ARCTIC
VOL. 32, NO. 4 (DEC. 1979), P. 355-365

Recent Ethnographic Research — Upper Churchill River Drainage, Saskatchewan, Canada

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ABSTRACT. Recent developments in ethnographic research in the Upper Churchill River drainage of northwestern Saskatchewan are reviewed. These include an analysis of the spatial organization of trapping economics, and an examination of behavioral responses to current technological impact (particularly housing, imported food and machinery, and new roads) in a southern Chipewyan community. Although high-income trappers generally exploit the largest trapping areas at the greatest distances from a primary settlement, the increasing congregation of short-distance trappers near the village may be exacerbating ecological and economic instability associated with new consumer goods and purchasing habits. Another direction of research involves analysis of economic and social interactions between Chipewyan and Cree communities that shed light upon processes of inter-tribal communication, symbiosis, enmity and identity management.

INTRODUCTION

During the summer field seasons of 1975 and 1977 faculty and graduate students from the State University of New York at Albany Department of Anthropology, in conjunction with the Urgent Ethnology Programme of the National Museums of Canada, conducted team research projects focusing on changing ecological and cultural conditions in Chipewyan and Cree Indian communities in the Upper Churchill River drainage of northwestern Saskatchewan (Fig. 1).

Spatial Mobility and Subarctic Trapping Economies

The regionally-based team investigations of recent years are an outgrowth of an earlier study of the ecology and spatial organization of the Chipewyan community of Patuanak, Saskatchewan (Jarvenpa, 1975). The latter work, based upon research conducted during 1971-72, emphasizes the geographical mobility of commercial fur trappers and fishermen as a variable for explaining the organization of economic-subsistence cycles and ongoing processes of settlement pattern change (Fig. 2). In particular, a locational analysis of the trapping economy reveals the positive linear relationship between selected "performance" variables (numbers of animals captured and cash income) and "locational" variables (trapping area size, distances traveled between settlements and bush camps, and distances between neighboring trappers) for a population of 76 trappers. Presently, trapping performance varies positively with trapping area size and linear distance from the largest settlement. The Pearson correlation coefficients in Table 1, for example, indicate the degree of

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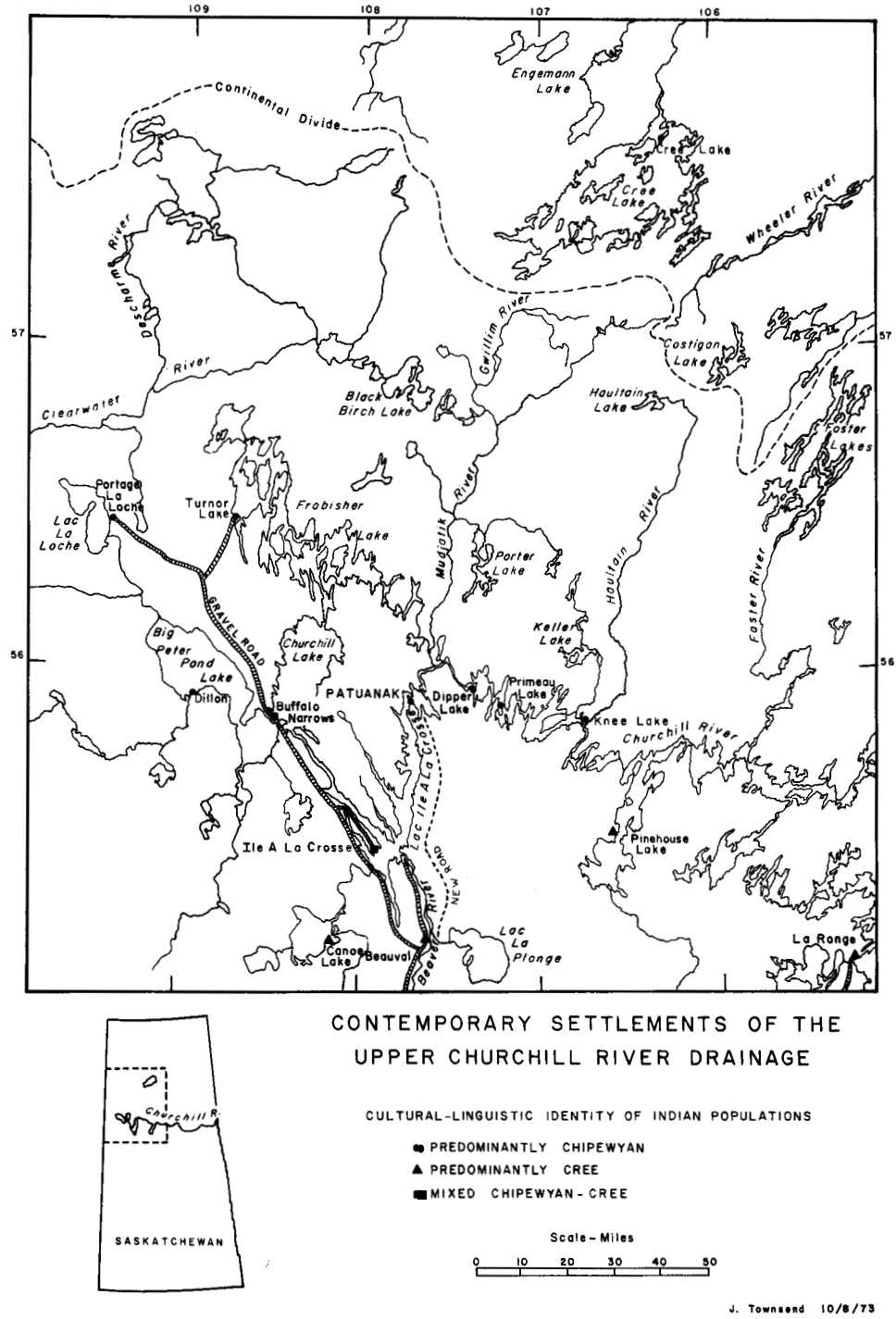

FIG. 1. Contemporary settlements of the Upper Churchill River drainage.

FIG. 2. A long-distance trapper from Patuanak constructs a log-pen set for lynx (late October).

linear relationship between the annual cash incomes derived from 14 fur-bearing species on the one hand and a range of structural and locational characteristics of 31 trapping teams (team size, trapping area size, number of base camps, distance of trapping area from primary settlement, distances between neighboring teams, etc.) on the other hand. The high positive associations between trapping area size and total cash income (+ .66), and between trapping area distance from primary settlement ("farthest point") and total cash income from fur (+ .55), are notable. Although many other variables complicate the situation, there is a tendency for productive Patuanak trappers to earn high incomes by exploiting large trapping areas at great distances from the settlement. The spatial organization of economic production is complicated by variable social adaptations in the trapping work force which are in part the result of compromises and adjustments between traditional family-camp organizations and emerging all-male partnerships (Fig. 3). In addition, participation in a market economy cannot be viewed apart from the context of community definitions of trapping success. While the southern Chipewyan continue to accord a positive, respected image to trapping activity, it is clear that simple productivity or earning ability do not translate easily into measures of personal worth. Individuals and families cannot maintain their integrity in the community without participation in a reciprocal flow of money, goods and services. Thus, a Patuanak trapper of average ability who can provide for his family and also share food and possessions with others is truly successful by community standards (Jarvenpa, 1976a, 1977).

Table 1. Correlations Between Team Trapping Performance and Location[a]

Income variables	Age	Team Size	Trapping area	Overlap (N)	Overlap (A)	Camps	Nearest point	Farthest point	Nearest neighbor	Farthest neighbor
Spatial variables										
Bear	.15	−.09	−.14	−.23	−.18	−.11	−.08	−.20	−.06	.23
Beaver	−.23	.78	.54	.27	.23	.53	.40	.52	.14	.01
Coyote	−.19	.42	.19	.39	.38	.22	−.08	.06	−.03	−.26
Fisher	−.12	−.08	.54	.03	−.16	.31	.07	.26	.06	−.002
Fox	−.27	.49	.47	.27	.16	.32	.36	.45	.27	.14
Lynx	−.47	.62	.59	.41	.06	.58	.33	.53	.13	−.19
Marten	.03	−.19	−.12	−.13	−.11	−.14	−.10	−.14	.006	−.003
Mink	−.27	.56	.57	.30	.09	.53	.23	.39	−.004	−.02
Muskrat	−.03	.52	.49	.25	.26	.61	.28	.37	−.04	.13
Otter	−.42	.38	.67	.18	−.09	.43	.45	.63	.33	−.15
Squirrel	.09	.35	.17	−.13	−.15	.12	−.18	−.08	−.19	−.07
Weasel	−.28	.23	.24	.32	−.12	.35	−.03	.11	−.18	−.18
Wolf	.01	−.09	.74	−.14	−.12	.24	.23	.46	.18	.17
Total Pelts	−.11	.64	.59	.24	.19	.65	.27	.43	−.02	−.07
Total Fur Income	−.36	.69	.66	.36	.13	.63	.37	.55	.10	−.07

[a]Pearson product-moment correlation coefficient. Number of cases: 31.

Technological Stress and Response

In 1975, field research was once again based in Patuanak. The study examined behavioral responses to three prominent forms of technological impact which have affected the southern Chipewyan and many other subarctic Indian communities in recent years: government-sponsored housing, imported food and machinery, and roads supporting vehicular traffic. The nature of this impact can be understood in part by tracing the rapid acceptance and spread of innovations. For example, in a mere three or four years (1971 to 1975) the Patuanak Chipewyan increased the population of their primary settlement by 12% (from 438 to 491 residents), primarily through emigration from smaller villages, and they altered Patuanak's physical structure with a 20% expansion in the number of dwellings (from 59 to 71 households). At the same time locally procured food animals became less prominent in the diet whereas purchases of store food rose correspondingly. For families sampled, this involved an estimated decline in the per capita consumption by weight of "bush food" from 477.2 kilograms in the 1971-72 period to 294.8 kilograms in 1974-75. As indicated in Table 2, reduction in the use of major food mammals accounted for the largest proportion of this decline, whereas per capita consumption of locally extraced bird species increased, and consumption of fish remained fairly constant. In addition to the increased expenditures for commercial foodstuffs, a variety of new, imported furnishings and appliances became common household possessions along with a general proliferation in the acquisition and use of costly new models in

snowmobiles and outboard motors. During the same period the first automobiles appeared in the community as harbingers of an all-weather road (Fig. 1) which was nearing completion in 1977. The road connects Patuanak to Provincial Road 155 and, in turn, to larger roads and the populated areas of southern Saskatchewan. As such, the road connection is a precursor to current developments in television and telephone service which also represent technical changes in communications.

Interpretation of the descriptive materials on Chipewyan technological change is in a preliminary stage and will be revised as new data emerge. Most of the material innovations discussed can be interpreted as externally-derived perturbations or jolts that result in a variety of behavioral re-organizations within the local Chipewyan population. Thus, technological impact also should be seen as a process articulating local ecosystem with regional and continental market systems, local community with provincial and national governments. It is hoped that continuing study will shed light on the recent history of population nucleation and service centralization among southern Chipewyan groups. The intensification of these related processes in the last 30 years contributed to an increased dependency of the Patuanak Chipewyan upon the agents and agencies of Euro-Canadian institutions and governments. Into this circumscribed economic milieu is now injected a veritable flood of manufactured consumer goods. The local demand for imported technology is heavy, and thus begins a chain of mutually accelerating forces in production

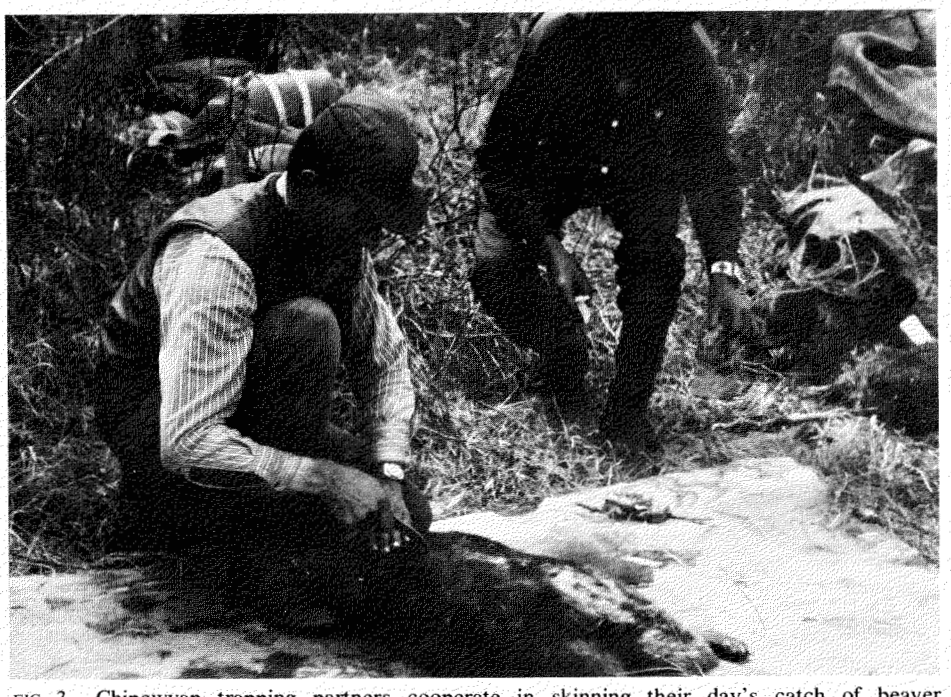

FIG. 3. Chipewyan trapping partners cooperate in skinning their day's catch of beaver (mid-May).

TABLE 2. WEIGHT OF LOCALLY EXTRACTED FOODS IN THE DIET OF SELECTED PATUANAK FAMILIES FOR THE 1971-72 AND 1974-75 PERIODS*

FOOD RESOURCES	TOTAL WEIGHT IN KG. 1971-72	TOTAL WEIGHT IN KG. 1974-75	ANNUAL PER CAPITA CONSUMPTION (IN KILOGRAMS) FOUR FAMILIES (35 PEOPLE) 1971-72	ANNUAL PER CAPITA CONSUMPTION (IN KILOGRAMS) THREE FAMILIES (15 PEOPLE) 1974-75
MAMMALS	12,563.1	2,942.7	358.7	196.1
Moose	(5,454.5)	1,818.2	155.8	121.2
Woodland caribou	(568.2)	61.3	16.2	4.1
Mule deer	(286.4)	0	8.2	0
Black bear	(2,400.0)	211.4	68.5	14.1
Lynx	(681.8)	87.3	19.5	5.8
Beaver	(1,431.8)	531.8	40.9	35.5
Muskrat	(1,079.5)	153.6	30.8	10.2
Porcupine	(47.3)	10.9	1.3	.7
Snowshoe rabbit	(613.6)	68.2	17.5	4.5
FISH	2,921.8	1,010.5	83.3	67.3
Whitefish	(863.6)	229.5	24.6	15.3
Tullibee	(609.1)	0	17.4	0
Pickerel	(443.2)	227.3	12.6	15.1
Jackfish	(600.0)	240.0	17.1	16.0
Lake Trout	(210.0)	125.5	6.0	8.4
Common suckers	(88.6)	115.9	2.5	7.7
Red suckers	(102.3)	68.2	2.9	4.5
Grayling	(2.7)	4.1	.08	.3
Maria	(2.3)	0	.06	0
BIRDS	539.1	403.1	15.3	26.8
Ducks	(245.5)	374.5	7.0	24.9
Geese	(40.9)	1.8	1.14	.12
Swans	(22.7)	0	.64	0
Seagulls	(136.4)	0	3.9	0
Loons	(15.5)	2.7	.41	.18
Spruce grouse	(25.9)		.73	
Ruffed grouse	(24.5)	/5.0/	.68	/.33/
Ptarmigan	(19.1)	19.1	.55	1.3
Owls	(.9)	0	.02	0
Bald eagle (immature)	(3.2)	0	.09	0
Sandhill crane	(4.5)	0	.13	0
PLANT FOODS	676.8	65.0	19.3	4.32
Blueberries	345.0	24.1	9.8	1.59
Low bush cranberries	197.3	8.6	5.6	.59
Raspberries	65.4	12.3	1.9	.82
Saskatoon berries	47.7	0	1.36	0
Gooseberries	21.4	8.2	.59	.55
High bush cranberries	0	11.8	0	.77
TOTALS	16,700.8	4.421.3	477.2	294.8

TABLE 2. — (Cont'd.)

PROPORTION OF EXTRACTED FOODS IN DIET

1971-1972		1974-1975	
Mammals	75.3%	Mammals	66.6%
Fish	17.5	Fish	22.8
Birds	3.2	Birds	9.1
Plants	4.0	Plants	1.5
TOTAL	100.0%		100.0%

*The weight measures reported here were converted from estimated quantites of locally extracted mammal, fish, bird and wild plant foods consumed by sample Patuanak families participating in an intensive subsistence ecology questionnaire. Due to widespread distribution of food through reciprocal exchanges, however, households do not consume precisely what they procure from the environment. Sharing of large mammals like moose is pervasive. Certain foods not reported here enter the diet sporadically in the summer months in the form of spur-of-the-moment snacks. These include the eggs of ducks and seagulls, birch sap, spruce gum, the inner pithy core near the base of the bulrush, and several kinds of berries which generally are not stored but literally eaten "off the bush" (strawberries, saskatoon berries, choke cherries).

and consumption which tax the limits of the local environment and the cash economy. This system of stresses and responses appears to be arranged in a series of positive feedback or deviation-amplifying loops tentatively outlined below:

1) Settlement nucleation decreases the absolute size of the band's ecosystem placing stress upon fish and mammal populations needed for subsistence and trade. Emigration of families from the villages of Dipper Lake, Primeau Lake and Knee Lake (Fig. 1) has accounted for much of Patuanak's growth in recent years;

2) Decreased returns from subsistence activity encourage the consumption of growing supplies of store food. The use of imported food, in the absence of alternative forms of employment, stimulates additional extractive pressure on commercial fur bearers and fish to generate funds for paying off mounting debts in the stores;

3) Snowmobiles replace dog teams as a means of improving the time/distance requirements in travel, but limits of movement actually are confined to smaller spatial ranges. Winter trapping and hunting stress on the local environment is thereby accentuated. For example, during the fall and winter of 1971-72 in the Patuanak fur block (N-16) 76 trappers were organized into 31 teams operating in 31 relatively discrete trapping areas. These areas were distributed along a linear distance of 155 km north-south, and 100 km east-west. Only two teams occupied areas wholly within a 16 km radius of the central community of Patuanak. By way of contrast, during the 1974-75 season 71 trappers were organized into 34 teams occupying only 17 relatively discrete trapping areas. These areas were distributed within a smaller range encompassing 125 km north-south and 81 km east-west. The reduction in the

number of discrete trapping areas resulted from a rather dramatic "bunching up" of 19 trappers within one 260 km² district within which no clear segregation of team or individual traplines emerged. This region lay within 16 km of Patuanak, and the trappers were able to return to the village on a daily basis thereby eliminating overnight stays and bush camp maintenance. Eight of these short-distance trappers were organized into genuine teams or partnerships, but 11 were "loners" or independent operators.

4) A general desire to keep pace with engineering and styling changes in snowmobiles and outboard motors requires large monetary investments (Fig. 4). Over-extension of credit may be resolved by welfare supplements or by stepping up production of trapping and fishing. Degradation of the environment is furthered;

5) Settlement expansion involves large financial expenditures for new housing (particularly for non-Treaty or Metis families) and for the growing complex of furnishings and appliances now considered appropriate in domestic life. The response again is channeled to support from social welfare payments, unemployment assistance or to production from the local environment (Jarvenpa, 1976b).

Other materials gathered during the 1975 field season are related to the general focus on techno-economic adaptation. These included questionnaire responses from female informants regarding changing economic roles of women and a writing and art project for school students to retrieve children's attitudes regarding the impact of the road and their future work roles as adults.

FIG. 4. New models in snowmobiles are objects of community-wide interest and enthusiasm.

FIG. 5. An emerging arena of Chipewyan/Cree relations: a Chipewyan family sets up camp near a neighboring Cree community during a summer recreational festival.

Chipewyan/Cree Relations

In 1977, field research in the Upper Churchill drainage was designed as a regional, multi-community investigation of Chipewyan/Cree inter-ethnic relations. Historically, the headwaters of the Churchill River supported intensive fur trading activity. The late eighteenth century rivalry between Montreal-based companies and the Hudson's Bay Company was responsible for drawing some Chipewyan groups southward into the full boreal forest (Gillespie, 1975; Smith, 1975). Along the Athabasca and Churchill river systems the Chipewyan came into contact with Cree populations that had been moving westward with the expanding fur trade. As such, the area became part of the western contact zone between Athapaskan-speaking and Algonkian-speaking Indian groups. The general goal of the research was to gather information concerning contemporary economic and social interactions between Chipewyan and Cree communities that would be useful in understanding processes of inter-tribal or inter-ethnic communication, symbiosis, enmity and identity management.

Investigators were distributed among four settlements forming nodes along a well-traveled network of skiff, snowmobile and bush plane routes. These included the small, culturally homogenous community of Patuanak and the predominantly Cree village of Pinehouse Lake. Also included were the larger, more cosmopolitan centers of Ile à la Crosse and Beauval. The latter contain some Chipewyan residents and considerable numbers of transient white workers but are characterized mainly by Non-Treaty or Metis Cree.

Some of the preliminary analysis of the field materials involves problems in ethnic boundary maintenance and conflicts between social reality and out-group imagery (Jarvenpa, 1978). For example, many transactions between Chipewyan and Cree are of a cooperative or symbiotic nature (Fig. 5). This is particularly the case in magico-medicinal relations where elderly Chipewyan clients seek out the curing or divinatory services of Cree curers and soothsayers. However, Chipewyan attitudes and assessments of their Cree neighbors are highly variable and laden with much negative imagery. In part, it can be argued that this ambivalent ethnic stereotyping is an ideological commentary upon past behavior; the Chipewyan/Cree historical experience in the Upper Churchill drainage was one of direct competition for common resources and markets. While the overt hostilities and avoidance patterns of the nineteenth century have largely subsided, persisting Chipewyan stereotypes of Cree also serve as symbolic reminders or reinforcers of the cultural differences between the two groups. Following Barth's (Ed. 1969) concept of ethnic group *complementarity*, it is suggested that complementary cultural differences, between Chipewyan and Cree, facilitate cooperative interactions.

It is hoped that this initial examination of Chipewyan/Cree networks will be extended in future study to a larger sample of communities along the Athapaskan/Algonkian interface and that questions regarding the temporal development of Chipewyan/Cree relations will be pursued through ethnohistorical and ethnoarchaeological research.

Other studies resulting from the 1977 field season include investigations of language use and identity among Chipewyan and Cree adolescents; an examination of relationships between socio-economic class affiliation, formal education and attitudes toward work and leisure; and an examination of the stresses of economic development upon local-level political organization (Symposium, Laval University, 1978).

ACKNOWLEDGEMENTS

Research in 1975 and 1977 was funded primarily by the Urgent Ethnology Programme of the National Museums of Canada (contracts UE10-23-75 and UE10-23-77). Other essential support was provided by a Council on Research grant (20-C010-A) from the Research Foundation of the State University of New York at Albany and by a University Awards Committee grant (020-7387-A) from the State University of New York. Work in the 1971-72 period was funded by the National Institute of General Medical Sciences (grant GM01164) through the Department of Anthropology, University of Minnesota. Research assistance in the field was provided by Hetty Jo Brumbach in 1975 and by Stephen Kwiatoski, Deborah Renjilian and Arthur Sciorra in 1977. The many kind people of the Upper Churchill region are thanked for their assistance and friendship.

REFERENCES

BARTH, F. (ed.) 1969. Ethnic Groups and Boundaries: The Social Organization of Cultural Difference. Boston, Little, Brown and Company. p. 9-38.

GILLESPIE, B. C. 1975. Territorial expansion of the Chipewyan in the 18th century. *In:* Clark, A. M. (ed), Proceedings: Northern Athapaskan Conference, 1971, National Museum of Man Mercury Series, Canadian Ethnology Service Paper No. 27, Ottawa. p. 350-388.

JARVENPA, R. 1975. The People of Patuanak: The ecology and spatial organization of a southern Chipewyan band. Doctoral dissertation in anthropology, University of Minnesota, Minneapolis. 435 p.

——. 1976a. Spatial and ecological factors in the annual economic cycle of the English River Band of Chipewyan. Arctic Anthroplogy, 13: 43-69.

——. 1976b. The Patuanak Chipewyan in adaptation: Problems of technological stress and response in a modernizing subarctic community. Urgent ethnology archival manuscript in National Museums of Canada, Ottawa. 68 p.

——. 1977. Subarctic Indian trappers and band society: The economics of male mobility. Human Ecology, 5: 223-259.

——. 1978. Semi-permeable boundaries and guarded interactions: A southern Chipewyan view of their Cree neighbors. Urgent ethnology archival manuscript in National Museums of Canada, Ottawa. 47 p.

SMITH, J. G. E. 1975. The ecological basis of Chipewyan socio-territorial organization. *In:* Clark, A. M. (ed.), Proceedings: Northern Athapaskan Conference, 1971, National Museum of Man Mercury Series, Canadian Ethnology Service Paper No. 27, Ottawa. p. 389-461.

SYMPOSIUM PRESENTATIONS, 1978. Chipewyan and Cree: Intercommunity relations and attitudes along the Athapaskan/Algonkian interface. In Jarvenpa, R. (ed.), 18th Annual Meeting of the Northeastern Anthropological Association, Laval University, Quebec, March 17-19.