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Table of Contents / Table des matières

Editor's Note / Note de l'éditrice	1
Feature Listings / Articles de fond	
Review of DOGS THROUGH TIME: AN ARCHAEOLOGICAL PERSPECTIVE - by Kathlyn Stewart	2
Darlene McCuaig Balkwill: a career as a bone picker - by Donna Naughton	6
Forthcoming Conferences/Conférences à venir	14
Recent Publications/Publications récentes	15
Requests, Exchanges, Notices/ Démandes, Echanges, Avis ...	16

Editor's Note / Note de l'éditrice

Fall greetings to *Canadian Zooarchaeology* subscribers! We return with a regular issue of *Canadian Zooarchaeology* – we hope you all liked the "Transitions in Zooarchaeology" volume that subscribers received in place of their Spring issue of CZ. If any of your colleagues would like a copy, we are charging Cdn\$19.(US\$15) per copy – just make out a cheque or money order to the Canadian Museum of Nature and mail to: Kathy Stewart, P O Box 3443, Stn D, Ottawa, K1P 6P4.

In this issue we initiate a new feature: we profile persons who have contributed substantially to zooarchaeology during their careers. In this issue we feature Darlene Balkwill, who retired recently from the Canadian Museum of Nature (CMN). Darlene was head of ZIC (Zooarchaeological Identification Centre) for part of her career at CMN, and was Collection Manager of Vertebrate Collections for the past 11 years of her CMN career. Donna Naughton has written the article on Darlene's career.

If you would like to suggest someone to be profiled, or would like to write a profile on someone yourself, please let me know; I'm happy to consider all suggestions. Email me at kstewart@mus-nature.ca.

Happy Fall and Winter, see you in the spring.
Kathlyn Stewart, Editor
Donna Naughton, Assistant Editor

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Cover by Debbie Yee Cannon

Dogs Through Time: An Archaeological Perspective, 2000. Proceedings of the First ICAZ Symposium on the History of the Domestic Dog. Eighth Congress of the International Council for Archaeozoology (ICAZ98) August 23-29, 1998, Victoria, BC, Canada. Edited by Susan J. Crockford. Archaeopress: British Archaeological Reports International Series 889. 343 pages. ISBN 1 84171 089 C. Cost: 47 UK pounds. Contact: bar@archaeopress.com

**Review of “*Dogs Through Time: An Archaeological Perspective*”
by Kathlyn Stewart**

This volume includes 29 papers which were originally presented at the First ICAZ Symposium on the History of the Domestic Dog, a symposium held as a special session in conjunction with the Eighth International Congress of Archaeozoology (ICAZ), which took place in Victoria, Canada, in August 1998. The “Dog” session was organised by Susan Crockford, of Pacific Identifications in Victoria BC, who is also the volume editor.

As stated in the Preface of the volume, dogs have largely been invisible in the archaeological literature, despite often comprising a large proportion of mammalian remains at many sites; usually because archaeologists are not certain what purpose they served: food, hunter, companion, guard, or herder, or several of these roles. As well, dog elements are often difficult or impossible to distinguish from other canid

elements, e.g., wolf, coyote, fox, jackal, and therefore they are often reported as *Canidae* indet., although at many sites, most if not all of these remains are actually dog.

This volume succeeds in bringing dogs more to the forefront of archaeological literature. The book is divided into seven parts, with an Introduction by Juliet Clutton-Brock. The sections discuss early archaeological evidence of dogs and the evolution of dogs (Part 1), early practical and ritual uses of dogs (Part 2), skeletal variation, divided into Roman contexts and non-Roman contexts (Parts 3 and 4), modern primitive dogs (Part 5), archaeozoological analysis, methods and results (Part 6), and Discussion (Part 7).

The choice of Juliet Clutton-Brock to write the Introduction is excellent, as Clutton-Brock is not only a pioneer in zooarchaeology, but has also herself contributed to the research and literature on dogs. Her Introduction gives a personal perspective on the history of research on dogs, using some of her early personal experiences in analysing and interpreting dog remains. She discusses the different trends in research on dogs over time, ending with a clear statement on what she terms the destructive effects of behaviourist research on the study of dogs (and other animals), but she states “at last this era is almost over”. She also expresses her doubts on the findings of recent DNA work which suggests that wolves and dogs became separate breeding populations at least 135,000 years ago, and provides evidence suggesting that this date is too early for this separation. Clutton-Brock’s expertise and strong contributions to the field of canid research mean that her words carry considerable weight, and are a valuable introduction to this volume.

Part 1 is titled "Evolution and early dogs" and starts with an innovative and interesting paper by Susan Crockford applying principles of thyroid hormone physiology to the domestication of dogs. Her paper suggests that the early stages of dog domestication were governed not by humans but by stress conditioners in wolves. To sum up her arguments, those wolves with greater stress-tolerance (the stress-response system is linked closely to genetically-controlled thyroid hormone production) lived closer to human habitations, forming a more isolated and therefore more interbred group. This subset gave rise to generations with unique morphological and behavioural differences, also mediated by thyroid hormone, which eventually were selected for by humans. This hypothesis is not testable on archaeological remains, but would be testable through biochemical experiments on modern wolves.

The other five papers in this section deal with descriptions of early domesticated dogs, and explanations for the domestication process. Rudolf Musil focuses on the latter, by suggesting that the hunting of horses in Magdalian times in Germany was associated with domestication of dogs. Musil notes that in Magdalenian archaeological sites of Moravia, there is no evidence of horse hunting, nor are there remains of dogs, while in contemporaneous German sites, there is evidence of horse hunting and canid remains which he interprets as being dog. He suggests that wolves increasingly associated with hunters hunting horses, and became increasingly dependent on humans in this activity. While this suggestion may have merit, I would add more archaeological samples to make a more definitive statement. The paper by Dayan and Galili examines canid remains from submerged prehistoric sites off the

Israeli coast, dating to between 8,100 and 6,500 bp, and concludes that the canids from these sites were domesticated dogs, but that they exhibited only slight metric changes compared to recent wolves in Israel. Richard Meadow, in his paper, describes the contribution Barbara Lawrence made to the study of dogs, and provides an exhaustive list of measurement definitions described by both Lawrence and Angela von den Driesch. He notes even more measurement definitions exist, from other researchers. This paper is valuable for those beginning their study of canid remains. Louis Chaix's paper describes an early dog from the French Alps, dating to about 10,000 bp, and states it is more like Swiss Neolithic dogs than Mesolithic dogs from Northern Europe. Shigehara and Hongo add to the descriptions of early dogs globally with their discussion of Jomon dogs from Japanese archaeological sites, dating to between 10,000 and 2,300 bp.

Part Two of the volume contains six papers with the theme "Interpreting roles: early practical and ritual uses of dogs". These papers describe dog remains which have been deliberately interred, either as part of ritual behaviour, as in North Kazakhstan (Olsen), or with human burials as in western Idaho (Yohe II and Pavesic) and in the US Southeast (Warren), or after having been butchered for food, as in Late Iron Age France (Horard-Herbin) and Roman period Belgium (Hriscu et al), or for unknown reasons, as in Austria (Halik). Several of the localities discussed in these papers included burials of dozens of dog individuals, and one paper has utilised these numbers to examine paleopathologies (Warren), to devise innovative methods of age estimations ((Horard-Herbin) and used measurements to re-construct individual skeletons (Galik).

The third and fourth parts of the volume include papers which interpret skeletal variation, both in Roman contexts (Part 3) and non-Roman contexts (Part 4). The papers in Part 3 largely focus on when evidence for selection of specific breeds appears in the archaeological record. Mazzorin and Tagliacozzo look at 2000 dog specimens and conclude that selection for breeds is apparent in Iron Age sites. In her paper Clark critically assesses the type of research into canine skeletal uniformity at Southampton in the past 25 years, concluding that new approaches are needed to assess canine skeletal data. A novel approach is taken by Cram in documenting different sizes of dogs, and therefore different breeds, in the Roman period through measuring pawprints left on drying tiles; they also infer some of the dogs' behaviours while walking on the tiles. The final paper in this section, by Bartosiewicz, examines a range of dog skull sizes from a Roman urban settlement and from a rural settlement, finding that larger dogs were found at rural settlements and smaller in urban settlements, probably due to selection for larger working dogs in the rural community.

In Part Four the papers deal with dogs in non-Roman contexts. Azua uses size differences among archaeological dog remains in Central America to corroborate the reports of dogs given by Sahagun in the *Codice Florentino*. Similar studies on dogs from prehistoric Northeastern United States identify that there existed more than one type of indigenous dog prior to European contact (Handley). The last two papers use artistic mediums to document the uses of dogs: depictions of dogs on stelae, ceramic statues and pots from Mississippi and Mayan cultures are used to describe the activities and also ritual sacrifice of dogs (Schwartz),

while statuettes, pots and pendants as well as pictographs from Armenia document dogs from prehistoric Armenia (Manaserian and Antonian).

The fifth section on Modern Primitive dogs contains only one paper, which deals with the New Guinea singing dog (Matznick et al). The authors describe this dog and what is known about its history, and pose several questions at the end of the paper, including the possibility that this breed may be a "unique wild species"; they suggest these questions be answered with morphological and DNA analysis.

Part 6 contains five papers which deal with archaeozoological methods and results. Three of the papers present innovative methods using morphology to investigate specific problems, while two use DNA analysis. Ryder examines hair diameter and coat length from several modern dog breeds, and suggests these methods could be used for archaeological material to distinguish origins of dog breeds, much as has been done for sheep. Clutton-Brock and Kitchener look at cranial measurements on modern Arctic wolves to investigate the issue of hybridisation between wolves and dogs, and discuss potential dangers to the wild population by increasing hybridisation. Yates's paper continues with this theme, by presenting a method – shape of the mastoid region of the skull – with which to distinguish dogs, wolves and dog/wolf hybrids. Koop et al examine DNA sequences from foxes, coyotes, wolves and dogs to determine whether North American dogs evolved independently from European canids after a separate domestication event. Their analysis preliminarily suggests that North American dogs were domesticated independent of their European relatives, suggesting that at least two domestication

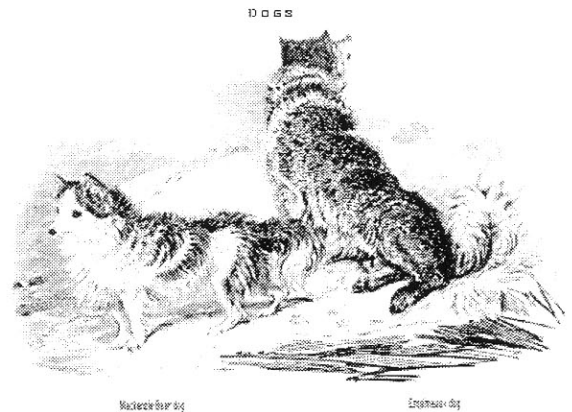
events of dogs from wolves must have occurred. The paper by Ishiguro et al follows this theme, which compares the DNA sequences of six modern breeds of dogs with those of sequences derived from archaeological dog remains.

Finally, the volume finishes with a discussion on issues raised in these papers by Susan Crockford, and an extensive bibliography on papers dealing with dogs, prepared by Danny Walker. In her discussion, Crockford focuses on issues relating to hybridisation, particularly the hybridisation of wolves and dogs. She suggests that such hybridisation is long-standing, based on the ubiquity of domestic dogs, and their apparent long-term relationship with humans. She cautions that such long-standing hybridisation has the potential to bias DNA studies involving wolves, although notes that such studies are critical to better understanding the canid family. Walker's bibliography is an excellent resource for those wishing to pursue studies on canids.

The amount of work to organise the "Dogs" symposium, and then to put the papers together into this volume, overshadows any weaknesses which might be found. My only criticisms are twofold, and minor given the scope of this volume: I would have organised the papers differently, as I found several papers categorised under a thematic heading when their content was more methodological, and might have been better accessed under a larger methodology and results section. Examples include the Meadow paper on measurement definitions and the Warren paper on paleopathologies. Further, I would have liked to have seen more papers with DNA content, as these studies will be definitive in sorting out the hybridisation issues. However, I realise that this is a relatively recent focus in canid

studies, and more of these will be published in the future.

These minor criticisms are however overshadowed by the sheer size of the volume and the magnitude of the research within. It is incomprehensible that a popular theme such as dogs has until now been so poorly represented in the zooarchaeological literature. Certainly this volume addresses this absence, and provides an excellent compendium of data and methodology with which to address future issues to do with dogs and their canid relatives.



Darlene McCuaig Balkwill: A Career as a Bone Picker

by **Donna Naughton**, Canadian Museum of Nature

On the occasion of her departure from the Canadian Museum of Nature in June of 2003, a well attended party took place in the Grand Salon of the Museum's heritage Victoria Memorial Museum Building. Family, friends and colleagues gathered to wish Darlene McCuaig Balkwill a happy and long retirement.

Darlene has made a notable contribution to zooarchaeology in Canada both as a zooarchaeologist and as a collection manager of vertebrates at the Canadian Museum of Nature. *Canadian Zooarchaeology* would like to profile her career with the hope that this will be only the first in a series of articles on Canadian zooarchaeologists.

Early History

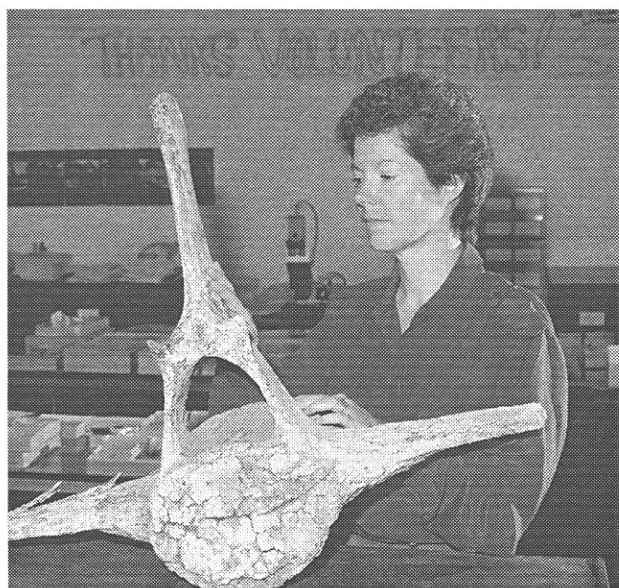
Darlene McCuaig was born in Stratford, Ontario in 1941. She began her university education at the University of Toronto in the Faculty

of Nursing Science. However biology soon became a greater interest. Her university studies were interrupted by the birth of a daughter and then a son and the transfer of her Armed Forces husband to Ottawa. She enrolled in the Biology Faculty at Carleton University in Ottawa in 1974 and completed an Honours BSc with First Class Honours in 1976. She continued on in a Masters program with geneticist George Carmody and successfully defended her Masters thesis entitled "**Search for further genetic variation at five second chromosome loci in *Drosophila melanogaster***" in 1979.

While at Carleton, Darlene attended a course instructed by Dr Donald Smith which proved to be pivotal in her life. The course was entitled Vertebrate Zoology and involved, in large part, the identification and study of bones and skins of mainly Canadian vertebrates. Her interest and aptitude for bone identification became evident during the laboratory component of this course. A bone picker was born!

Origin and History of the Zooarchaeology Research Centre (ZRC/ZIC)

Meanwhile in 1972, after a few years of trying, Ann Meachem Rick convinced Dr Louis Lemieux, the Director of the National Museum of Natural Sciences, to invest in a comparative osteology collection for zooarchaeological research. The name was changed in 1974 to the Zooarchaeological Identification Centre (ZIC) when the federal government began looking for more emphasis on service in government. The collection was then used to identify bones from archaeological sites on a cost recovery basis. With help from a variety of students and contractors, Anne went about gathering and skeletonizing specimens of fish, reptiles, amphibians, birds, and mammals, ultimately creating a collection of nearly 700 specimens, mainly of Canadian species. In 1976, following a glowing recommendation from Don Smith, Anne hired Darlene on contract to



Darlene examining a bowhead vertebra.

photo by Stephen Cumbaa



Anne Rick circa 1978.

photo by Gerry Anderson

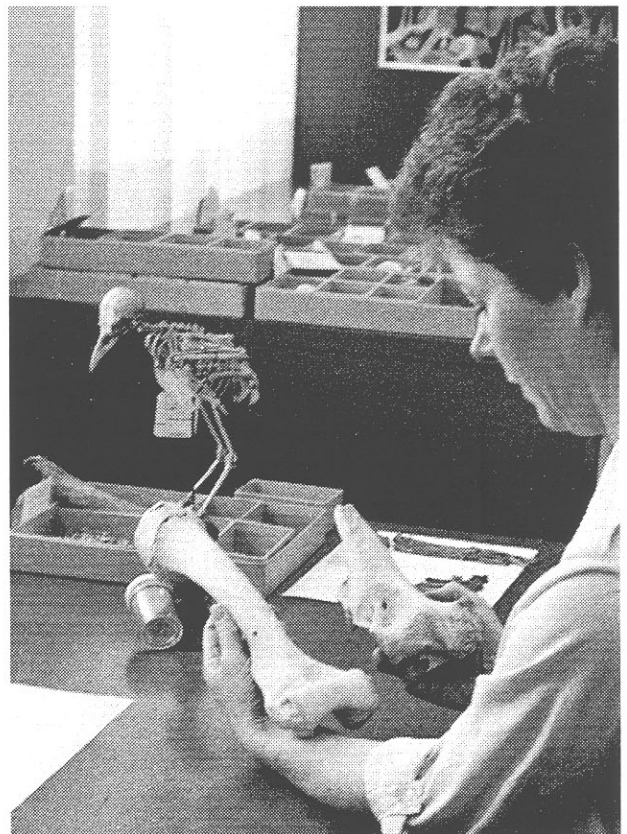
work with Dr Steve Cumbaa to identify material from the Northwest Mounted Police post at Fort Walsh, Saskatchewan.

In 1981 Anne moved on to work at Parks Canada and Steve Cumbaa took over as Head of ZIC. In 1982 he hired Darlene, newly returned from a 2 year tour of duty in Germany with her husband and young family, again as a contract zooarchaeologist. In early 1984 Steve went on French language training and Darlene was made a permanent employee of the Museum and was variously Assistant Head or Acting Head of ZIC between 1984 and 1990. Under her stewardship many contract zooarchaeologists, technicians, students and volunteers came to work on faunal identification and specimen preparation. In 1987 Steve Cumbaa was asked to take an assignment as the Museums' Assistant Director, Collections and Research. Dr Kathlyn Stewart joined ZIC in 1991 to work on faunal identification contracts and to undertake zooarchaeological research.

In 1990 the National Museums of Canada was separated into its component museums and the name of the National Museum of Natural Sciences was changed to the Canadian Museum of Nature. The following year the Canadian

Museum of Nature changed its organisation of research and collections functions from discipline-based units into separate Research and Collections Divisions. At this time Darlene was asked to be Collection Manager of the vertebrate collections with a staff of seven. The Comparative Osteology Collection continued under her auspices and is now housed in the Museum's Natural Heritage Building, a state of the art facility in Gatineau, Quebec, just north of Ottawa.

Building on the fine legacy begun by Anne Rick and continued by Steve Cumbaa, Darlene and her staff have managed and enlarged it into a world class collection of more than 4500 specimens, including 270 species of fish, 430 species of birds, 105 species of reptiles and amphibians, and 550 species of mammals. Appendix 1 highlights the strengths of the Comparative Osteology Collection.



Darlene comparing *Ursus* humeri.

photo by Stephen Cumbaa



Working with pterrible ptarmigan bones.

photo by Stephen Cumbaa

Darlene's Contribution

Darlene has published articles, presented papers at conferences and authored many faunal reports. A complete listing is presented in Appendix 2. She is probably best known for the very detailed, well respected and often cited paper that she and Steve Cumbaa authored on the comparison of cow and bison post-cranial bones. This important reference is likely on the bookshelf of most North American zooarchaeologist, and numerous copies have been requested by European and Middle-Eastern archaeozoologists. During the last 15 years Darlene's research interests have been focused on sites related to the arrival and dispersal of the First Peoples in North America. She has collaborated on projects with Richard Morlan, Jacques Cinq-Mars, Priscilla Renouf, C. Richard Harington, Anne Rick and Steve Cumbaa.

All of the archaeological sites which Darlene analysed are presented alphabetically in Appendix 3.

During the planning stages she had a great deal of input into the design and layout of the vertebrate collection space of the Museum's new Natural Heritage Building in Gatineau, Québec,

and then spent an exhausting year co-ordinating the packing and move of the various fluid preserved and dry vertebrate collections. She succeeded admirably in her ultimate goal of providing improved space, safety and storage of the collections under her care.



A break from bone identification in Newfoundland.

photo by Priscilla Renouf

Field work

Like many zooarchaeologists, Darlene was the recipient of the fauna from other peoples excavations and rarely was out in the field herself. She was privileged however to spend three seasons in Newfoundland between 1987 and 1989 at three different Port-au-Choix sites working with Dr Priscilla M.A.F. Renouf of Memorial University. These were all Palaeo-eskimo habitations -Phillips Garden (#7A200-500), a Dorset site, and Phillips Garden East (also #7A200-500) and Phillips Garden West (#7A), both Groswater sites.



Phillip's Garden site, Newfoundland.

photo by Pricilla Renouf

Retirement Activities

As with most retirements of busy, active people, Darlene's will be full and she is already (after only 6 months) wondering how to fit everything she wants to do into each day. She hopes to breed Bernese Mountain Dogs in the near future. She is even busier than before with agility and obedience training and competition with her beloved berners, and with some notable successes too. She is also an active member of the Bernese Mountain Dog of Canada



Darlene and Sally winning best Open level obedience dog at the National Specialty Show.

photo by Wendy Beard

Club as an Obedience Reporter. She continues to enjoy her gardens, both flower and vegetable and is finally able to devote more time to their upkeep. Lately, Darlene has discovered an interest in animal communication and has taken a number of courses on the subject. She has also studied Reiki and is currently working on attaining her Reiki Master certificate in about a year. She has begun using Reiki, massage and communication to help sick and injured dogs.

However, once a bone picker, always a bone picker. Darlene has at least one more paper in the works and can still be convinced to visit us from time to time to identify some bones using the collection she played such a major role in creating.



Darlene and her Bernese Mountain dog Sally competing in an Agility Competition.

photo by Wendy Beard

APPENDIX 1

Strengths of the CMN Comparative Osteology Collection:

- Covers all of Canada with more than 95% of known Canadian species of birds and mammals including domestic species
- Most of the economically and culturally significant marine and freshwater fishes
- Extinct species – Passenger Pigeon and Great Auk
- Fish otoliths series
- Fish scale series
- Synoptic collections of duck and ptarmigan bones
- Known aged series of mammals, including white-tailed deer, black bear, dog, beaver, pig, domestic cattle, domestic sheep and goats, some of which have been featured in earlier articles of *Canadian Zooarchaeology* –
 - 1999. Bones of known-aged beaver and bear: a photo essay by D. Naughton #16:5-18;
 - 2000. Bones of known-aged deer: a photo essay of front leg bones by D. Naughton # 17: 5-14; and
 - 2000. Bones of known-aged dogs: a photo essay of front leg bones by D. Naughton #18: 5-18.
- samples of bone pathologies, many with diagnoses
- marine mammals including full skeletons of beluga, narwhal, orca, pygmy sperm whale, blue whale and some of the smaller whales, as well as grey seal, ringed seal, harbour seal, hooded seal, bearded seal, harp seal, northern sea lion, California sea lion and walrus.

APPENDIX 2

Publications

- Hodgetts, L.M., Renouf, M.P., Murray, M.S., **Balkwill, Darlene McCuaig** and Howse, L. 2003. Changing subsistence practices at the Dorset Palaeoskimo site of Phillip's Garden, Newfoundland. *Arctic Anthropology* 40(1): 106-120.
- Balkwill, Darlene McCuaig** and Rick, Anne Meachem. 1994. Siglit subsistence: Preliminary report on faunal remains from a large midden at the Gupuk site (NiTs-1), Mackenzie Delta, NWT. pp.93-114, In: Pilon, J.-L. (ed.) *Bridges Across Time: the NOGAP Project*. Canadian Archaeological Association Occasional Paper No.2.
- Rothschild, N.A. and **Balkwill, Darlene McCuaig**. 1993. The "meaning" of change in urban faunal deposits. *Historical Archaeology* 27(3):71-89.
- Balkwill, Darlene** and Cybulski, J.S. 1992. Faunal remains. Chapter IV, In: A Greenville burial mound; human remains and mortuary elements in British Columbia Coast Prehistory. pp.75-111. Archaeological Survey of Canada Mercury Series Paper No.146, Canadian Museum of Civilization. 251pp.
- Balkwill, Darlene McCuaig** and Cumbaa, S.L. 1992. A guide to the identification of postcranial bones of *Bos taurus* and *Bison bison*. *Syllogeus* No.71. 277pp.

Balkwill, Darlene. 1991. Arrangement of collections and data. pp.80-82, In: E. Henry (ed.) Proceedings of the First International Symposium on the Curation of Archaeozoological Materials. Florida Museum of Natural History, Gainesville, Florida.

Balkwill, Darlene. 1990. Alimentary, my dear Watson! An analysis of faunal remains from the courtyard of the Chateau Saint-Louis. pp.145-154, In: Beaudet, P. (ed.) Under the Boardwalk in Quebec City. Diffusion Boréal Ltée, in collaboration with Environment Canada. 199pp. (French version published earlier in 1990).

Balkwill, Darlene and Cumbaa, S.L. 1987. The diet of French and British soldiers at the casemate, Bastion St. Louis, Québec. Environment Canada (Parks) Reserch Bulletin No. 252.

Conference Papers

Migratory Birds from Bluefish Caves. Presented at the 8th International Congress of the International Council for Archaeozoology in Victoria, British Columbia in 1998.

C.I.T.E.S. and Natural History Museums: Opportunity and Challenges. Presented at the 8th Annual Meeting of the Society for the Preservation of Natural History Collections, Victoria, British Columbia in 1993.

Osteometrical study of six species of North American ptarmigan and grouse. Presented at the International Council for Archaeozoology Bird Working Group First Meeting, Madrid, Spain in 1992.

The pterrible ptarmigan and other problems in bird osteology. Presented at the 24th Annual Canadian Archaeological

Association Conference, St. John's, Newfoundland in 1991.

The meaning of change in urban faunal deposits. Presented at the First Joint Archaeological Congress, Baltimore, Maryland in January of 1989 (with N.A. Rothschild).

On being led down the garden path: false assumptions of similarity among four contemporaneous sites in early 19th century Manhattan, New York. Presented at the Second Annual Northeastern Faunal Analysis Conference at Princeton University in 1988.

An Arctic cornucopia: Faunal diversity at the Saunaktuk site, Mackenzie Delta Region, NWT. Presented at the 20th Annual Canadian Archaeological Association Conference, Calgary, Alberta in 1987.

Subsistence strategies at the Saunaktuk site. Presented at the 19th Annual Chacmool Conference, Calgary, Alberta in 1986 (with C.D. Arnold).

Dietary diversity amongst tradesmen in early New York City. Presented at the 1986 Annual Meeting of the Society for Historical Archaeology, Sacramento, California in 1986.

Board in Fun City: Faunal remains from a 19th century boardinghouse in New York City. Presented at the Annual Meeting of the Council for Northeastern Historical Archaeology, Ottawa, Ontario in 1985.

The diet of French and British soldiers at the casemate, Bastion St-Louis, Quebec City. Presented at the 17th Annual Canadian Archaeological Conference, Victoria, BC in 1984.

Reports

For further information concerning the availability of these reports please contact Steven Cumbaa or Kathlyn Stewart at the Canadian Museum of Nature

Balkwill, Darlene. 1990. Nisgha subsistence strategies: the first piece of the puzzle.

Balkwill, Darlene. 1990. Le seigneur et les pêcheurs : A glimpse of 18th century subsistence in the Seigneurie de Grand Pabos.

Balkwill, Darlene and Cumbaa, S.L. 1988. The effect of urban growth and a burgeoning market economy on subsistence patterns in lower Manhattan, 1625-1875.

Balkwill, Darlene and Cumbaa, S.L. 1988. Analysis of faunal remains from Period 4 (1820-1875) from three sites in lower Manhattan, New York City.

Balkwill, Darlene and Cumbaa, S.L. 1987. Faunal remains from Period 3 (1760-1820) from three sites in lower Manhattan, New York City.

Balkwill, Darlene. 1987. An Arctic cornucopia: Faunal diversity at the Saunaktuk site, Mackenzie Inuit site in the Eskimo Lakes area, NWT.

Balkwill, Darlene. 1987. Preliminary analysis of faunal remains from 1986 excavations at L'Ile de Mingan, Quebec.

Balkwill, Darlene. 1987. Faunal remain from 1986 excavations at Pabos. Gaspé Peninsula, DbDe-5.

Balkwill, Darlene and Cumbaa, S.L. 1986. Preliminary report on vertebrate faunal remains from Periods 1 and 2 from three sites in lower Manhattan, New York City.

Balkwill, Darlene. 1985. Faunal remains from 1984 excavations at Pabos, Gaspé Peninsula, DbDe-5 and DbDe-6.

Balkwill, Darlene. 1983. Fish remains from Fort Ninigret, Rhode Island.

Balkwill, Darlene and Cumbaa, S.L. 1983. Salt pork and beef again? The diet of French and British soldiers at casemate, Bastion St-Louis, Quebec.

Balkwill, Darlene and Still, Leslie. 1983. Faunal remains recovered from Fort St-Jean, Quebec.

Balkwill, Darlene. 1982. Faunal remains from 1981 excavations at Pabos, Gaspé Peninsula.

Balkwill, Darlene. 1982. Gyrfalcon prey remains from the Ogilvie Mountains, Yukon Territory.

Balkwill, Darlene. 1982. Preliminary faunal analysis of Feature #3, Buchanan Lake, Axel Heiberg Island, Canada.

Balkwill, Darlene. 1982. Analysis of faunal material recovered from two Independence I sites (Daylight and Westwind) near Hazen Lake, Ellesmere Island.

APPENDIX 3: Archaeological site faunas analysed by Darlene McCuaig Balkwill

Site name	Borden #	other #	Culture	location
Bastion St-Louis	----	19G	French	Que
Bluefish Caves	MgVo-1	----	prehistoric Indian	Yukon
	MgVo-2	----	prehistoric Indian	Yukon
	MgVo-3	----	prehistoric Indian	Yukon
Buchanan Lake	SiHw-1	----	Late Dorset, Thule	NWT
Daylight site	TjFf-5	----	Paleoskimo	NWT
Fort Ninigret	----	----	Niantic Indian	RI, USA
Fort St. Jean	----	40G	French	Que
Greenville	GgTj-6	----	Nisgha	BC
Gupuk	NiTs-1	----	Mackenzie Inuit	NWT
Ice Patch fauna	multiple		prehistoric Indian	Yukon
I'île Nue de Mingan	----	52G	Basque	Que
Manhattan -7 (Hanover Square)	----	----	Dutch, English, American	NY, USA
Manhattan –Stadt Huys	----	----	Dutch, English, American	NY, USA
Manhattan –Telco	----	----	Dutch, English, American	NY, USA
Pabos – Mainland	DbDe-5	----	French	Que
Pabos- Manor House	DbDe-6	----	French	Que
Peale Point	KkDo-1	----	Late Dorset, Thule	NWT
Phillip's Garden	----	7A200- 500	Dorset	Nfld
Phillip's Garden East	----	7A200- 500	Groswater	Nfld
Phillip's Garden West	----	7A	Groswater	Nfld
La Pointe de Calliere (Vieux Port, Montreal)	----	101G	French	Que
Poudriere de l'Esplanade	----	39G	French	Que
Saunaktuk	NgTn-1	----	Mackenzie Inuit	NWT
Tipperary Creek	FbNp-1	----	?	Sask
Westwind site	TjFd-3	----	Paleoskimo	NWT

Forthcoming Conferences / Conférences à venir

2004

Society of American Archaeology

69th Annual Meeting
March 31-April 4
2004

Montréal, Québec

Canadian Archaeological Society

Archaeology at the Crossroads
May 12-16

Winnipeg, Manitoba

submission deadline has passed

web page :

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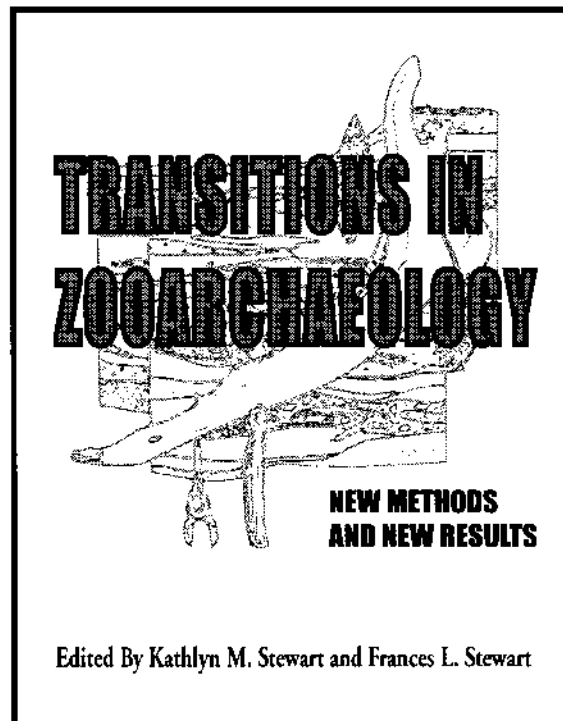
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