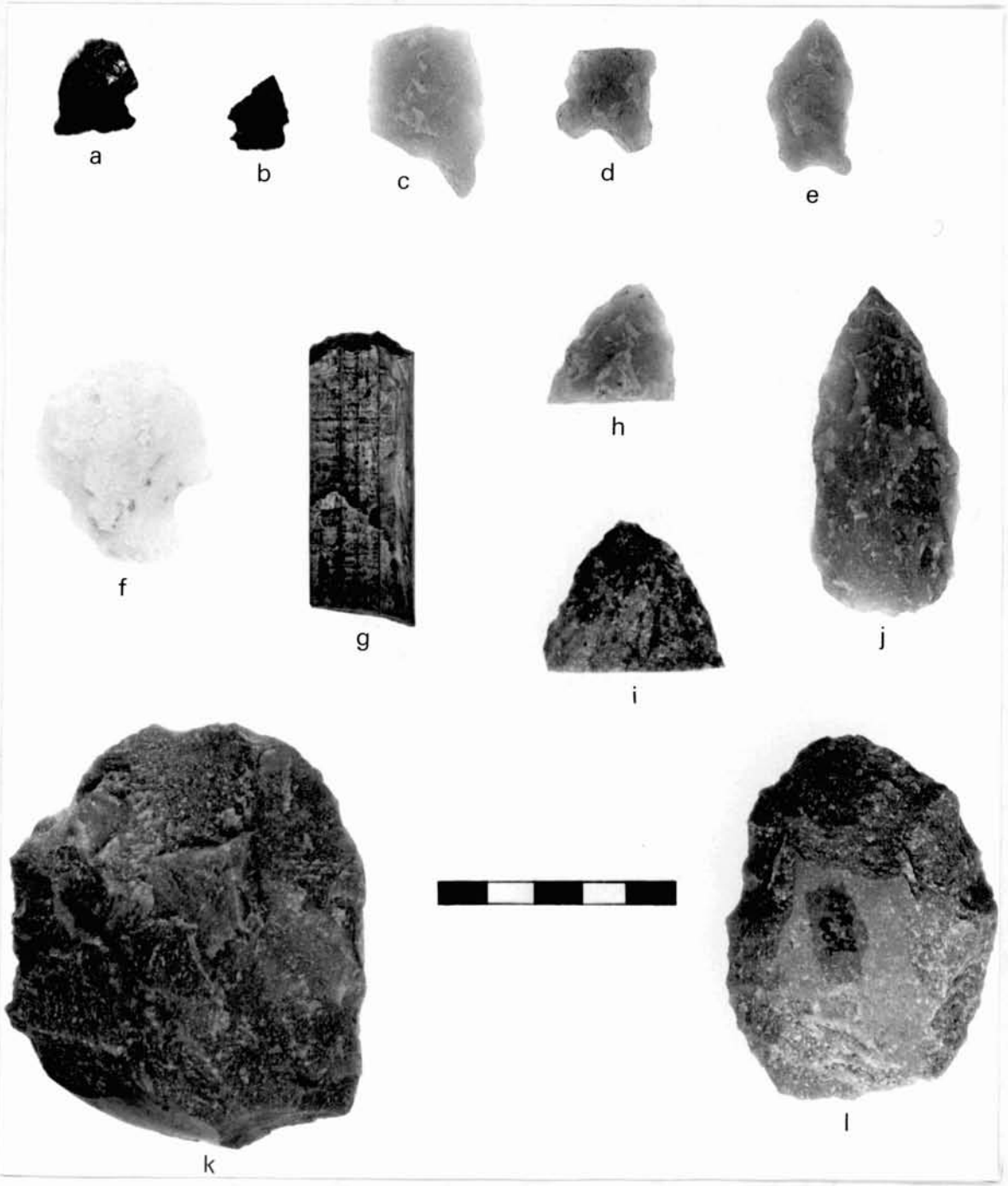


Figure 19: Some representative artifacts recovered from FjPi-29. Items a-b represent Late Prehistoric projectile points from surface, specimens c-e relate to a Oxbow-like Plains Archaic Culture and are from an excavated context.

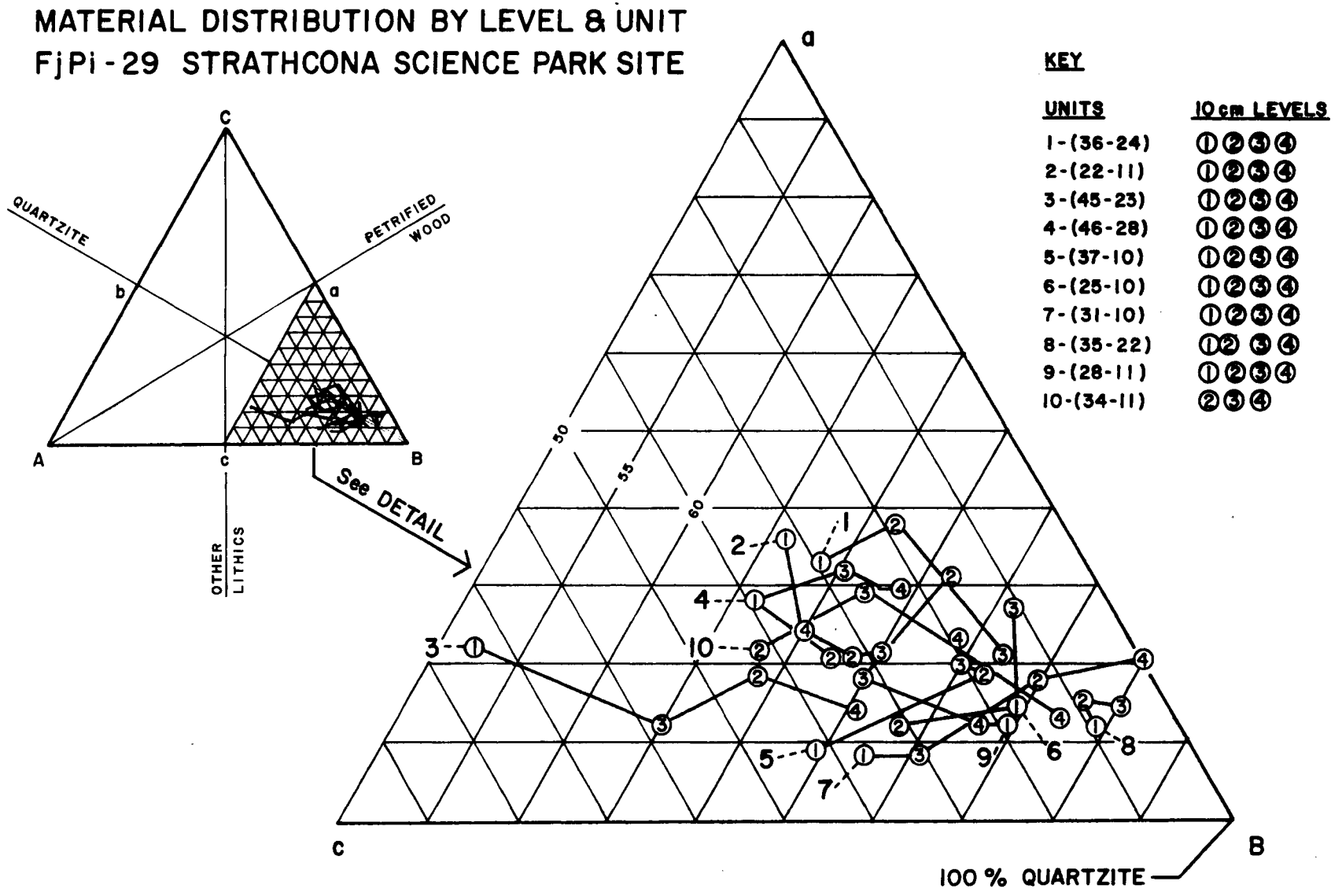


Figure 20: Lithic raw material distribution at FjPi-29, plotted on a triangular graph.

FjPi-29 promises to be a site of great scientific and educational value. It is hoped that it will be preserved and incorporated into the Strathcona Science Park as a protected area.

PROJECT 78-50. ARCHAEOLOGICAL SURVEY OF THE ISLE LAKE, LAC STE. ANNE, STURGEON RIVER BASIN

This multi-year project began in 1978 with an initial survey of the Lac Ste. Anne and Sturgeon River basin as far downstream as Devil's Lake. This, in many respects, can be considered a salvage project, as heavy recreational and agricultural development throughout the entire drainage basin has severly impacted most (if not all) of the sites to some degree. The initial shoreline survey of Lac Ste. Anne (Figure 21) produced some 18 sites, all of which are impacted by recreational, aggregrate removal, agricultural or road construction activity. Of note, however, is the fact that two sites of scientific value were located. One site, FkPo-6 (Figure 21) is located near the lake on a prominant ridge. Although this ridge has been used for grazing, it has never been ploughed. Testing produced one projectile point base, three bifaces, three scrapers and numerous other specimens. It is anticipated that extensive test excavations will be undertaken at this site during 1979. Another site, FkPp-4, also holds some potential for excavation.

Generally, settlement patterns in this area (Figure 22) exhibit no real preference for certain physiographic features or micro-environments, as sites were found in any well drained area at varying distances within a half-kilometer range from the present shoreline. As is to be expected, more prominent landforms produce larger and more artifactually dense sites. The main problem in the area is not site location per se, but the location of excavatable sites which have not been severly impacted by modern activities. Such sites are rare and remain under the constant threat of further impact, due to the accelerating rate of development in the region.

Permits 78-48 and 78-49, Northeast Highway Survey and Northeast Provincial Parks

Two minor highway-related projects were undertaken in the Fort McMurray and Viking areas. They produced negative results.

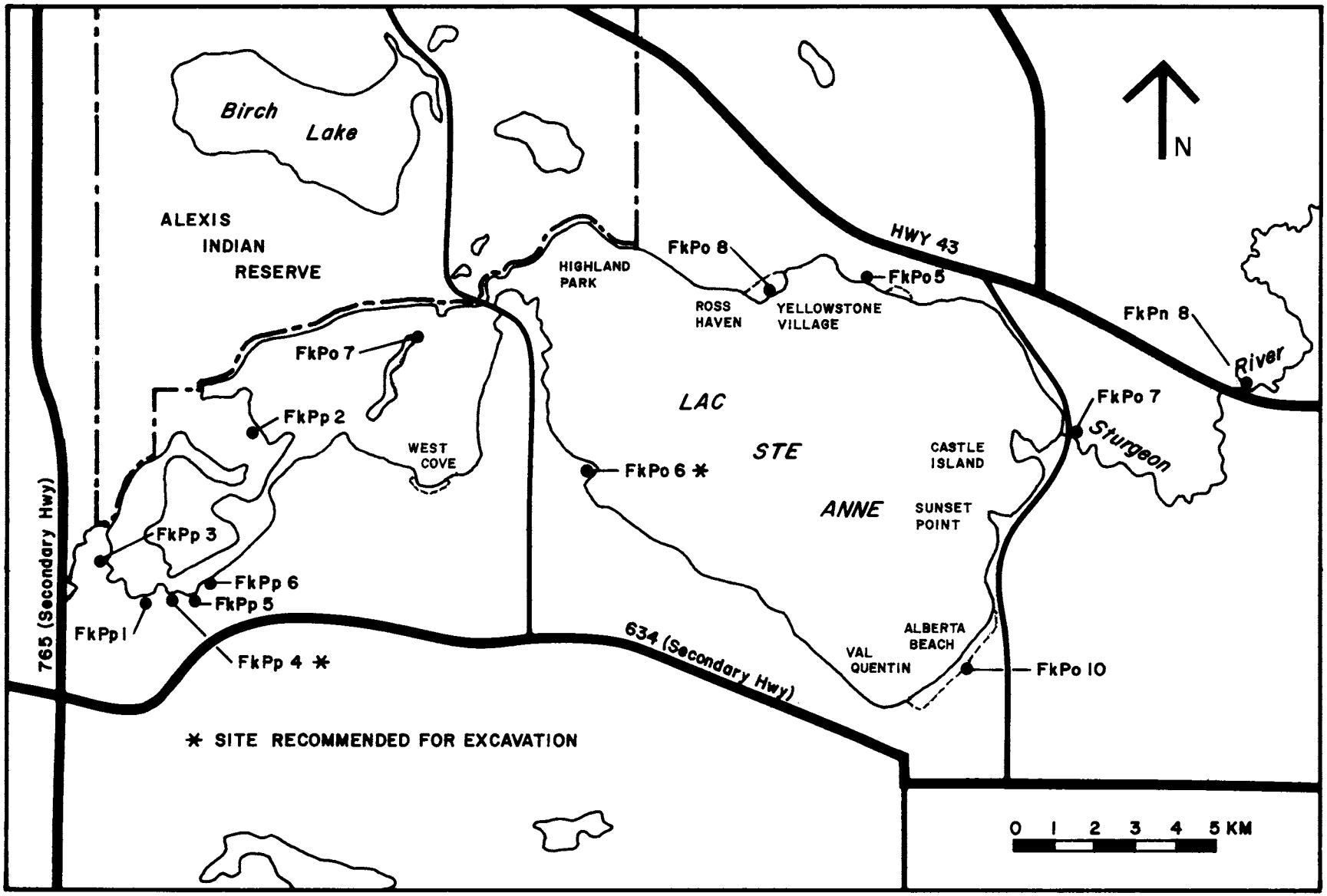


Figure 21: Location of sites within the 1977 Sturgeon River survey area.

Survey of Lac La Biche Provincial Park located two further archaeological sites, GfOx-44 and GeOx-38, neither or which are considered to be significant.

At Cold Lake Provincial Park, some eight sites were located, including threee, GcOm-3, GcOm-5 and GcOm-7, which have potential as excavatable sites. GcOm-7 is especially important as it produced some body sherds from prehistoric clay ceramic vessels, the first such aboriginal pottery reported from the Cold Lake area. The second, GcOm-5, (Figure 23) is extremely large and, although most of its surface was formerly cultivated, a large portion in the central part of the site remains as undisturbed parkland. It is hoped that no further disturbance of this area will be undertaken without prior archaeological investigation. A third site, GcOm-3, located in the present park's day use picnic area, is worthy of some minor salvage excavations.

Dillberry Lake Provincial Park, which is due for expansion, revealed only one further archaeological site, FdOm-15, located in the vicinity of Leane Lake. The area holds potential for further sites and the 1978 survey did not exhaust the chances for further archaeological discoveries in the proposed park expansion area.

Figure 22: FkPo-6, an important archaeological site on Lac Ste. Anne, view looking west.

Figure 23: GcOm-5, an extremely large and important prehistoric site located in Cold Lake Provincial Park, view looking west.

ARCHAEOLOGICAL INVESTIGATION AT FORT GEORGE

Project 78-22

Timothy C. Losey

INTRODUCTION

Archaeological investigation of the Northwest Company post (FlOq-1, located SE ¼ 25-56-6W4), Fort George (1792 - c. 1800) were renewed during the 1978 field season and excavations were conducted from 2 May through 18 August, 1978. This investigation was made possible by a contract awarded through the Archaeological Survey of Alberta to the University of Alberta and by continued financial and logistical support by the Department of Anthropology and Special Sessions Division. Field work was co-ordinated through the University of Alberta Archaeological Field School (Anthropology 495) and a total of 16 individuals were involved during the 1978 season.

This report will summarize information related to building layout, construction techniques, stockade configuration and implied internal chronologies only. Analyses of artifacts and faunal remains is not sufficiently advanced at this time to allow any comprehensive statements concerning frequencies or spatial distributions of this data component. By necessity, many of the dimensions given will be approximate as the collation of as-found drawings is incomplete.

OBJECTIVES

The overall archaeological goals of the Fort George Project are to recover information necessary for planning and consideration of a reconstruction of this historic fur trade site. To this end, the 1978 season objectives as set forth in the contract agreement pertaining to the conduct of archaeological research at Fort George are as follows:

> Structural - In order for consideration of reconstruction, It is necessary to obtain data on the ground plans of buildings and features; to describe construction characteristics; to record timber dimensions and elevations of buildings and features; to record size, type and location of structural hardware; and to obtain wood samples; "As-Found" drawings, profiles and photographs. Specific structural objectives shall be considered as relative to two groups of architectural features:

(a) Palisade: Expose all palisade lines and trenches including exterior perimeter stockade and interior partitions, determine locations of bastions, gates and other directly-associated features. Examine possibility of construction phases and changes in compound size through time.

(b) Structures: Complete the excavation of the west rank of buildings, exposing all structural remains and complete excavation of features (e.g. cellars, cache pits, etc.) within the building area, and re-examination of the "glacière".

Artifactual - It is necessary to provide descriptive data on the artifacts and faunal remains, and provenience records, item classification and catalogue services will be provided. Item frequencies will be tabulated by classification and provenience.

RESULTS

Palisades and Related Features

SOUTH PALISADE - A total of c. 230 linear feet of this palisade wall was exposed using both hand and mechanized techniques. The palisade trench is well defined in many areas by heavy accumulation of refuse which is incorporated in the fill matrix. Preservation of wood remains along the palisade is highly variable owing to rodent activity and perhaps to differential soil chemistry due to the included refuse. Stockade trench width ranges from c. 1½ ft to c. 2 ft but total depth was not determined. This palisade represents the southernmost boundary of the fort compound at a time of maximum size. It is to be differentiated from a former palisade line which lay parallel and to the north which is referred to in this report as the original or Inner South Palisade.

A gateway c. 5 ft in width is located approximately central to the compound as defined in the hypothetical ground plan of Fort George (Kidd 1970:68). It is directly opposite the Main House and is aligned with a marked depression located on the slope outside the compound. The gate is simply formed by a break in the stockade curtain which terminates on either side with an outsized gate-post set into the stockade trench. The trench is slightly enlarged at these points to accommodate the gate posts which are buttressed by the inclusion of large stones in the pit fill. Additional pits thought to contain structural elements related to

the gateway were excavated but yielded nothing.

Approximately 63 ft west of the eastern terminus of the south palisade, trenches containing the remains of stockade posts intersect the line forming angles of c. 90° and c. 120°, thus confirming Kidd's (op cit) suggestion that a triangular enclosure exists at the western extremity of the compound. However, the south palisade does not terminate at this juncture but continues west for an undetermined distance. No remains of pales were observed west of the trench junctures.

INNER SOUTH PALISADE - Approximately 22 ft north and roughly parallel to the south palisade line is a footer trench of which c. 26 linear feet was exposed beneath the barrack-like west rank of buildings. It joins the Inner West Palisade line which is shown by Kidd (op cit: 28, 68) to form the east wall of an hypothetical garden enclosure. No evidnece of stockade pales was observed in either the west or south footer trenches.

EAST PALISADE - Excavation exposing c. 180 linear feet (total exposure) of the east palisade line resulted in the location of both the northeast and southeast corners of the stockade maximum. Preservation of wood elements in this area is poor due to the activity of rodents and to decay in a very dry, loose sandy matrix. No evidence of gateways or intersecting interior walls was observed along this palisade line.

SOUTHEAST BASTION - A shallow c. 2 ft deep bastion-like trench outline which joins the south and east palisade curtains forms an almost trapezoidal inset, c. 10 ft on a side, in the southeast corner of the stockade. Although the south and east palisade lines do not themselves meet, they are joined by the four-sided configuration of trenches which contain no vertical post remains, but rather only sparse fragments of horizontal wood elements. Although its outline conforms to that of a common bastion, the structural remains do not. That is, the corner projection is not formed merely by the continuation of the palisade curtains. M'Gillivray alludes to the construction of a blockhouse in 1794 (Morton ed. 1929:55-56; 74) and there is some evidence in historical records (Coues ed. 1897:561) that it may have been removed following abandonment of the post.

NORTH PALISADE - The total length of the north palisade line was exposed

in plan extending from the junction with the east palisade (northeast corner) where a 90° corner is formed, to a point c. 315 ft west where the line terminates and is joined by two trenches which enter from the south and southwest at angles of c. 90° and c. 120° respectively. The configuration of trenches is very similar to that described in westernmost exposures of the south palisade but is it c. 70 ft further west. The triangular enclosure projected by Kidd (op cit: 68) is further confirmed by the existence of a pair of intersecting trenches which enter the north palisade from the south and southwest at approximately 255 ft west of the northeast stockade corner. Again, however, the remains of wood pales are virtually non-existent west of the above trench juncture.

The north palisade is intersected by three additional trenches which enter from the south. The first joins c. 220 ft west of the northeast stockade corner and is almost certainly the original of Inner West Palisade described above. A second trench joins the line directly north of the Main House and appears to be an interior wall of unknown function. The third trench enters c. 30 ft west of the northeast corner and may be the early east palisade wall trench which contained pales forming the original east stockade line. Interestingly, the north palisade line appears to have been rebuilt at least once between the intersection of the presumed original east and inner west palisade walls.

NORTH GATE - A gateway through the north palisade slightly to the east of the centrally located Main House was exposed in a longitudinal section taken along the north palisade trench. The gate opening is delineated by a pair of large c. 16 in dia. gate posts set c. 10 ft apart into pits which are effectively enlargements of the stockade trench, each c. 4½ ft in depth. The gate posts are set on horizontal wood shims and there are scant remains of horizontal wood threshold members between the posts.

SUMMARY - Stratigraphic evidence coupled with the presence or absence of structural elements in various portions of the Fort George stockade suggests that there is at least two and perhaps three phases of stockade building present. The first phase is represented by a simple rectangular stockade measuring approximately 215 ft by 155 ft which served merely to enclose a basic set of buildings erected in 1792 and very little additional area. The second phase is one of expansion during which the compound

area was extended west, south, and presumably east, at which time the stockade enclosure reached its maximum dimensions of c. 180 ft by c. 365 ft. This phase includes the erection of the blockhouse which, if correctly identified, dates this expansion at c. 1794.

The original west, south and east palisade curtains would have been removed at this time and the original section of the north palisade repaired or rebuilt. In plan the final appearance of the stockade during this middle phase is that of a large c. 180 ft by c. 315 ft quadrangle with a triangular enclosure at the extreme west end adding an additional 45-50 ft with perhaps a gateway formed by the apex of the triangle.

The third and final phase of stockade revision involves removal of much of the western portion of the stockade curtains to a point approximately 50 ft east where the triangular enclosure was replicated creating a compound enclosure similar in morphology to the previous format but somewhat shorter. This final phase is tentative owing to the lack of exposure and unequivocal stratigraphic evidence with which to demonstrate the relative placement of stockade building events. The fact that wood palisade structure is sparse or absent in the area west of the inner triangular enclosure tends to support this somewhat hypothetical stage.

GLACIÈRE - The large structural depression which flanks the Main House to the west at Fort George was tentatively identified as a kitchen by Kidd (op cit: 68) but the idea that it may have been the ice house or glacière referred to by M'Gillivray (Morton ed. 1929:52) was also entertained (Losey et al n.d., Kidd op cit: 36-37). Excavations during the 1978 field season were designed in part to identify the structure in question.

Completion of excavations in the c. 20 ft by 30 ft depression resulted in the exposure of charred remains of a c. 12 ft by c. 16 ft cribbed cellar into which a bark and earth covered roof structure had collapsed following post-abandonment burning of the fort. The cribbing is constructed of round horizontal timbers joined by simple un-modified cob corners which are given lateral support by four vertical posts placed in the interior of each corner. Three pairs of large c. 12-14 in dia. vertical timbers placed at even intervals along the long axis of the cellar

served as ridgepole supports. Smaller poles laid parallel to one another and perpendicular to the ridgepole formed a low roof with eaves at or near ground level. Total depth of the cellar is c. 6 ft below surface and the floor appears to have been of dirt.

There are two additional features which are related to the construction and/or use of the large cellar. One is the West Passageway partially excavated and referred to by Kidd (op cit: 35) which leads from the west end of the Main House into the cellar itself. The other is a trench or passageway which leads north from the cellar and may have functioned as an earlier entrance or as a temporary access during construction only.

The west passageway was fully excavated and reveals that the walls were cribbed with horizontally-placed c. 2 in. thick pit-sawed boards held in place by vertical members of similar size placed in the interior to provide lateral support. The feature is c. 3½ ft in depth where it passes beneath the Main House wall and is little more than 2 ft wide, although severe lateral compression is apparent. The narrow corridor exits from the center of the west wall and joins the cellar near the southeast corner where remains are fragmentary and the method of attachment of cellar and corridor cribbing becomes obscure. The floor of the passageway is hard-packed earth and the nature of the fill removed from within the feature indicates that it was functional at the time of post abandonment.

The north passageway is a partially-cribbed c. 5 ft wide trench with a stepped bottom contour. Cribbing which occurs only in the lower (southern) end of the feature is vertical and poorly preserved. An in situ horizontal wood member, the ends of which are nailed to the cribbing, apparently functioned to prevent slumping of the earthen step. Lack of burning among all wood members, coupled with the nature of the fill within this feature, strongly suggests that it was intentionally and rapidly filled prior to abandonment and perhaps immediately after construction of the cellar.

SUMMARY - Excavation of the northwest cellar depression indicates that the remains encountered are consistent with neither the "kitchen" nor the "glacière" interpretation. The existence of a fireplace adjacent to the north as shown in Kidd's hypothetical ground plan is not confirmed

and the total depth of the feature is not sufficient for it to have functioned as an ice house. Rather it appears to have functioned as a large root cellar for the storage of various root crops which implies a fairly large-scale production of garden produce. The cellar appears to have been accessible only through the Main House implying some measure of regulation regarding the outflow of vegetable foodstuffs. The north passageway may have been constructed solely to prevent collapse of the fragile walls of the cellar excavation by permitting construction materials to be passed down into the excavation thus eliminating the need to work over the edge of the loose, sandy matrix. Deposits in the north passageway show rapid and intentional filling prior to abandonment whereas burned structural debris removed from within the west passageway indicate that it was at least open if not functional at the time of abandonment (c. 1800).

WEST RANK OF BUILDINGS - Kidd's (op cit: 68) hypothetical ground plan of Fort George depicts a single c. 90 ft long barracks-like structure which parallels the original west palisade and is flanked to the south and southeast by two additional 15 ft by 25 ft single dwellings. The 1977 field season excavations have shown that this interpretation is not entirely correct and the 1978 data alters the plan still further.

Investigations in 1977 showed that the two northernmost fireplaces in the West Rank of Buildings actually belong to a structure which is separate in both time and space and is comprised of three compartments contained in a dwelling 25 ft by 35 ft in size (Losey et al n.d.). Extending from the southeast corner of this structure is an en pile wall curtain which was traced southward and enclosed an artifact-littered dirt floor which was tentatively identified as the "shop" referred to in M'Gillivray's (Morton ed. 1929:32) diary of 1794-95. The west wall of this structure was presumed to be the original west palisade wall which was in keeping (structurally) with the en pile east wall observed.

The 1978 field investigations have shed considerable light on the nature of structures and internal chronology in this area. It is now clear that an earlier building, perhaps contemporary with the Inner West Palisade, was present and extended in its earliest form from the south wall of the (later) men's house to within c. 3 ft of the original south palisade line.

In its original configuration, it was c. 65 ft long, 18 ft wide and lay parallel and 8 ft east of the Inner West Palisade. Stratigraphic evidence indicates that it predates the men's house.

The structure was erected using the post-in-ground technique. There are three compartments c. 22 ft in length and each has a centrally located fireplace against the west wall. Each fireplace in turn is flanked by a small, un-cribbed storage pit. Post-in-ground wall and central ridge-pole supports fall on intervals of approximately 11 ft and 22 ft respectively. Wall sill remains and parallel interior sleepers were encountered only along the west wall and fragmentary sleeper remains were found located centrally along the long axis of the structure.

Fireplaces within the structure are characteristically nearly or wholly lacking stone remains but are instead represented by a single course or scatter of stone surrounding a clay hearth and firepan. In one case the stonework was placed directly on the unprepared sand substrate which subsequently became compacted and fire-reddened through repeated use. Sleepers laid up parallel to the west wall sill extend beneath the actual or inferred firebox structures.

The existence of flooring is suggested by the presence of sleepers in the west and central portion of the building even though no floor structure was actually encountered. The fragmentary and unburned nature of wood remains strongly suggests that the building was dismantled prior to abandonment. Apparent rapid and intentional infilling of the small storage pits is consistentwith this hypothesis.

The en pile wall curtain which is located directly on the older (east) wall line and which was the subject of much confusion concerning the nature and function of the structure, is now known to post-date the building and its placement is clearly responsible for the lack of horizonal wall remains in the eastern portion. The presence of post-in-ground wall members situated beneath the en pile trench is the only remaining evidence which affirms the actual location of the east wall.

A later c. 18 ft by 25 ft addition to the south end of the barracks overlies a large refuse pit and the footer trench which is presumed to be that of the original south palisade. This building is shown erronously

in Kidd's hypothetical ground plan to be a separate dwelling and of a different configuration. The compartment contains a single fireplace located centrally along the west wall but lacks the small earth storage pit due perhaps to the accumulation of refuse which underlies the structure. As in the earlier configuration, the structure extends to within c. 3 ft of the later south palisade.

SUMMARY - The West Rank of Buildings is a structure which at its maximum extent measures approximately 85 ft by 18 ft and contains four compartments ranging in length from 22 ft to 25 ft. Each compartment has a single fireplace centrally located against the west wall and overlying a sleeper which is parallel to the wall sill. Small storage pits were placed to the east of each fireplace with the exception noted. Flooring is inferred by the presence of sleepers and the un-cribbed storage pit walls which could not have stood exposed on an earth floor. The presence of post-in-ground wall and ridgepole supports serves to define building outlines as well as to elucidate the construction technique employed.

That the building was erected in two stages is evidenced by the presence of refuse and the presumed original south palisade trench (sans pickets) which underlie the southernmost compartment. Empty post pits, unburned and fragmentary horizontal wood members, rapid and intentional infilling of storage pits and the paucity of fireplace stone form a body of evidence which is viewed as having resulted from building removal prior to fort abandonment. The interpretation of the northernmost compartment as a "shop" is now viewed as untenable. Instead the structure is considered one of the original buildings, erected to provide all-weather shelter perhaps for the working men of the post. The building was later expanded and ultimately dismantled and replaced by the smaller men's house excavated in 1977.

TENTATIVE CHRONOLOGY OF WEST STRUCTURES AND STOCKADES - Two and possibly three building phases at the Fort George site were alluded to in earlier discussions of excavated remains. The tripartite division is generally compatible with observations made regarding both palisade and building construction events. The dating of these events is less certain with the possible exception of the period of maximum growth which, if the identification of the blockhouse is correct, may be placed at

c. 1794.

PHASE I (c. 1792) - The Fort George ground plan in its original configuration was comprised of a simple c. 215 ft by 155 ft quadrangle containing the original barrack-like structure, the Main House and certain of the buildings known to exist in the east portion of the enclosure. The barracks or west rank of buildings in its initial form was comprised of three heated compartments c. 22 ft by 18 ft each with a small storage cellar. Construction was post-in-ground. Whether or not the large root cellar adjacent the Main House may be included in this phase is unknown.

PHASE II (c. 1794-95) - That the stockade was expanded to the west, south and perhaps the east is apparent by the observed lack of palisade pales in all but the latter feature. Inclusion of large amounts of refuse particularly in the south palisade trench supports the idea that the larger stockade was erected after the fort had been occupied for some time. Transverse sections through the north palisade between the inferred original east and west palisade lines clearly show that this section was repaired, or removed and rebuilt at the time of expansion. The stockade plan at this time became that of a 180 ft by 315 ft quadrangle having a triangular enclosure at its westernmost extent giving an overall east-west dimension of c. 365 ft.

It is presumed that the original West Rank of Buildings were expanded an additional 25 ft southward at this time. Spoil from the new south palisade trenches and perhaps elsewhere was used to cap and level the area south of the older structure where the former south palisade and adjacent refuse deposits were located. If the tentative identification of the blockhouse proves to be correct, this event dates to c. 1794 and thus represents Fort George as it appeared in the hey-day of the fur trade.

PHASE III (c. 1797) - The date 1797 is an arbitrary but convenient time frame for the presumed reduction in fur trade activity as well as in the overall population and space requirements at Fort George. As early as 1794, M'Gillivray (Morton ed. op cit: 77) alludes to the fact that local fur resources were already on the wane and thus it might be expected that by 1797 the volume of trade at the fort was on the decline.

It is during this period of declining activity that the West Rank of Buildings was probably abandoned and dismantled to be replaced by the smaller men's house immediately to the north. A second small dwelling near the south palisade (see Kidd op cit: 68, Figure 58) may have also been erected at this time but this is speculative. The men's house to the north has been shown to overlap stratigraphically post pits associated with the earlier barracks. In addition, its west wall rests directly upon the former Inner West Palisade footer trench. A single en pile wall curtain extending from the southeast corner of the later building is roughly contemporary with the structure and probably served to partition latrines, trash pits (of which there is an abundance) or other activity areas from the central courtyard area.

It is assumed that the westernmost portion of the stockade was all or partly removed during this phase in favor of a smaller, more easily maintained enclosure in keeping with the general deceleration of activity. Evidence for this lies chiefly in the observed lack of wood remains in areas west of the inner triangle. The stockade configuration in this final stage has the appearance of the Phase II ground plan but it is c. 50 ft shorter.

Attempts to section each of the critical palisade trench junctures to provide positive internal control on the inferred construction chronology were only partly successful. The strongest evidence for multiple construction phases, with particular reference to stockade expansion and contraction, lies in the demonstrated and inferred removal of palisades and the superposition of buildings on earlier palisade wall lines. Finally the complexity and fragmentation of internal space which would follow if all observed palisade lines were considered contemporaneous would be incompatible with known arrangements of stockade and building patterns seen throughout the Canadian fur trade era.

HISTORICAL RESOURCE INVENTORY AND ASSESSMENT OF THE KEEPHILLS AREA PROJECTS 77-57 AND 77-58

BRUCE W. WRIGHT
ARESCO LTD.

In 1976 and 1977, ARESCO Ltd. conducted an historical resources inventory and assessment of a 25 square mile parcel of land proposed for development of the Keephills Thermal Plant, coal mine extension, cooling ponds and railroad spurline. The project was funded by Calgary Power Ltd. under the direction of Montreal Engineering Ltd.

The study area lies between Lake Wabamun on the north and the North Saskatchewan River on the south in the Parkland ecological zone of central Alberta. Up to 60% of the area had been cultivated.

Archaeologically, the study area was not well known at the time this research was undertaken. A few of the better-known sites within a 20-mile radius of the area include: The Cormie Ranch Site (Losey 1972), the Stoney Plain Quarry Site (Losey 1971), the Duffield Site (Hillerud 1966) and the Mace Site (Pollock 1978).

The objectives of the study were to locate all historical resource sites in the study area through a program of locality-potential prediction, on-ground field inspection, shovel/auger testing, archival research, and informant interviews. Preservation of significant sites, in cooperation with Calgary Power Ltd., was, of course, a further goal of the research.

During the course of the study, a total of 48 prehistoric sites, consisting of campsites, workshops and isolated finds, was located. Over 8,000 lithic artifacts were collected through survey and test excavation.

As well, a total of 23 historic sites containing 37 structures was found. These sites date from between 1908 and the end of the second World War. Site types included houses, barns, sheds, a church and a graveyard. Valuable background on the study area and sites contained within was gathered through the archival and informant research.

As a result of this study, it was possible to infer a record of human

occupation in the study area covering the last 8,000 or 9,000 years. A total of 69 projectile points (Early Prehistoric N=6, Middle Prehistoric N=28, Late Prehistoric N=8, Period unknown N=27) was recovered. One of the large workshops more intensively studied, FiPp-26, located one quarter mile south of Lake Wabamun, contained at least ten types of projectile points ranging from Agate Basin and Jimmy Allen to possible Hennessey and late side-notched types. Pelican Lake was particularly well represented at this site with 11 specimens recovered. Unfortunately, this and many other of the better sites in the study area were previously disturbed by cultivation. See Figures 24, 25 and 26.

The data gathered from this study would appear to be more in keeping with a Plains-oriented occupational history on the basis of projectile point styles and site-location patterning. While relatively little is known about Boreal Forest cultural attributes, particularly in an ecotonal setting, most of the material remains analyzed are basic enough to be expected in both Plains and Boreal Forest artifact assemblages.

Great emphasis appears to have been placed on the use of local lithic materials, particularly quartzites, pebble cherts and mudstones, with quartzites making up approximately 80% of the collection.

Settlement pattern was examined through site distribution, density and resource utilization potential. Most of the prehistoric sites, especially the major ones were oriented towards Lake Wabamun at one end of the study area and towards the North Saskatchewan River at the other end. This would tend to support the hypothesis that the area between these two physiographic features served as a travel corridor and game-resource hinterland in prehistoric times. The majority of sites in the center of the study area were small, indicating use by transient groups of hunters or travellers.

The identifiable historic sites in the study area date back to the start of extensive white settlement, around 1908. Earlier white activities in the area, such as trading and exploration, were not represented in the historic sites located. The activities which were represented focused on agriculture and ancillary developments.

It was possible, on the basis of the historical research conducted during the course of this study, to determine ethnic influences in the pioneer architecture of the area. Building styles changed over time in response to environmental and economic stimuli, with more complex and durable structures replacing initial buildings.

A total of six prehistoric sites and two historic sites were recommended for impact mitigation consisting of salvage excavation and systematic surface collection (in the case of prehistoric sites) and avoidance or relocation (in the case of the historic sites). This work was conducted by ARESCO Ltd. during the 1978 field season.

The Keephills historical resource inventory now stands as the first systematic large-scale survey in the western parkland zone of central Alberta. It is hoped that additional studies can add to the present data base and that hypotheses concerning the use of this zone by Plains and Boreal Forest peoples can be evaluated in light of future research.

Acknowledgements

This project was funded by Calgary Power Ltd. The author wishes to thank our colleagues with Calgary Power Ltd. and Montreal Engineering Ltd. for the environmental data provided to us and incorporated into our report and for all the assistance given by those firms during the course of the project.

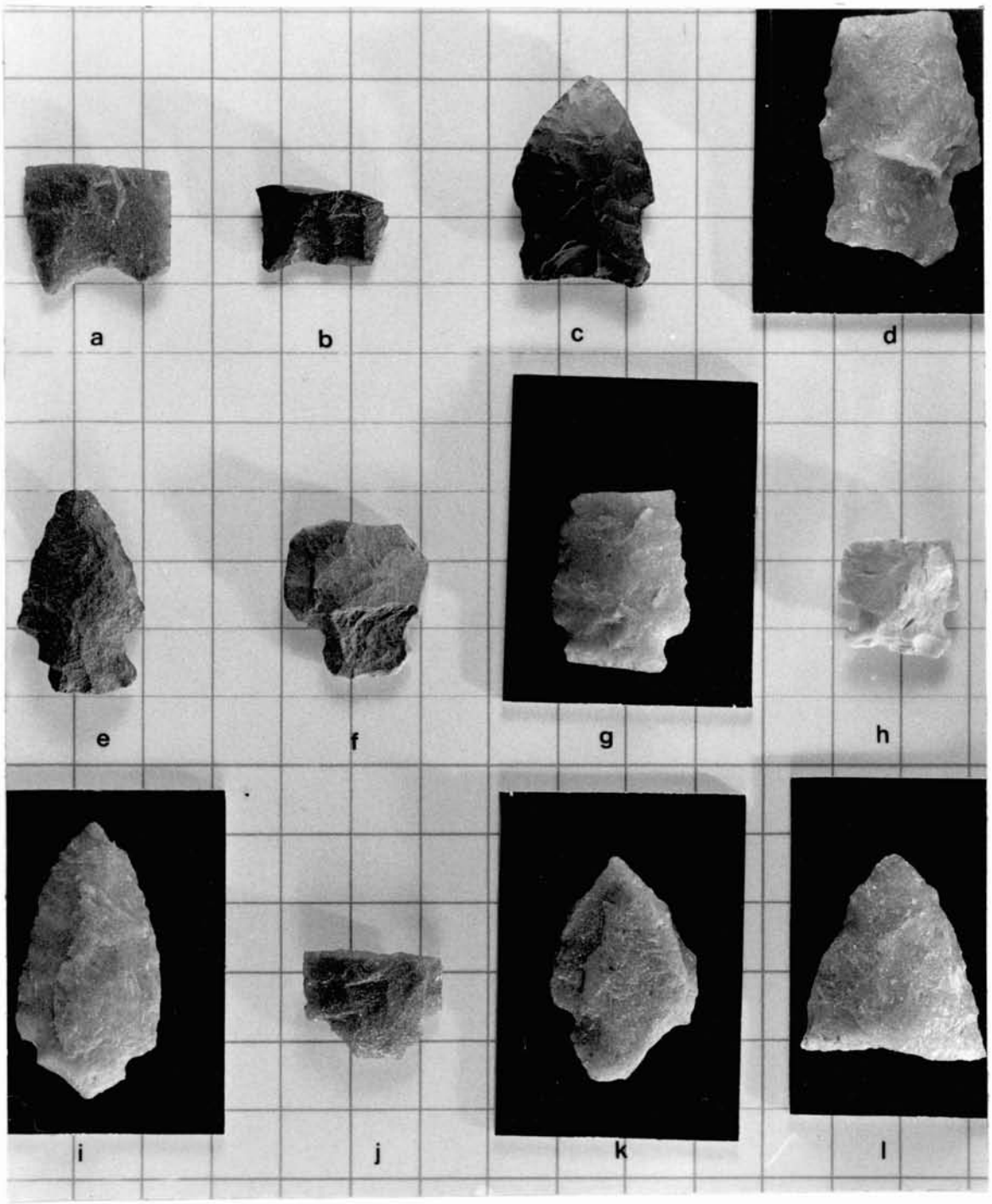


Figure 24: Projectile points from FiPp-26, Locality 2, (items a-l).

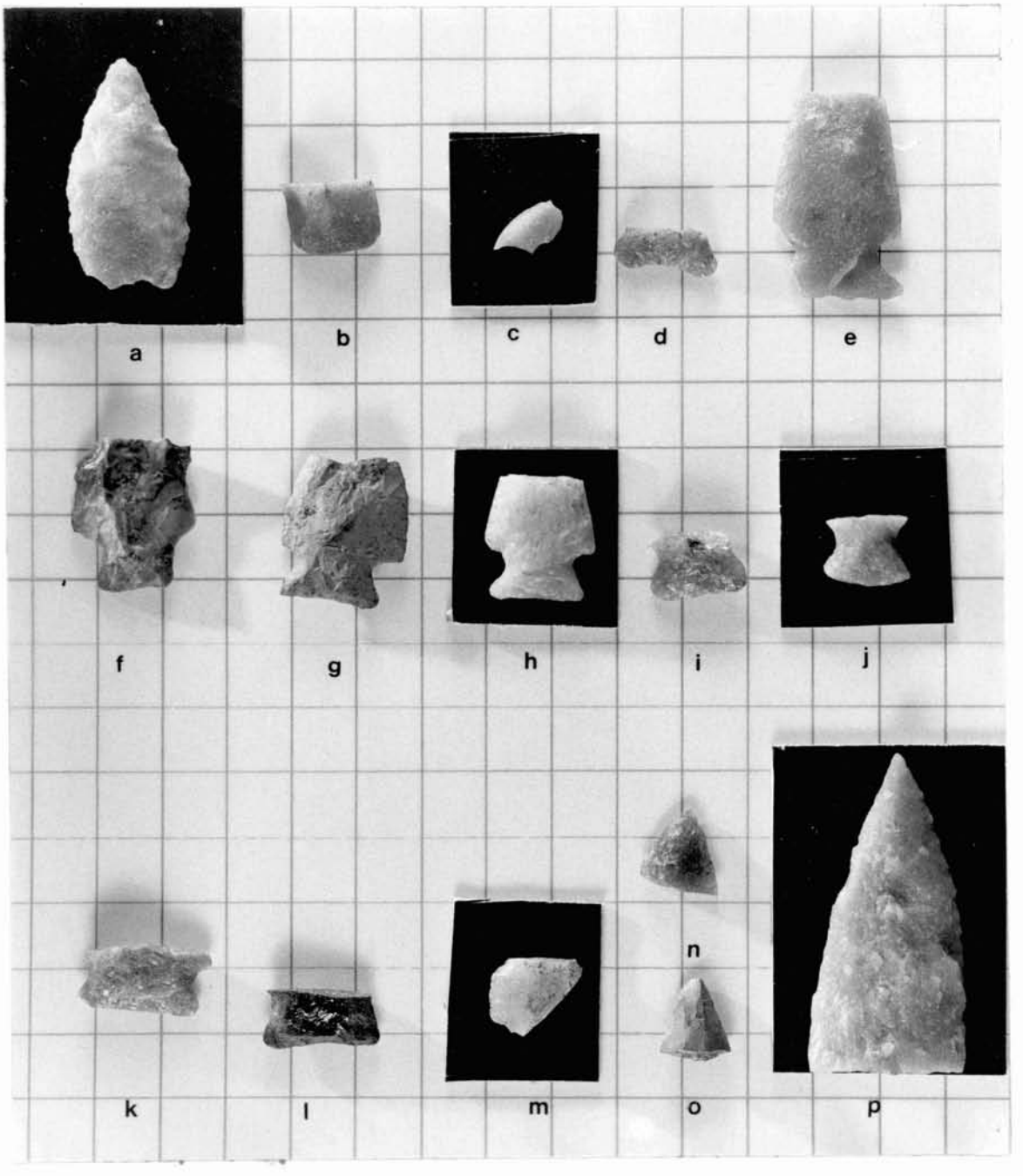


Figure 25 : Projectile points from FiPp-26, Locality 3, (items a-p).

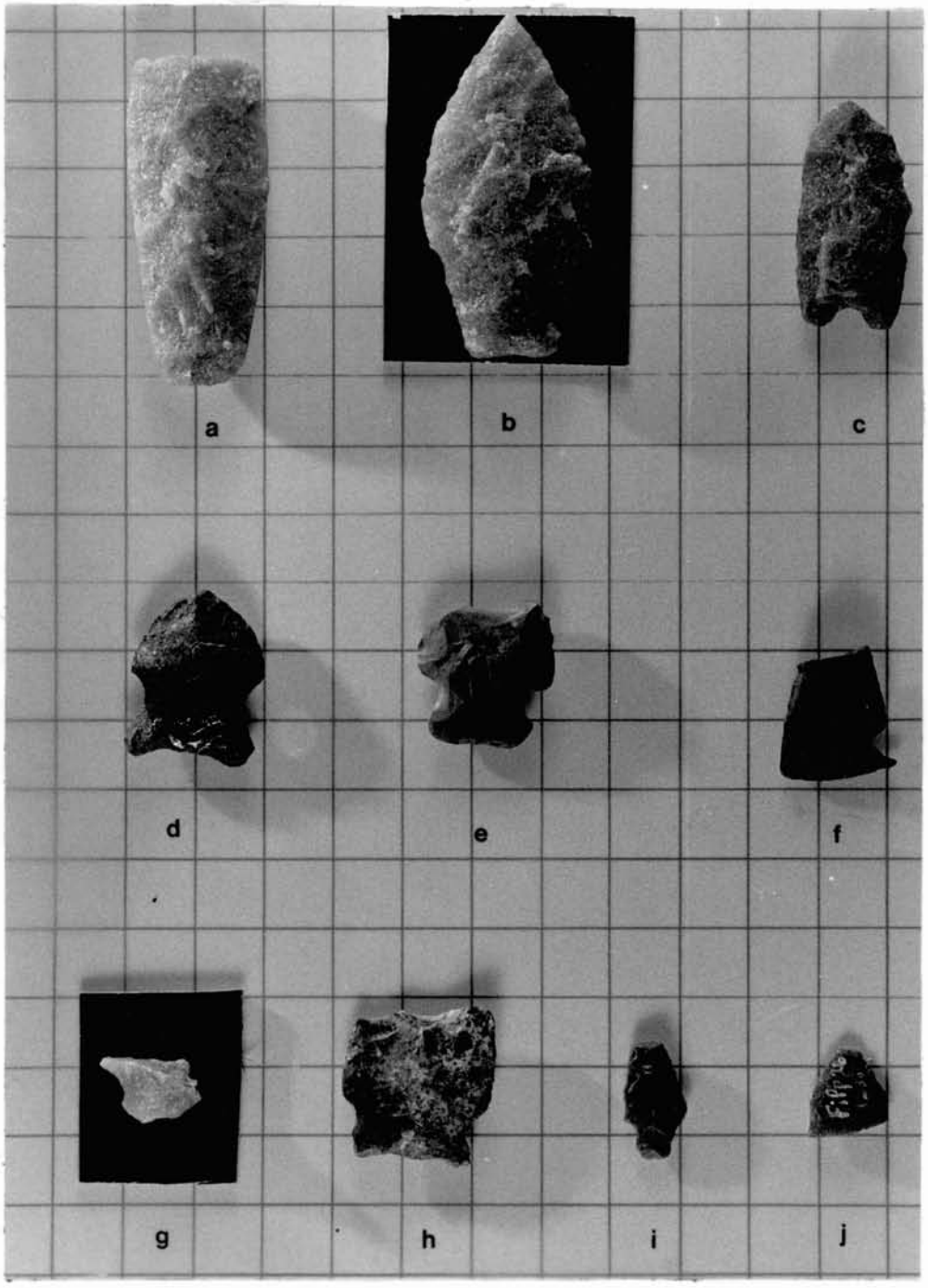


Figure 26: Projectile points from FiPp-26, Locality 4, (items a-j).

PRELIMINARY REPORT ON ARCHAEOLOGICAL INVESTIGATIONS IN THE EASTERN SLOPES OF ALBERTA, 1978

Permit Numbers 78-15, 78-16, 78-17

Jack Brink
Archaeological Survey of Alberta

During the summer of 1978, the author, assisted by Don Emerson, Craig Shupe and Rick Simonson, conducted archaeological investigations in various regions of the Alberta foothills and Rocky Mountains. The projects fall into three categories: 1) inventory and assessment of Alberta Forest Service Campgrounds (permit 78-16); 2) an archaeological inventory and assessment of two Alberta Transportation Highway projects in the Kananaskis country (permit 78-15); and 3) an archaeological survey of part of the Sulphur River valley and Grande Cache Lake. Full analysis of all of these projects has just begun, hence this report provides only very preliminary results.

A.F.S. CAMPGROUNDS

Four Alberta Forest Service Campgrounds were visited this summer: Cataract Creek, Pine Grove, Sibbald Flats and Waiparous Creek. All four campgrounds are in the Bow-Crow Forest Reserve. The latter three campgrounds were previously unsurveyed and were slated for major expansion in the near future. At Cataract Creek an entirely new campground is scheduled to be built, and the area had received previous attention by Rogers (1975) and Quigg (1977).

Waiparous Creek

This campground is situated in the foothills of southwestern Alberta, approximately 48 km northwest of Cochrane. Proposed expansion of the existing facilities consisted of the construction of 75 more camping units in loop form. The centre lines of these loops had been hand cleared. A crew of three walked the area and excavated thirty 50-cm diameter test pits at intuitively selected locations. All pits were sterile. No historical resource materials were located in the expansion area.

Sibbald Flats

This A.F.S. campground is situated in the front ranges of the eastern

slopes, some 51 km due west of Calgary. Planned expansion of the campground consists of construction of a tenting area just north of the Jumpingpound road at the west side of the campground entrance. The area was walked and tested with 39 test pits. A single prehistoric site (EgPr-2) was located at the south end of the expansion area near the Jumpingpound road. Cultural material was recovered from five of the pits. Nine unmodified flakes and 12 pieces of fire-cracked rock were recovered from a depth of 5-10 cm below surface in a reddish-brown Bf horizon.

The site is situated on the crest of a south-facing hill overlooking the lower bench of Sibbald Flats and probably represents a small transitory campsite. The minimal amount of material recovered, despite the intensive testing, indicates the small nature of the site and no further work is considered necessary.

Pine Grove

The A.F.S. Pine Grove group camp is also located on the Jumpingpound Road about 6 km east of Sibbald Flats on the north bank of Jumpingpound Creek. The southeast end of the existing campground is to be expanded into additional group camping area. The area was walked and tested with 12 test pits. A single prehistoric site (EgPq-3) was located on a second terrace above Jumpingpound Creek. Six of the pits yielded cultural material totalling approximately 50 flakes and quantities of fire-broken rock. No tools were apparent; however, the material has yet to be examined in detail. A car trail leading from the site to the access road revealed additional FBR. This site is considered worthy of further mitigative action. The proposed campground development appears to coincide exactly with the site location.

Cataract Creek

The existing Cataract Creek campground is situated at the junction of Cataract and Wilkinson Creek, about 12 km south of the Highwood Junction, at the north end of the Livingstone Range. Alberta Forest Services plans to construct a large, new campground 0.8 km east of the present one on the south side of Cataract Creek just east of its junction with Salter Creek.

Several archaeological sites had been previously identified in the immediate area (Rogers 1975); however, when J.M. Quigg of the Archaeological Survey visited the area in 1977, some confusion arose as to the exact location of these sites. Accordingly, Quigg assigned a new Borden number (EgPp-64) to an area some 200 m long and 100 m wide along a dirt trail which parallels the south bank of Cataract Creek (Quigg 1977c). The purpose of our visit in 1978 was to refine our knowledge about the site, its extent and content, and to assess the need for mitigative work prior to campground construction.

The site is distributed on the second and third terraces above Cataract Creek. The second terrace yielded only sparse evidence of prehistoric occupation, with a few flakes and fire-cracked rock recovered from seven of a total of 17 test pits. The higher third terrace was more productive, with flakes, fire-cracked rock, calcined bone and at least two formed tools recovered from six of a total of nine test pits. The site location coincides in part with the proposed campground and mitigative measures will be required.

KANANASKIS HIGHWAY

Two Highway Survey projects were undertaken in the vicinity of the new Kananaskis Provincial Park: 1) a 35 km survey of the Smith-Dorrien Creek valley which connects Spray Lakes in the north with Lower Kananaskis Lake in the south; and 2) an 18 km survey of the Highwood Summit area, including sections of Pocaterra and Storm Creeks.

Smith-Dorrien Creek

This narrow, northwest/southeast-trending valley is drained by Smith-Dorrien Creek flowing south to Lower Kananaskis Lake, and by Smuts Creek flowing north to Spray Lakes. At present, the valley summit (c. 1890 m) is occupied by Mud Lake. An existing trunk road follows the eastern side of the valley. Alberta Transportation has begun work constructing a paved road into the new provincial park. The right-of-way largely follows the existing road. At the time of our survey (late May, early June) approximately 20 km of the new road had been completely cleared. This clearing, done in the winter, involved uprooting of the dense spruce cover resulting

in considerable destruction to buried historical resources. Prior to our work, ARESCO Ltd. had examined a small portion of the southern end of Smith-Dorrien valley in conjunction with their survey of the new provincial park (ARESCO 1977). They reported on one prehistoric site (EePt-3) which had been previously located by a biologist. In addition, ARESCO had recorded several sites located on the north edge of Lower Kananaskis Lake near the mouth of Smith-Dorrien Creek.

Our survey was confined almost entirely to the highway right-of-way and thus should not be interpreted as a complete survey of the valley. Both the old and the new road are situated above the two major creeks on the sloping western flanks of the Kananaskis Range. Seldom does the highway come in close proximity to the creeks. It is assumed that numerous other historical resource sites will be found in the valley bottom. Our survey recorded 14 new historical resource sites: Eight sites have only prehistoric components (EfPu-3, 4; EePt-9, 10, 11, 13; EePs-24, 25); four sites have only historic components (EfPu-2; EePt-5, 6; EePt-12); and two sites have both prehistoric and historic components (EePt-7, 8).

All prehistoric sites except EePs-25 are characterized by extremely localized concentrations of waste flakes of black silicious siltstone. ARESCO Ltd. (1977) estimates that this raw material accounts for 99% of the prehistoric assemblages from Kananaskis Park. Tools are almost totally absent, as are indications of any activity other then primary chipping. EePs-25 represents an exception in that cultural materials were distributed over about 1000 m^2 on both banks of a small tributary creek near the southern end of Smith-Dorrien Creek. Lithics from EePs-25 were still overwhelmingly dominated by waste flakes of black siliceous siltstone, yet a few formed tools and pieces of other raw materials were recovered. This site is nearly identical to the nearby EePt-3 and both sites were subsequently excavated by ARESCO Ltd. Most of the prehistoric sites had been disturbed or destroyed by road clearing operations; however, at the larger sites considerable amounts of <u>in situ</u> material were found. All prehistoric cultural materials were buried between 5 and 30 cm below surface.

Historic Sites consisted mainly of structures associated with either past logging activity or forest management. All historic sites were in poor condition, most structures being represented only by foundations, and none

are believed older than 40 to 50 years. None of the sites were considered of sufficient historical interest to warrant further work.

Highwood Summit

The Highwood Summit is the pass formed by the valley of Pocaterra and Storm Creeks between the Elk Range to the west and the Misty Range to the east. This very high pass (c. 2210 m) is located 10 km southeast of Kananaskis Lakes and is accessible by the forestry trunk road, Highway 940. This route will be changed, improved and paved from Longview into Kananaskis Park. Our survey consisted of two approximately equal 9 km sections north from the Summit down Pocaterra Creek and south down Storm Creek. The Pocaterra section had been completely cleared and the Storm section had a centre line staked and ins some places cut out.

Prior to our study, ARESCO Ltd. and Rogers had identified several historical resource sites within our study area. Any of these on or near the new highway right-of-way were re-visited. Many of the sites could not be relocated. Those that were re-located were judged to be of low value and not requiring mitigative work.

Our survey located two new prehistoric sites (EdPr-46, 47), both on the Storm Creek side of the summit. Both sites consisted of waste flakes of black silicious siltstone found in the road cut from the original trunk road. Extensive test pit excavation at these sites failed to uncover additional material and it is assumed that both sites were destroyed by the construction of the original road. No further mitigative work is recommended for this section of Highway 940.

GRANDE CACHE REGION

As part of a continuing programme to investigate areas of the Province which have received little or no previous archaeological attention, five weeks were spent surveying and testing in the Grande Cache region of west central Alberta. The areas examined include: 1) approximately 14 km of the north bank of the Sulphur River from its confluence with the Smoky, upriver to where it is joined by Adolphus Creek, and 2) a complete survey of the shoreline and adjacent area around Grande Cache Lake.

Sulphur River Survey

The Sulphur River is a deeply entrenched, strongly meandering river system which flows northwest out of the Willmore Wilderness, abruptly angles west and then southwest to its confluence with the Smoky. Several levels of terraces are well developed; however, most lower terraces are discontinuous, U-shaped terrace remnants occurring on the point bar side of a river meander. These lower terraces were walked and tested with 40 cm diameter shovel holes but no historical resource sites were located. Instead, all sites were found to occur on a continuous high terrace some 100 m above the river level.

Survey procedure consisted of walking the entire study area, concentrating on the terrace edges and on the banks of the few tributary creeks. Test pits were intuitively located, but were used to test almost continuously along the high terrace resulting in a thorough sampling of the study area. Due to the great number of pits excavated and the great proportion of these being sterile, exact counts and locations of the pits were not kept. However, a few daily averages were tabulated and, extrapolating from these, over a thousand test pits were excavated, or approximately five pits every 100 m. This statistic is misleading in that pits were not evenly distributed but rather would concentrate in certain areas, for example, where a site was found.

A total of 17 sites were recorded (FlQs-2 to -17 and FlQt-2), all prehistoric except two which had both historic and prehistoric components. With only one exception, all prehistoric sites were remarkably similar; characterized by extremely small amounts of cultural material occurring over a very limited space. Typically, a few flakes would be uncovered in a test pit and an additional 8-10 pits placed in the immediate vicinity would all be sterile. A few sites yielded calcined bone fragments and fire-cracked rock. Formed tools were rare; they were recovered from only three sites and consisted of a few biface fragments and several endscrapers. No projectile points were found. It is postulated that these small sites are the remains of individuals or small groups traveling through the area with the river serving mainly as an access route. Another conclusion of this study is that, given the nature of the prehistoric sites, locating such sites is largely a result of luck, regardless of the surveying strategy

employed.

Grande Cache Lake Survey

Grande Cache Lake is one of a series of lakes and muskeg flats which lie in what is known locally as Grande Cache valley. This valley trends east/west between the western end of Victor Lake and the Muskeg River valley to the east. Grande Cache Lake is some 2.2 km long and 1 km wide and is flanked to the north and south by the sloping hillsides of two low mountains. It is estimated that 50% of the shoreline is muskeg, the other 50% being raised land ranging from 0.5 to 4 m above water level. There are no beaches, and except where disturbed by road construction, black and white spruce grow to the waterline. All raised shoreline areas were surveyed and tested, as were the flanks of the hillsides to the north and south sides of the lake.

A total of 13 sites were recorded (FlQs-19 to 32), all prehistoric with one site also having an historic component. Sites were found on virtually all raised areas of the lake shore. Boundaries between sites were often difficult to establish; frequently this was determined by a break in topography such as the intercession of muskeg. Relative to our findings on the Sulphur River, the lake sites, especially those closest to the shoreline, were much larger and were characterized by much higher yields of cultural material. The artifacts have not yet been analyzed, but cursory perusal of the projectile point fragments indicates occupation during Middle and Late Prehistoric times. One point base may be an Early Prehistoric type. Other notable finds included obsidian, probably from Anahim Peak in British Columbia, and flakes and a point made of pure transparent quartz which may also be a B.C. material. Evidence is mounting in the Grande Cache area for the importance of the Smoky River and associated passes as an important trade and/or travel route through the Continental Divide. Several of the Grande Cache Lake sites warrant excavation and may be included in a research programme for 1979.

A REVIEW OF KANANSKIS PARK ARCHAEOLOGY TO 1977

Project 76-55 and 77-74

Ian R. Wilson
ARESCO Ltd.

INTRODUCTION

The following brief report details work undertaken in the Kananaskis region during 1976 and 1977 by ARESCO Ltd. (Poole and Anderson 1976) on behalf of Alberta Recreation, Parks and Wildlife. In general, the 1976 work involved survey, while testing and excavation were the focus of work the following year. This report is based on the findings of these two studies (Head et al 1977; Wilson 1978a). Archaeological research was continued by ARESCO in 1978, but this work is reported elsewhere and will not be discussed here (Wilson 1978b; Warner, this volume).

ENVIRONMENTAL SETTING

A detailed description of the environment in the study area and the Kananaskis River Valley in general can be found in "The Mountain Environment and Urban Society" (Hodgson 1974). Various mountain ranges including the Elk, Opal and Kananaskis Ranges, as well as the Spray Mountains, restrict access into the area to a number of well-defined natural corridors. Of these, the Kananaskis River Valley, which trends northward to the Bow River (a distance of 35 miles from the park) is the largest. Various mountain passes link the park area to other regions to the west, south and east.

Predominant rock types are sandstone, quartzite, limestone and dolomite, which are part of the bedrock formation. Valley walls are characterized by talus and colluvial deposits with ground moraine present in some specific areas. The topography is rugged.

The climate of the Kananaskis Valley is classified as snow forest,

with cool summers in its lowest levels, and as Arctic in higher elevations (Hodgson 1974:151). Precipitation is heavy, particularly in summer, although the area also receives heavy snowfall.

Several vegetation zones dependent on elevation and aspect are present, each with distinctive associated plant and animal communities. The area is largely forested, although alpine and montane meadows, as well as marshes, are present. Animals of importance to man include mountain sheep, hare, mule deer, moose, elk and probably wood bison in the past. All these species are found in relative abundance.

The earliest documented groups utilizing the area included the Kootenai, Interior Salish and the Snake. These groups were displaced to the west by the Peigan after the arrival of the Europeans. The Stoney, who occupy the area today, later displaced the Peigan.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Most research along the eastern slopes of the Rocky Mountains has concentrated on major east-west valleys and it is to these areas that comparisons must be drawn. Little previous archaeological work had been done in the Kananaskis region, a north/south-trending valley system. In 1973, J. Rogers briefly surveyed part of the upper Kananaskis Valley although he concentrated his fieldwork in the upper Highwood and Elbow River basins. He recorded thirteen prehistoric sites in the Kananaskis Valley (Rogers 1974, 1975). In 1972 and 1973, archaeological inventories of the new Highway 940 right-of-way were undertaken, resulting in the discovery of fewer than twenty sites (Lifeways of Canada Ltd. 1973; Reeves 1972). Subsequent to this latter survey, a site (EfPs-3) assigned to the Mummy Cave complex was excavated (Lifeways of Canada Ltd. 1974b).

STUDY RESULTS

In 1976, portions of the Kananaskis Provincial Park thought to have high archaeological potential were surveyed resulting in the recovery of 89 sites. Of these, 53 were prehistoric in age, 34 were

historic, and two revealed both historic and prehistoric remains. Only the prehistoric sites are discussed in this report. At this point it should be noted that the inventory located only a fraction of the sites present in the park, largely due to time constraints. In addition, accurate settlement pattern models cannot be generated with confidence at this time, since a sampling design was not imposed on the field survey.

The areas examined, and originally thought to have the highest archaeological potential, included the following: 1) Lower Kananaskis Lake - all the areas along the shorelines and terraces except parts of the west side; 2) Upper Kananaskis Lake - the north half of the lake along shorelines and terraces; 3) selected portions of creeks and rivers - the valley bottoms and terraces along Pocaterra Creek, Boulton Creek, Muskeg Creek, Smith-Dorrien Creek, Fox Creek, and the lower portions of the Upper Kananaskis River; and 4) passes including the Highwood Summit, El Poca Gap, Elk Pass, and the North and South Kananaskis Passes.

In 1977, in response to impending development plans, 12 of these sites near Boulton Creek (in the vicinity of Lower Kananaskis Lake) were tested. Partial excavations were also undertaken at EdPs-59, overlooking Muskeg Creek, and at EePs-13, near the administration area of the park.

In terms of site function, 21 of the 89 Kananaskis sites were considered to be campsites, 21 as workshops or chipping stations and the remainder as unclassified due to a lack of sufficient materials. These evaluations of site function are rather arbitrary and are based on material remains found on the site, which, as Binford (1978) points out, can be misleading. It is perhaps more realistic to suggest that the Kananaskis sites identified as to function served as areas where tool production was conducted and occasionally where meals were eaten (few sites have good bone preservation). Some hearths have been found including a small buried hearth at EdPs-59, but no structural remains, post molds or other evidence of permanent (or temporary) habitations have been located to date in the park area.

Several sites were relatively dated by the use of diagnostic

artifacts. Based on the survey results, two sites (EdPs-14, EdPs-46) are related to the Late Prehistoric, four (EdPs-8, EdPs-53, EdPs-58, EePs-2) to the Middle Prehistoric and two (EdPs-30, EdPs-56) to the Early Prehistoric Period. One site (EdPs-51) yielded material associated with both the Middle and Late Periods. Specifically, material relating to Hell Gap in the Early Period and to Oxbow, Salmon River, Hanna, Besant and Pelican Lake in the Middle Period and to the Old Woman's Phase (plains side notched) in the Late Period was found. All Late Prehistoric sites were found on the shores of the Kananaskis Lakes, whereas no patterning of site location was evident for sites of other periods. Both Early and Middle Prehistoric Period sites were also found in association with the lakes.

Excavation at EePs-13 yielded a single point, identified as Bitterroot, while EdPs-59 contained artifacts associated with three different complexes of the Middle Prehistoric Period; Duncan, Pelican Lake and Besant. A rectangular siltstone end-scraper and a triangular chert side-scraper were also found at EePs-13. EdPs-59 yielded four end-scrapers of various raw material types (except siltstone), a quartzite cortical spall scraper and several bifaces. The endscrapers were fairly uniform in morphology in that they tended to be elongate and straight, parallel sided. Some of these artifacts are illustrated in Figure 27. Other work has indicated that Middle Prehistoric sites are the most common in the Kananaskis area: especially common formed artifacts are Pelican Lake projectile points.

Thus, it appears that the Kananaskis Valley has been more or less continuously utilized for the past 8000 years with no major period of cultural hiatus. The area seems to have been most heavily utilized in the time period associated with Pelican Lake; this is, between about 3500 and 2000 years ago. Although the Middle Prehistoric Period is usually associated with a warmer, drier climate, the time period of Pelican Lake correlates with a period of cooler climate and reduced grasslands in the mountains. At this point, it should be noted that a wide morphological range of points (following various other archaeological literature) has been assigned to the Pelican Lake complex of artifacts.

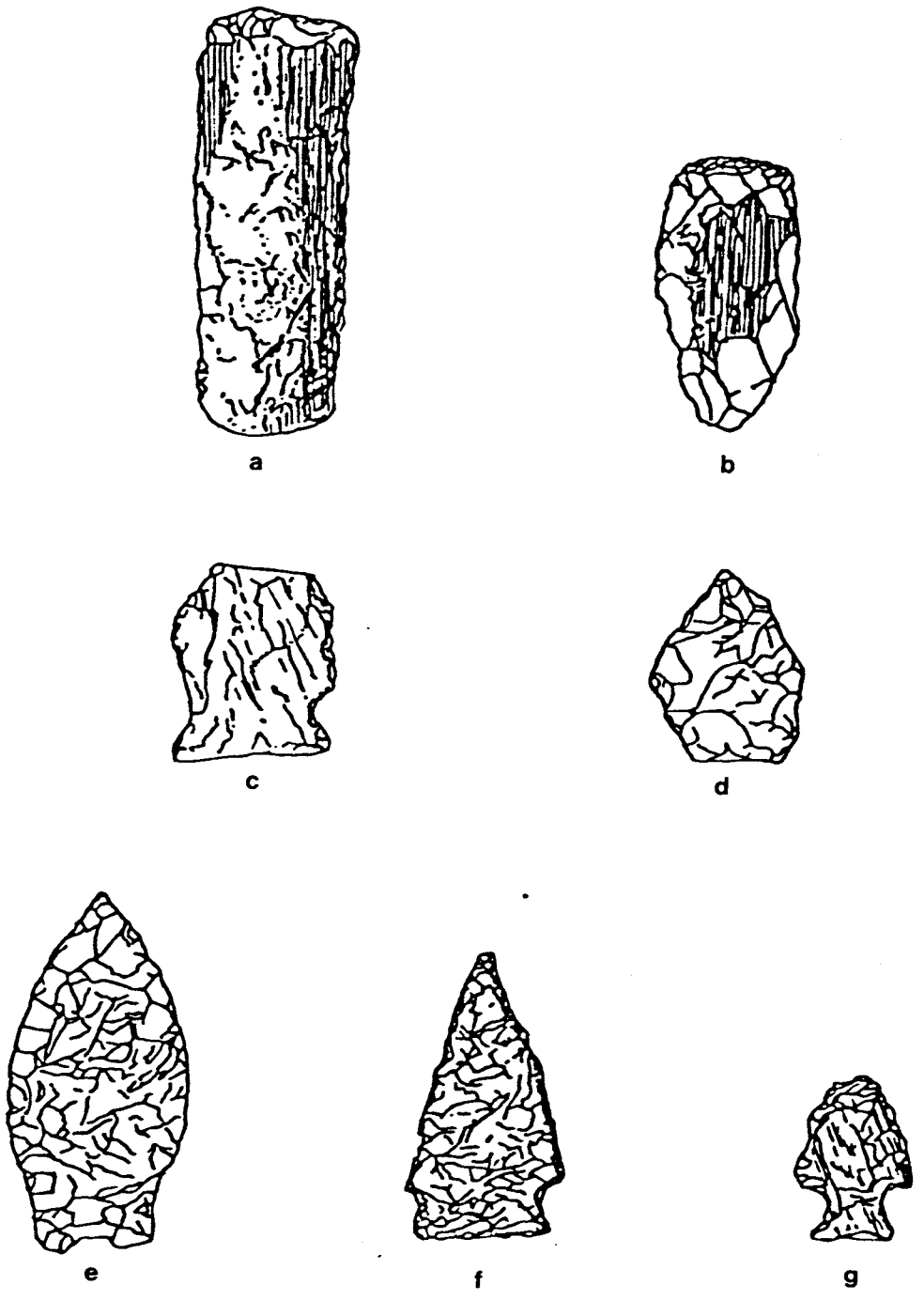


Figure 27: Selected artifacts from excavated sites, EdPs-13, -59.

a) EdPs-59 metamorphosed quartzite endscaper.
b) EdPs-59 chert endscraper.
c) EePs-13 Bitterroot side-notched siltstone point.
d) EdPs-59 Besant side-notched siltstone (broken) point.
e) EdPs-59 Duncan siltstone point.
f) EdPs-59 Pelican Lake corner-notched siltstone point.
g) EdPs-59 Pelican Lake corner-notched siltstone point.

By far the most predominant lithic raw material type present in Kananaskis sites is a grey to black silicious siltstone (previously commonly misidentified as Banff chert). In excavated sites, this material accounts for over 95% of the lithic assemblage. Its occurrence is wide ranging in the Rocky Mountains and is also found extending to the Foothills and Plains culture areas where it is most commonly associated with the Late-Middle Prehistoric Period (particularly Pelican Lake).

The ratio of unmodified debitage to formed tools in Kananaskis sites is very high, often exceeding 250:1. Two possible explanations for this are that the area was exploited for raw material in the form of silicious siltstone and sites normally functioned as workshops, or that siltstone was so easily available that it was not carefully worked, resulting in large quantities of debitage. Of course, these two explanations are not mutually exclusive and it is possible that the material was of such poor quality that it fractured easily, again creating large quantities of debitage.

DISCUSSION

The high-potential areas that were examined in 1976 were all, in fact, productive. Subsequent research in the area has shown that small tributary streams also are important in terms of site location. Certainly, more comprehensive surveys may identify further areas of archaeological interest.

Another major area of research concerns the functions and activities which were centered in the Kananaskis area. Present evidence suggests that the area may have been used primarily as a source of lithic raw materials and perhaps seasonal hunting of large game. One problem peripheral to this is the location of the sources of silicious siltstone. At present, it is felt that many localized outcrops of bedrock deposits were used rather than large or centralized quarry locations. It is also possible that till deposits may have been the source of the silicious siltstone.

Other major problem topics like area settlement-pattern, seasonal

resource utilization, and social and economic adaptation systems in the mountains are but slowly taking shape. As with most archaeological projects, work in the Kananaskis area has raised more questions than it has answered. Some of the questions that are being examined are as follows: the archaeological sequence of the area is far from being firmly established. The concept of the Pelican Lake complex is one that should be examined, largely because of the wide range of variation in the point types. The reasons for apparent increased use of the area in times associated with this complex also bear examination. The archaeological integrity of the Bitterroot complex can be questioned. Also, the direction and intensity of cultural influences is presently unknown. For example, Reeves (1968) suggests that both Bitterroot and Pelican Lake are mountain-adapted cultures. However, there is growing evidence to suggest that Bitterroot may have cultural origins as distant as the Eastern Woodlands (Wilson 1978a) and that the occurrence of Pelican Lake is later in the mountains than in the Plains (Quigg 1978a). Clearly, these and a myriad of other archaeological comparisons and past cultural relationships, require further thought.

ARCHAEOLOGICAL INVESTIGATIONS IN ALBERTA's ROCKY MOUNTAINS

Project 78-74 and 78-105c

E. Jane Warner
ARESCO Ltd.

INTRODUCTION

In the summer of 1978, under contract to Alberta Transportation and Alberta Culture, Aresco Ltd. undertook a program of archaeological investigations at nine historical resource sites in the Western Alberta Plains and Rocky Mountain physiographic zones of Alberta. All sites will be impacted by proposed highway construction. These sites are EdPr-40, EdPr-41, EePs-25, EePt-3, EgPs-32, EgPs-33, EgPt-5, EgPt-11, and FaPp-16. Of these, EgPt-11 was recorded as an historic Euro-Canadian site, EdPr-41, an historic native site; EdPr-40, an historic native or Euro-Canadian site and the remaining six sites were designated as prehistoric. Figure 28 provides a map of their locations. The permit holders for these projects were Ron D. Mcfee (78-74) and Ian R. Wilson (78-105c).

Subsequent to these investigations, recommendations for further work were submitted for four of the sites; EePs-25, EePt-3, EgPt-5, and EgPt-11. The additional fieldwork on these sites was conducted in October of 1978.

The following is a brief discussion of the findings and recommendations arising from these two phases of archaeological mitigation.

SITE EdPr-40

This site is located on a braid-bar of Storm Creek, west of the Misty and Highwood Ranges, in the Rocky Mountain physiographic zone of Alberta (Figure 28). EdPr-40, which consists of one partially-buried hearth, was recorded as an historic campsite with affiliation to either the Stony Indians or to Euro-Canadian settlements.

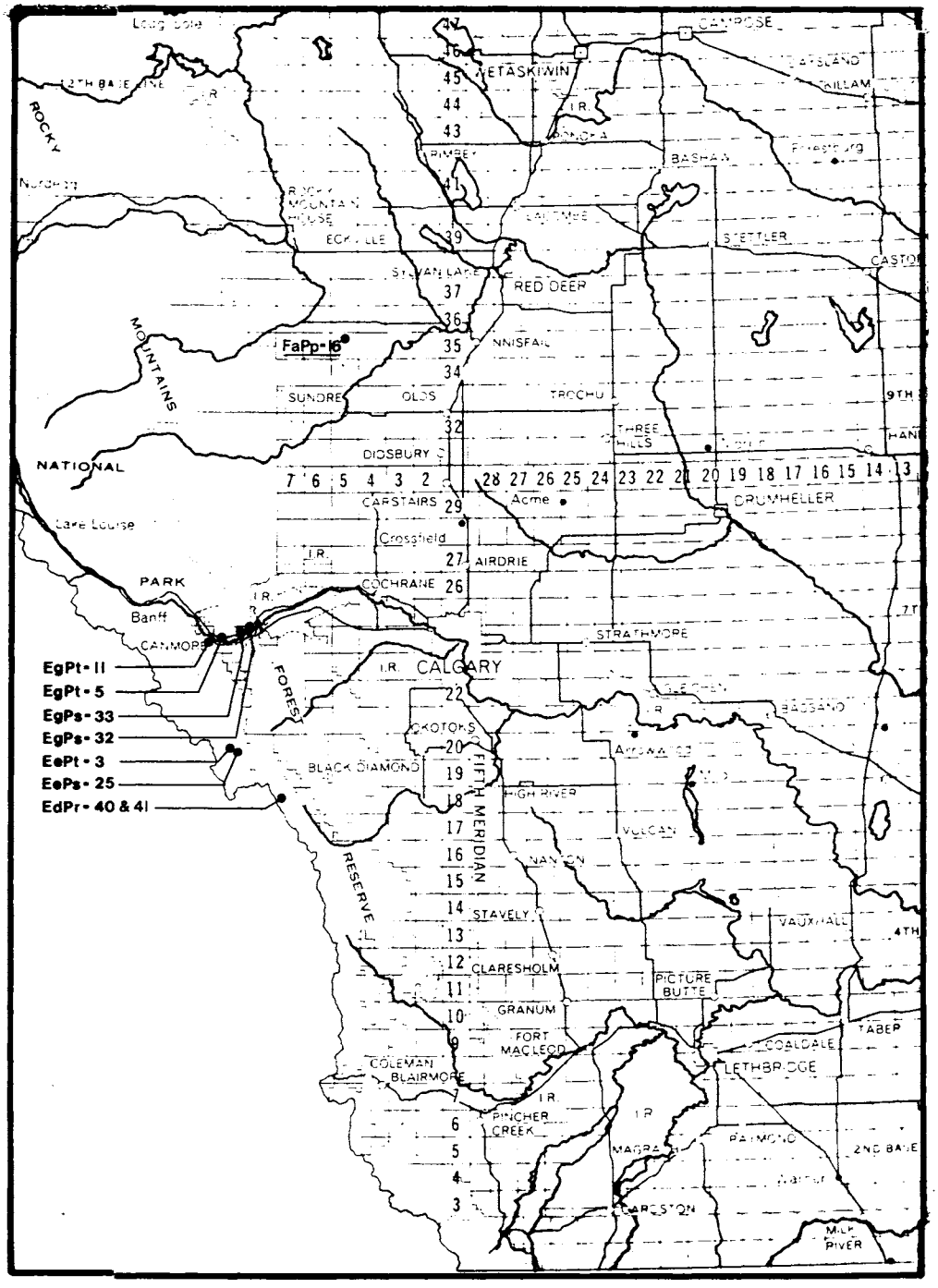


Figure 28: Site location map, EgPt, EgPs, EePt, EePs, EdPr excavations.

A small-dimension test-excavation unit placed within this hearth revealed only a minor charcoal lens indicating that the feature had not been used extensively. A modern tin can was located two meters from this hearth. A further four shovel-test holes were excavated in the nearby vicinity, none of which yielded cultural material.

In conclusion, neither cultural affinity nor age could be affirmed. Because adequate testing of EdPr-40 has now been accomplished, further mitigation is not recommended.

SITE EdPr-41

This site is located on an alluvial terrace approximately 40 m east of the above site, EdPr-40 (Figure 28). On the basis of the presence of three hearths and eight lodgepoles, EdPr-41 was originally recorded as an historic hunting camp with affiliation to a Stony Indian group.

18 shovel test holes were excavated on this terrace in the vicinity of the camp but no buried cultural material was located. The whole area is, however, strewn with numerous modern tin cans. A total of six features were recorded in conjunction with our investigations at EdPr-41. In addition to two hearths, other features include a possible tent frame and/or tipi poles; a possible tent frame with a wash stand, and another unknown log structure. All of the features are constructed of logs, many of which have been split with axe-cut ends. Many of the logs have common round-head nails imbedded in them.

Although our mitigation could neither confirm nor refute the initial statements regarding the site, it is obvious the site is of no great antiquity. It probably has served up to the present as a local camping spot. Further work is not recommended for EdPr-41.

SITE EgPs-32

EgPs-32 is situated on the second terrace above the present Bow River in the Canmore corridor (Figure 28). It was recorded in 1974 as a prehistoric surface campsite composed of large quantities of fire-broken rock, cores, and flakes.

Our archaeological investigations initially consisted of excavating some 30 shovel-test holes over the surface of the landform. Although no subsurface cultural material was recovered, this process did result in the location of one minor surface concentration of chert. Subsequently, six 1x1 m excavation units were placed in the immediate vicinity of this concentration. A total of 25 chert pieces were found, of which only five can unequivocably be termed artifactual. All are flake fragments. No diagnostics or other datable materials were recovered.

Because the site has been totally excavated, we would recommend that construction activities may proceed.

SITE EgPs-33

Like EgPs-32, EgPs-33 is situated in the Canmore corridor along Highway 1A (Figure 28). It was initially designated as a buried campsite with unknown cultural affiliation. This was based on the presence of firebroken rock in a roadcut, and one "possible" core in a shovel-test hole.

Research conducted in the summer of 1978 could not further refine its identity. A surficial examination of the roadcut and the excavation of 20 shovel-test holes recovered no artifactual material. Subsequently ten 1x1 m units were placed arbitrarily along the roadcut in a further attempt to recover evidence of past occupations. Six of these units proved sterile. Very small quantities of silicious siltstone debitage were recovered from three units while one other yielded calcined bone.

Because no cultural material was recovered in the shovel test holes, it is suggested that this site has almost totally been impacted by previous Highway 1A construction and upgrading. We would recommend that highway construction may now proceed without further damage to the archaeological resource.

SITE FaPp-16

This buried campsite is located in the Western Alberta Plains

physiographic region south of the town of Caroline (Figure 28). Chert debitage, bifaces, bone, and firebroken rock were reported in a cultivated field and an adjacent, undisturbed road allowance. The site is associated with a very low east-west trending ridge.

Our investigations were seriously hampered by the fact that much of the site was in crop and underseeded as well. Hence, testing was limited to minor shovel-test holes, 23 of which were excavated in the cultivated land. Only one of these yielded cultural material, a quartzite flake. In addition, seven test holes were dug in the undisturbed road allowance. No cultural material was recovered from these tests. Surface material was not discernable in the land in crop. However, a saw-cut metapodial fragment (presumably Bos taurus) was recovered from the road allowance.

Again, cultural affiliation and age could not be identified. We would recommend that Project 922:20 may now proceed as planned.

SITE EePs-25

This site is located on both sides of a tributary of the Smith-Dorien Creek in the Kananaskis Mountain Range at an elevation of 5,700' (Figure 29). It was recorded by the Archaeological Survey in June, 1978 as a possible chipping station. At this time, hundreds of flakes, but few tools, were collected. The site has been seriously disturbed by clearing operations for the new Smith-Dorien road and as a result, the site is bisected N-S by the new Smith-Dorien road. The site is also bisected E-W by the creek. Figure 29 shows the disturbed areas of the site as well as the various site quadrants.

Test excavation at EePs-25 was preceded by minor shovel-testing in order to determine site boundaries quickly. A total of 14 shovel-test holes revealed that the site was restricted to an area approximately 75m on the west and 50m on the east bank of the stream. The boundary to the south was more difficult to determine because of a high degree of surface disturbance. However, in the southeast quadrant of the site, several pieces of cultural material were located. The results of these shovel tests indicated the greatest concentrations of un-

Figure 29: View to the west of EePs-25. The road track bisects the site N-S and the creek, E-W. The quadrants which were excavated are labelled.

Figure 30: View to the west of EePt-3. Excavations were conducted in the NW and SE quadrants. Cultural material in the SW quadrant was found to extend to the base of the low rise in the background marked by the arrow.

disturbed cultural material lay near the northern edge of the right-of-way and close to the streambank edge on both east and west sides.

A total of 34 1x1 m units was excavated during both phases of mitigation at EePs-25, with 20 placed in the northwest quadrant, 12 in the northeast and two in the southeast. Most were excavated to approximately 30cm d.b.s.

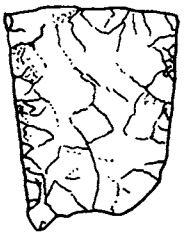
Few formed tools were recovered from EePs-25 and only one projectile point and/or fragment was located. Although analysis has not yet begun, this specimen is illustrated for comparative purposes in Figure 31a.

By and large, the vast majority of cultural material recovered from this single component site was silicious siltstone debitage. On the basis of a field examination then, the assemblage appears to represent workshop debitage. Charcoal was recovered from an Ae horizon in association with cultural material but is not in sufficient quantity for a C^{14} date. On the basis of the one point fragment, through, there is the possibility that EePs-25 represents a fairly early occupation.

In making a recommendation that development proceed at this site, a word of caution is appended. Perhaps questions that will forevermore remain unanswered regarding EePs-25 would have successfully been resolved had the site not been so badly disturbed prior to our investigations. It is recommended, before any development in Kananaskis Country proceed, that an archaeological survey be conducted. Given the present situation at EePs-25, however, development may continue.

SITE EePt-3

This site was originally recorded by a biologist, J. Salt, and subsequently re-examined by both Aresco and A.S.A. personnel. EePt-3, located at an elevation of 5,800', presents a very similar situation to EePs-25 in that it, too, is situated on a small tributary of the Smith-Dorien Creek (Figure 30). Again, the site has witnessed considerable disturbance by road construction. EePt-3 is bisected N-S by this road and then E-W by the tributary creek. Figure 30 illustrates



a

EePs - 25

b

c

d

EePt - 3

e

f

g

h

EgPt - 5

Figure 31: Selected projectile points from 1978 excavations. (items a-h).

this site and its various quadrants.

A total of 92 shovel tests was excavated at EePt-3 in order to properly delineate site boundaries and establish areas of localized concentrations of cultural material. This site is very extensive if the outer limits of the farthest artifact concentrations are taken into account. One of the problems in establishing site boundaries was to determine the lateral extent to which cultural material had been rearranged by the bulldozers. It appears, though, that the site extends some 175m on the west side of the creek and approximately 50m on the east side. North-south, the site extends very little beyond the cleared right-of-way of the new Smith-Dorien road, some 60m in total. Localized artifact concentrations occur most frequently nearest the streambank edge on the west side; in particular, the northwest quadrant. It is in this site area that excavations were largely conducted. In addition to the factor mentioned previously, this area appeared to be the least disturbed.

A total of 26 1x1 m units were excavated, with four units placed in the southeast quadrant and 22 in the northwest. The former units contained only a trace of cultural material whereas the units in the northwest quadrant yielded a very high quantity of material. Like EePs-25, the predominant artifacts were silicious siltstone debitage. However, unlike the other Smith-Dorien site, more formed and diagnostic tools were recovered. In-field examination revealed several scrapers and bifaces, as well as five projectile points. Although analysis has not yet begun, three of these projectile points are illustrated in Figure 31-b,-c and -d.

Although more formed tools and diagnostics were recovered from this site than EePs-25, it is emphasized that the tool/debitage ratio is still very low. Because sufficient charcoal was not recovered, an absolute date is not possible, although relative dates can be estimated by comparisons of projectile point types. Thus far, the points appear Middle Prehistoric in origin.

In conclusion, because test excavations have been completed to our satisfaction, we recommend that construction of the new Smith-Dorrien road may

proceed as planned without further damage to the heritage resource. Once again, though, it should be noted this site was unnecessarily disturbed prior to mitigation.

SITE EgPt-5

This site is located at the west end of Gap Lake north of the Bow River in the Canmore corridor (Figure 28). It was originally recorded in 1971 as a campsite on the basis of the presence of flakes and firebroken rock found on the surface and bone in shovel test holes.

Our investigations consisted of excavating 36 shovel-test holes in order to delimit the site. Subsequently, in the first phase of mitigation, a total of twelve 1x1 m excavation units were placed in the site area. Two of these units proved very interesting in that one unit contained well-preserved bone and the other, a high tool-to-debitage ratio. Further work was recommended for the area between these units. In October, then, due to the constraints of winter weather, only five additional units were excavated. These additional units also proved to be highly productive in information content. Materials recovered from both phases of mitigation include silicious siltstone, quartzite, mudstone and chert debitage as well as several formed tools. Four of the projectile points recovered from EgPt-5 are presented in Figure 31 e,f,g, and h.

In addition to the tools and debitage, calcined bone and fire-broken rock were recovered from the single component site.

Because the tool count is relatively high and because of the presence of preserved bone it is recommended that archaeological investigations continue at EgPt-5 before road construction begins.

SITE EgPt-11

This historic site is situated in the Rocky Mountain physio-graphic zone east of Canmore along Highway 1A. EgPt-11 was recorded by Reeves in 1976. As indicated on the site form, this site consists of 12+ buildings, cellars, some cobble walls, retaining walls, a

wooden bridge, and a section of the original 1A Highway. Figure 32 presents a view of two of these cobble foundations.

In addition to mapping all recognizable features, 19 shovel test holes were placed intuitively over the approximate site area in order to delineate site boundaries and to test landforms which appeared cultural in nature. Following this, nine excavation units were placed at the edges of visible features in an effort to locate corners of structures and to expose foundations. In addition and perhaps most importantly, an informant in Canmore was located. On the basis of his initial statements, EgPt-11 operated as a relief camp for men circa 1933-37. This informant, the storekeeper at the site, recalled a number of features at the camp including his store, a number of bunkhouses, an icehouse, an ice rink, a coal bin, a tool shed, and a recreation hall. He provided a rough sketch map of the site which does not wholly conform to our findings. Further informant interviews and archival research have yet to be completed and will hopefully resolve these discrepancies.

This historic site is due to be totally impacted by Highway project 1A:02. Although EgPt-11 was occupied a scant 40 years ago, and hence is of little interest to many researchers, its worth is judged to be significant. The 1930's represent a time in Canada's history of particulary widespread hardship, misery and frustration. Of a total population of 10 million, over 1.5 million people were on relief in Canada (MacGregor 1972:263). Researchers of the future will undoubtedly be interested in social and cultural adaptations made to this economic phenomenon, the depression. Relief camps of the 1930's are becoming scarcer as development escalates. If interest cannot be generated in this site today, then it should be preserved for future generations, for they will not be able to study or preserve what already has been destroyed.

CONCLUSIONS

In summary, eight historical resource sites in the Rocky Mountain physiographic zone and one in the Western Alberta Plains region of

Figure 32: View to the north. Two cobble building foundations at EgPt-11.

Alberta were archaeologically investigated in July of 1978 by a small crew of Aresco personnel. Five of these sites subsequently received further mitigation.

Further investigations are recommended for EgPt-5 and EgPt-11.

1978 HIGHWAYS MITIGATION
CENTRAL ALBERTA
Project 78-72

Prepared by T. Head and B. O. K. Reeves
Lifeways of Canada Limited

Introduction

In fall, 1978, Lifeways of Canada Limited undertook conservation archaeological studies to mitigate potential construction disturbance at a number of prehistoric sites in central Alberta. Three highway projects and five prehistoric sites were involved:

Highway Project 16:24 - FiPa-8, FiPa-1 and FiOx-7;

Highway Project SR 933 - FkPn-5;

Highway Project 43:20 and 22 - FkPo-3.

These sites were previously located during earlier archaeological reconnaissances of the highway projects. Site inspection at that time suggested additional work was necessary prior to construction impact. The results of the work are as follows:

Results

Highway Project 16:24

Planned Highway 16 realignment will impact a number of prehistoric sites south of Vegreville, three of which were identified as of potential value.

FiPa-1 - is located in a cultivated field on the south bank of the Vermillion River. Cultural material exposed on the surface suggested extensive use of the area. Four one by one meter test units were shovel shaved to basal clays (25-30 cm B.S.) to determine if undisturbed cultural deposits lay beneath the plough zone. Results were negative. Site studies concluded with collection of the surface artifacts.

FiPa-8 - is located adjacent to a small slough west of the Vermillion River. Cultivation had exposed lithics and quantities of bone. Two 015 by two meter tests were shovel shaved in order to determine if undisturbed cultural deposits remained. Results were

negative. A surface collection of the site within the right-of-way was then carried out.

FiOx-7 - is located on a small cultivated knoll east of the Vermillion River. Quartzite debitage, fire-broken rock and bone were exposed. Four two-by-two meter tests were shovel-shaved into sterile sands at 10-15 cm below surface. Undisturbed cultural deposits were not observed. The primary concentration of cultural material was located south of the highway alignment.

Highway Project SR 933

Realignment of SR 933 south of Gunn will impact FkPn-5, located on the south side of the Sturgeon River. Cultivation had exposed fire-broken rock and lithics, including a projectile point. Six, two by two meter tests were excavated using shovel shaving techniques. Cultural material was present in the disturbed surface deposits in three of the six units, including the two located immediately adjacent to the Sturgeon River. No undisturbed deposits were encountered.

Highway Project 43:20 and 22

Proposed road construction on the shore of Lac Ste. Anne would have impacted FkPo-3. However, prior to this impact the landform on which the site was located was used by the landowner for fill for an adjacent trailer park, and that portion of the site which would have been impacted by road construction was destroyed. Mitigative measures were not necessary.

Summary

The above excavations successfully mitigated impacts which might occur from construction of the various highway projects by test evaluating the sites to determine if buried undisturbed occupations were present. Such were not encountered. These data, coupled with surface collection of cultural materials, serves to preserve the values of each site.

1978 HIGHWAYS MITIGATION, SOUTHEASTERN ALBERTA

Project 78-73-C

John H. Brumley and Leigh Heikkila

INTRODUCTION

Under the terms of the contract with Alberta Culture, John Brumley directed test excavations at 13 archaeological sites between June and October 1978. All 13 sites had been identified by Finnigan and Brumley (1978) as being in danger of complete or partial destruction as a result of five proposed highway construction projects and had been recommended for evaluation excavation. The location of the five proposed highway projects and the sites tested are indicated in Figure 33.

HIGHWAY PROJECT 10:08

EiPd-2 and EiPd-3 are both buried campsites largely located within a narrow strip of ground between Highway 10 and the paralleling CPR rail line, a short distance east of Drumheller. Original construction of both the rail line and the highway, as well as recent upgrading of the roadway, have resulted in destruction of a substantial portion of both sites and have created an erosional situation which will probably result in the eventual complete destruction of the remaining segments of both sites.

Evaluation at EiPd-2(Figure 34) involved excavation of four one-meter-square test pits. Cultural material collected and observed consisted of small quantities of bison bone, chipped stone debitage and a single pit feature associated with a large quantity of firebroken rock and probably representing a basin hearth or stone boiling pit. Cultural material from the four test pits was largely observed from 12 to 25 cm. below surface and appears to represent a single occupation. No temporally or culturally diagnostic materials were recovered from EiPd-2.

EiPd-3 is located approximately 100 meters southeast of EiPd-2. Eleven one-meter-square test pits were excavated with cultural material being largely situated between 7 and 15 cm. B.S. and apparently representing a single occupation. Cultural material collected or observed consisted of moderate to large amounts of firebroken rock, bison bone, chipped

stone debitage, two hearths, and four projectile point fragments(Figure 40). The sample of bison bone includes a major portion of a single foetal bison calf which may indicate a winter-early spring occupation. The projectile point fragments are small and difficult to equate with defined types. However, their size strongly suggests they are atlatl points, and basal fragments show closest similarities to Besant or Pelican Lake Phase point varieties.

Both EiPd-2 and EiPd-3 appear to represent camp localities. Although not as yet demonstrable, it seems likely that both sites reflect utilization by the same cultural group during the Middle Prehistoric Period. Cultural materials were much more concentrated in EiPd-3 and it is felt that further extensive excavations are warranted at that site.

HIGHWAY PROJECT SR 884

Four archaeological sites examined in the course of this project are to be impacted by proposed upgrading and revision of SR 884 along and south of the Red Deer River valley near Jenner.

EcOt-5(Figure 35) consists of two stone circles and three small to medium-sized cairns located around the edges of a gravel pit along SR 884, approximately 25 miles south of the Red Deer River. Future use and expansion of this gravel pit will probably result in destruction of all features. Excavation was restricted to within and adjacent to the two stone circles. The site and both features were mapped and twenty one-meter-square pits were excavated within and adjacent to stone circle one which is approximately nine meters in diameter. Five additional one-meter-square test pits were excavated within and adjacent to stone circle two, a partial ring approximately 15 meters northwest of stone circle one and with a projected diameter of 6 meters. Cultural material found associated with stone circle one consists of a few pieces of firecracked rock and a moderate quantity of cores, flake debitage and simple chipped stone tools made predominantly of local quartzites(Figure 40). A single stone flake was found in apparent association with stone circle two. No culturally or temporally diagnostic cultural material was recovered. Time limitations did not permit excavation of any of the three cairns. These three cairns are up to 1.0 meters in length and 0.5 meters high. It is recommended that these cairns should be at least partially excavated prior to their

destruction.

EeOt-1(Figure 36) is a small buried campsite located on the eroded prairie edge overlooking the Red Deer River valley where a large cluster of firebroken rock was observed on the eroded prairie margin. Excavation of six one-meter-square test pits in the vicinity resulted in recovery of several pieces of firebroken rock and a few scattered pieces or chipped stone debitage. No diagnostic cultural material was recovered.

EfOt-9 consisted of a single small stone cairn 3.5 meters long, 2.2 meters wide and 0.12 meters high situated on the prairie edge overlooking the Red Deer River valley. Excavation of eight one-meter-square test pits within and adjacent to the cairn yielded a small quantity of flakeage and firebroken rock largely from 0 to 5 cm. B.S. No diagnostic cultural material was recovered.

EfOt-10 also consists of a single small stone cairn 1.4 meters long, 1.3 meters wide and 0.3 meters high. The cairn is located atop a small rise on the slope of the Red Deer River valley wall a few hundred meters south of EfOt-9. Five one-meter-square test pits were excavated within and adjacent to the cairn. Cultural material recovered consisted of a few pieces of firebroken rock, stone debitage and a quartzite cobble core and a marginally retouched flake.

HIGHWAY PROJECT SR 590

Three archaeological sites were examined along SR 590 west of Big Valley which will be impacted to varying extents by proposed widening and revision of the existing roadway.

FaPf-2 and FaPf-3(Figure 37) are both stone circle sites approximately 100 meters apart and adjacent to the existing roadway. FaPf-2 consists of a single stone circle approximately 5.5 to 6.0 meters in diameter and situated atop the crest of a relatively prominent hill. The site and ring were mapped and 11 one-meter-square test pits were excavated within and adjacent to the stone circle. The only cultural materials recovered were two small flakes.

FaPf-3 is located approximately 100 meters west of FaPf-2 and consists of two stone circles, one located atop and the other at the base of a prominent hill. The two rings vary between 5 and 6.5 meters in diameter. Work at the site consisted of mapping the site and both features and

excavation of 13 one meter square test pits in and adjacent to the stone circle closest to the roadway. Cultural material recovered consisted of two pieces of firecracked rock, one retouched and one unretouched flake, and a single historic brass bead.

FaPf-7(Figure 38) is a large buried campsite largely within a ploughed field and situated on the upper portion of the Red Deer River valley wall. The only undisturbed portion of the site is a narrow strip around the field. Proposed widening of SR 590 will destroy most of this undisturbed segment. Work at the site involved extensive surface collecting from the ploughed area of the site and excavation of 18 one-meter-square test pits in both the undisturbed and ploughed areas of the site. Surface collection resulted in recovery of a large sample of chipped stone tools over a large area(Figure 41). Materials observed suggest the site served as a campsite locality. Excavation yielded only small amounts of cultural material and failed to reveal the presence of any well defined occupational levels. Cultural material recovered in excavation was largely situated from five to fifteen centimeters below surface. Identifiable projectile points from the site surface appear to be of the Besant and Oxbow types(Figure 41).

HIGHWAY PROJECT SR 836

Proposed revision of the right-of-way of SR 836 where it crosses Three Hills Creek near Three Hills will result in damage or destruction of four archaeological sites recommended for evaluation excavation.

EjPg-1(Figure 39) is a large buried campsite situated on two low terrace surfaces in the valley of Three Hills Creek. Work consisted of mapping the entire site area and excavation of nine two-meter-square test pits up to 1.5 meters below surface. Excavation indicated the presence of two stratigraphically well-defined occupations containing only small amounts of cultural material which suggest use of the site as a camp locality (Figure 40). No temporally or culturally diagnostic artifacts were recovered from either occupation. However, the presence of certain distinctive lithics represented in the debitage suggests that the earliest occupation is attributable to the Pelican Lake Phase and the most recent to the Old Woman's Phase. A hearth and "chipping station" location were excavated and recorded for the earliest occupation and a shallow basin hearth for the latest occupation.

EjPg-6(Figure 39) is a surface and buried campsite located on a high terrace remnant on the wall of Three Hills Creek and an adjacent section of prairie adjoining the valley. The surface of both sections of the site are undisturbed and can be characterized as containing scattered pieces of firebroken rock, flakes, a few cobble core tools and several clusters of cobble sized stones clearly culturally derived and probably representing scattered stone circles(Figure 40). Work at the site involved mapping the area and the stone clusters and excavation of five two-meter-square test pits to depths up to 60 cm. B.S. Although no culturally or temporally diagnostic material was found, a moderate amount of firebroken rock, stone debitage and a number of simple chipped stone tools were recovered.

EjPg-7(Figure 39) is a small buried campsite located on the eroded edge of an early terrace surface on the north valley wall of Three Hills Creek and is characterized by several pieces of firebroken rock, flakes, and a few bone fragments observed in the eroded margins of the site. Work at the site involved excavation of two two-meter-square test pits. Cultural material observed and recovered in excavation included a well-defined basin hearth and a moderate amount of cultural material similar to that observed on the surface. Of interest was the presence of a large cobble of petrified wood found at the bottom of the hearth, probably placed there intentionally for heat treating. No culturally or temporally diagnostic materials were recovered.

EjPg-8(Figure 39) is also a buried campsite located approximately 100 meters north of EjPg-7 and on the same high terrace surface. The site is within a ploughed field where thinly scattered flakes, pieces of firebroken rock and bone fragments can be found on the surface. A single two-meter-square test pit was dug to a maximum of 65 cm. below surface. Cultural material observed consisted of a few small pieces of bone and a single flake. No culturally or temporally diagnostic cultural material was recovered.

DISCUSSION:

The purpose of the 1978 Southern Mitigation Project was to evaluate the heritage resource potential of 13 archaeological sites which will be damaged or destroyed in the course of constructing four proposed highway

projects within southern Alberta. Ten sites (EeOt-1, EfOt-9, EfOt-10, EjPg-1, EjPg-6, EjPg-7, EjPg-8, FaPf-2, FaPf-3 and FaPf-7) based on the results of our work, are considered as being of from low to average heritage resource potential. The mitigation conducted at these ten sites in the course of this project is considered adequate and no further mitigation is considered warranted.

EiPd-2 and EiPd-3 are contiguous buried campsite localities situated in the valley of the Red Deer River near Drumheller. The amount and nature of cultural material recovered at EiPd-3 and to a lesser extent at EiPd-2 suggests they could yield significant scientific data. Future extensive excavations are considered to be warranted at these two localities.

EcOt-5 is a stone circle and cairn site located in rolling prairie south of the Red Deer River valley. Due to budgeting restraints imposed by terms of the contract with Alberta Culture, insufficient time was available to evaluate both the stone circles and cairns present at the site. Thus, in the time available, the stone circles only were examined. The three cairns present should clearly be tested prior to their destruction as a result of gravel pit development.

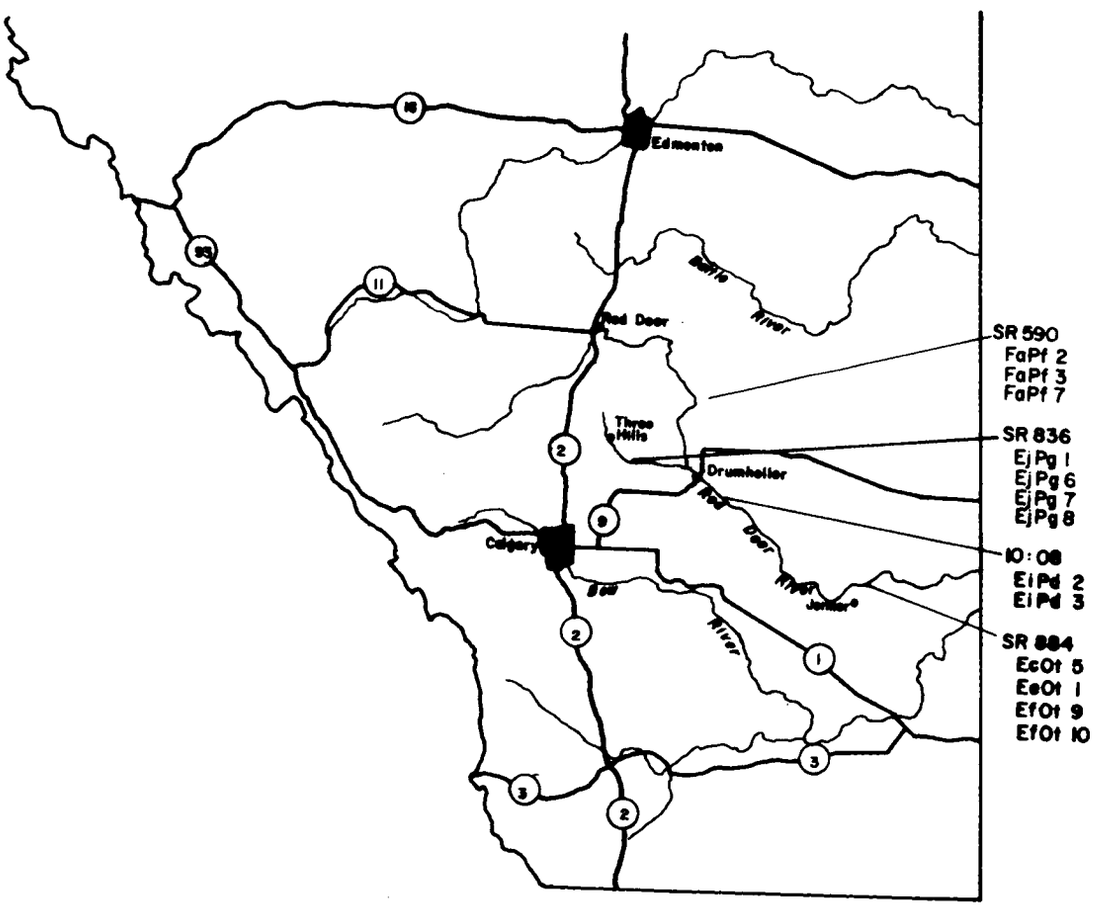


Figure 33: Map of southern Alberta showing location of excavated sites.

Figure 34: General view of EiPd-2, looking south.

Figure 35 : Excavation in progress, stone circle 1, EcOt-5, looking south.

Figure 36: Aerial view of EeOt-1, looking southeast.

Figure 37: General view of FaPf-2 (left of center) and FaPf-3 (adjacent to vehicle), looking southeast.

Figure 38: View of FaPf-7, looking north.

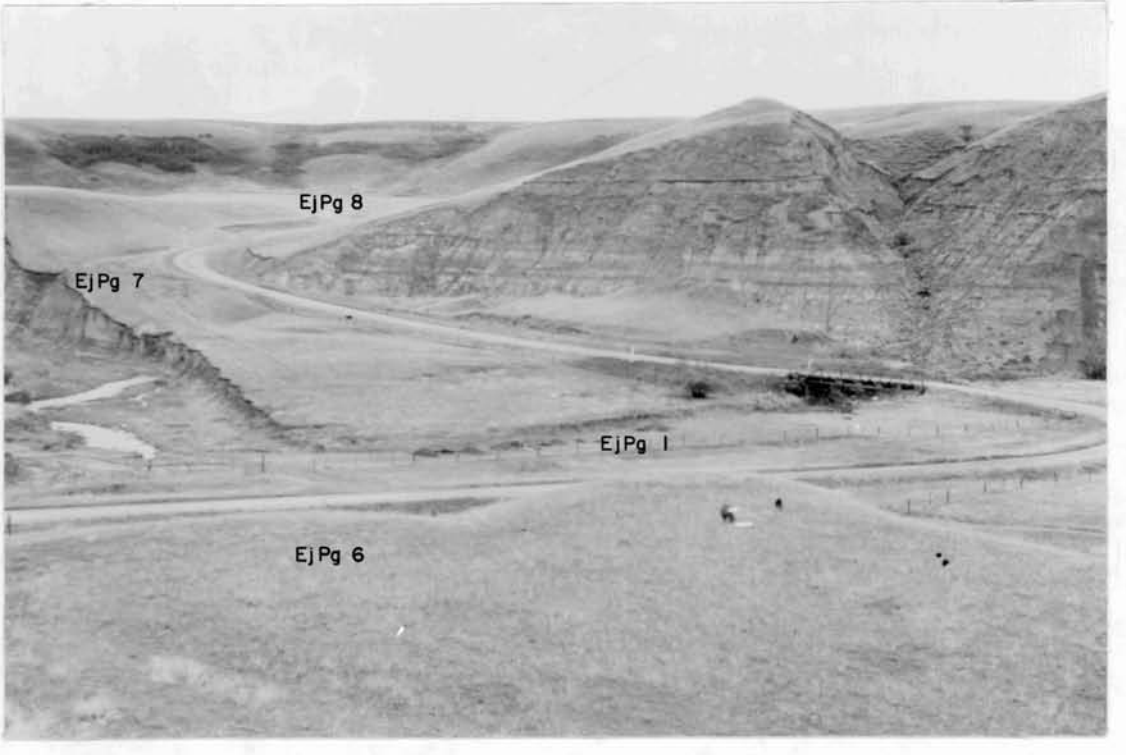


Figure 39: View of Three Hills Creek, showing location of EjPg-1, EjPg-6, EjPg-7, EjPg-8.

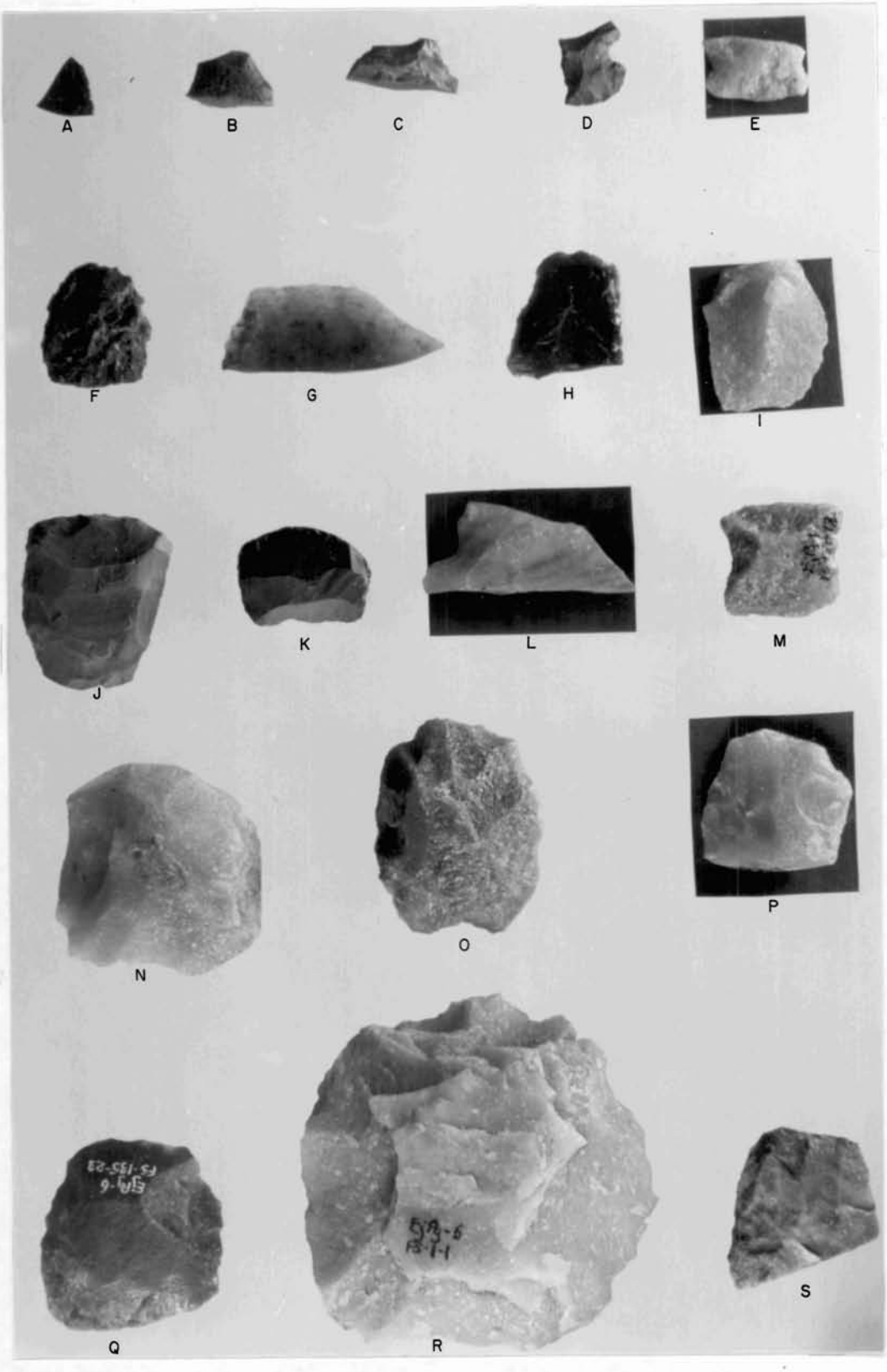


Figure 40: Selected artifacts, EiPd-3 (a,d,e,g,s), EcOt-5 (k), EjPg-1 (h,j,m,r), EjPg-6 (b,c,f,i,l,n-q); scale: actual size.

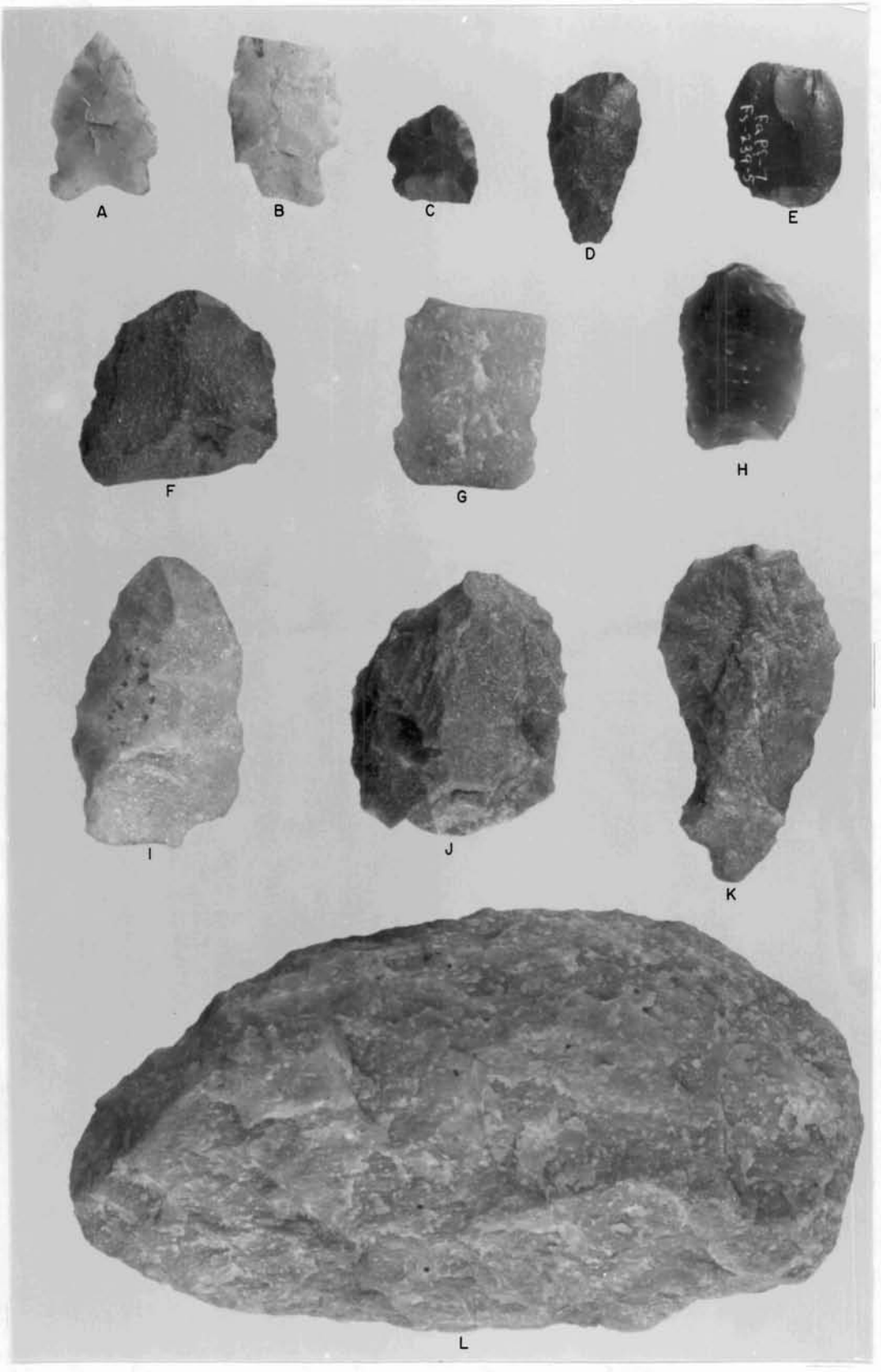


Figure 41: Selected artifacts, FaPf-7; scale: actual size. (items A-L)

ALBERTA HIGHWAYS SOUTH SURVEY:

HISTORICAL RESOURCES ASSESSMENT PROGRAMME 1978

Project 78-53-c

Roderick J. Heitzmann and John Priegert

INTRODUCTION

The Alberta Highways South Historical Resources Assessment Programme in 1978 examined 18 proposed Alberta Transportation projects in central and southern Alberta (Figure 42). The purpose of the project was to examine areas of proposed construction to locate prehistoric and historic sites in order to evaluate and assess their significance, and thereby avoid destruction of important historical resources.

THEORETICAL APPROACH

The primary concern with any historical resources reconnaissance is to locate sites that have been used in the past either by prehistoric or historic peoples. This enables the acquisition of information on the cultural patterns of these people and aids the development of an understanding of the history of Alberta. The project was successful in locating a number of prehistoric and historic sites along the proposed construction routes. These were examined and evaluated. The results are presented in Table 4.

This project formulated an additional goal of attempting to provide useful scientific information about site locations that may be of value to understanding site locations and to aid in their location in the future.

PROPOSED HIGHWAY CONSTRUCTION PROJECTS IMPACT

The 18 proposed construction projects examined will have varying degrees of impact. Major new highway construction projects SR 940, SR 541 and MR. Smith-Dorien will involve considerable modifications to the rights of way with major improvements of curves and grades. This will result in considerable modifications of the land surface.

For other projects, very little surface modifications will result. Such is the case for project 1A:04, the replacement of a bridge over Old

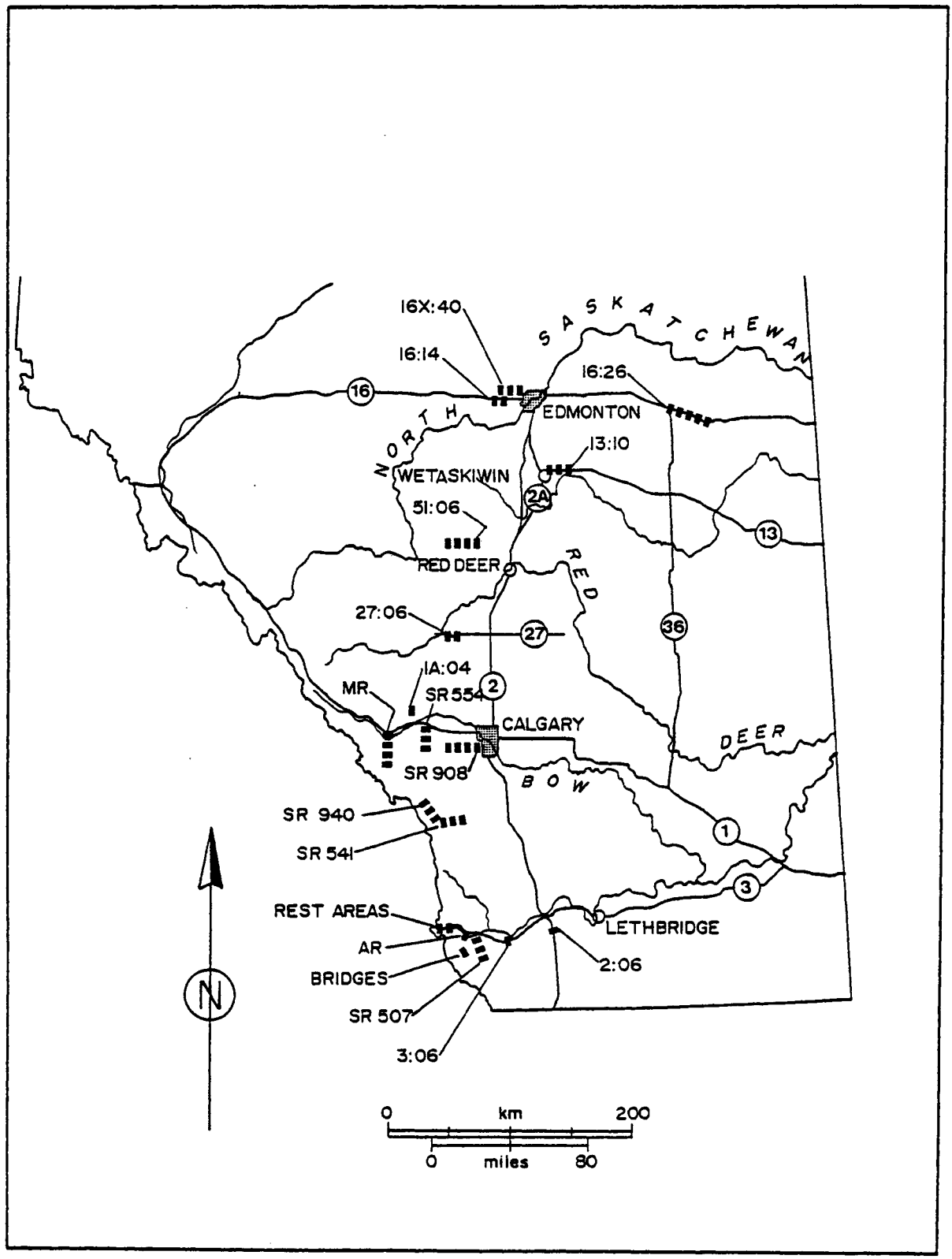


Figure 42: Project locations, Alberta Highways South survey, 1978.

TABLE 4 SUMMARY OF ALBERTA HIGHWAYS SOUTH SURVEY 1978

Project Number	Project Location	Miles	Type of Construction	Number of Sites(all categories)	Previously Recorded Sites	Historic Sites Located	Prehistoric Sites Located
1A:04	East of Seebe	1.0	bridge	0	-	-	-
2:06	S. of Fort McLeod	1.0	curve revision	0	-	-	-
3:06	West of Brocket	3.0	upgrading	1	-	-	DjPk-28
SR 908	West of Calgary	14.1	upgrading	7	EgPn-127, 134, 137	EgPn-183	EgPn-182 EgPo-43,44
13:10	West of Gwyne	4.5	upgrading	3	cairn	-	FfPh-2,3
16:14	E. of Spruce Grove	2.75	new road/ upgrading	0	-	-	-
16:26	W. of Innisfree	12.73	upgrading	6	-	-	FiOv-1 to 5 FiOw-1
16X:40	N. of Spruce Grove	8.32	upgrading	1	historic	-	-
27:06	Little Red Deer River	1.65	bridge	0	-	-	-
SR 541	Jct SR 940-Forest Res. Boundary	6.2	upgrading	15	EcPp-2, 5 to 16, 18	-	EcPp-24
SR 940	N. of Highwood Junction	18.9	upgrading	14	EcPq-1,11 15 to 20 EdPq-12	-	EcPq-22,23, 24 EdPr-48,49
51:06	SR 761-SR 766	10.0	upgrading	1	-	-	FcPo-3
SR 507	S. of Burmis	8.0	upgrading	3	DjPn-114	historic	Djpn-116
SR 554	Scott Lake Int.- Sibbald Flats	6.9	new	0	-	-	-
AR	Jct. Hwy 3- Hillcrest Mine	2.0	grading	0	-	-	-
MR	Smith Dorien Rd.	18.7	upgrading	0	-	-	-
Rest Areas	Coleman	4.0	new	3	DjPp-27, 28 DjPq-5	-	-
Bridges	Carbondale R.	1.0	bridges	1	-	-	DiPo-1
18	Totals	124.75		55	32	2	21

(Heitzmann - Priegert)

Fort Creek.

Most projects will involve a moderate amount of disturbance. Such projects include widening of roadways, minor or major curve revisions and realignment of bridges and their approaches.

Despite what was actually found, all the highways projects examined could potentially have destroyed historical resources sites. That sites were or were not located is largely a reflection of a number of uncontrollable variables, such as choice in prehistoric times, recent disturbance and right of way locations.

PROJECT DESCRIPTIONS

All the construction projects examined are located in one of four physiographic zones as defined by the Geological Highways Map of Alberta (Canadian Society of Petroleum Geologists 1975).

Eastern Alberta Plains

Four projects are located in this area: 13:10, 16:14, 16:26 and 16X:40. These projects consist of 28.3 miles of upgrading existing highways. Eight prehistoric sites and two historic sites were recorded. The prehistoric sites are all in localities that have been extensively disturbed through ploughing and are not recommended for further research. One historic log farm-house will be destroyed by construction of Highway 16X:40. It has been recorded. A second historic site, the Hills of Peace Historic Monument, near Wetaskiwin, will be affected by widening of Highway 13. If the monument is moved off the right of way it should be preserved. It is also recommended that this monument be placed in a location where its historical significance can be appreciated.

Western Alberta Plains

Projects 2:06, 3:06, SR 908, 27:06, and 51:06 are located on the Western Alberta Plains. Nine sites were located along 29.75 miles of proposed construction routes. The five prehistoric sites are of little value because of considerable disturbance through ploughing, limited numbers of artifacts and lack of buried materials. Four historic sites were inspected near Calgary along SR 908. Three of these are early 20th century building foundations, not recommended for further research,

while the fourth is an historic water pipeline that formerly supplied the City of Calgary. As these are the last traces of this historic feature, it is recommended that further research be carried out to examine its historic significance.

Rocky Mountain Foothills

Four projects (1A:04, SR 507, SR 554, and BRIDGES) crossed 16.9 miles of foothills. Three prehistoric sites and one historic site were recorded. Two of the prehistoric sites, DjPn-114 and DiPo-1, are recommended for further research. DjPn-114 is located on a terrace north of the Castle River. It has long been known as a collecting locality for Oxbow and Pelican Lake materials from the ploughed field west of SR 507. The area east of the current road is to be impacted by the new alignment. In this area, a possible tipi ring was located. This site should be excavated to provide context to materials already collected and to further information about prehistoric use of this area.

DiPo-1 is a small campsite on a low ridge south of the Carbondale River. It possesses buried materials confined to a small area. This site is also recommended for excavation to provide information about use and cultural affiliation, as it will be impacted by the new road allowance.

The one historic site located in this area has been recorded. It is marginal to the right of way of SR 507 and will not be impacted.

Rocky Mountains

The Rocky Mountains physiographic zone was crossed by 49.8 miles of new highways projects (SR 541, SR 940, AR, MR and Rest Areas). Thirty-two sites were inspected and assessed along these rights of way. Many of these sites had been previously recorded as part of other projects. However, they required re-examination in order to assess the impact of highway construction.

Many of these sites have been badly disturbed by modern camping activities, especially in the upper Highwood Valley. There are also a large number of sites in this area with moderate value that are marginal to SR 541; for these, it is recommended that they are not to be used as borrow-pits or highway construction camps.

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Many of these sites have been badly disturbed by modern camping activities, especially in the upper Highwood Valley. There are also a large number of sites in this area with moderate value that are marginal to SR 541; for these, it is recommended that they are not to be used as borrow-pits or highway construction camps.

Four prehistoric sites inspected in the Rocky Mountain area are considered to be of higher than average importance: EcPp-24, EcPq-1, EcPq-22 and EdPq-12. EcPp-24 is located on a high terrace north of the Highwood river. The site is either a camp or kill-site and is one of the least disturbed sites in the Upper Highwood Valley. The east side of the site has been destroyed by gravel pit operations. This site will be affected by alignment of SR 541 and gravel pit operations. It is recommended that this site be excavated.

EcPq-1 is on the east side of the Highwood River beside the ford to Fitzsimmons Creek (Figure 43). Although partially disturbed, this site has a buried horizon of prehistoric materials that will be affected by construction of SR 940. It is recommended that this site be excavated.

Site EcPq-22 is located on an outwash terrace east of the Highwood River (Figure 44). Although badly disturbed in places, extensive material recovered suggests the site had considerable importance in the past. It will be directly affected by construction of SR 940. It is recommended for excavations.

On Picklejar Creek is EdPq-12, an intensively-used prehistoric camping area. It will not be directly affected by construction of SR 940. However, as it is currently being degraded by modern camping and recreational vehicles, steps should be taken to conserve this site. It is recommended that the area not be used as a borrow pit, that access for recreational vehicles be removed, and that no modifications to the creek margin be carried more than 25 m north of the current crossing.

SITE LOCATION ANALYSIS

As highways are linear features it is extremely difficult to establish an understanding of the larger area relationship of archaeological sites. The rights-of-way cross a variety of areas that bear little relationship to one another. However, can we establish a model relationship of any particular site to its location? Is it possible to use highway surveys, or, for that matter, any linear survey as a basis of statistically-observed inferences of historical resources sites locations? Finnigan (1978) calculated percentages of sites in relationship to gross environmental zones. This calculation was noted to be statistically invalid.

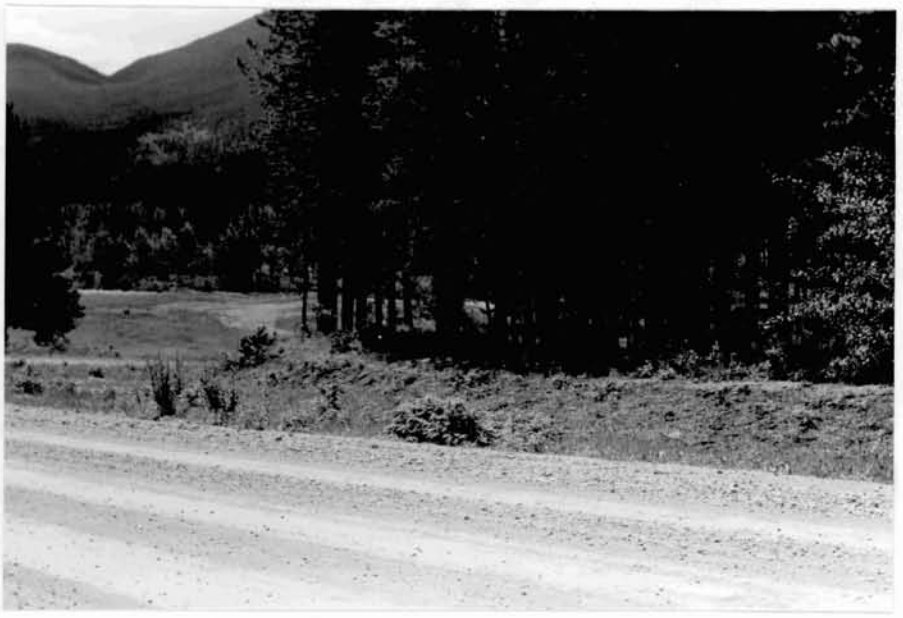

Figure 43: Site EcPq-1, located in the trees in the foreground, will be affected by widening of SR 940. View looking west.

Figure 44: An outwash terrace east of the Highwood River. Site EcPq-22 is located on the upper edge and will be impacted by SR 940. View looking northwest.

Furthermore, the definition of his environmental zones is apparently subjective as to what he considers to be short-grass prairie, long-grass prairie, etc. However, if we are ever to understand the relationship of sites to their physical setting, such analysis might be of value.

The number of variables that affect the location of sites is quite staggering. These include habitat, local physical setting, major ecological zone, type of use at the site, age and cultural affilitation, to mention only a few. Our project attempted to correlate site location with three locally-observable factors: local geographic settings, surficial geology and vegetation. To control for these factors, all the mosaics supplied were coded in the field for these factors, in addition to marking locations of significant exposures and actual site locations. The code used was as follows:

Geography	Surficial Geology	Vegetation
A. river margin	a. till	1. trees
B. creek margin	b. outwash sands & gravels	2. shrubs
C. lake margin	c. aeolian deposits	3. rangeland
D. flat valley bottom	d. sand dunes	4. domestic pasture
E. low terraces (1st & 2nd)	e. lacustrine	5. cultivated fields
F. high terraces (3rd & up)	f. alluvium	6. cropped field
G. valley scarp	g. slope wash	7. marsh/muskeg
H. rolling uplands	h. bed rock	8. unvegetated
I. depression	i. scree	9. urbanized
J. ridge/hill		
K. pass		
L. slope		

The 124.75 miles surveyed crossed 74 different bio-geographic areas, of which 22 possessed historical resources sites (Table 5). The site densities are presented in the same table. Attention is drawn to the fact that many of these areas were crossed by only small lengths of areas surveyed. At present it is impossible to say that other areas of the same zone will have similar site densities. Nor can we say that sites will only be located in the areas where we found sites. Clearly, the sample size here is too small, but we hope that the conclusions are testable.

Nonetheless, Table 5 shows areas where site densities are significantly higher than the overall average. At this point it can only be formulated as a hypothesis that careful monitoring of site locations may lead to a better understanding of site locations and provide us with a refined predictive model.

HIGHWAY SOUTH SURVEYS EFFICIENCIES

How does the site recovery rate for Highways South Survey Projects for the last four years compare? Each of these projects examined a wide variety of ecological zones located in different areas of Southern Alberta. The results can be summarized:

	Sites recorded or inspected	Miles surveyed	Site Density	Reference
1978	55	124.75	.441/mile	Present study
1977	45	99.37	.453/mile	Finnigan 1978
1976	63	147.92	.426/mile	Brumley 1977
1975	68	261.35	.260/mile	Poole & Anderson 1976

It should be noted that site density figures for the last three years are remarkably consistant. The figures for the 1975 survey may vary because of limited pre-survey review of the proposed projects, as it is now practised (S. Lobay, personal communication 1978).

CONCLUSIONS

The Alberta Highways South Survey Project 1978 has located and assessed a large number of historical resources sites to be impacted by new highway construction projects. Greater analysis of the information recorded on highways survey projects has considerable potential for aiding archaeologists to assess their own work and to provide new information about site distributions and prehistoric settlement.

TABLE 5 SITE DENSITIES OF BIO-GEOGRAPHIC ZONES

Zone	Miles Surveyed	Sites Located	Site Density (per tenth of a mile)
Af2	0.6		
Ba1	0.3	EgPn-137	0.33
Ba2	0.5		
Ba3	0.1		
Ba5	0.3		
Ba6	0.3		
Ba7	0.2		
Bf1	1.4	EdPq-12 EcPq-15	0.14
Bf2	0.7		
Bf7	0.5	EgPo-44	0.20
Ca3	0.8		
Ca7	0.2		
Cb1	0.2	DjPq-5	0.50
Cb2	0.1		
Da2	0.3		
Da4	0.2		
Db1	6.1		
Db3	0.6		
Db4	1.2		
Df3	1.6	EcPq-16,22	0.13
Df7	0.1		
Ea4	0.3		
Eb1	0.9		
Ef1	0.3		
Ef3	0.9	EcPq-1	0.11
Ef4	0.3		
Ef5	0.3		
Fa3	0.8	DjPk-28 DjPn-114	0.25
Fa4	0.1		
Fb1	1.9	EcPp-5,11, 12, 16, 24 EcPq-23	0.32
Fb2	0.5		
Fb3	1.3	EcPp-2,13 14,15	0.31
Fb8	1.0		
Ff1	0.6		
Ff3	0.2	EcPp-9,10	1.00
Ga1	0.5	DjPp-27	0.20
Ga3	1.3		
Ga4	1.3	EgPn-183	0.08
Ga5	0.1		
Gh1	1.0		
Ha1	2.2		
Ha2	2.4	DjPp-28	0.04
Ha3	4.0	FcPo-3	0.03
Ha4	10.5	EgPn-127, 134,182 FiOw-1	0.04
Ha5	32.23	EgPo-43 FfPh-2,3 FiOv-1,2, 3,4 historic(1)	0.03
Ha6	5.02		
Ha9	0.5		
Hb1	10.7	EdPr-48,49 EcPq-24	0.03
Hb3	1.3		
Hb7	0.7		
Hh3	0.1		
Ia1	0.1		
Ia2	0.4		
Ia7	0.9		
Ib2	0.1		
Ja1	0.7		
Ja3	0.7		
Ja5	0.4	FiOv-5	0.25
Jb1	1.5	DjPn-116 DiPo-1	0.13
Jb2	0.2	cairn	0.50
Jb5	0.5		
Jh2	0.5		
Jh8	0.2		
La1	0.2		
La4	0.1		
Lb1	1.1		
Lg1	1.2		
Lg3	0.9		
Lh8	3.0		
Li1	10.0		

Total mileage surveyed= 124.75

* EcPq-17,18,19,20 were not locatable and so are not included in this table.

(Heitzmann - Priegert)

ARCHAEOLOGICAL SURVEY OF THE PROPOSED LANGDON RESERVOIR AREA

Project 78-85

Ian R. Wilson
ARESCO Ltd.

INTRODUCTION

The following is a brief discussion of the findings and recommendations of an archaeological survey conducted near Langdon, Alberta in the fall of 1978. The purpose of the reconnaissance was to locate, record, evaluate and, if possible, preserve all archaeological sites endangered by proposed reservoir expansion and associated construction.

The study area is located to the southeast of Langdon in the Plains region of Alberta. Approximately nine quarter-sections of land will be affected by the development. This land is situated on the circumference of Dalemead Lake which, at the time of survey, was dry. The lake evidenced little bank development and, in general, the regional topography is undifferentiated in elevation.

In addition to examining the lake periphery, the banks of a small creek feeding this lake were also surveyed. This cree has been channelized in parts and now serves as an irrigation canal.

A total of five prehistoric sites was located, three of which are outside the boundaries of the study area. However, these three sites may possibly be affected by future channelization of the creek. Site locations and areas examined are shown in Figure 45.

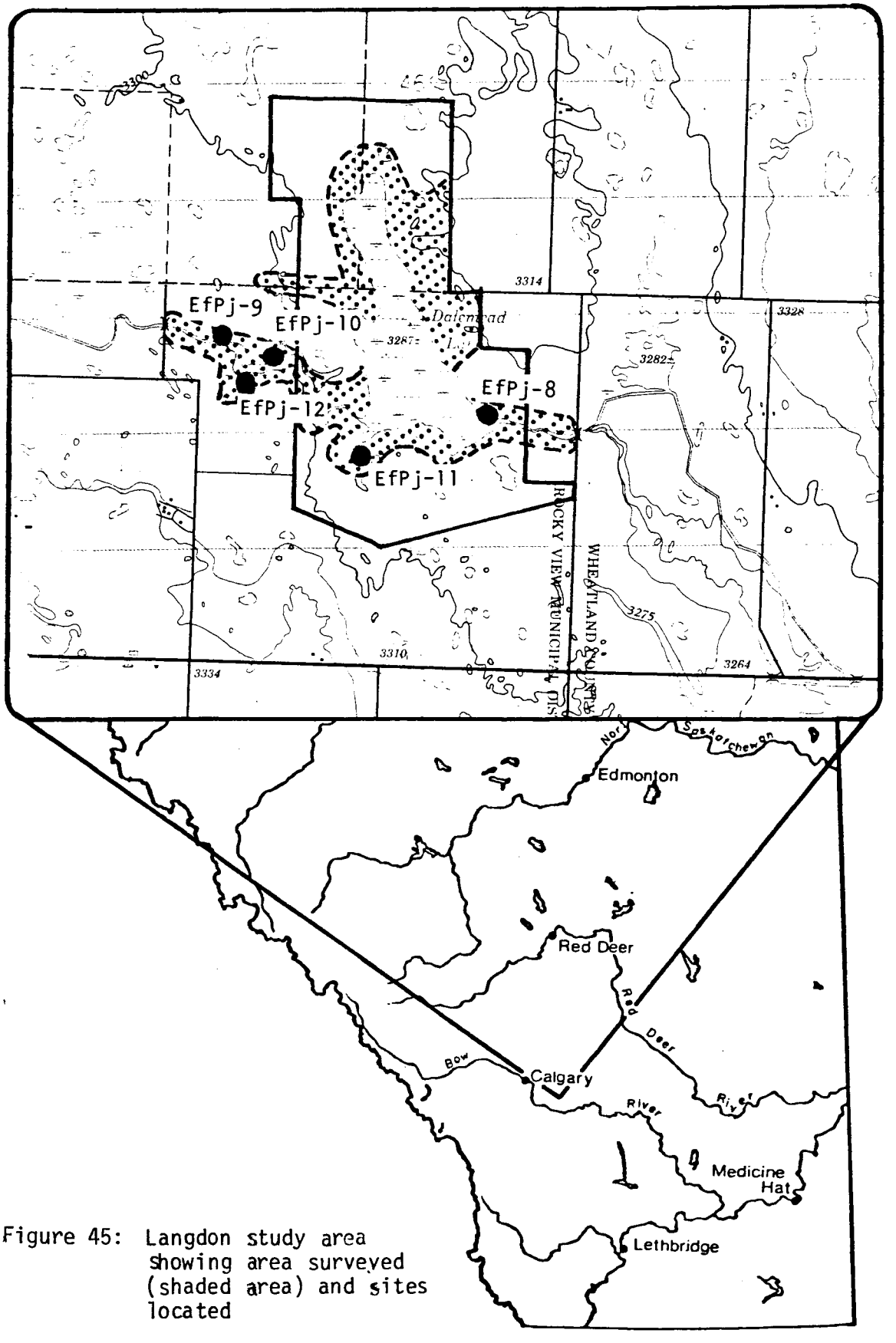

Figure 45: Langdon study area showing area surveyed (shaded area) and sites located

PROCEDURES

As specified by the Archaeological Survey of Alberta, field studies consisted of a foot reconnaissance of the area to be affected by development as well as examination of nearby areas thought to have good archaeological potential. Each site located was shovel-tested to determine site boundaries as well as depth of deposits. Other than this, very little shovel-testing was accomplished as the entire area has been cultivated, providing extensive exposures.

Where little cultural material was present, all artifacts were collected. All of the sites located contained less than a score of artifacts.

RESULTS

Five prehistoric sites, EfPj-8 through-12 were located during this study. EfPj-8 and-11 are heavily-disturbed single tipi ring sites. One quartzite core similar to those noted at the Walsh quarry site in southeastern Alberta (Warner 1978) was found at the first site, while two black chert split-pebbles were found at the latter. No other cultural material was noted at either site even after intensive shovel-testing. EfPj-9 and-10 represent isolated finds of only a single quartzite flake each. The final site, EfPj-12, evidenced several quartzite flakes, a few pieces of fire-altered rock, one chert split-pebble and four fragments of large land-mammal bone. No subsurface deposits were found and the site probably represents only a very temporary campsite.

Very little can be said regarding the five Langdon sites as they are all disturbed by past and ongoing cultivation. More material may have been present at the three non-tipi ring sites but is undoubtedly redistributed. The two tipi rings are so badly disturbed that little additional information can be gathered. It does appear that prehistoric activity in the vicinity of the

study area was not intense, based on the limited material collected. This is not surprising, as only a small stream and a seasonally-active lake are present. All five sites are associated with the creek as opposed to the lake.

RECOMMENDATIONS

As all sites are sparse in cultural material and either heavily disturbed or destroyed by cultivation, additional work would serve no apparent purpose. It is therefore recommended that work proceed as proposed on the Langdon reservoir project.

THE ANDERSON AND THE ROSS GLEN SITES:
1978 PLAINS RESEARCH

Permit Numbers 78-24 and 78-80

J. Michael Quigg
Archaeological Survey of Alberta

During the summer of 1978, I conducted field research in two widely spaced areas of the Alberta plains. The first month was spent in east central Alberta near Hardisty, assessing a multicomponent site (FdOt-1) as part of an on-going research programme for the east central region. The long-term goal of this research is to establish the cultural history and utilization of the area. Initial site assessment and site distribution have been implemented thus far (Quigg 1976, 1977a, 1977b, 1978).

Later in the summer, a stone circle site (DlOp-2) near Medicine Hat was excavated for nearly two months. These excavations were, again, part of a specific research programme of assessing and interpreting stone circle sites throughout the northwestern Plains.

I discuss some of our findings and present preliminary interpretations of the cultural remains for each of the sites investigated.

THE ANDERSON SITE (FdOt-1)

INTRODUCTION

A site-assessment programme was undertaken after consultation with Mr. Claude May of Hardisty, an amateur archaeologist possessing considerable knowledge of the area, who had previously explored portions of the site with positive results. He suggested that the Anderson Site had the greatest potential for producing significant information for the general region. With this in mind, we began our investigation by examining and delimiting areas and occupations which would be subjected to excavations of greater intensity in the future.

LOCATION AND DESCRIPTION

The Anderson site is roughly 2.5 km west of the Battle River on high ground to the southwest of, and overlooking, Hardisty Lake. The region is

predominantly Pleistocene outwash sand and gravel (Bayrock 1958) which is vegetated by aspen poplar mixed with shrubs and grasses. The stabilized sand deposits are relatively shallow and flat in the eastern third of the site, with a gradual rise and thinning of deposits through the middle portion, and rising sharply at the western end where the sand is quite deep.

Prehistoric material represented by bone, stone and ceramics was distributed over an extensive area (nearly 12,000 square metres), representing a number of cultural phases and time-periods.

Initially, 17 shovel holes, approximately 50 cm in diameter and of varying depth, were dug in order to delineate the site boundaries, locate material concentrations and define the general stratigraphy of the deposits. Having reviewed that information, two 2x4 m units (labeled A and B) were excavated to sample separate limited areas within the site boundaries.

RESULTS

The presence of complex cultural and natural stratigraphy, which was not tracable over the entire site, was revealed through this testing. Extensive sand deposition, with a number of buried soil horizons, was encountered. Cultural material was not necessarily associated with the paleosols. The material recovered ranged in depth from just below the surface at the eastern end to nearly 110 cm at the western side. The clearing of the land has disturbed the upper components in portions of the site, while the lower components were found to be partially scattered or indistinct. A distinctive floor level was uncovered at 50 cm b.s. in test B.

Just over 1,700 stone artifacts were recovered; this does not include quantities of faunal remains and sparse fire-broken rock. The artifacts indicate that occupations were present during the Middle and Late Prehistoric periods. Ceramics were recovered from the same stratigraphic position as an Avonlea projectile point, as well as other ceramics identified as the late variant of the South Saskatchewan Ceramic Tradition.

Old Women's and Avonlea phases are represented in the upper portions of the site. A significant percentage of these strata were disturbed. Projectile points indicative of the Besant, Pelican Lake and Hanna phases as well as the Mummy Cave Complex (Reeves 1969:3) were identified; the latter represented by the best distinguishable floor level excavated. The distribution of cultural material across the site indicated a series of localized areas of encampments that are represented by both disturbed and well-defined components throughout the time-span represented. A series of bone samples have been submitted for radiocarbon analysis; the dates should bracket the duration of use of the site and assess the age of the Mummy Cave floor level.

The Mummy Cave Complex occuaption was a well-defined processing area 10-12 cm thick with quantities of poorly-preserved, butchered, bison bones, 600-700 lithics and approximately 30 finished stone tools including five projectile points (Figure 46), eight end-scrapers and numerous other meat-processing tools, all from a single 2x4 m test unit. The lithic suite was of local materials; quartzites, small pebble-cherts and limited petrified wood.

Although the faunal remains had been butchered and were in a poor state of preservation, we hope to acquire some general information from analysis. At this preliminary stage of interpretation, a single left mandible retrieved from the Mummy Cave floor level was suggestive of a fall season of occupation.

Sparse faunal remains were recovered from at least one area which was stratigraphically below the Mummy Cave occupation, but only minimal debitage was in association.

CONCLUSIONS

From this assessment programme, I can now state that the Anderson site is of considerable significance and has the potential to contribute to our knowledge of cultural utilization of this general region from a number of different aspects. Consequently, I recommend that further excavations and analysis be implemented.

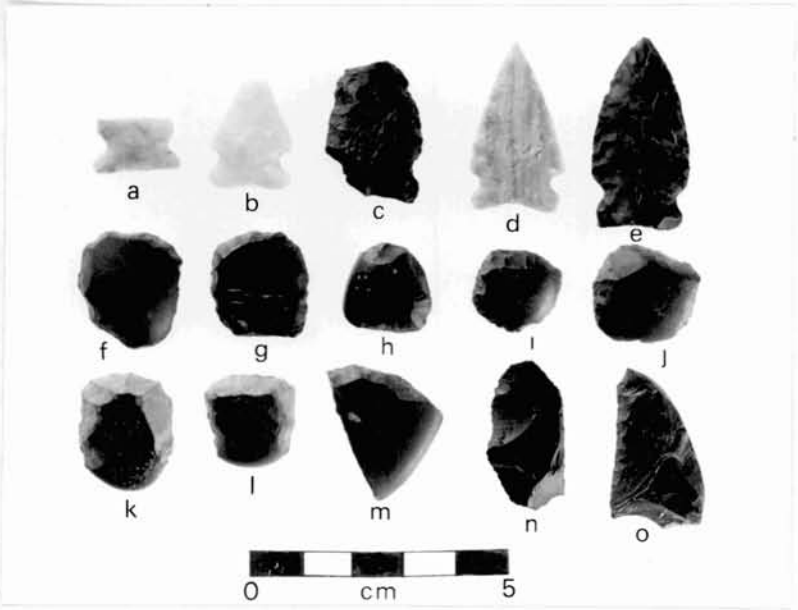

Figure 46: Anderson Site (FdOt-1), Mummy Cave Complex: a-e, projectile points; f-m, split pebble end scrapers; n-o, retouched flakes.

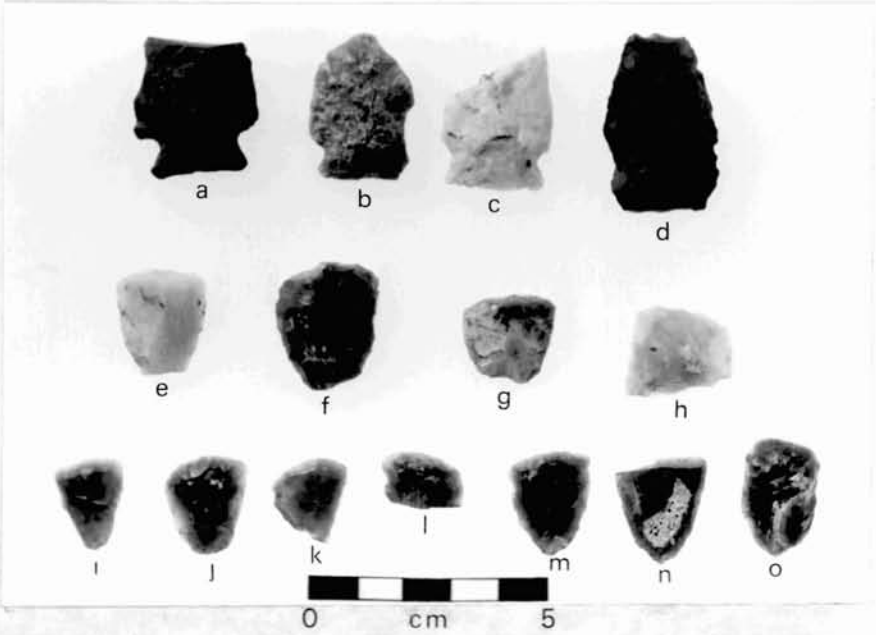

Figure 47: Ross Glen Site (DlOp-2), Besant Phase: a-d, projectile points; e-o, end scrapers.

ROSS GLEN SITE (DlOp-2)

The Ross Glen site was discovered by John and Laurie Brumley in May of 1978. It was reported by them to have a number of well-preserved stone rings, in association with quantities of cultural material and observed hearths. Portions of the site had been slightly disturbed by sod removal just prior to discovery (Figure 48) with minimal disturbance to the buried cultural material. This disturbance permitted a preliminary interpretation of the nature of the subsurface and intra-site patterning prior to the initial excavations.

In response to evidence of recent investigations on stone circle sites (Adams 1978, McIntyre 1978, Quigg 1978b and others), a need for continued excavations on this poorly-understood archaeological resource is deemed to be critical.

LOCATION

The Ross Glen site is situated on the level prairie just west of a small creek valley approximately 3 km south of the South Saskatchewan River valley. On a clear day, the Cypress Hills can be seen to the southeast. Running water, tall grasses and a variety of bushes, to a height of 2 m are found in the creek valley below, while sage brush, prickly pear and pincushion cacti, blue grama and spear grasses cover the site. Glacial gravels reach the surface at various locations across the northern portion of the site area.

DESCRIPTION

The stone circles and auxiliary features occupy a flat area of approximately 140 x 90 m with its long axis parallel to the creek valley. At the time of study, the site consisted of 18 identifiable stone rings near the surface. No other features were detected on the surface, although 22 recognizable subsurface features (hearths, stains and fire-broken rock piles) were recorded from the excavations and the surface-stripped region. Hundreds of pieces of cultural material were observed in the stripped area, while only the occasional piece was observed in the undisturbed portion of the site.

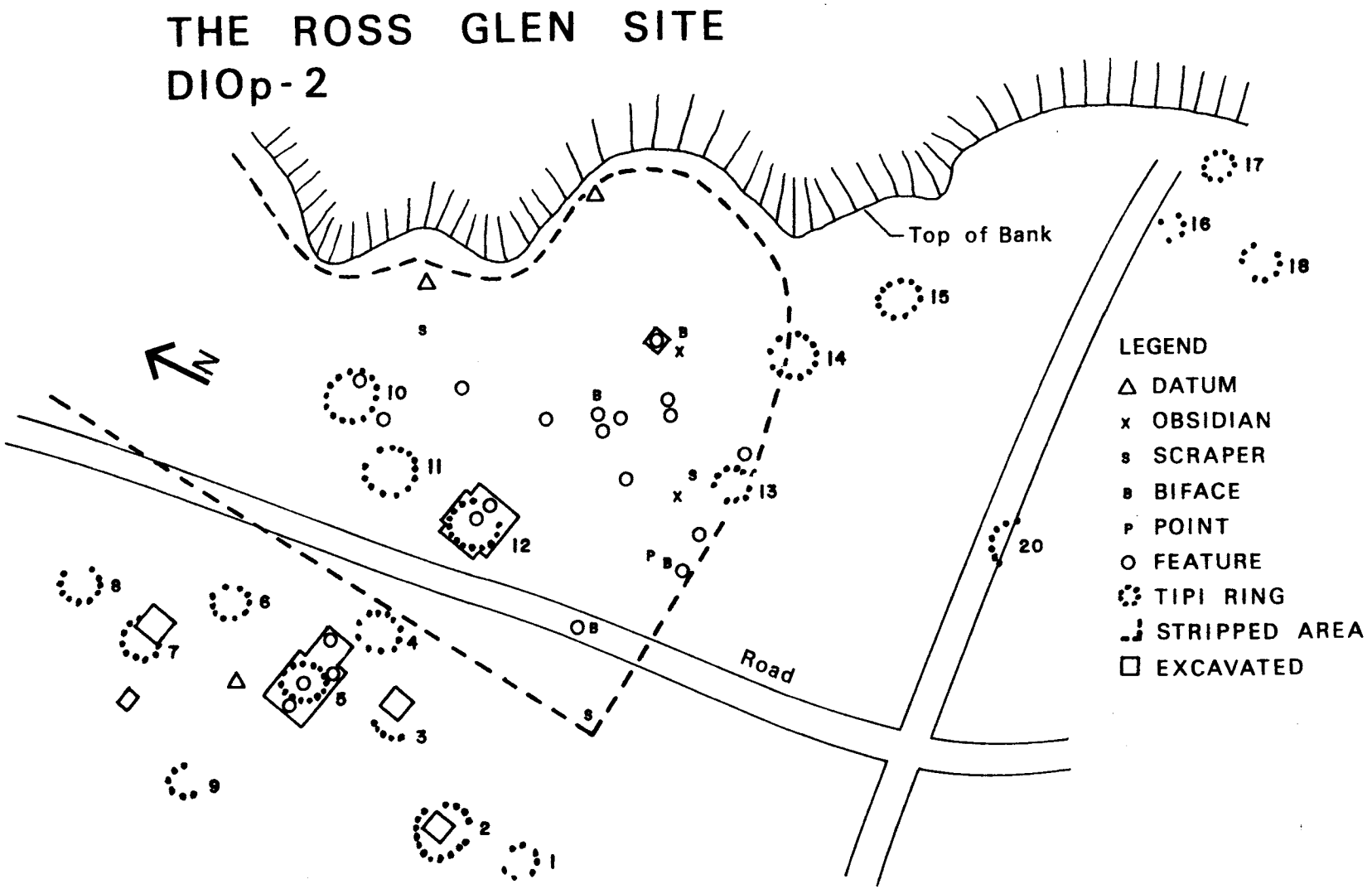

Figure 48: Features at the Ross Glen Site.

The circular ring features vary considerably in their individual characteristics, with the number of rocks per ring ranging from 19 to 132, and the mean inside diameters varying from 3.25 m to 8.00 m (Figure 49). Auxiliary features consist of five hearths including two associated with small post molds, five black stains, one anvil stone, ten concentrations of fire-broken rock with associated flakes, and one core concentration.

RESULTS

Two stone circles and seven auxiliary features were completely excavated, together with portions of two other rings. Excavations totalling nearly 250 square metres were divided nearly evenly between the areas inside and outside the stone circles.

Approximately 17,000 pieces of cultural material were retrieved and classified in the following catagories: 12,000 pieces of lithics, of which 50 specimens are defined as tools and 5,000 fire-broken rock fragments with only 150 grams of bone. There were three identifiable dart points (Figure 47) plus two dart-point fragments, 12 bifaces, 11 end-scrapers and a number of retouched flakes, pounders, anvils and cortical spall tools represented in the tool kit.

By far the greatest percentage of cultural lithics were derived locally of quartzites and argillites, with non-local cherts from Montana and Knife River Flint from North Dakota dominating the end-scrapers.

INTERPRETATIONS AND OBSERVATIONS

The Ross Glen stone circle site represents a single time-period characterized by points belonging to the Besant phase of the late Middle Prehistoric period (c. A.D. 500). The site served as a source for collecting raw material as well as the working of that material and a campsite. The former are represented by surface gravels and quantities of large cores, primary and secondary decortication flakes and debitage. Campsite activities are interpreted from the quantities of fire-broken rock and the variety of auxiliary features present. A possible fall encampment is presently postulated for the season of occupation.

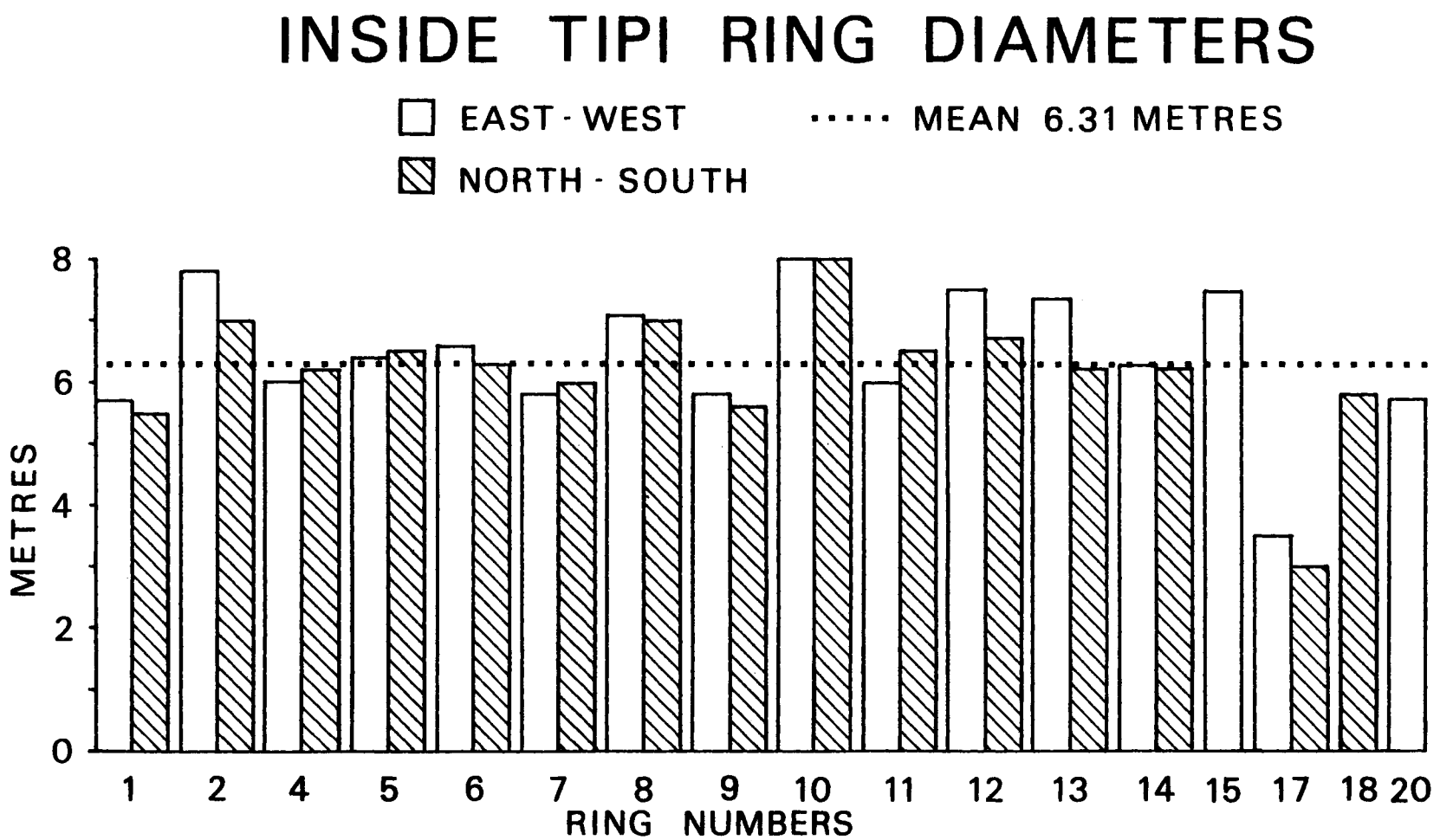

Figure 49: Comparison of Ross Glen Site tipi ring diameters.

MITIGATION AND EVALUATION OF TWO HISTORIC SITES, PASSBURG AND FRANK, IN THE CROWSNEST PASS

Permit Numbers 78-51, 78-52

Michael R.A. Forsman
Archaeological Survey of Alberta

INTRODUCTION

The Crowsnest Pass area of Alberta, since 1898, has witnessed continuous activity focused on the search, extraction, processing and shipment of coal. In the early days, small towns were frequently associated directly with the mine locations. When the mines stopped producing, the towns also went into decline, with few physical remains still standing to mark their location. The acceleration of modern development in the area is effectively destroying large portions of many of these early townsites. The purposes of this project, therefore, were:

1. to undertake some mitigative work in those historic areas in imminent or projected danger of destruction resulting from Highway 3 realignment proposals, and
2. to provide an evaluation of the historical resource potential of these sites, from an archaeological point of view.

These were important points of concern considering the fact that little archaeological information exists on early coal mining communities in the west, and that there is an increasing public and professional concern over the decreasing availability of these historical resources for the benefit of present and future generations. This concern resulted, first of all, in one of the earliest historical resources impact assessment reports for the area (Lifeways 1974a).

RESEARCH DESIGN

Objectives

The general objectives of the project derived from the need to obtain data on the existence, condition, diversity and frequency of the two major classes of archaeological information, including structural remains and material culture. For example, we could ask if deposits of artifactual debris were still intact at these sites and whether or not they contained much information which could contribute to an interpretation of community

life in mining towns dating to just after the turn of this century. The answers to such questions will be instrumental in determining the value we should place on protecting these particular historical resources.

The research design, as initially formulated, called for a balanced recovery of both structural and artifactual data. A preliminary reconnaissance survey, including archival research and some early testing in the field, quickly determined that detailed structural evidence was generally lacking. Beyond the need for some general mapping, data on buildings can be better obtained through other documentary techniques, particularly as several buildings were moved to other towns and are still standing. The material culture aspect, consequently, gained priority of importance.

A series of material culture questions were formed, reflecting a variety of general and specific objectives on the artifactual content and diversity to be found among activity areas around buildings, between different building sites and between two different site locations. A few examples of the types of questions that were asked include: What was the material culture of mining communities in the Crowsnest Pass between 1901 and 1907? Between 1907 and 1915? Did the material culture of contemporaneous mining communities differ significantly? Are there assemblage profile differences between private dwelling middens? If so, what is the nature of these differences and how can they be interpreted? And finally, what are the implications of these kinds of data for future research and resource evaluation? Some more specific problems of a temporal order were also recognized, but the solutions to these may require additional data.

Methodology

Of the sites in the Crowsnest Pass that could be examined, the townsites of Passburg and Frank (Figure 50) were chosen for investigation for a number of reasons other than the danger of development impact. The examination of two sites would provide a broader data base for determining the condition and potential of these townsites than if we attempted to estimate the historical resource value of a single site. To facilitate comparisons between sites, it was also of some importance that they have fairly similar histories. Both towns were established and grew rapidly when nearby mines were opened. Both died when their mines closed, and today little evidence

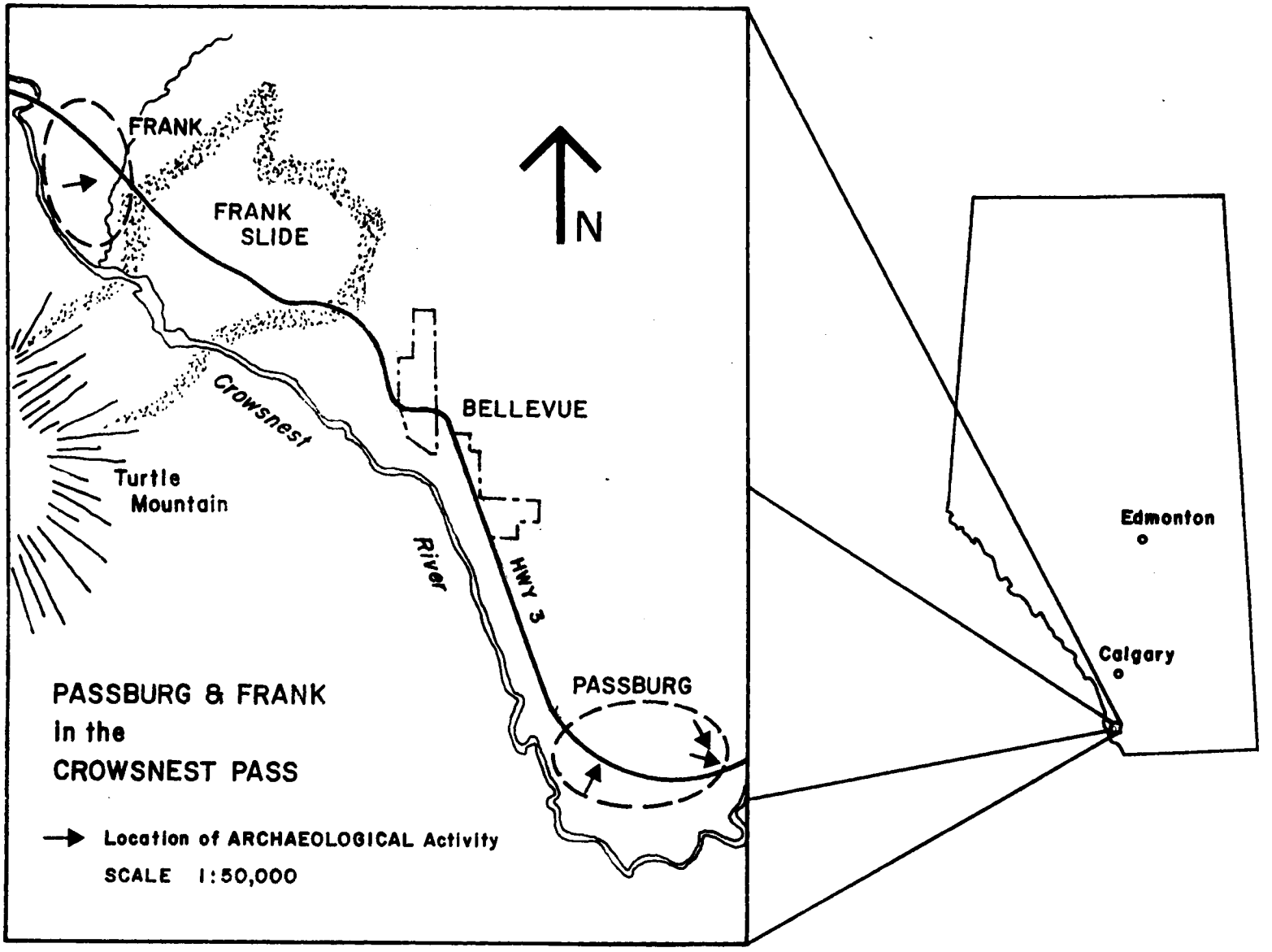

Figure 50: Passburg and Frank townsite study areas in the Crowsnest Pass, Alberta.

of their locations exist, except for surface mounds and depressions. The two sites also appeared to be fairly undisturbed on the surface.

In order to obtain a sample of information from Passburg and Frank, we decided that the major part of our activity would be conducted in those regions which may ultimately be impacted. But by following this guideline, however, we recognized that most of the area within the Highway's right-of-way consisted of old commercial districts, and that our excavations would not be truly representative of the communities as a whole. Even by limiting our activity primarily to the R.O.W. projections, the extent of the problem area was immense, over 120,000 m^2. Rather than establishing a hypothetical grid and excavating a statistical sample which could only be miniscule relative even to those regions under consideration, we developed a judgemental approach in choosing the excavation site locations. We wanted to obtain some information of comparable value within the sites themselves, and also some data for comparison between the sites, other commercial sites and private dwelling sites. The most comparable inter-site samples are from the Passburg Hotel site, Passburg, and the Imperial Hotel site in Frank (Figures 51, 52).

The resources that could be applied towards achieving the objectives were limited, as they usually are, with regard to time, manpower, and present technology. The field period extended from July 4 to August 4, 1978. The field crews consisted of two field assistants and eight locally-hired excavators, under the direction of the writer. The laboratory duties were handled by another field assistant and four cataloguers. In the field, up to ten wheelbarrows and four mechanical screens were kept in use at the same time. Artifacts from completed units were then removed to the lab for processing. A reference collection and special catalogue forms, listing selected attributes, were used to ensure a uniform standard of recording by cataloguers not familiar with the material. The system also provided a fairly rapid means of recording those attributes.

RESULTS

Some surface disturbance was evident at both sites. Soil build-up over occupational debris was less pronounced at Passburg than at Frank, but arti-

facts occurred in the sod layer at both sites. Wooden foundation supports or elements were not encountered at either site. A characteristic of commercial building sites in Passburg was that cellar features were infrequent, while the opposite was true at Frank. The soils and gravels removed by the excavation of cellars at Frank were deposited to the rear and sides of building sites. Artifact frequency within these deposits, which were sometimes over a meter in depth and composed of a matrix difficult to excavate, was sparse. These deposits, together with other ash and refuse debris, form a complex stratigraphy, which, nevertheless, does provide clues to the evolution of the commercial site district. Residential areas were cursorily examined and generalizations on their character and differences is premature at this time.

The artifact content of the sites is enormous, and an extremely diversified range of artifacts is represented, although states of preservation are highly variable. From approximately 100 m^2 (53 m^3), over 64,000 artifacts have been recovered and catalogued. Data from the artifact catalogues are now being synthesized into assemblage profiles to facilitate comparisons among excavation units, areas and sites. The data are capable of analytical manipulation and preliminary indications are that these sites, particularly the one at Frank, do contain information which can contribute to our understanding of early historic lifestyles in the Crowsnest Pass. By providing answers to the type of questions referred to above, historical archaeology can also demonstrate its ability to elucidate aspects of those cultural processes which ultimately resulted in the character of our contemporary society.

CONCLUSIONS

In 1978, archaeological activity at two townsites in the Crowsnest Pass recorded a number of structural remains and associated features, and obtained a sample of the material culture. Although excavations were not extensive, the remains at Passburg were generally fewer, less complex, and in a poorer state of preservation than those at Frank. Further mitigative effort at the site of Passburg is not recommended.

The old townsite of Frank, however, presents a rather different, and

more complex, situation. Portions of this townsite have also been destroyed, but important sections of the commercial and residential districts are still well preserved. Their research potential is significant, and it is imperative that some site data be obtained for major research problems concerning community and industrial development in the Alberta Rockies. Such studies cannot be undertaken without a resource base. No archaeologist would allow himself to generalize about Besant period culture on the basis of excavations at only one site; similarly, we cannot be reduced to having research capability at only a single western coal mining community, for example, Lille. The data so far recovered from Passburg and Frank are in no way representative of those entire communities, and are not sufficient for generalizing about material culture and lifestyles in communities throughout the Pass. Impact avoidance of historical resources is not always possible, and mitigative excavations are not always warranted, but, where significant historical resources do exist, as they do at Frank, then further research efforts may be required.

Figure 51: Passburg Hotel, Passburg, small plate. Maker's mark inset.

Figure 52: Imperial Hotel, Frank, small plate. Diameter of plate 17.8 cm. Maker's mark inset.

THE ELNORA BISON BONE BED (ALBERTA)

Project 78-116-C

Michael Wilson

The Archaeological Survey received notice of bones exposed by highway construction near Elnora, Alberta on October 1, 1978. Mr. Les Hempsey, Transportation Engineer, District 6, Alberta Transportation, reported that a bulldozer cut in a hillside bank of the Red Deer River had exposed a pocket of buffalo bones. Mr. J.M. Quigg, Plains Research Officer, visited the site on October 5, 1978, and recommended that the site be examined in more detail.

Accordingly, the Survey approached the writer, requesting field assessment of the area prior to its destruction by imminent highway development. The research was to include retrieval of locational and stratigraphic data sufficient to interpret the site's antiquity, to obtain samples for sediment, pollen and radiometric dating analysis, and to prepare a paleontological and archaeological evaluation of the discovery.

The writer visited the area, and, with the full cooperation of Alberta Transportation personnel, undertook a detailed field examination of the Elnora Bison Bone Bed, which included mapping of the geology of the general area and profiling of the section at the site. All bones were recovered with the exception of small fragments presumably lost during bulldozing. Figure 53 diagrams the stratigraphy of the site.

On the basis of studies to date, it is clear that the site is not of archaeological significance, unless the carcasses were minimally scavenged by man after a natural kill. The bones were contained within a small cut-and-fill gully approximately 2 m across, incised into a poorly-sorted "boulder clay" -- possibly till or colluvium. The entire unit containing the filled gully with the bone bed had been slumped downslope, as part of a major, lobate, slumped area easily visible in aerial photographs. The slump block containing the bone bed is overlain by three more slump-blocks; and all slump-planes (including the plane beneath the bone bed) yielded fresh unoxidized wood fragments in profusion.

The slumping cannot be more than a few decades old, as determined from

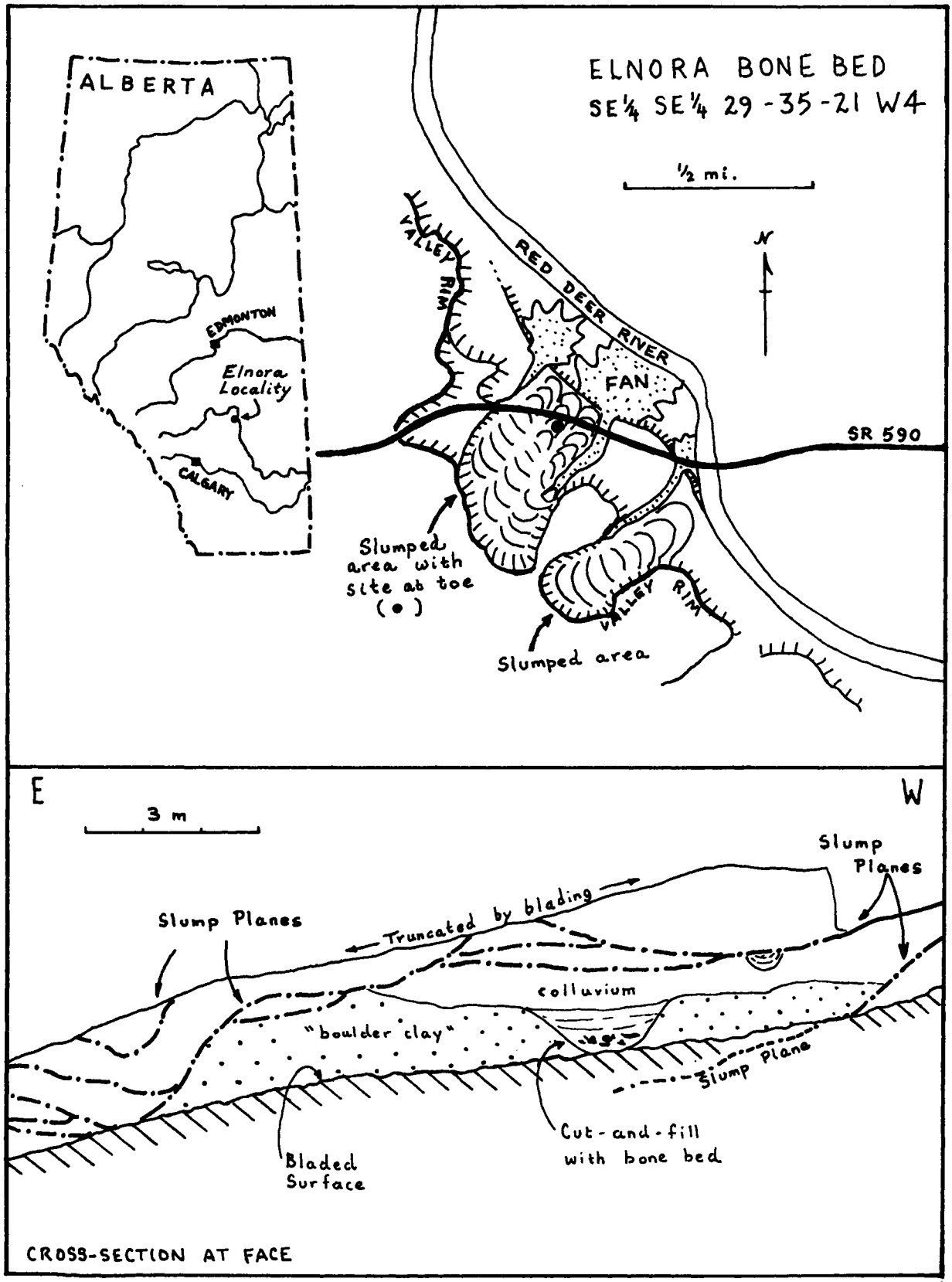

Figure 53: Location and geology of the Elnora bone bed, from preliminary field diagrams.

the freshness of wood on slump-planes, and from the fresh appearance of the crescentic scars upslope.

The bones relate to three individual bison (two female and one male), all represented by skulls. Their size suggests a Late Prehistoric to Historic age. The bones are stained a deep-brown colour, but freshly-broken specimens show that the stain is on the surface only. Beneath the surface, the bone is a fresh pearly-white colour. Therefore, size and colour both suggest an antiquity of a few hundred years at most, and perhaps much less.

The bones were primarily contained within a clay unit thought by A.S.A. observers to be lacustrine. This, however, proved to be a bedrock-derived clay -- reworked "bentonite" -- and it has no particular deposition significance with regard to the bison bones. It merely reflects the availability of parent material upslope. The clay is gritty and may best be described as slopewash, although it is part of the gully fill. It must be considered that the bones themselves would have served as a local sediment trap in the gully.

The site has some paleontological significance relating to the chronology of bison evolution. A radiocarbon date would allow the specimens to contribute to the precise description of Late Prehistoric bison microevolution. This could, in turn, have archaeological repercussions, inasmuch as some Saskatchewan archaeologists have based an "edge-area hypothesis" on the occurrence of supposed "wood bison" in jump-kill sites such as Gull Lake. This is erroneous, as plains bison even a few hundred years ago were larger than the modern form.

The Elnora bone sample was collected in its entirety, both through careful trowel excavation and, finally, through bulldozer stripping when the nature of the site became evident. No further field mitigation efforts are necessary. A full report is in preparation.

REPORTS OF BISON REMAINS, EDMONTON VICINITY

Permit Numbers 78-65, 78-81

John M. Hillerud

Archaeological Survey of Alberta

INTRODUCTION

From time to time, the Archaeological Survey of Alberta has received reports of exposures of bison and other large-mammal remains through government agencies and from interested private citizens. Officers of the Survey have attempted to investigate these reports, within the constraints of time and finances, to determine if an archaeological component exists within these essentially palaeontological assemblages.

In the summer of 1978, the Survey received five such reports of historic resources sites with possible archaeological interest. Because of my professional interest in Neogene bison phylogeny, I obtained permission to investigate three of these sites, under Archaeological Research Permit number 78-65; sites on the south shore of Coal Lake (Crooked Lake) near Gwynne, and in Terwilliger Park and Gold Bar Park areas in Edmonton. Unfortunately, no artifactual materials were recognized in any of these sites.

In addition, I conducted excavations to obtain stratigraphic information and dating samples at the Duffield fossil-bison site (number 3: FiPn-18) under A.R.P. number 78-81. While no elements were retrieved from the excavation, a number of specimens were salvaged from the eroding bank exposure at the Duffield site (FiPn-8).

THE GWYNNE SITE (FgPh-6)

In June, 1978, Messrs. Albert Pluim and Emmit Lee, of Gwynne, Alberta reported their discovery of a skeletal "backbone" exposed by slumping of sediments on the shore of Crooked (Coal) Lake to Dr. Nat Rutter, Department of Geology, University of Alberta. This information was passed to me by Dr. Rutter and Dr. Charlie Schweger, Department of Anthropology and I visited the area early in July accompanied by my son Ian. Lee and Pluim transported us to the site in the latter's boat.

The site is in the toe of a prehistoric earth flow of minimal antiquity on the southwestern edge of Coal Lake (NE¼ SW¼-35-46-23-W4). The bones were found in the walls of a wave-cut "cave" at and under the water level on the recently elevated shoreline. The matrix is highly unstable unconsolidated colluvium, and the cave (height 1m, width 2m, depth 3.5m) appears to have been initiated as a den inside the ribcage of the bison, possibly through the activities of beaver (Lee, personal communication 1978). It then was enlarged by wave action.

Retrieval of the 27 specimens proceeded under trying conditions, with Ian Hillerud lying in lake water under the unstable bank, excavating with sheath-knife and trowel. The vertebral column (TV-6 to LV-6 inclusive) and some associated ribs were obtained with minimal difficulty, but the articulated left limb (humerus, radius-ulna, carpus and metacarpus) were retrieved from a sort of subaqueous post-hole 0.75 m deep. Salvage ceased abruptly when a portion of the cave roof collapsed. The left limb toe-bones remain at the site. Their retrieval is not recommended.

The specimens are assigned to the taxon Bison bison bison. The bones are in excellent condition with no evidence of pathology on any of the elements retrieved. There is no indication of associated archaeological activity. I assume that the bison was entrapped by the thixotropic colluvium of the earth flow (as suggested by the left limb in "life-position") and was buried before any scavenging activity took place.

THE TERWILLIGER SITES (FiPj-30)

In June, 1978, the presence of a "bone-bed" in a clay cut-bank on the "Terwilliger Estate" was brought to the attention of P.J. Currie of the Provincial Museum of Alberta by Mr. F.M. Lennarson of Edmonton. Mr. Currie passed the information to me and I visited the area on July 4, 1978 in company with Mr. Lennarson and members of his family and my own. The visit resulted in the salvage-excavation of a number of bison specimens.

The site occurs in a west-facing bank of silty clay bordering an abandoned, water-filled gravel pit (SE¼ SE¼ 16-52-25-W4; also NE¼ NE¼ 9-52-25-W4) on a meander-core of the North Saskatchewan River. The

area, now administered as "Terwilliger Park" by the Municipal Planning Commission, Edmonton Planning Department, is a slip-off slope (a "strath terrace"; see W.H. Bucher, 1932) and the geomorphology offers no firm dating evidence beyond "Late Holocene; Prehistoric."

A number of fragmental elements were recovered from three separate concentrations within the upper 0.5-1.5 m of the capping river silts forming the meander core surface. The fragments are assigned to the taxon Bison bison bison. Most elements were found partially disarticulated. A minimum of three individuals was sampled; an adolescent individual is represented by humerus and metatarsal fragments, and two left scapular fragments (and one right scapula) of mature individuals were collected. The pair of scapulae was associated with a large humerus and a partial skull fragment from a young (age S-2) male bison. Other specimens include an articulated left hind leg from metatarsus to phalanges - III, including proximal and distal sesamoids. Many of the bones show evidence of postmortem weathering.

There is no evidence of pathologic abberration on any of the specimens retrieved and no indication of associated archaeological activity.

I would interpret the concentrations of partially disarticulated elements as the result of deposition of partial carcasses by overbank flood-waters. Exposure of these remains would permit some scavenging by predators following surface weathering of some elements.

The surface is scheduled to be stabilized and sodded (L. Pierce, personal communication 1978) in the near future. Monitoring of the cut bank as time permits until this stabilization takes place is recommended.

THE GOLD BAR PARK SITE (FjPi-84)

On July 5, 1978, Mr. Scott Reid, Department of Geology, University of Alberta, received information from William E. Edwards (age 13) that he had retrieved a "buffalo head" in August, 1977 from a sewer pipeline spoil-pile. Mr. Reid communicated this datum to me, and I interviewed Bill Edwards the following afternoon. He has since donated the partial skull to Alberta Culture and the Survey here expresses its appreciation of this action.

The partial skull was found about 200 m east of the present "Camp-house" at the south edge of a road bordering an artificial pond depression in the Lower Gold Bar Park area, Edmonton. It was excavated (by backhoe) from an estimated depth of 2.0-2.5 m, sometime between August 1 and 7, 1977. No postcranial specimens were noted at the time of exhumation. The specimen is a skull of a mature male, Bison bison bison, lacking horncore tips and the maxillary-nasal complex ventral (anterior) to the orbits.

While visiting the park area, we examined the eastern end of the excavated depression, and found a number of bison postcranial elements over an excavated surface area of about 14 m by 17 m. The depositional area was approximately 1.25 m below the terrace surface. One horn core fragment of a modern bison was recovered. This site probably represents a natural kill, with subsequent taphonomic scattering of both butchery and butchery-waste elements. No evidence of an archaeological component was observed.

THE DUFFIELD SITE III (FiPn-18)

Excavations in late August and early September, 1978 were conducted at the Duffield Fossil Bison Site (Hillerud 1966) under Archaeological Research Permit number 78-81, to obtain samples for radiometric dating, and precise stratigraphic data from the lower marl layers. A two-meter square pit was excavated to a depth of 1.80 m and a one-by-two meter section of this was further excavated to a total depth of 4 m. The base of the pit had reached a stratum of hard blue silty clay when excavation was halted. An augur hole was sunk to a further 1.5 meters and penetrated to coarse fluvial sands. No vertebrate specimens were recovered from this excavation. The stratigraphy was recorded verbally and photographically.

Some 60 specimens of postcranial specimens of Bison occidentalis, advanced phase (as I now define this sample) were recovered from the western creek bed tributary and from the slumped marl face of the site (FiPn-8). This sample will be added to the collections I made in 1964-65, now stored in the Provincial Museum.

I anticipate a further excavation at the eastern edge of the site during 1979. With these additional studies, I hope to present data

and revised conclusions from the research discussed in Hillerud 1966.

OTHER SITE-LEADS

The survey has received several reports in addition to those described above, and hopes to visit these in 1979.

While I was preparing this article, I was invited by Mr. A.J. Mitten of Red Deer, Alberta to view "...a large skull with very big teeth...." in the trunk of his automobile. The specimen, the property of Mr. R. Dial of Caroline, Alberta, had been found in the "Drumheller Region." I was utterly startled when the trunk was opened, to see a complete skull of a rhinoceros!

Upon examination, all of the more fanciful hypotheses (Drumheller Miocene? Pliocene? provocative zoogeographical theories?) have been eliminated with the discovery of green-bone saw cuts on the occipital condyles. What we have is the discarded memento of some unknown central Alberta nimrod who, while on safari in Africa, had potted a mature white rhinoceros (Ceratotherium simus). The souvenier, discarded in a local gravel-pit, was recycled and provided a considerable shock to this writer.

You can find the oddest things in Alberta gravel pits....

APPROACHES TO FUR TRADE ARCHAEOLOGY

Project 77-22 in Part

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ARCHAEOLOGICAL DIVERSITY AND THE PROBLEM OF SYNTHESIS

Introduction

Archaeological investigation of historic period sites in the Canadian West is a recent phenomenon in comparison to the long-standing interest that archaeologists have shown in prehistoric cultures. In Alberta, for example, the first major historic archaeology excavations were carried out in 1962 and 1963 (Noble 1973). Since that time, there has been a growing public interest in western cultural development of the historic period. This has been exemplified by excavations at fur trade sites, North West Mounted Police posts, and ranch, farm, mining and community sites throughout the western provinces. These sites are but the remaining manifestations of broad social, cultural and economic developments. As such, the archaeological information contained in the sites should contribute to a wider understanding of the major historical themes that they represent, for example, the fur trade, the development of law and order, etc. This is particularly true when we consider the rarity of undisturbed eighteenth and nineteenth century site locations and the inadequacy of early descriptive accounts to portray fully the many facets of life during those time periods. The data present in archaeological sites are often too important for their use to be limited solely to site-specific objectives as has been the case time and time again. In addition to contributing to a broader understanding of cultural events and development, the information and interpretive statements generated should also be useful for determining future directions in thematic research.

For archaeologists, it is important to recognize the kinds of broad

statements that can be made in regard to important historical themes. This topic is still under exploration, but material culture approaches will always play a key role in providing new insights as to the existence and verification of cultural processes. The specific approach, or research design, will provide the frame of reference for examining, sorting, synthesizing and analyzing information derived from the artifacts. The quantified data resulting from these operations can then be manipulated by a variety of statistical techniques to support conclusions with a precision and certainty that otherwise would not be possible. In order for general statements to be made about cultural processes it will be necessary to formulate research designs which can deal with more than one site at a time. Investigations of several sites may have to be undertaken before any general statements can be applied to the period or phenomena of which such sites are representative.

In order to determine the extent to which archaeology had contributed to the definition of important historic periods in the Canadian West, a review was undertaken of the available archaeological literature. Most of the available reports dealt with the fur trade era, and this era is the focus of the paper.

Fur Trade Review

Archaeology has always been concerned with the chronicling and elucidation of antiquity, i.e., the excavation, description and conservation of artifacts and the interpretation of past lifeways. The foundations for the study of prehistory can be dated to the sixteenth century in the Old World (Clarke 1968: 7). Interest in historic archaeology is much more recent, but nevertheless dates to 1856 in North America (Deetz 1977: 29). The time depth for the historic period in northwestern North America is not as great as in some other regions of the New World due to later settlement and development. Consequently the fur trade era was perceived, about 10-15 years ago, to be the earliest period of antiquity for historic archaeology research in this area. A considerable amount of time and money has been spent on investigating this period of history, but in spite of the number of fur trade sites which have been located, surveyed and excavated there are few available published reports or manuscripts. These reports, however, could be examined for similarity of objectives, diversity of

reportage and the utility of the archaeological information for comparative studies. The scope of the fur trade review focused on the North Saskatchewan River, but also considered complimentary and contextual data from adjacent river systems (Figure 54).

Review of Objectives

The Provincial Museum of Alberta was the only institution to have a broad or thematic fur trade goal, which was "...to characterize change through time...(and)...space...in the context of the fur trade in North America as a whole." (Kidd 1970: 3). The goal was presented as the rationale for a proposed ten-year museum program in fur trade archaeology (Kidd 1970: 3). This, unfortunately, did not fully materialize. Nevertheless, the museum was able to support some excavations at the sites of Fort George, Buckingham House and Edmonton House III/Terre Blanche (Nicks 1969: 4).

No other agency, institution, or individual has had intentions of undertaking such a broad thematic archaeological approach to the fur trade. Gertrude Nicks, however, did carry out a study of specific archaeological significance for interpreting early fur trade sites by formulating a trait list based on the results from a few excavations (Nicks 1969, 1970). The list was to be a useful means of "...identifying historic sites on the North Saskatchewan which cannot certainly be specified from documentary evidence." (Nicks 1969: ii). Her work, however, has been viewed more as a tool for identifying company affiliation of individual sites, rather than as a statement of site content and a recognizable cultural pattern which in fact, it is.

Occasionally, simply-stated but not necessarily simplistic objectives have been important for initiating excavation activity. In 1964, a proposal to reconstruct Fort Carlton was the basis for implementing a comprehensive archaeological program to obtain building details and other historical data (Ranere 1967: 2). The purpose of test excavations at Fort Assiniboine was to evaluate the historical resources prior to the formulation of plans for reconstruction (Vickers 1967: 1). Excavations at Hudson House were undertaken solely "...to determine the extent of the post." (Clark 1969: 28). The identification, assessment and salvage of archaeological materials threatened by potential development activity and natural forces

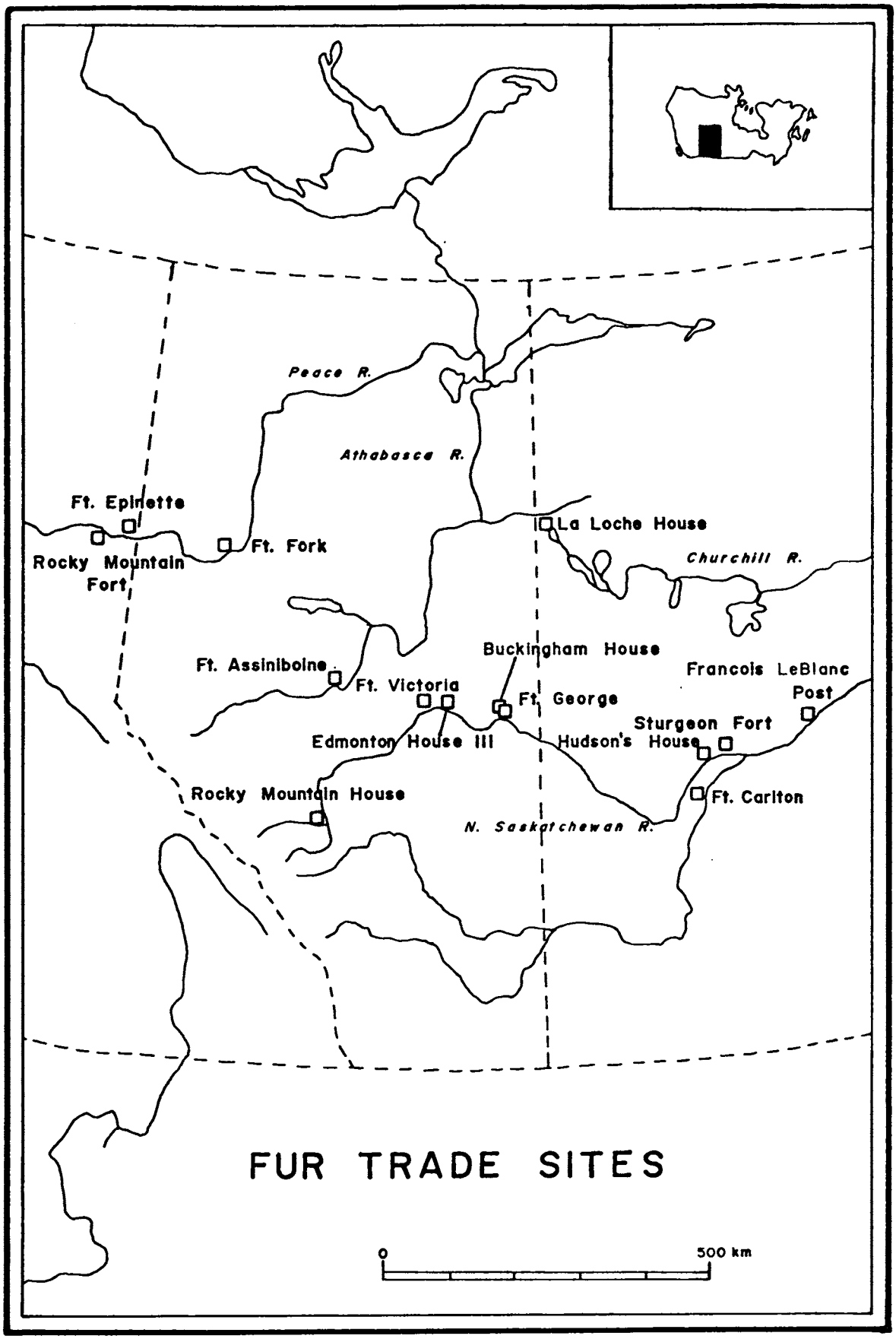

Figure 54: Location of fur trade posts

have also been cited as factors in determining the need for archaeological excavations at the Francois LeBlanc Post (Kehoe 1963: 7), Sturgeon Fort (Barka and Barka 1976: 4) and Fort Fork (Arnold 1972: i; Korvemaker 1977: 3).

Several authors stated a variety of site-specific objectives. At Fort George, for example, the major objectives included establishing the identity of the site, determining the overall plan, investigating the form and function of major structural units, obtaining construction details and recovering a large sample of early fur trade artifacts (Kidd 1970: 214). Excavations at several other sites, including La Loche House (Steer 1973: 13), Rocky Mountain House in 1963 and 1975 (Noble 1973: 63; Steer and Rogers 1976: 2), Fort Epinette (Fladmark, Finlay and Spurling 1977: 281) and Fort Victoria (Losey et al 1977a: 1), were undertaken for similar reasons stated more or less explicity.

Complex objectives have sometimes also been included among the commonly listed goals. An early example of this was cited in the case of Rocky Mountain House where the results of excavations were also to be considered in a contexual framework for interpreting the position and function of the site in relation to the fur trade as a whole and as an aspect of exploration in western Canada (Noble 1973: 63). More recently, the list of objectives to be attained by investigating Fort Epinette included the recovery of data to initiate a direct-historical approach to Beaver Indian history and prehistory, reconstruct ecological relationships and examine intra-site variability to determine the ethnic background and sex of the fort's occupants (Fladmark, Finlay and Spurling 1977: 281).

Review of Procedures

The value of a research strategy lies in presenting a clear guideline and rationale for all excavations and analytical activity that is subsequently undertaken. One of the more striking aspects of this review was that many projects had essentially similar objectives in determining site affiliation, antiquity, architectural characteristics and description of the artifactual remains, but the means by which these goals were obtained and reported upon were frequently diverse. Many of the archaeological investigations were initiated without clearly defined research strategies to

outline overall goals, state specific objectives and identify the archaeological processes necessary to achieve the desired results. Even though the objectives of different projects could be similar, a variety of excavation techniques and arbitrary sampling procedures were often utilized. Conversely, similar procedures have been reported from sites where the objectives were dissimilar. The procedures used in excavation and reportage can be briefly reviewed.

Very extensive excavations have been carried out at two sites in the Rocky Mountain House area (Noble 1973: 63, 64; Steer 1978, personal communication) and at Fort Carlton (Ian Dyck, Saskatchewan Museum of Natural History 1978, personal communication). Investigations at most other sites were moderate in scale of area exposed and arbitrary in the location of excavation units. Smaller excavations at Fort Fork, Hudson House and Fort Assiniboine obtained data for more limited objectives (Arnold 1972: i; Korvemaker 1977: 3; Clarke 1969: 29; Vickers 1976: 6).

The exposure of features at most sites was accomplished by hand, using shovels and trowels. Some mechanized earth-removal equipment, for example, graders, front-end loaders and, in one instance, a backhoe, had been used for surface stripping at Fort Carlton (Ranere 1967: 16, 19, 20), Buckingham House (Hurlburt and Nicks 1977: 4), Fort Assiniboine (Vickers 1976: 6), and in 1977 at Fort Victoria. Subsequent to surface stripping, shovel and trowel work was then employed. Artifact recovery was frequently augmented by screening the backdirt, either all of it or the soil from selected features. Screens with a fine mesh were used occasionally to recover small beads from backdirt samples at Fort George (Kidd 1970: 15), Edmonton House III, Buckingham House (Nicks 1969: 5) and at Sturgeon Fort (Barka and Barka 1976: 32). Fine trowel work was the only means of ensuring artifact recovery at Fort Epinette (Fladmark, Finlay and Spurling 1977: 284), La Loche House (Steer 1973: 21) and Fort Assiniboine (Vickers 1976: 7).

The structures and features encountered during excavation were presented in the reports in such a fashion as to indicate that a variety of methods had been used for recording and mapping. The diversity of the structural remains uncovered and the differences in describing these remains are a subject for review that may lead to some interesting conclusions.

That topic, however, may be investigated at a later time since the scope of this study is mainly to consider the importance of interpretations resulting from analysis of the material culture of the fur trade.

The treatment of artifacts in the reports was also highly variable. Many of the manuscripts provided detailed descriptions of the artifacts recovered. This was true of even early reports (Nicks 1969, Kidd 1970). One early manuscript, on Fort Carlton, which was primarily concerned with reconstruction, commented more briefly on the artifacts recovered. Nevertheless, references were still made to artifact diversity, frequency and importance to interpretation (Ranere 1967: 46,47). A more recent manuscript, on Fort Assiniboine, by not discussing the artifacts recovered, altogether ignored the contribution that artifact analysis could make towards answering similar questions on archaeological and reconstruction potential (Vickers 1976). And yet the author was still able to state, "There can be no doubt that further archaeological work is required at the site and that interesting results could be expected." (Vickers 1976:16).

Many authors implicity recognized the utility of formulating artifact groups but rarely was there any discussion on the significance or meaning of the classification employed. In many cases the groupings to which artifacts were assigned had a functional connotation. Glass trade beads, for example, along with other classes of artifacts were occasionally assigned to diverse groups such as 'Trade' or 'Personal and clothing'. Clearly, this indicates a variety of perceptions on the part of the authors with regard to the functions of the objects during their period of active circulation. This is not to say that any one point of view is incorrect. It is important to recognize, however, that artifacts have been described from different viewpoints and that a greater appreciation could be given to the researchers' results post facto if the authors had provided some rationalizing statement for their classification systems.

Some investigators circumvented the "functional" problem by assigning artifacts to categories identified by the type of material from which the objects were manufactured or the industry represented. Even in these attempts, however, the treatment of the entire artifact assemblages is seldom uniformly consistent. This inconsistent reportage leads to awkwardness for the comparative researcher.

The Sturgeon Fort report (Barka and Barka 1976) categorized artifacts into groups by material of manufacture and is the only report that is completely consistent in this regard.

The Fort Victoria reports by the University of Alberta Archaeological Field School provide a mixed artifact presentation (Losey et al 1977a, 1977b, in press). Some artifacts are categorized by industry, for example, "Metal", "Ceramics" and "Glass". Within some of these categories, sub-categories are occasionally established on a functional basis, implicity defined by the terms used. Under "Metal", for example, some of the listed sub-categories are 'Construction and Building', 'Gun Parts and Ammunition' which, incidentally, includes gun-flints; and 'Hardware' including dinner forks, pocket knives and crooked awls. Some artifacts, on the other hand, are classified by industry; "Buttons" for example, includes specimens of metal, glass, bone and shell.

The diversity of unexplained organizational systems used for classifying artifacts creates only one obstacle to the development of broad comparative studies. Other hurdles to be overcome lie in the diversified descriptions of artifact attributes in areas of mensuration and quantification.

Although many reports provide descriptive data on the artifacts recovered from excavations, the information is frequently presented in a manner that does not readily permit comparison with results from other sites. One of the most apparent distinctions is the lack of consistency in the act of mensuration. Although the Fort George publication (Kidd 1970) set an early precedent for reports on northwestern fur trade archaeology by presenting artifact measurements in metric terms, its example was not subsequently followed.

In the Rocky Mountain House publication by Noble (1973), most artifacts are described by using metric units, except for nails, which are reported in english units. The Sturgeon Fort report (Barka and Barka 1976) also use english and metric units as part of the artifact description, but here their use is even more indiscriminant. Nails are described in metric units; a glass bottle in english and metric "...about 2½ inches in body diameter and only 1 mm in thickness." (Barka and Barka 1976: 77), and

other artifacts such as buttons and pipes in english measurements only. At the other end of mixed usage, the Fort Victoria reports (Losey et al 1977a, 1977b) use english units for most artifact classes, except for beads, which were measured in millimeters and the faunal remains, which were weighed in kilograms.

Furthermore, not all investigators have been concerned about reporting the same attributes. Kidd (1970) and Nicks (1969) report the diameter and thickness of buttons down to tenths of a millimeter. Barka and Barka (1976: 74) record diameter and, occasionally, thickness of these items. Noble describes buttons to the nearest half millimeter (1973: 109ff). The report on excavations done at Fort Victoria in 1974 recorded button diameters in hundredths of an inch (Losey et al 1977a: 310-316), but in the report on the following year's excavations, button dimensions were given in sixteenths of an inch (Losey et al 1977b: 168-180).

There is also variable treatment in reporting the frequencies of artifacts recovered. In a section dealing with buttons, for example, an author might provide counts of the numbers of fragments found, but for another class of artifacts, the quantity of specimens would be totally ignored. Words and phrases such as "numerous" or "a number of" (Steer 1973: 23; Fladmark, Finlay and Spurling 1977: 290) are of limited use to a researcher who wants to compare the frequencies of certain classes of artifacts from one site to another. One stated excuse for such limited accounts was the use of artifactual and faunal data for providing graduate studies material (Fladmark 1976: 133).

Review of Results

Fur trade archaeology has mainly concentrated on major forts of the contact and early post-contact period. Many of these posts were fairly large, stockaded, cited in available historic documentation, frequently directed by a Factor and sometimes served as operational bases for further exploration by famous personages. Fewer archaeology projects have excavated minor posts such as small supply depots, transfer points, outposts, and forts occupied by minor companies and independent traders. In addition, little work has been reported on ancillary aspects of the fur trade, including contemporary native encampments and trapper's cabin sites.

Because of the lack of archaeological activity at these sites, the full range of information and its importance to a broad interpretation of the fur trade is still unknown.

Most of the research projects defined site-specific objectives and were successful in determining the age and identity of sites, recording structural remains and recovering samples of fur trade artifacts. Artifact data are sometimes tabulated and typologies presented, but these frequently indicate individual schemes for organization, description and reportage. Furthermore, analyses, syntheses of analyses, and interpretation are seldom provided. In this regard, Nicks' efforts (1969, 1970) have been notably successful because she did articulate a framework for interpreting the affiliation of other early fur trade sites. A sufficiently well-developed artifact trait list has been synthesized which permitted reinterpretation of Noble's results (1973) from Rocky Mountain House. This analysis concluded that the fort excavated by Noble was not the North West Company's Rocky Mountain House I but, instead, the Hudson Bay Company's Acton House (Nicks 1969: 127ff). This re-assessment has been subsequently verified by other excavations in the area (Steer 1978, personal communication).

Synthesizing Historic Archaeology Data

If public and professional interest is being expressed in broader questions on various themes of cultural and historical development, and their significance, then there is an obligation to attempt to answer these problems. Clearly, single-site investigations cannot hope to provide sufficient data for explaining phenomena of which the individual site is only one manifestation. A research design will be required to formulate questions, identify resources and define the procedures that will be necessary to achieve the objectives. Perhaps the most important effect of the research strategy is that data will have to be treated in a consistent manner, site to site, in order to provide comparative and synthesizable information. The compiled data and interpretive statements generated from such attempts could then also be used for developing new directions in thematic research.

Syntheses of archaeological data, whether site types, artifact types, or attribute categories, have been infrequent. One of the more recent attempts at synthesizing cross-site data has been reported by Stanley South (1977, 1978). Sites were categorized into two groups on the basis of some historical differences and on the basis of differences in artifact-class frequencies. The results provided quantifiable expressions which could be considered syntheses of the material culture phenomena which those sites represented.

By analogy, it appears to be possible to synthesize the artifactual data recovered from early fur trade sites into a composite assemblage profile which could then be called an "artifact pattern" for forts of the early fur trade period. The resulting profile would be a model for comparing artifact profiles from contemporaneous fur trade sites in the same region, and even from other settlement types. This application of the early fur trade profile would thereby become useful in explicitly describing a particular phase of economic development at one important time period, and could serve as a comparative research standard for further investigations.

FORMULATING THE EARLY FUR TRADE ARTIFACT PATTERN

Discussion

Fur trade sites of the contact period constitute a phase of Euro-Canadian exploration and enterprise which had broadly common objectives, resources and limitations. Excavations at such sites have exposed quantities of artifacts and structural remains which have been described in publications and manuscripts. Information from some of these excavations has been synthesized into an artifact pattern that is representative of the period. In order to explain how this was accomplished, the major assumption and procedures are here defined.

The major assumption focuses on the comparability of artifact samples. Several sites were excavated under the direction of investigators with diverse experience, over a range of years and with a variety of techniques. The effect of these differences on the recovery of artifacts and the representativeness of the samples cannot be accurately estimated. In order to provide a workable data base for this study, the writers assumed that

those projects which recovered more than 1,000 artifacts did obtain representative, and therefore comparative, artifact samples.

A second problem pertaining to artifact comparisons was evident in the fact that many workers had categorized artifacts according to individual, and sometimes very different, schemes. In other words, comparisons at a group-level of organization could not be carried out until all of the artifacts were re-classified according to a single framework. Any of the frameworks used by the researchers might have been employed for this purpose, but the outline developed by Stanley South (1977), which permits even broader comparisons, was selected. Re-classification was based on available documentation rather than on re-examination of the artifacts. Difficulties with some of the artifact descriptions may have led to errors in re-classification, but these were presumed to be few and were estimated to amount to less than one percent of the total artifact assemblage from each site. Objects which could not readily be classified under South's system were not enumerated in the reorganized population.

All of the artifactual data had to be quantifiable. Those site reports which enumerated only some of the artifacts and described the rest by such terms as "numerous" or "many" could not be used in a statistical analysis approach.

The criteria governing the material culture information which could by synthesized effectively cut the number of useful site reports down to seven, covering six sites. These included Rocky Mountain House (data combined from Noble 1973; Steer and Rogers 1976), Fort George (Kidd 1970), Edmonton House III, Buckingham House (Nicks 1969), Sturgeon Fort (Barka and Barka 1976) and the Francois LeBlanc Post (Kehoe 1963).

Using this data core, the writers then tabulated the frequencies and percentages of artifacts in each group for the total site sample. The percentages of artifacts in each group were then considered to form the assemblage profile for that site. For a number of sites of similar historical derivation, function and time period in this example, the early fur trade sites, the percentages for the eight artifact groups could be averaged across the six sites. The resulting synthesis was then viewed as a site-type profile or pattern. The assemblage profiles for the six fur trade sites and the composite profile are illustrated in Tables 6,7.

TABLE 6: ARTIFACT ASSEMBLAGE PROFILES FOR SIX EARLY FUR TRADE SITES

Artifact Group	Noble 1963, Steer & Rogers 1976: Rocky Mountain House (1799-1821) N(%)	Kidd 1970: Fort George (1792-1800) N(%)	Nicks 1969: Buckingham House (1792-1800) N(%)	Nicks 1969: Edmonton House III (1810-1813) N(%)	Barka & Barka 1976: Sturgeon Fort (1776-1780) N(%)	Kehoe 1963: Francois Leblanc Post (1769-1778) N(%)
Kitchen	56(0.48)	840(3.24)	163(11.19)	205(11.45)	18(0.42)	15(1.07)
Architecture	146(1.22)	873(3.36)	326(22.39)	123(6.87)	143(3.36)	50(3.57)
Furniture	1(0.01)	6(0.02)	0(0)	3(0.17)	2(0.05)	1 (0.07)
Arms	235(1.97)	832(3.21)	77(5.29)	197(11.00)	143(3.36)	33 (2.36)
Clothing	11,102(93.07)	21,018(81.00)	612(42.03)	739(41.26)	2,352(55.17)	1,126(80.49)
Personal	12(0.10)	217(0.84)	11(0.76)	170(9.49)	1,518(35.60)	35(2.50)
Tobacco	200(1.67)	759(2.92)	184(12.64)	252(14.07)	12(0.28)	72(5.15)
Activities	177(1.48)	1,404(5.41)	83(5.70)	102(5.69)	75(1.76)	67(4.79)
Total	11,929(100.00)	25,949(100.00)	1,456(100.00)	1,791(100.00)	4,263(100.00)	1,399(100.00)

TABLE 7: THE EARLY FUR TRADE ARTIFACT PATTERN

Artifact Group	Mean	Percentage Range
Kitchen	4.64	0.42-11.45
Architecture	6.79	1.22-22.39
Furniture	0.05	0- 0.17
Arms	4.54	1.97-11.00
Clothing	65.50	41.26-93.07
Personal	8.22	0.10-35.60
Tobacco Pipes	6.12	0.28-14.07
Activities	4.14	1.48- 5.70
Total	100.00	

Research Design for Artifact Pattern Comparisons

Once the Early Fur Trade pattern had been formulated, it was immediately obvious that there was some divergence from the Carolina and Frontier (Architecture) patterns. It was not apparent, however, that these differences were significant, and a question remained as to whether or not a totally new pattern had been identified. Furthermore, although South had recognized certain significant artifact group differences between his two patterns, his exposition did not include a statistical test of significance to compare the overall patterns. The statistical power, however, is available to undertake such a test and the application of this technique is of importance to archaeological science.

We had derived the Early Fur Trade pattern from six sites as previously detailed. To begin the testing procedure, we first attempted to compare and test the overall patterns of the Carolina, Frontier and the proposed Fur Trade pattern. As the particular techniques used to derive the present patterns were not statistically robust, we employed a non-parametric test which would allow basic data, which may not have met the requirement of parametric statistical testing, to be compared. The Kendall's Coefficient of Concordance Test, W, (Seigel 1956: 229-239) was chosen. The Coefficient of Concordance W test is a measure or a test to define the relationship among several ranks of any objects or individuals or in this case, synthesized assemblage profiles from samples of archaeological sites. In fact, as stated by Siegel (1956: 229), "Such a measure may be particularly useful in the studies of interjudge or interest reliability, and also has applications in studies of clusters of variables," which was exactly the problem we had developed. If the value of X^2 (Chi-square) was found to equal or exceed 14.07 (at a 0.05 level of significance) then we could reject the null hypothesis (H_0) that the three patterns are unrelated (overall). Our calculated W was equal to 0.589 and our calculated X^2 was 12.37 with 7 degrees of freedom. Thus, we were unable to reject the null hypothesis and we accept that the three patterns appeared to be unrelated. Table 8 illustrates the basic ranked table.

TABLE 8: OVERALL PATTERN TEST - CAROLINA VERSUS FRONTIER VERSUS FUR TRADE

	Kitchen	Architecture	Furniture	Arms	Clothing	Personal	Tobacco	Activities
CAROLINA	1	2	7.5	6	4	7.5	3	5
FRONTIER	2	1	7.5	4	6	7.5	3	5
FUR TRADE	5	3	8.0	6	1	2.0	4	7

We concluded that a basis was established for a new pattern, which we term the Early Fur Trade Artifact Pattern. To establish more thoroughly the existence of a new pattern, it was also important to compare the Early Fur Fur Trade Artifact pattern with the Carolina and the Frontier patterns individually. Again, we chose a non-parametric form of statistical test, the Kendall's Rank Correlation Coefficient Test, (Siegel 1956: 213-223). Table 9 shows the artifact group mean percentages and rankings for the Carolina and the Fur trade patterns, and also compares the rankings for the Frontier and Fur Trade patterns. The null hypothesis, H_0, stated the two artifact patterns are unrelated and the alternate hypothesis, H_1, stated that the two artifact patterns are related.

The statistical computations for the Carolina and Fur Trade patterns relationships produced p = 0.274. In order to reject the null hypothesis at the 0.05 level of significance "p" must have a value less than or equal to 0.05. But because the test value of "p" was greater than that, we had to accept the null hypothesis and conclude that the two artifact patterns were unrelated.

The Frontier and Fur Trade pattern relationships computed "p" to be 0.360, and therefore, these two patterns were also significantly distinct.

As testing had not been applied by South as an examination of overall pattern differences or similarities, it was decided, in addition, to test the Carolina and Frontier patterns using the same technique. Table 8 shows the relationships.

These statistical computations showed "p" to equal 0.012 which allowed us to reject the null hypothesis of unrelated patterns. Thus we concluded that the data presented by South (1977) on the Carolina and Frontier patterns, as defined, are not two distinct patterns overall. The distinction is apparent only when the specific artifact group differences are examined, as South has done.

TABLE 9: RANKING OF ARTIFACT GROUPS

	Kitchen	Architecture	Furniture	Arms	Clothing	Personal	Tobacco	Activities
A. CAROLINA AND EARLY FUR TRADE ARTIFACT PATTERNS								
CAROLINA								
Mean	(63.1)	(25.5)	(0.2)	(0.5)	(3.0)	(0.2)	(5.8)	(1.7)
Ranking	1	2	7.5	6	4	7.5	3	5
EARLY FUR TRADE								
Mean	(4.64)	(6.79)	(0.05)	(4.54)	(65.50)	(8.22)	(6.12)	(4.14)
Ranking	5	3	8	6	1	2	4	7
B. FRONTIER AND EARLY FUR TRADE ARTIFACT PATTERNS								
FRONTIER								
Mean	(27.6)	(52.0)	(0.2)	(5.4)	(1.7)	(0.2)	(9.1)	(3.7)
Ranking	2	1	7.5	4	6	7.5	3	5
EARLY FUR TRADE	(4.64)	(6.79)	(0.05)	(4.54)	(65.50)	(8.22)	(6.12)	(4.14)
	5	3	8	6	1	2	4	7
C. OVERALL PATTERN TEST - CAROLINA VERSUS FRONTIER								
CAROLINA (X)	(63.1)	(25.5)	(0.2)	(0.5)	(3.0)	(0.2)	(5.8)	(1.7)
	1	2	7.5	6	4	7.5	3	5
FRONTIER (Y)	(27.6)	(52.0)	(0.2)	(5.4)	(1.7)	(0.2)	(9.1)	(3.7)
	2	1	7.5	4	6	7.5	3	5

It seemed important that when a pattern composed of eight specific variables was compared to any other pattern, the question became, "Would it be sufficient to compare the unique elements of the proposed pattern rather than establishing an overall pattern test?" We felt that, logically, we had to test for overall difference or similarity before comparing internal pattern elements individually.

A second statistical problem to consider was that researchers often have not chosen the proper statistical technique for appropriate analysis of data. This difficulty frequently arises when researchers assume that all data meet the rigorous standards required by parametric statistical techniques. So, rather than attempting to "push" our data through parametric manipulations, we selected almost-equivalent non-parametric techniques which in fact do not lose much appreciable statistical power.

It has not been our intention to examine the specific differences and overall similarities of the Carolina and the Frontier Artifact Patterns. Rather, we have attempted to identify a new artifact pattern, here called the Early Fur Trade Artifact Pattern, and to use a mathematical tool to aid in distinguishing this pattern from other patterns on an overall basis. Having done so, we could then ask, "What groups of artifacts contributed to forming the distinctive character of this pattern, and how could the frequencies represented in those groups be accounted for?"

Clearly, the Clothing group of artifacts was numerically the most important group for all six sites, and the Furniture group exhibited the lowest frequencies. Examination of the clothing group quickly identified glass beads as the dominant class, constituting 99 percent of the group for all six sites. Other artifact groups, including Kitchen, Architecture, Arms, Personal and Tobacco Pipes, each represented at least ten per cent of an assemblage profile at one site or another.

Interpretation and Hypotheses

The low representation of the Kitchen and Architecture groups, in comparison to the Carolina or the Frontier Artifact patterns, could be interpreted as representing a rapid and exploratory phase of development, with a definite lack of commitment to settlement. It could be argued that, during the contact period of the fur trade in the Canadian northwest,

there was no conscious attempt to visualize the activity as anything other than as an extractive and temporary industry. The most commonly occurring artifacts were small, easily portable and could be considered to have some personal or trade value. One of the interesting aspects of the Early Fur Trade pattern is that it appeared to hold true for a time period from 1769 to 1821, over an immense territory that was occupied by a variety of native tribes, and for sites that were managed by independent traders, by the North West Company or by the Hudson's Bay Company.

Although the foregoing interpretation may not be entirely correct or fully explain why the pattern existed, it nevertheless can serve as the basis for generating hypotheses and for undertaking more detailed investigation of specific artifact class frequencies among sites.

It would also be instructive to compare data from other early fur trade sites located elsewhere, and from later fur trade sites in the same area in order to test the stability of this pattern.

Conclusions

It has been demonstrated that, for six contact period fur trade sites, there was a constant articulation of artifact groups to the extent that a pattern could be identified and defined in mathematical terms. This pattern was recognized in spite of the fact that the sites had been excavated by a number of archaeologists, frequently with different techniques and objectives in mind. The Early Fur Trade Artifact Pattern does constitute a synthesis sufficiently close to each of the individual sites that it can be considered as a reflection of a single cultural phenomenon. In this regard, it represents a contribution towards the broader definition of a major historical period. The demonstration of the existence of the Early Fur Trade material culture pattern also provides one basis for undertaking further archaeological research into this period, particularly to examine the cultural processes tied to the manifestation of this profile, and their changes and permutations.

The key to undertaking such analyses, as South has emphasized (1977: 31ff), is the use of quantifiable approaches. We have attempted to offer one viable statistical approach to site pattern recognition. These efforts are but a start towards the identification and examination of artifact

patterns and cultural processes, and we welcome all contributions our colleagues can make to advance this most challenging aspect of archaeological science.

APPENDICES

These data were used in formulating the Early Fur Trade Artifact Pattern and are here included for comparison.

APPENDIX 1-1

Artifact Group and Class	Rocky Mountain House N	%	Fort George N	%	Buckingham House N	%
KITCHEN GROUP						
1. Ceramics	14		58		26	
2. Wine, champagne bottles	--		85		41	
3. Other beverage bottles: liquor, beer, etc.	27		122		78	
4. Tumblers	--		6		1	
5. Pharmaceutical, spices	5		133		10	
6. Glassware, stemware, decanters	--		3		--	
7. Tableware, cutlery, knives, forks, etc.	2		22		2	
8. Kitchenware: tin cups, pots, pans, buckets, trivets, etc.	8		411		5	
Total KITCHEN	56	0.48	840	3.24	163	11.19
9. Bone	--		--		--	
ARCHITECTURE GROUP						
10. Window glass	--		--		--	
11. Nails	144		852		323	
12. Spikes	--		12		3	
13. Construction hardware: hinges, staples, etc.	2		9		--	
14. Door lock parts, door knob, catches, etc.	--		--		--	
Total ARCHITECTURE	146	1.22	873	3.36	326	22.39

Appendix 1-1, continued

Artifact Group and Class	Rocky Mountain House N	%	Fort George N	%	Buckingham House N	%
15. FURNITURE GROUP: Hinges, locks, brasstacks, drawer pulls, etc.	1	0.01	6	0.02	--	--
ARMS GROUP						
16. Balls, shot, sprue, lead stock, waste	217		629		35	
17. Gunflints, spalls	14		146		37	
18. Gunparts, bullet molds	4		57		5	
Total ARMS	235	1.97	832	3.21	77	5.29
CLOTHING GROUP						
19. Buckles	1		20		--	
20. Thimbles	--		6		--	
21. Buttons, cuff links	33		73		7	
22. Scissors	--		2		--	
23. Straight pins, needles, etc.	7		20		2	
24. Hook and eye	--		2		--	
25. Bale seals	8		1		1	
26. Glass beads	11,053		20,894		602	
Total CLOTHING	11,102	93.07	21,018	81.00	612	42.03
PERSONAL GROUP						
27. Coins	--		1		--	
28. Keys	--		--		--	
29. Mirror glass, combs, etc.	12		216		11	
Total PERSONAL	12	0.10	217	0.84	11	0.76
30. TOBACCO PIPE GROUP	200	1.67	759	2.92	184	12.64

Appendix 1-1, continued

Artifact Group and Class	Rocky Mountain House N	%	Fort George N	%	Buckingham House N	%
ACTIVITIES GROUP						
31. Construction tools: files, etc.	16		141		5	
32. Farm tools: hoes, shovels, etc.	--		--		--	
33. Toys: marbles, doll parts, etc.	--		--		--	
34. Fishing gear, trapping	3		6		--	
35. Stub-stemmed pipes	--		--		--	
36. Native industries	41		224		22	
37. Crocks, tin cans, etc.	82		808		19	
38. Botanical, nuts, seeds	--		--		--	
39. Horse tack, wagon parts	2		31		--	
40. Miscellaneous hardware: rivets, etc.	3		33		11	
41. Specialized activities	30		161		26	
42. Military objects	--		--		--	
Total ACTIVITIES	177	1.48	1404	5.41	83	5.70
TOTAL (less bone)	11,929	100	25,949	100	1,456	100

APPENDIX 1-2

Artifact Group and Class	Edmonton House III N	%	Sturgeon Fort N	%	Francois LeBlanc Post N	%
KITCHEN GROUP						
1. Ceramics	18		3		1	
2. Wine, champagne bottles	83		--		--	
3. Other beverage bottles: liquor, beer, etc.	84		6		--	
4. Tumblers	9		--		--	
5. Pharmaceutical, spices	5		8		10	
6. Glassware, stemware, decanters	--		--		--	
7. Tableware, cutlery, knives, forks, etc.	3		1		4	
8. Kitchenware: tin cups, pots, pans, buckets, trivets, etc.	3		--		--	
Total KITCHEN	205	11.45	18	0.42	15	1.07
9. Bone						
ARCHITECTURE GROUP						
10. Window glass	--		--		--	
11. Nails	122		142		50	
12. Spikes	--		--		--	
13. Construction hardware: Hinges, staples, etc.	1		--		--	
14. Door lock parts, door knob, catches, etc.	--		1		--	
Total ARCHITECTURE	123	6.87	143	3.36	50	3.57
15. FURNITURE GROUP: Hinges, locks, brasstacks, drawer pulls, etc.	3	0.17	2	0.5	1	0.07

Appendix 1-2, continued

Artifact Group and Class	Edmonton House III N	%	Sturgeon Fort N	%	Francois LeBlanc Post N	%
ARMS GROUP						
16. Balls, shot, sprue, lead stock, waste	170		134		20	
17. Gunflints, spalls	25		8		10	
18. Gunparts, bullet molds	2		1		3	
Total ARMS	197	11.00	143	3.36	33	2.36
CLOTHING GROUP						
19. Buckles	--		1		--	
20. Thimbles	--		--		--	
21. Buttons, cuff links	23		8		2	
22. Scissors	--		--		--	
23. Straight pins, needles, etc.	5		4		3	
24. Hook and eye	1		--		1	
25. Bale seals	4		1		1	
26. Glass beads	706		2,338		1,119	
Total CLOTHING	739	41.26	2,352	55.17	1,126	80.49
PERSONAL GROUP						
27. Coins	--		--		--	
28. Keys	--		--		--	
29. Mirror glass, combs, etc.	170		1,518		35	
Total PERSONAL	170	9.49	1,518	35.60	35	2.50
30. TOBACCO PIPE GROUP	252	14.07	12	0.28	72	5.15

Appendix 1-2, continued

Artifact Group and Class	Edmonton House III N	%	Sturgeon Fort N	%	Francois LeBlanc Post N	%
ACTIVITIES GROUP						
31. Construction tools: files, etc.	5		2		1	
32. Farm tools: hoes, shovels, etc.	--		--		--	
33. Toys: marbles, doll parts, etc.	--		--		--	
34. Fishing gear, trapping	1		1		--	
35. Stub-stemmed pipes	--		--		--	
36. Native industries	27		55		51	
37. Crocks, tin cans, etc.	10		6		--	
38. Botanical, nuts, seeds	--		--		--	
39. Horse tack, wagon parts	1		3		--	
40. Miscellaneous hardware: rivets, etc.	10		1		1	
41. Specialized activities	48		7		14	
42. Military objects	--		--		--	
Total ACTIVITIES	102	5.69	75	1.76	67	4.79
TOTAL (less bone)	1,791	100	4,263	100	1,399	100

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