FROM NATURE TO CULTURE: A STUDY OF
OTTAWA'S CENTRAL EXPERIMENTAL FARM USING THE
SEQUENT IMAGING ANTITHESIS METHOD

volume A

by

David Bouse, B. Arch.

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of

Master of Arts
Department of Geography

Carleton University
Ottawa, Ontario

1 December 1993

copyright
1993, David Bouse

National Library
of Canada

Bibliothèque nationale
du Canada

Acquisitions and
Bibliographic Services Branch

Direction des acquisitions et
des services bibliographiques

395 Wellington Street
Ottawa, Ontario
K1A 0N4

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file *Votre référence*

Our file *Notre référence*

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-89859-3

Name David Bouse

Dissertation Abstracts International is arranged by broad, general subject categories. Please select the one subject which most nearly describes the content of your dissertation. Enter the corresponding four-digit code in the spaces provided.

History-Canadian 0334

SUBJECT TERM

0366

SUBJECT CODE

U·M·I

Subject Categories

THE HUMANITIES AND SOCIAL SCIENCES

COMMUNICATIONS AND THE ARTS

Architecture 0729
Art History 0377
Cinema 0900
Dance 0378
Fine Arts 0357
Information Science 0723
Journalism 0391
Library Science 0399
Mass Communications 0708
Music 0413
Speech Communication 0459
Theater 0465

EDUCATION

General 0515
Administration 0514
Adult and Continuing 0516
Agricultural 0517
Art 0273
Bilingual and Multicultural 0282
Business 0688
Community College 0275
Curriculum and Instruction 0727
Early Childhood 0518
Elementary 0524
Finance 0277
Guidance and Counseling 0519
Health 0680
Higher 0745
History of 0520
Home Economics 0278
Industrial 0521
Language and Literature 0279
Mathematics 0280
Music 0522
Philosophy of 0998
Physical 0523

Psychology 0525
Reading 0535
Religious 0527
Sciences 0714
Secondary 0533
Social Sciences 0534
Sociology of 0340
Special 0529
Teacher Training 0530
Technology 0710
Tests and Measurements 0288
Vocational 0747

LANGUAGE, LITERATURE AND LINGUISTICS

Language
General 0679
Ancient 0289
Linguistics 0290
Modern 0291
Literature
General 0401
Classical 0294
Comparative 0295
Medieval 0297
Modern 0298
African 0316
American 0591
Asian 0305
Canadian (English) 0352
Canadian (French) 0355
English 0593
Germanic 0311
Latin American 0312
Middle Eastern 0315
Romance 0313
Slavic and East European 0314

PHILOSOPHY, RELIGION AND THEOLOGY

Philosophy 0422
Religion
General 0318
Biblical Studies 0321
Clergy 0319
History of 0320
Philosophy of 0322
Theology 0469

SOCIAL SCIENCES

American Studies 0323
Anthropology
Archaeology 0324
Cultural 0326
Physical 0327
Business Administration
General 0310
Accounting 0272
Banking 0770
Management 0454
Marketing 0338
Canadian Studies 0385
Economics
General 0501
Agricultural 0503
Commerce-Business 0505
Finance 0508
History 0509
Labor 0510
Theory 0511
Folklore 0358
Geography 0366
Gerontology 0351
History
General 0578

Ancient 0579
Medieval 0581
Modern 0582
Black 0328
African 0331
Asia, Australia and Oceania 0332
Canadian 0334
European 0335
Latin American 0336
Middle Eastern 0333
United States 0337
History of Science 0585
Law 0398
Political Science
General 0615
International Law and Relations 0616
Public Administration 0617
Recreation 0814
Social Work 0452
Sociology
General 0626
Criminology and Penology 0627
Demography 0938
Ethnic and Racial Studies 0631
Individual and Family Studies 0628
Industrial and Labor Relations 0629
Public and Social Welfare 0630
Social Structure and Development 0700
Theory and Methods 0344
Transportation 0709
Urban and Regional Planning 0999
Women's Studies 0453

THE SCIENCES AND ENGINEERING

BIOLOGICAL SCIENCES

Agriculture
General 0473
Agronomy 0285
Animal Culture and Nutrition 0475
Animal Pathology 0476
Food Science and Technology 0359
Forestry and Wildlife 0478
Plant Culture 0479
Plant Pathology 0480
Plant Physiology 0817
Range Management 0777
Wood Technology 0746
Biology
General 0306
Anatomy 0287
Biostatistics 0308
Botany 0309
Cell 0379
Ecology 0329
Entomology 0353
Genetics 0369
Limnology 0793
Microbiology 0410
Molecular 0307
Neuroscience 0317
Oceanography 0416
Physiology 0433
Radiation 0821
Veterinary Science 0778
Zoology 0472
Biophysics
General 0786
Medical 0760

EARTH SCIENCES

Biogeochemistry 0425
Geochemistry 0996

Geodesy 0370
Geology 0372
Geophysics 0373
Hydrology 0388
Mineralogy 0411
Paleobotany 0345
Paleoecology 0426
Paleontology 0418
Paleozoology 0985
Palynology 0427
Physical Geography 0368
Physical Oceanography 0415

HEALTH AND ENVIRONMENTAL SCIENCES

Environmental Sciences 0768
Health Sciences
General 0566
Audiology 0300
Chemotherapy 0992
Dentistry 0567
Education 0350
Hospital Management 0769
Human Development 0758
Immunology 0982
Medicine and Surgery 0564
Mental Health 0347
Nursing 0569
Nutrition 0570
Obstetrics and Gynecology 0380
Occupational Health and Therapy 0354
Ophthalmology 0381
Pathology 0571
Pharmacology 0419
Pharmacy 0572
Physical Therapy 0382
Public Health 0573
Radiology 0574
Recreation 0575

Speech Pathology 0460
Toxicology 0383
Home Economics 0386

PHYSICAL SCIENCES

Pure Sciences

Chemistry
General 0485
Agricultural 0749
Analytical 0486
Biochemistry 0487
Inorganic 0488
Nuclear 0738
Organic 0490
Pharmaceutical 0491
Physical 0494
Polymer 0495
Radiation 0754
Mathematics 0405
Physics
General 0605
Acoustics 0986
Astronomy and Astrophysics 0606
Atmospheric Science 0608
Atomic 0748
Electronics and Electricity 0607
Elementary Particles and High Energy 0798
Fluid and Plasma 0759
Molecular 0609
Nuclear 0610
Optics 0752
Radiation 0756
Solid State 0611
Statistics 0463

Applied Sciences

Applied Mechanics 0346
Computer Science 0984

Engineering
General 0537
Aerospace 0538
Agricultural 0539
Automotive 0540
Biomedical 0541
Chemical 0542
Civil 0543
Electronics and Electrical 0544
Heat and Thermodynamics 0348
Hydraulic 0545
Industrial 0546
Marine 0547
Materials Science 0794
Mechanical 0548
Metallurgy 0743
Mining 0551
Nuclear 0552
Packaging 0549
Petroleum 0765
Sanitary and Municipal 0554
System Science 0790
Geotechnology 0428
Operations Research 0796
Plastics Technology 0795
Textile Technology 0994

PSYCHOLOGY

General 0621
Behavioral 0384
Clinical 0622
Developmental 0620
Experimental 0623
Industrial 0624
Personality 0625
Physiological 0989
Psychobiology 0349
Psychometrics 0632
Social 0451

Abstract

This thesis is a theoretical cartographic study of a landscape. Drawing from a wide spectrum of primary sources and recent synthetic works, it presents the concept of precise analytical mapping of physical forms in a four-dimensional time and space representation as a prelude to exploring its opposite - what J.K. Wright has called "terrae incognitae".

The physical evolution of Ottawa's Central Experimental Farm is illustrated cartographically using an approach known as sequent imaging, a technique of reconstructing temporal morphology initially developed by the author for managing nationally significant historic sites.

Two alternative expressions of the landscape are then presented in a second volume: one, a brief conventional historical geography; the other, a concept of the sense-of-place as illustrated within a photo-essay. Both alternative expressions provide implicit clues to a conceptual antithesis of a seamless abstraction of fluctuating physical forms as delineated in the first volume.

For Mara

who taught me about theoretical geography

and Chas

who taught me about practical geography

Acknowledgments

This thesis represents a marriage of several themes I have been exploring over the years. They first came into view as coessential but out-of-focus images while working on draft procedures for a new federal heritage program to study and protect culturally valuable sites. At that time Julian Smith, now head of Carleton University's heritage conservation studies unit, allowed me the opportunity to carry this type of cartographically derived communication to its most elaborate development using Ottawa's Central Experimental Farm as the subject. Those precise objectified examples of temporal morphology later were included with a series of inter-disciplinary prototype building studies anticipating the federal government's initiatives toward its period structures.

I would be remiss not to acknowledge Julian's encouragement then and now to pursue this central theme, married to the others related to my thesis, as a theoretical as well as a practical approach to understanding our cultural heritage and ourselves.

Warm appreciation goes to friends, work colleagues, classmates, and university staff who have discussed my abstract images and ideas, offered suggestions from within their respective fields, or provided other welcomed aid. Among academic geographers: Anne Buttimer (now Dublin), John Clarke (Carleton), Christine Earl (Carleton), Joyce Lundberg (Carleton), Mike Fox (Carleton), David Knight (now

Guelph), Susanne Mackenzie (Carleton), Stephan Thirwall (now Algonquin), John Tunbridge (Carleton), William R. Mead (UK), David Bennett (Carleton) and Ken Torrance (Carleton).

Fellow students and friends in other fields include: Barbara Farrell (cartographic theory), Alex Maller (farmstead morphology), Bruce Elliott (local histories), Jerzy Wojciechowski (philosophy of culture), Alan Robertson (colour perception), Julie Harris (agri-research planning & architecture), John Taylor (local history), Roxanne Lalonde (environmental ethics), Robin Phillips (land stewardship), James Thompson (philosophy of aesthetics), Joel Kretz (ecological tourism), Gary Slippert (philosophy of heritage), Elizabeth Moxley (systems theory), Rae Macdonald (Canadian landscape literature), John Lubrun (landscape essence), Karlis Bouse (heritage criteria), Peter Elliott (Central Experimental Farm), and Herb Rothwell (land & people). Generous help from staff at various libraries and archives is acknowledged in section 9.3

I am indebted to Larry McCloskey with the Carleton University Paul Menton Centre for his role in overcoming some of the hurdles encountered during the past three years of writing and rewriting this Master of Arts thesis.

Thanks is owed to the office of research services from the Faculty of Graduate Studies and Research for their generous financial assistance to produce archival reference copies of previously unique photographs of the site.

Special thanks is owed to my thesis supervisor Iain Wallace. He was there when I needed him and always gave excellent and needed advice on how to produce as concise and coherent a paper as possible while writing about my chaotic image of interrelationships concerning geography. I am also indebted for the patience, practical leads, and tactical guidance from Greg Finnegan, interim supervisor during the several years of struggling with my thesis activities before they distilled into this idiosyncratic academic expression.

My greatest debt is to my wife, Rota Zigurs Bouse, for reminders about appropriate academic writing style, shortcuts to information management, and unyielding emotional support.

David

Employed as senior architect of the restoration services and heritage conservation units of Parks Canada from 1975 to 1992, the author is currently studying theoretical cartography. Much of the author's time during the past two years was devoted to preparation of "A local historical atlas of a campus: Carleton University", 1993. Responses to that work of objectifying temporal morphology, graduate seminars for other departments, and papers presented on related topics in 1992 and 1993 have contributed to the final graphic and written text here.

Table of Contents

abstract	iii
dedication	iv
acknowledgments	v
table of contents	viii
list of illustrations	x

VOLUME A (Sections 1 - 5):

1.0	CONTEXT	
1.1	Introduction	1
1.2	Summary of Theoretical Findings	6
1.3	Conceptual Background	17
1.4	Statement of Thesis Aims	22
2.0	IMAGE MAPPING OF LANDSCAPES	
2.1	Introduction	25
2.2	External and Internal Landscapes	26
2.3	Cognition of Landscape Images	34
3.0	STRATEGIC METHODS	
3.1	Introduction	41
3.2	Background	43
3.3	Planning the Study	44
3.4	Philosophical Considerations	48
3.5	Strategic Principles	56
3.6	Strategic Conclusions	58
4.0	TACTICAL METHODS	
4.1	Introduction	61
4.2	Definitions	62
4.3	Brief History of Multi-dimensional Mapping	
	4.3.1 Introduction	67
	4.3.2 Eastern Developments	68
	4.3.3 European Examples	70
	4.3.4 North American Examples	71
4.4	Sequent Image Mapping Procedures	73
4.5	Special Citation Problems	75
4.6	Presentation Tactics	78
4.7	Conclusion	82
5.0	CENTRAL EXPERIMENTAL FARM: SEQUENT IMAGES	
5.1	Introduction	84
5.2	Sequent Images	85

VOLUME B: Sections 6 - 10

6.0	A TRADITIONAL HISTORICAL GEOGRAPHY OF THE SITE	
6.1	Introduction	101
6.2	Geological Influences	103
6.3	Pre-Experimental Farm History	
6.3.1	1826-1856: Cutting into the Landscape	108
6.3.2	1857-1886: Struggle and Speculation	115
6.3.3	Political Background & Site Selection	119
6.4	Experimental Farm History	
6.4.1	Initial Plan	123
6.4.2	Dynamic Compostion	130
6.4.3	Site Components	138
6.5	Urban Context	
6.5.1	Urban Open Space	149
6.5.2	Planning Studies	151
6.7	Conclusion	157
7.0	CENTRAL EXPERIMENTAL FARM: PHOTO-ESSAY	
7.1	Introduction	161
7.2	Selected Photographic Views	163
8.0	DISCUSSION	
8.1	Summary Statement	181
8.2	Reflections	183
8.2	Suggestions for Future Consideration	186
9.0	SOURCES	
9.1	Introduction	192
9.2	Institution and Non-institution Collections	193
9.3	General References (no code)	196
9.4	Primary Cartographic Sources (m-)	220
	Aerial Photographs (NAPL)	229
9.5	Summary of NA photo-card catalogue	231
	Published Images in Period Reports	237
9.6	Illustration Sources for this Paper	241
9.7	Additional Sources (p- or up-)	246
10.0	APPENDICES	
10.1	Introduction	251
10.2	Special Abbreviations	255
10.3	Finding Aid for NAC Box 5338	256
10.4	Reflections on an Article by Prince	272
10.5	Special Definitions of Common Terms	276
10.6	Benefits to Historical Research	280
10.7	Establishing a Framework of Meaning	286
10.8	Post Script	295
	Unbound Foldouts Index	299

List of Illustrations

(See section 9 for illustration sources.)

VOLUME A: Sections 1 - 5

Engraving of seed testing and distribution building, 1888/ /89, now cereal building or building no.75. This original building and the offices, chemical laboratory & museum - later known as administration building (see inset p.129 and lower view, p.135) - were often illustrated prominently in early publications such as agricultural reports and bulletins. Images of the form of the original main barns (see inset p.129) or original dairy were specially illustrated less often; dwellings and other period works were not individ- ually featured.	xv
Engraving from Kane, 1856; reproduced in Wright (1966) op.p.90. Representation of open sea near the north pole.	op.1
Image mapping graphic text. Four aspects of the Central Experimental Farm: objectified visible electromagnetic energy, non-visible infrared energy, non-visible "subject- image", and representational objectified "subject image".	op.25
Author studies morphology at the Central Experimental Farm. Xerographic image illustrates the arboretum in winter; its sloping, snow-cover terrain provides a character-defining aspect of the site.	op.41
Symbolic Algonkin form. Pre-Columbian representation re- creation of the turtle offers its back as a place for a new world to be built.	op.61
Six diagrams of bird's-eye map projections.	64
Graphic text of sequent imaging antithesis method. Four aspects of the core area of the Central Experimental Farm in a metaphorical cartographic expression: symbol of undiluted physical energy as abstracted temporal morph- ology (upper inside), negative physical overlapping with external affective perception in the unconscious (lower inside), symbol of undiluted spiritual energy as abstracted emotional energy (lower outside), positive physical energy viewed with rational perception (upper outside).	op.84
Sequent images of the Central Experimental Farm site; plan oblique projection, scale 1:16000.	
future site plan: pre-1826	86
future site plan: 1852	87
site plan: 1892	88
site plan: 1926	89
site plan: 1992	90

Sequent images of the Central Experimental Farm core area;
plan oblique projection, scale 1:2500.

future site: 1852	91
core area plan: 1892	92
core area plan: 1912	93
core area plan: 1926	94
core area plan: 1946	95
core area plan: 1972	96
core area plan: 1992	97

VOLUME B: Sections 6 - 10

Cottage, sheds, barns, and fields viewed from the former auditorium, looking south, c.1920. Farm building forms and, less clearly, clothing forms are visible. Compare with p.128, photographed c.1888. Surviving buildings illustrated in this view include: stableman's cottage, 1887-88, foreground; piggery, 1911 (right centre); small piggery, c.1911 (with three ventilators); implement and harness shed, 1889-90 (corner showing, far right); field barn, c.1900, (right of centre, beyond boundary hedge); and Kennedy-Booth barn complex, c.1850-80 (left horizon). Building in the centre of this view (two ventilators) was razed 1986; sheds behind were razed 1983.	op.101
Location map: pre-1800, including geological fault locations and digital image map (1990) of National Capital metropolitan area; scale 1:250000.	106
Geological section-map illustrating layers of rock deposits (north tilted to the left); scale 1:16000. Inset location image map; scale 1:60000.	107
Lithograph composite reproduction: bird's eye panorama looking northeast, 1879, inset within an 1879 map (detail) of the future site and vicinity. Panorama illustrates farm, part of which survives (as building 82). Hartwell's locks shown far right, Dow's Lake centre, and Parliament Hill upper left (exaggerated perspective). Map shows proposed sub-division of Nepeanville (and others, as Bayswater). Broken white line added to outline later site of Central Experimental Farm. Map scale 1:16000.	118
Poster illustrating colour bird's-eye panoramic views of five original federal research farms. Site is shown lower centre, as viewed looking southeast.	122

- Seed testing & distribution building and cottage no.1 (stableman's cottage) beyond, c.1888, looking south from the newly constructed office, museum and laboratory; Kennedy-Booth barns are left of centre near the horizon; edge of first piggery is visible on the extreme right (upper view). Lower photographic image illustrates one of the officer's residences; with two people on the verandah. Buildings featured here survive with their morphology relatively well preserved. Other views of the Kennedy-Booth barns: op.p.101, pp.141, 164, 174, & 179; of the cottage: op.p.101, pp.140 (upper left) & 167; of the seed testing & distribution building: (iv & partial roof, p.135); and officer's residence: p.167. Two nearly identical cottages (both since razed) and four similar officer residences (one other survives) were also built initially at the Experimental Farm. 128
- Early Experimental Farm plan, 1887, illustrates proposed layout. Upper inset map, c.1894; shows actual original site plan. Scale for both maps 1:16000. Two lower insets of building views illustrate morphology of site elements provided by staff for public distribution. 129
- 1913 panoramic views: greenhouses under construction (upper photograph) looking northwest from the water tower, and view of site looking north toward Parliament Hill. 135
- 1931 aerial oblique photograph of the site, Parliament Hill visible in upper centre. 136
- Mid-twentieth century views. Upper photograph looking south from water tower (c.1950) piggery left, horse barn lower centre, sheep barns centre, main dairy barns lower right, small dairy barn upper right of centre. Lower photograph looking northwest toward central core of buildings (c.1950). 137
- Six dwellings: 1880s cottages on the left and other (less ornate cottages on the right). Only the upper left of these dwellings survives. Photographs date from the late 1930s and early 1940s. 140
- Two dwellings in context. North gate (near Dow's Lake) area included three residences during the 1940s to 1960s. (Department of Defence offices located on Experimental Farm land visible beyond.) Inset photograph shows McCabe-Booth stone house, c.1850 (lower right of centre of upper aerial view), inscribed No.9 Roberson residence on the print. The Kennedy-Booth farmstead (lower aerial image) included a large T-gabled residence until c.1970; inset (viewed from the northeast) inscribed Poultry foreman's house looking east (sic). 141

- Six views of ancillary structures at the site: public bench (looking east, current traffic circle located on the left); field shed; piggery foundations, c.1911 (looking north); silo foundations (west of newly reconstructed main dairy barns, view looking northwest); south (rear) view of original dairy (site currently occupied by building no.94); and engraved view of original dairy (looking south from what is now Elm Drive in front of the Museum). 144
- Two sheds. Upper view shows an implement shed in transit; moved again before it was razed in 1983. Lower shed was the second of three buildings to occupy this location southwest of the main dairy barns (original dairy shown far right). Both photographs date from the 1930s; both show gable-roofed sheds; both are representative of the confusion which can result from temporal morphology studies not based initially on visual evidence - when maps and text alone are not enough to know what was where and how it may have looked at that time. 145
- 1960's aerial view of the site, looking north. In the late late 1940s the auditorium and water tower were destroyed by fire. The water tower was reconstructed in concrete and soon became a new visual landmark at the site, admired by planners preparing the Greber reports (see p.169, 1950). 148
- 1915 master plan (composite view), scale 1:16000, shows proposed physical development for the site and adjacent properties. Upper right third of this map has been taken from one period planning map, the remainder from another (same publication). Broken white line outlines current Central Experimental Farm boundary for property then outside the site. Inset map, scale 1:200000, identifies lands within the Ottawa-Hull area as "park areas" (also dated 1915, same published source). 155
- 1950 master plan (composite view), scale 1:16000, shows proposed physical development concept. Colour portion indicates site at that time. Grey-green indicates proposed to remain as public open space; buff and light brown indicates proposed conversion to residential use. Plan called for the national headquarters of Health and Welfare to be located in the northwest corner of the site across Carling Avenue from the medical facilities associated with the Civic Hospital. A botanical garden was called for south of the arboretum, north of and across the canal from a zoological garden. Inset map, scale 1:200000, identifies what was labelled there as "existing open space" (inset map is dated 1946). 156

Central Experimental Farm photograph by Malak, one of Canada's top-ranked photographers. Many illustrated publications of the National Capital metropolitan area have no views of the site; those that do include such views typically under-represent this site which has, for more than one hundred years, been a major destination for out-of-town visitors and local residents. In Malak (1990, p.99) this view is captioned, "Young visitor and a lamb show mutual curiosity at the Central Experimental Farm, the headquarters of the federal Department of Agriculture." op.161

Photoessay: a graphic poem about the site's geography, illustrated with seventeen pairs of original colour xero-graphic images:

earth, stones, plants, horizon & landscape-becoming-linear;	163
plowed field in one point perspective/old barns in the city;	164
grain & clouds responding to wind, cyclists & fences;	165
clayey clods in front of test plots/ventilators & a bell;	166
forms of former residences in current context;	167
flowers, trees, & buildings in a texture of space & time;	168
weddings of people & cultures/memories of places & times;	169
shadows, sheep, sharing, children & cognition of reality;	170
paths, gates, cows, children, eyes & communication;	171
seeing, being conscious of & sharing foxgloves & irises;	172
form & function/generations bonding with earth & each other;	173
surveying stars & Canada/"Voice of Fire in Fields no.42";	174
looking out and looking in;	175
maize, mass culture, portable heritage & semiotics;	176
form of the face of former staff/fall sun warming earth;	177
rolling snowball, softness, shadows, birches & beehives;	178
chiaroscuro, absence of heat & wind bringing tomorrow.	179

Author reflects on the Form of the Experimental Farm. op.181
Xerographic images illustrates the south elevation of main dairy barns, centre section, reconstructed 1913-14.

(detail) Construction drawing for the new chemistry building at the Central Experimental Farm, 1898. op.192

Map of the Central Experimental Farm containing proposed roadwork for scenic driveways, one of a least five alternative schemes prepared in the 1930s. Scale 1:6600. op.251

Colour sequent image of the Central Experimental Farm's core area: 1926, without annotation. Scale 1:2500. 298

Unbound fold-outs (inside back cover, volume B)

Plate L: (upper) photomosaic looking north and east from Cow lane; (lower) panorama from Carleton University looking southwest to northwest.

Plate R: (upper) photomosaic looking southeast to southwest from same location as plate L (upper) - both upper images are part of a single ground-level panorama; (lower) mosaic illustrating the site as seen from one of the arboretum's look-outs - viewing east and south. The field barn near the centre of the upper photomosaic can be seen in the view op. p.101, c.1920. Camera station for upper mosaics in plates L and R would be above the two chimneys at the boundary hedge in the c.1920 view.

Plate P: Two period panoramas, (upper) c.1890 view looking southeast from a point near current Carling building; (lower) mosaic from the cereal barn, current building no.76, looking south, c.1920.

Plate A: Aerial photomosaic of the site, 1924, scale 1:6600.

FIG. 2.—Building for seed testing and seed grain distribution.

Engraving illustrates the site's original reason for being - the rear greenhouses were used for seed testing, while the front of this building provided accommodation for the distribution of "seed grain to farmers in all parts of the Dominion" (CEF, 1892/3, p.41). Known today as the cereal building or building no.75, the form of this historically important structure is not currently seen by many as a character-defining (or even familiar) element of the site.

1.0 CONTEXT

Visible forms imply an underlying plan. As the soul informs the body, so too the divine artisan's plan informs all of creation

-Buttimer, 1993.

The medium is the message

-Thrower quoting McLuhan, 1972.

1.1 Introduction

In John Kirtland Wright's essay entitled "Terrae incognitae" he observes that much of the formal knowledge about interrelationships between the human spirit and the physical environment has come, not initially from science, but from skilful imagining or insight. This process of acquiring knowledge, called by Nigel Waters "inspired guesswork"[1] seems to be falling away from the apparent centre of conventional geographic thought as a superior role is being assigned to empiricism and reason.

Wright's essay is about the perception of unknown lands as a metaphor for a reality accessible from within. His later, unpublished writings seem to suggest first-hand observation of some of those uncharted regions which include that part of reality beyond reach of science and rational cognition. Those regions, probably visible to native Americans long ago, may now be in need of rediscovery.

1. Recounted by Fraser Taylor during a presentation of the role of geo-information systems (19 Oct.,1990); Carleton University.

Opposite: (detail) Engraving from Kane, 1856; reproduced in Wright, 1966, op.p.90. Reproduced by permission of Harvard University Press.

This paper, at one level a collection of objectified observations on a theoretical study of interrelationships between nature and culture as might be viewed from a geographic perspective, is part of an attempt to map some of Wright's "terrae incognitae". At another level this paper is about perception and cognition of landscapes.

Its central theme is a search for connectedness within our earth, our society, and ourselves. It is also a search for shared answers and becoming individualized[2]. The search is personal; it may be controversial. It involves the author's observations of the earth's role in consciousness and spiritual reality. It also involves the author's feelings for humans, especially those who see the earth as a holistic extension of themselves - a dwelling place which, in an unconscious manner, becomes grateful for being understood and connected to the observer/experiencer.

This study looks at time and form - temporal morphology. Its findings seem to suggest Western models of reality representations and geographical frameworks of meaning are out-of-date for an undistorted view of cultural landscapes and the earth. Current ontological concepts are seen to contain weaknesses and inconsistencies which many have observed, but which mainstream consciousness of academic

2. Individualization is here used in the same sense as Michel Foucault's differentiation between Zen Buddhist philosophy and Christian spirituality (Eribon, trans. by Wing, 1991; p.310).

thought has denied because such criticism is rooted outside of material empiricism and cognition based primarily on science and reason. For example, Ari Lehtinen has observed that "the Question dealt with by numerous, perhaps even most geographers [is] how to understand the interaction between the societal and the natural realms around and within us" (Lehtinen, p.169). He continues, "The Question is misleading, because it immediately tears apart the opposing ends of the relationship as if there actually exists a distance between [humans] and nature - between the two equal poles... artificiality of the Question is apparent, particularly when considering it as a scientific challenge...[it] can be doubted whether there actually exists an (academic) entrance beyond the spheres of overwhelming subjectivity when evaluating the relation we are dwelling in" (p.169).

The research process used for this study has drawn upon Eastern and native American metaphors for geographic explanation and elucidation. It then returned to the foundations of current Western ontological images built upon what appears to be a deeply entrenched societal predisposition for science over aesthetics and for reason over passion[3].

3. In Canada one outstanding expression of the passion-reason dichotomy or paradox is implicit in Joyce Wieland's 1968 satirical work "Reason over Passion". The level of predisposed entrenchment can be seen in the phrase: "the problem with humanism is that the subject has a place", spoken during a presentation on geographical theory and aesthetics at the 1993 Canadian Geographical Association conference.

This paper is divided into two volumes, each with five major sections. The primary volume (A) includes (in addition to this section which provides an outline of context) a review of the image mapping process, an overview of the strategic issues including philosophical considerations, an overview of tactical methods including a preliminary history of multi-dimensional mapping of cultural landscapes as objectified evidence of external reality as perceived within a matrix of time and space, and finally, an introduction to the sequent imaging antithesis method - evolved from a process of cartographic representation initially developed by the author as a method of understanding nationally significant sites under consideration for large-scale restoration.

This concept is presented here in the form of two temporal series of bird's-eye maps to scale illustrating the Central Experimental Farm in Ottawa. Conceptualizing and making these detailed four-dimensional^[4] maps of a cultural landscape is here called sequent imaging, a term coined for this academic study. The concluding section of the first volume is meant to be viewed on several levels of meaning, most of them implicit, and some not immediately accessible to one's conscious mind.

The sequent imaging antithesis method is a process of holding an abstraction of all physical reality in Cartesian time and space as a prerequisite to glimpsing its opposite,

4. Cartesian theory of space contains three dimensions, the fourth as conceptualized here is the dimension of time.

that aspect of reality which includes what Plato described as "Forms" - the unfluctuating aspect beyond and within the superficial universe known to our external senses. Not all viewers may be predisposed to share this process of observing these unknown lands and waters accessible from within. There are few successful examples of consciously mapped "terrae incognitae" and none in the geographical literature with the level of precision attempted here.

The secondary volume of this thesis presents two alternative views of the images delineated in section 5: one takes the form of a conventional historical geography, using primarily written text supplemented by period illustrations; the other consists of a series of current photographs, presented as a graphic concept of the Central Experimental Farm's geographic essence. These alternative views provide implicit, supplementary clues to the anti-thesis of a conceptually seamless temporal morphology as implied at the end of the primary volume.

Section 8 contains a summary statement and suggestions for future consideration. Section 9 lists all references consulted for this study, divided into two main groups: general sources and those related specifically to the site. The last section contains appendices. Generally, volume A includes the core of this thesis, while volume B contains supplementary information - some intended to be viewed at the same time as the images within this primary volume.

1.2 Summary of Theoretical Findings

The unconventional nature of this thesis and its manner of preparation suggests a summary review of its theoretical aspects at the outset. This review is presented here, not at the conclusion, in order to clarify the aesthetic object of this study as an exploration of "terrae incognitae" using the sequent imaging antithesis method.

In this paper the author has examined a dimension of theoretical geography using the Central Experimental Farm as the starting point. Its purpose as a heuristic device changes at each rereading. New questions concerning inter-relationships of nature, culture, consciousness, and essence are brought into focus for the author. Old questions concerning ontology and teleology reoccur in a different light, casting different shadows. All answers become suspect, especially those based on perceptions of external reality alone.

Initial methods of approach for this study were based on a capability to allow latitude for observing the edges defining one's context and sense of rootedness as made known through internal and external landscapes - between an essence of the earth, and its forms which are outlined in a physical sense. At one level the unconscious, initial thesis for this study assumed that there are no exterior forms in time and space, only a consciousness of essence perceived as changing forms. The antithesis, initially operating only at an unconscious level for the author,

assumed that there is no essence, only a delusion of what various cultures have (erroneously) seen and expressed at different times as the "spirit-of-place"[5] or "paradise lost"[6], or the "spiritual realm"[7].

The first two-and-a-half years of writing and rewriting this paper were focused on producing a conventional type of historical geography of the Central Experimental Farm, with an added aspect of introducing and explaining multi-dimension maps of the temporal morphology. During all early drafts until August 1993 the author set out to deliberately exclude intuitively perceived landscapes, or meta-landscapes[8], from the paper. Unlike other research writings produced during that time[9], the original conscious intent was to omit direct or obvious links with a metaphorical system for mapping an edge between that reality verifiable by material empiricism and the meta-reality, or essential reality, which is beyond and within those things rationally knowable.

5. See, for example, Eaglespeaker (1989).

6. Jennifer Dickson outlines an excellent summary of this recurring theme of using cultural landscapes as trigger mechanisms to reveal genetically transferred or non-physically transferred knowledge of the sense of oneness with paradise: lost, becoming, and regained; in Dickson, 1986.

7. As used by Capra (1983, p. 31) quoting Sorokin.

8. Called "inscape" by J. Douglas Porteous, derived from use of the term by Gerard Hopkins (Porteous, 1986, p.123).

9. Four of the seven geographical research papers prepared by the author during this period (1990-93) deal explicitly, at an intuitive level, with dividing things into two mutually exclusive metaphorical groups such as them & us, or sheep & no sheep, or culture & nature. In those four papers, there was little attempt to mask their intuitive origins.

As this study progressed it became clear the author's unconscious mind would block or divert the conscious mind from preparing a thesis focused, in an obvious and finite sense, on topics primarily related to convention historical geography[10]. This blockage did not apply to other work at that time. For example, the product in hand has a much different tone of geographic expression from that used for the historical atlas of a campus[11] also made by the author in 1993. This work, in contrast, will appear to many as disorganized and unfocused. Such a perception results from its intuitively derived structure - not built on rationally knowable foundations. For the author, the writing process had aspects of becoming a paradoxical window and mirror, sometimes reflecting processes of nature becoming culture, and sometimes providing an opening to reveal knowledge of the earth beyond[12].

Some geographers look for an idealistic or logical and coherently knowable interpretation of the earth/human

10. Each early attempt to write such a thesis would move toward themes of ontology and the interface between material and essential reality. The Central Experimental Farm, as objectified in the sequent images, became hardly more than a type of navigational aid for exploration and mapping of a more complicated landscape.

11. Held by the Carleton Library, that atlas illustrates an historical geography of the Carleton University campus site, immediately adjacent to the Experimental Farm - in some cases actually occupying the same original lots.

12. This knowledge is currently not part of formal geographic thought. It concerns the earth as a reservoir of essential energy, much as it possesses electro-magnetic energy which creates its magnetic field. Essential energy is to the spiritual realm what physical energy is to the material realm.

relationship; others look for a middle way, attempting to satisfy everyone but the rigorous rationalist. At an extreme, these two types seem to observe different patterns of geographic reality. The latter tends to see an erring search for compromise between observed sensations acquired from inner and external perceptions as a preferred way to understand the earth. The former tends to see a focused and rigorous pursuit of selected, rational vocations as a preferred way to find important answers[13].

As the final version of this paper took form, a process here called the sequent imaging antithesis method was being followed as if it had been genetically imprinted, or given by hypnotic suggestion[14]. This method is based on the apparent presumption that multi-dimensional, mappable inter-relationships exist between external landscapes, internal landscapes, consciousness, and other aspects of reality.

13. David Seamon's interpretation of these two basic types of geographic method sees either a predisposition toward science, or toward phenomenology (Buttimer, in personal communication, hereafter ipc). The former is typically followed by those uncomfortable using self-knowledge and lacking an intuitive awareness of the split between the observer-consciousness and the experiencer-consciousness (Buttimer, ipc rephrasing Maslow). Historically, these two viewpoints would generate arguments on the relative importance of passion (or faith) versus reason, as discussed by Thomas Aquinas (Van Doren, p.123).

14. Three types of explanation might be offered: genetically imprinted information triggered by cultural stimuli in a coincidental manner; cultural stimuli picked up over the years and coincidentally synthesized as seemingly profound views of things; and influence of non-physical, non-scientifically verifiable energy from material sources. The first explanation raises the question of how and why this occurred; the second suggests everything is an improvisational free-for-all without any teleological aspect; the third explanation coincides with the author's observations during preparation of this text.

Metaphorical models[15] of these relationships include curved-space and extra-three-dimensional space paradoxes. Within such a context one can explore abstractions of phenomena contained within a spatial matrix where any direction of inquiry becomes, after extensive examination, its opposite before eventually returning to the initial point of departure[16]. See also section 3.4.

Such examples attempt to communicate the principle of looking in the opposite direction to explore internal, essential landscapes and to calculate a system of cartographic bearings for mapping that which is seen as not rationally knowable. These "terrae incognitae" seem to be as real and observable for the author as externally perceived forms when viewed in an unclouded manner. The primary problem is that the so-called unknown lands lack a superficial precision and objectifiability one finds in externally observable landscape details.

15. Within these metaphors several more levels or dimensions can be added. For example, a curved-space model might have a geometry where opposite poles touch and where points extending outward from the equator meet their opposite. Within Newtonian colour space models one presumes that pure black becomes the same as pure white, and each pure hue becomes its opposite. By comparison, Goethe's colour space model is entirely relative, conforming more closely to current interpretations of psychophysical perception of electromagnetic energy (sensed as colour) using geometric models generated within chaos theory (Gleick). These metaphoric models are pluralistic, dualistic, or monistic to the extent electromagnetic energy is pluralistic, a wave, or a particle: they have superficially paradoxical attributes of each framework of meaning.

16. This process is a recurring theme in the perception of internal landscapes where one frequently concludes a journey by returning to the starting point and knows it then for the first time. See, for example, T.S. Eliot's "Four Quartets".

Application of this principle to observe internally perceived forms is dependant on conceptually locating a method of simultaneously observing all important geographic interrelationships at once, seeing them as a seamless whole and simultaneously as distinct individual components. In a colour space analogy one observes the apparent centre - a neutral grey mid-point where all hues and black and white can be observed without distortion. At such a point it seems each distinguishable hue and black and white revert to their opposite, a property not easily detectable to observers located at or near those extreme points[17].

In this case conceptualization of a seamless image of culturally derived landscapes of external reality have demonstrated a potential to produce knowable and unclouded images of "terrae incognitae". This process involves holding a coherent image of temporal morphology - externally observable time and space, without affective or conscious aspects. One then conceptualizes an image of essence and human spirit: everything important which is not part of the initial image of the physical form[18] in time and space.

17. It is beyond the scope of this paper to describe Goethe's and Newton's opposing theories of colour perception properties and how knowledge of electro-magnetic energy perception interpreted as "colour" can provide an initial matrix within which to abstract geographical knowledge and related phenomena.

18. In this sense physical forms in time and space are opposite of the constituents of the Forms in the Platonic use of that concept. In a way the sequent imaging antithesis method looks at rigorously expressed examples of temporal morphology in order to observe an essence of the forces which drive fluctuating physical forms related to culture.

Western perception, as a collective consciousness, has tended to reinforce an image of the earth as matter in a nearly sphere-like form, radiating various types of physical energy, and populated by different individual forms of life. Eastern perception, in contrast, has tended to view the earth as spirit (only superficially resembling a sphere), radiating essential energy, and populated by variations of spirit which mimic both their uniqueness and underlying true oneness. It would appear one can find proofs that each is false or true, even perhaps that they are both true.

According to observation made during this study, it may be that what Carl Jung called the unconscious is, when viewed from another cultural perspective, an essential aspect of the so-called spirit-of-place communicating with its conscious partner - us. Many Western thinkers and artists seem to have expressed such a process[19]. Native Americans and other non-Western cultural groups seem to observe, from a different perspective, these fundamental processes of becoming[20].

19. T.S. Eliot's "Choruses from 'the Rock'" and "Landscapes" come to mind; also, Georg Hegel's ideas concerning Nature becoming Spirit and Absolute mind as a "stage of self-conscious freedom in which Mind is reconciled with its opposite" (Hofstadter & Kuhns, p.379).

20. Comparable metaphorically to rock cycles, the process seems to be one of matter (physical mass or energy) becoming individual consciousness and evolving into an aspect of culture: a proto-collective collective sense-of-consciousness or language leading to a coherent and holistic collective consciousness. Whether viewed from Western or Eastern, tribal or global, individual or collective viewpoints; this process of "becoming" is an aspect of meta-geography at one level, and general theoretical geography at another.

According to these findings there appear to be intuitively observable quanta of a non-physical (not detectable by scientific methods) composition which are emitted from the earth and elsewhere[21].

These theorized quanta or packages of essential energy seem to affect human consciousness much like magnetic properties of rocks are affected by the earth's mass. This intuitively obvious metaphor is interesting as an example of timeless application. Earliest written record of it is Socrates in dialogue saying, "there is a divinity moving you like that contained in the stone which Euripides calls a magnet"; written by Plato describing sources of artistic inspiration (Hofstadter & Kuhns, p.54).

It would appear these (theorized) quanta have a dominant polar aspect as does magnetism. For example, many scholars have noted fundamental differences in perception and cognition when comparing East and West. These differences are influenced by culture, but culture itself is influenced by the accumulation of individual consciousnesses over time[22].

21. The author is not aware of literature which conclusively disproves the possibility of the existence of non-physical quanta radiating from cultural and other objects detectable, though not clearly recognizable, without external senses. On the other hand many observations throughout history would be explained and clarified if this theory were accepted. In other words, it currently holds for all tests the author has been able to apply.

22. Michel Foucault, as one example, has observed this global polarization in the form of differing attitudes toward individualization and becoming one (Eribon [trans. Wing] 1991, p.310). No serious analysis of landscape perception can miss observing substantial differences in Western and Eastern views.

For those not predisposed to know internally-based landscapes and to see what for others appears to be self-evident[23], there has been a tendency to label the claim of such landscapes as evidence of "madness"[24] or "fantasy". At one level, an unconscious aim of this paper seems to be the attempt to bridge this gap, to rationally understand, elucidate, and explain that which is normally described only in metaphor, not knowable by direct experience to those predisposed toward conventional Western biases[25].

For some, words are the preferred mode of communication. Other believe images "have always been the best mode of

23. The author has been "mapping" individual predispositions for the past few years as an aspect of this study. Each person seems to divide into one of two groups, either according to Jung's theory of introvert-extrovert, or according to Maslow's theory of spectator-experiencer. The fundamental test seems to be based on those who see the earth as part of themselves in an infinite and personal sense, and those that see earth as a separate aspect of reality which is part of a finite and rational system. The former group tends to be "ruled" by passion filtered by reason, the latter is "ruled" by reason filtered by passion. Experiential knowledge of internally-observed landscapes, "terrae incognitae", seems related to the dominance of passion over reason, not an absolute capacity in either case.

24. Quotes are used to differentiate the views of others concerning the condition currently labelled in the West as "madness". See, for example, Michel Foucault's objectified view of this condition in The final Foucault; Brenauer & Rasmussen, 1988. The author's view is both very close to Foucault's and its opposite. This paradox results from the fact that Foucault was "ruled" by reason, while the author is ruled by passion and affective cognition.

25. Western biases are along the lines of that which Maslow labelled as "spectator": detached over fused, interchangeable knowers over unequal knowers, uncaring cognition over caring, verbal over empathetic, and sense of divorced relationship over perceived "object" becoming grateful for being understood, attaching itself to the observer.

communciation between people, but technologies such as the typewriter have long make text easier to reproduce than images"[26]. New technologies such as television, photography, and computers are challenging the superior role assigned in the West to linear cognition and word-based communication.

Communication and cognition are, to some extent, inseparable. How one thinks is partly dependent on the culturally inculcated frameworks for expressing or sharing the images in one's mind with others. Consciousness is the canvas. The landscape painted there, how one saw it originally, how one painted it, and how one - or others - (re)view(s) it, are to a large degree dependant on the predisposition and cultural conditioning of the geographer. These genetic predispositions and external influences are inherited; they also are cause for distortions[27] in viewing the earth - and earth/human relationships.

26. Stated by Alan Robertson, colour perception theorist at Canada's National Research Council, 1992 (p.23). It was only in 1992 that the International Organization for Standardization has seen the development of a metric notation system for colour. That system has no direct application to human perception of electromagnetic energy in the form of colour because complexities of human perception required the system to deal in purely a material realm. This means that notation of a specific colour using that system can only be known directly by other machines. Psychophysical colours, as phenomena which are perceived by humans, remain outside what science has yet pinned down.

27. It is useful to (re)consider Harold Innis's Bias of Communication, Marshall McLuhan's Understanding Media, and more recent general discussions of a synthetic view of distortion, bias, & our "blindness" (Lehtinen, p.169) of how we might understand the relationship between people and nature.

Within conventional Western views of the landscape, one finds a(n unjustified[28]) sense of a reality that must be made separate from the geographer-observer before it can be understood without distortion. An excess of such value-influenced judgments against phenomenological cognition, presumed by many as inferior to cognition based on science, has created wide-spread distortions which, to a degree, parallel those seen in problems identified in current feminist arguments against previous theories and practices. Both types of prejudice are based on deeply-rooted cultural norms and both will take much work to overcome.

In the past, those favoring science have assumed their type of knowledge is ideally "value-free", rather than distorted toward inherent biases caused by the exclusion of many phenomenologically compatible methods, values, and aspects of knowledge. Attempts to standardize geographic thought based on an opinion that reason, written expression, external reality, and other science-like aspects are more valuable than their opposites have led to a rather one-sided and distorted image of the earth and how humans relate to it. Findings of this study suggest there is a need to radically challenge such an opinion, along with the theories and practices which have grown from it[29].

28. Not logically defensible when given serious thought: to make truly separate means a "landscape" cannot co-exist as object-matter and consciousness, neither strictly provable.

29. If a coherent challenge against a presumed superiority of reason, written expression, and external reality is underway elsewhere, this thesis might be added to that movement dedicated to clearly delineate distortions in Western culture.

1.3 Conceptual Background

One's awareness of being connected[30] is partly tied to physical elements within the cultural landscape which are deemed to be of heritage value. For the individual such places may be understood as "responding to a human need in search of its deeper spiritual values" (Di Stefano, 1987). When recognized by a society these places are said to contain "irreplaceable, spiritual, cultural and social value" (Unesco, 1975).

The study, understanding, and describing of those aspects of the cultural landscape dealing with spiritual value, as viewed through the eyes and vocabulary of a geographer, have not been able to overcome the tide caused by material empiricism and its associated characteristics [31]. There are many minority examples which appear to be swimming against the current tide, as: John Allen (1976), Anne Buttmer (1993), W.H. Graham (1988), R.B. Hay (1988), Ari Aukusti Lehtinen (1991), Hugh C. Prince (1971), J.D. Porteous (1990), William R. Mead (1983), James Raffan (1993),

30. As Carl Jung observed two fundamental types of people, it may be the case they can be divided according to those who sense an overarching desire for connectedness with the earth and its occupants on one hand; and, on the other, those who sense a preference toward separateness - where one gains energy from personal isolation, not from a coalescence or connectedness. The two tendencies exist in everyone, one however seems to be dominant.

31. John Kirland Wright's two seminal works on the bias of communication resulting from the tide of material empiricism are "*Terrae incognitae*"[in *italic*]: the place of the imagination in geography", 1947, reprinted 1966; and "Notes on early American geopiety", 1966. It is the author's view that Wright has defined a cornerstone of geographical thought since built upon by Buttmer and others. His work spanned great widths and depths, both within the literature and within the unconscious.

D. Seamon (c.1990), R. Shields (1991), Yi-Fu Tuan (1990) & (1974), Stephen Thirlwall (1992), and J.M. Vastokas (1990).

Many current formal or academic studies in geography are produced by people who feel compelled, on one hand, to work within the narrow confines of a scholastic environment as that which Descartes had set out to break away from. On the other hand each of the above mappers of human spirit is an artist as much as a scientist; each struggling in her or his own way to overcome a problem which seems to have been first addressed in formal geography more than a century ago when E.C. Semple[32] was compelled, by European professors and by her instincts, to sit outside the classroom door and learn techniques of a group of men who were in control of how Western societies saw, in an expressed collective sense, the earth and its interrelationships[33].

Semple's love of the world, not only her scholarship, is seen as an important influence reinforcing perceptions of geographers near the middle of the inquiry into earth-human interrelations, such as Wright and Buttimer[34].

32. The author knows of no female leaders in the academic arena of geography prior to E.C. Semple. Prior to the mid-nineteenth century it might be argued that the formal discipline had no way of correcting for distortions of perception stemming from a male dominated Western culture.

33. Basic facts of this account are from Buttimer (ipc).

34. Wright studied under Semple at Harvard. Recall his early pleas for a comprehensive history of geographic thought; recall his account of her "Influences of geographic environment" (Wright, 1966). Buttimer reports she became a geographer to a large degree because of Semple's work on the Mediterranean (Buttimer, in personal communication; hereafter indicated as "ipc" following the person's name).

This thesis, its words processed on an out-of-date[35] Smith Corona PWP-12, describes in linear alpha-numeric representation crude and grossly incomplete metaphorical and pictorial images which were produced in distinct, subjective form during this combined study of interrelationships and the changing morphology of a particular landscape.

These observations have been achieved by conceptually stripping away all aspects of a cultural landscape except those characteristics of time and space associated with its superficial fluctuating external forms. The author has attempted to then detach from the multi-dimensioned representational maps in an attempt to view in an unclouded light internally-perceived essential landscapes known historically to native Americans, Chinese artist/scholars of ten centuries ago, and others. In a sense this process attempts to consciously hold a single synthetic image of all things known to the author related to the Form of landscape.

Some might call the approach taken by the author as built on a "mosaic" or mapmaker's world-view metaphor, with

35. In some cases the ideas contained here first came into consciousness when printed by this memory-typewriter. Its role in objectifying these images of "terrae incognitae" is important to note: as one might cite the type of scientific equipment used for an experiment. This written text is, to a much greater than normal degree, derived partly as a product of the writing technology. Innis (1951) argues that writing one's thoughts produces eventually a different type of cognition than speaking them - not necessarily better, only different. In this case the conceptual bonding with the screen of the machine displaying these words (suggesting thought) is more obvious than one might normally observe. Here "out-of-date" means: no staff at a local retail store recall ever stocking memory tapes for this type of machine, its memory has no backup, it periodically loses its memory, and the screen-link wiring is loose and likely to fail in the near future.

a poetic[36] "vocational meaning" (Buttimer, p.15). Clearly the author feels a desire to evoke "geographic awareness, critical reflection, discovery, and creativity... [to] elicit curiosity and insight about relationships between humanity and the physical earth in themes such as culture and landscape..." (p.15).

This study, as a Master of Arts thesis and as a more lasting pursuit, is mostly a learning process for the author, not a display of academic techniques. When one is trying to map ontological terrain which has not been systematically recorded by cartographic methods it is not always possible to travel when and where you might think you want to go. The weather, currents, lack of landmarks, and doubts from others take a rather considerable toll.

Based on the findings of this study, the metaphorical world may not be flat as nearly everyone has been insisting. How "wrong" were the native Americans in their perception of the earth-human relationship? Is the song title "We are the world" more than merely an appealing turn of phrase? What is the subject of geography? Is there a universal knowledge concerning the study of the earth within one's unconscious?

This study rests its foundation on a correspondence theory which attempts to discriminate, understand, and

36. According to Buttimer's theory of career meaning the Greek term poesis (p.15), simplified in this paper as "poetic", can be applied to those who try to look ahead and address critical, emancipatory interests of others.

conceptually represent similarities or differences for realities presented to the internal[37] and external senses. That is to say, the author has attempted to compare what appears to be Plato's Forms with the external appearance of those forms as revealed in the seamless multi-dimensional conceptual maps which are expressed in objectified form in the sequent images.

Buttimer has labeled this correspondence approach in the following manner. Reality is perceived and cognitively "constructed as a mosaic of patterns and forms. Beneath each pattern, formative processes are at work, for example, cycles of erosion, ebb and flow of tides...[it is] the most practiced of all four [world-view] metaphors" within the context of formal geography (p.22).

The study described within this paper has an underlying object not unlike that of D'Arcy Wentworth Thompson's in his study of biological forms as a means of understanding genetic communication within chromosomes as "seats of energy and centres of force"[38].

37. The author has attempted to rely almost entirely on the use of imagination, insight, and Waters's "guesswork" to carry out this study. In reality the mental images of the observed "terrae incognitae" are not translatable into objectified expression. Symbols and metaphors are required in a similar way they might be seen in Korin, c.1700; Borduas, 1956; or Sibelius (as recalled by W.R. Mead, 1979 and 1983).

38. See On Growth and Form, first published in 1917, and expanded in 1942 to eleven hundred pages; abridged in 1961 to remove out-of-date passages and to make D'Arcy Wentworth Thompson's points more forceful. His emphasis was on understanding temporal morphology - observing the form of each configuration, the form of its predecessor, of its predecessor's predecessor, and so on. Quote is from p.3 of the 1961 text.

1.4 Statement of Thesis Aims

This thesis defines "sequent imaging", examines its application for cultural heritage sites, illustrates an example using the Central Experimental Farm in Ottawa, and reports on a theoretical application of the sequent imaging antithesis method. Its primary aim is to explore the question of whether or not cultural landscapes can be a type of trigger mechanism to everpresent landscapes which are part of Wright's "terrae incognitae". Are there particular messages in a landscape such as the Experimental Farm? What is the responsibility of students of geography to attempt to map the apparent conceptual and spatial interrelationships?

The underlying purpose of this thesis, the explicit hidden agenda as it may be, is to objectify - attempt to share - several ideas related to the author's search for that "obvious point to begin when trying to link the outer and inner worlds...where you can look both directions: with oneself" (Torsen Hagerstrand, as quoted in the opening words to chapter one of Buttimer, 1993).

Secondary aims of this thesis include:

- to place into the literature an account of four-dimensional mapping;
- to develop a citation methodology suitable for detailed studies of temporal morphology;
- to present a concise historical geography of the Central Experimental Farm in the literature with a summary of mental images held by the author;

- to outline an argument that the CEF is a highly significant cultural site and worthy of consideration by Unesco as a World Heritage Site;
- to add support to those who would like to see this example of rural-in-urban open space protected at both the national and local levels; and
- to discover, understand, and describe other phenomena which may be essential to the task of putting this paper into words.

A tertiary aim of this paper is to produce evidence of the feasibility for one to systematically "map" parts of Wright's "terrae incognitae". It is theorized that a study of this type, involving interrelationships of a local and at the same time broad set of themes, might best include a combination of analytic and synthetic thinking. Exploring relationships of essence with a metaphorical mirror-image of the opposite of that being sought, might allow one to hold a conscious abstraction of the earth and its landscapes without direct association with the physical aspect of these features. The greatest problem will be one of representing findings outside the mind.

One aim of this thesis is to serve as a method of self-exploration - attempting to link the outer and the inner, and to look in both directions. If this learning-by-doing study has no practical relevance to other geographers, it at least has been of interest to the author.

NOVA TOTIUS TERRARUM

2.0 IMAGE MAPPING OF LANDSCAPES

From maps of [people's] 'space preferences' we attempt to explain the ways in which 'mental maps' are related to the characteristics of the real world

- Thirlwall, 1992, quoting Gould.

Every society has its idea of the archetypal paradise or golden age that, it is believed, once existed and will exist again - Jung, 1964.

2.1 Introduction

Image mapping is an aspect of becoming conscious. It involves a spiral-like progression of sensing inwards towards inner reality and outward towards external reality. Becoming conscious involves communication between inner and outer to establish tentative correspondence - matching or not - within a subject-object paradox. Inner reality, being more complex, has been found by many as something vague, even something non-existent. For others, this conceptual coming together process - themselves possessing a sense of consciousness - is the only true reality.

In ancient times these two primary realities co-existed simply as matter and essence; sometimes called Nature and Spirit, or energy in a physical form and energy in a type of essential form. Absolute consciousness/nothingness exists, but individual human or pluralistic consciousness did not

Opposite: graphic text describing image mapping of the Central Experimental Farm. Photo credit: National Air Photo Library A30014 (1966) and A31407-83 (1985); painting credit: Eisentrager, 1990; period map credit: Hondius, 1617.

exist on earth at that time. Over time, matter and essence are synthesized through consciousness(-becoming) to become part of culture. Exterior cultural landscapes and interior, culturally-expressed landscapes are one's link to the larger aspects of earth and reality. Images of landscapes - a sense of landscape - comes from a synthesis of experiences with these two realities.

The concept of "image" seems to be related to one's ability to see or to sense a context within these two realities. Normally, one or the other reality is thought to be more nearly meaningful to each individual. This preference seems to be an inherited predisposition brought into consciousness within a context and vocabulary of cultural conditioning. The word "image" comes through Latin meaning to imitate. In this regard there seems to be a causal relationship between the source aspects and the subjective aspect constructed, or so it seems, in one's mind.

2.2 External and Internal Landscapes

From the point of view of conventional geography, object-images can be considered as those aspects of material reality which exist within the physical landscape. These images are not imaginary and are not distorted within themselves. They represent the object of geology, meteorology, biology, and material culture. Each physical aspect, in whole or part, forms a multiplicity of energy messages which have the potential to become sensed and made conscious.

Object-images are the forms taken by physical energy as matter. They are also electro-magnetic energy messages in the process of becoming - part of a process of communication involving conventional properties of physical energy radiating in a manner which may become part of the consciousness cycle-link[1]. An object-image is a scientifically verifiable aspect which exists in Cartesian space and time[2]. Such images are formed by "a divine artisan" (Buttimer, p.94), perhaps to provide a peg upon which to tie the dynamic forces needed to anchor our consciousness.

In contrast, non-physical aspects of reality, such as love or insecurity, are manifestations of essential reality interacting with the physical, ambient landscape. Culture, when seen as a form of communication, consists of physical modification of the external environment for symbiotic purposes operating at many levels, most still implicit or unconscious at both individual and field-of-study[3] levels. Object-images are symbols of the artisan's plan, the artisan itself, the objects, or for some simply themselves.

In conventional geography the form of an object is not argued philosophically. The image, so obviously(?) there,

1. This cycle-link, as a process, has aspects of a maelstrom (as implicit in the metaphor used by Marshall McLuhan and Edgar Allan Poe) and aspects of a geodesic construction (as a metaphor for linear-like forms creating a much larger curved whole).

2. As described in Hawking's A Brief History of Time.

3. The phrase "field-of-study" is used meaning geography. The word "Geography" was not used in the text to avoid mixing its meaning with the earth-human relationship itself.

typically is assumed to provide clues to mundane or profane questions about process, conservation, or development. Not many geographers question the existence of object-images. Most Western geographers, it would seem, believe that the understanding of geographic problems, as made known through (a presumed perception of) those things here called object-images will lead toward truth, improvement, or perhaps only a slowing down of stresses put upon the objectives of the discipline of geography.

Physical energy radiating from, or reflecting off of, object-images provides a receivable medium. Normally, a person senses exterior reality - as space and time - through sight. A dolphin or bat uses sound to explore, with great detail, its adjacent landscape. Machines can use infrared and other hypo-visible[4] radiation to "see" other aspects of object-images. Conventionally, people use visible (colour spectrum) light to learn about the object-forms which make up the external landscape.

An object-image of a landscape is a potentially identifiable aspect of radiated physical energy coming from the originating object. The reception of an object-image can be on a child's camera film, on a geographer's retina, or on a masonry wall in 1945 Hiroshima.

4. Various scanning techniques are in use which allow one to detect landscape forms otherwise beneath the range of human vision. Most techniques of this type involve an interception or detection of electro-magnetic energy emitted and reflected from the object-image.

Unlike object-images which are part of conventional geography, subject-images are seldom discussed seriously in a geographical sense. Subject-images originate in the so-called spiritual realm beyond and within physical reality. As timeless and non-physical phenomena, they are not directly verifiable using science, empiricism, or reason. They are made directly known to human consciousness only as presented via one's so-called unconscious mind.

The capacity to observe subject-images directly appears to be a function of one's "handedness"[5]. Metaphorically right-handed people in Western culture consider their pre-disposed ability to establish a sense of consciousness primarily through knowledge of object-images as "right". They then assume that the metaphorically left-handed people, who would naturally favour their predisposition toward the essence of reality, are not just gullible and wrong; they are sinister! The fear of knowing about subject-images is so deeply felt that many who have spoken out over the years have not been treated well during their lifetime.

Those individuals who are not inclined to directly observe non-physical forms of energy seem unable to perceive subject-images themselves. They do not mind to read about the results, speculating on imagination or mythical origins. Direct association seems to call into question the underpinnings for their concept of reality.

5. Here handedness is a metaphor for those who favour perception of one type of reality and -image over the other, either external landscapes are dominant or internal landscapes are more meaningful.

Written or graphic accounts of subject-images typically take a metaphorical or symbolic form to facilitate the process of objectifying that which has no rational or externally verifiable aspect. Pythagoras saw subject-images as "Forms"[6], though his descriptive accounts were not put down in written form during his life. Within the formal field of geography J.K. Wright, and more recently Yi Fu Tuan, stand out as observers of subject-images related to earth[7].

Geographers seldom explore the "terrae incognitae" of subject-images in a direct and open manner. The work of Sitwell and Bilash (1986) is an exception. Many individuals who have lucid and extensive perception of subject-images of the earth are sometimes labelled as mad or genius, or both. "Madness", it may be found, is partly a state of being more in touch with subject-images than object-images, unable to easily relate to external reality. Some of the best proto-maps of "terrae incognitae" are seen in the dust-jacket illustration on Buttimer, 1993[8], Korin's images[9], those

6. Plato wrote of "Forms as the objects of transcendental emotion ...direct contemplation of 'unbodied' reality" (Taylor, p.55). The concept upon which Plato's written account, which is most often today translated as "Forms", is said to have come through Pythagorean teachings at his school in south Italy.

7. Prejudice toward right-handedness, as used in this metaphor, is so strong that many other practitioners have marginalized Tuan & Wright. Many geographers do not recognize an ability to see both ways when studying the earth.

8. "Metamorphosis of Narcissus" by Salvador Dali, 1937; a surrealist landscape reminiscent of Bosch.

9. Ogata Korin, master of late seventeenth century Japanese landscape painting, tended to paint from metaphysical love poems rather than directly from external examples.

of Peters[10], Sibelius's music-scapes[11], Eliot's landscapes[12], Blake's images[13], and Dickson's "trigger mechanisms"[14]. James Raffan provides an appropriate summary of formal geography's knowledge of this general source of landscape images when he reported in 1993 [15] that the "research situation tells us more about the biases of modern geographers than it does about people's real relationships to their places" (p.1). His presentation of drawings of perceived subject-images represents, at best, a marginal acceptance at the collective level within the field of academic or formal geography.

10. Ellis Peters is known for vivid landscape descriptions of sites which are an interwoven marriage of historical examples and those from her "imagination". Another example is the work of Malcolm Lowry: see Porteous, 1986.

11. W.R. Mead's observations of Sibelius's musical landscapes are contained in Mead, 1979; and Mead, 1983. Consider also, Sibelius (1899) and Mussorgsky (1847).

12. Consider T.S. Eliot's "Landscapes", or "The Rock".

13. William Blake produced a number of teleological landscapes in graphic form, such as those on exhibit in MacOdrum Library, Carleton University during 1988.

14. Local artist and cultural landscapes historian Jennifer Dickson has written about her artwork: "If the work goes beyond the mundane or purely descriptive [in an object-image sense], it has the power to liberate primal energies, deeply repressed. It is both the experiential power of the garden [itself an objectified example of subject-images] as a work of art, and the powerful associative energies the inspired work can liberate, which causes me to be continually journeying backwards in time to paradise lost." (Dickson, 1987)

15. Raffan (1993) describes his view of subject-images as "the land constitutes the connection between Dene and the creator, between individual people and understanding...there are two routes to infinity...which is the creator: one is the circle: the other is the red road, the right road". In both cases Dene spiritual leaders or "roadmen" can be of service for those searching for either path to view subject-images (p.16).

The problem before us in this case is that observation of, and knowledge about, subject-images is not universally knowable, nor is it verifiable scientifically. In simple terms one cannot expect to reach an agreement on an issue which is not only seemingly non-existent to many people, it is seen as coming from a "sinister" origin. Discourse on the subject seems to cause disorientation - it may be impossible for those predisposed (metaphorically right-handed) to accept the true existence of subject-images.

In the absence of generally accepted geographic terms and descriptive models to explain the interrelationship between subject-images and humans, this paper postulates the following ideas.

Consciousness of the earth as a collection of object-images provides metaphors for exploring subject-images in a shared, externally expressable manner. A balance between the two types of perception must exist in order to maintain a sense of rootedness in the (illusion of the) earth as only mass and radiating physical energy. As knowledge of one becomes more precise the other type of -image tends to be lost. In today's cultural context one may not be able to abstract a balanced view of the earth and its landscapes without first doubting external observations with as much rigor as one doubts internal observations. It also seems to help if the observer is metaphorically left-handed.

Subject-images seem to come into (un)consciousness via three primary routes: genetically transferred knowledge of inherited landscape perceptions, essential (not physical) radiation from material objects such as the earth, and essential radiation from an omnipresent spiritual realm.

The second postulate presumes four things: existence of essence in the form of discrete quanta; existence of an omnipresent but unconscious spiritual realm (plus everythingness/nothingness); a capacity for living things generally, and people especially, to analytically perceive and (potentially) make recognizable sense out of the patterns of these quanta; and finally, the ability for mass (especially the earth) and spirit to want (unconsciously) to communicate with (proto)consciousness-becoming.

The simplest metaphoric parallel to this process, as postulated, is physical energy known as electro-magnetic. In a way it would appear one is nearly a mirror image of the other, as the left hand and the right[16]. Preliminary findings suggest spirit and love are to essential energy what mass and heat are to electro-magnetic energy.

16. There are two primary criticisms which can be directed toward these observations. First, they are not seen (by some geographers) as meaningful or understandable. Second, there is very little geographical literature on the subject of subject-images as no less real than object-images. Wright's work is the most explicit, and most of his written observations are not published according to Martyn Bowden (ipc). The first criticism is only a problem for those who are so-called right-handed and resent reading that right, in this case, is value-laden, and not superior to one who has been seen historically as gauche or worse. The second exists for much the same reason that there was very little literature on chaos theory twenty years ago.

2.3 Cognition of Landscape Images

Many studies have been made of perception and cognition of object-images. Examples of this cognition as processes include Margolis (1993) and Downs & Stea (1977). The question of "why?" is perhaps more important to the purposes of this study than a review of a process well-documented in the literature. Why does the individual (and the society) choose to be conscious of the forms around them? Are the forms and the consciousness dependently interrelated as time and space are also interrelated in a mutually dependent marriage? Is the cultural environment simply a step in a cyclic process of slowly becoming self-conscious? Is human consciousness simply the earth becoming pure spirit (again)?

These questions suggest there may be teleological aspects of geography (as the study of the earth and those who dwell here) which are far more profound than can be rationally knowable - questions which transcend the limits of reason-biased cognition. These questions are, for some, unanswerable and not important; for others, nothing is more important.

Alan Sillitoe has suggested "we come into the world not knowing what - if any - part of it is ours, and need to put down some survey before very long to establish our stability, even if only for ourselves"[17].

17. From "Maps", a lecture given at the University of Nebraska; reproduced in part in "A Commonplace Geography", William R. Mead.

Why humans tend to need to put down a survey has been addressed by Zackary Couch, who observed that at least half the population seems predisposed to communicate using cultural phenomena for purposes of becoming one again (ipc). Such an observation is in line with an ontological framework based on the same subject-image sources as historically perceived by followers of mysticism. Sillitoe, Couch, and mystics perceive and become conscious of subject-images in such a manner as to create a preference for wanting-to-be-attached. In contrast, others who experience the earth's subject-images feel a sense of wanting-to-be-separated and feel less close to their immediate landscape. As all extreme opposites seem to be, these two types of people are paradoxically similiar in many ways.

The problem before us here is that it is not easy to make precise studies of the human mind in the act of producing images within itself, whether from electro-magnetic energy, from the theorized quanta of essential energy, from recalling previously known images, or from spontaneous occurrence.

Observing object-images in the exterior landscape is easy to verify, some believe. They have forgotten the illusions and distortions which can occur when only one hand is used to carry out important tasks. Reconstructions of energy patterns in a consciousness should only be trusted to the degree they can be checked in an unclouded manner with both metaphorical hands: the essential and the material.

One way of visualizing in the mind a cognition of a subject-image is through metaphor. For example, a subject-image of academic papers, their collective essence, can be imagined as different types of a winter holiday trees - as an organic conceptual form; a picked and exhibited symbol; and a product of wind, sun, seed, and hard work. Most papers, in the scholastic tradition, add citations and ideas from others to embellish the "tree" with an assortment of conceptual candy canes and silver balls. The presumed purpose in both the object-image (academic paper) and this decorated subject-image example (the winter-holiday tree metaphor) is to disguise apparent imperfections, make its form more complete, and follow cultural conventions.

Having a clear cognition of this type of metaphorical image, in addition to a conventional image which is more easily seen, allows one to see interrelationships more clearly and elucidate the process, the products, and one's own paper. This paper, in contrast to the example, takes to itself a sampling of silver balls and candy canes in order to make this glass-like tree visible to those who might otherwise see only reflections - or nothing.

Universally enjoyed subject-images of a geographic nature tend to come into an objectified form as a type of poetry or art. Examples include: the works of M.C. Escher, J.R.R. Tolkien, Paul Emile Borduas, and Ogata Korin. Their examples of the landscape were derived from internal visions, not primarily from externally-observable examples.

While it is impossible to know with any externally verifiable certainty where one gets one's so-called creative ideas for anything related to a study of the earth; it is useful to sometimes think about the question. Consider accounts of dreams, music, and other culturally influenced phenomena related closely to subject-image expression. Then abstract that consideration into a small three-dimensional metaphor and place it behind a darkened window. Now, as one views (in the mind's eye) the abstracted conceptualization of dreams, music and the like, it becomes faintly visible in an image mixed with one's own image looking through. The subject-, object-image paradox is similar - one cannot see internal reality nor external reality without also seeing one's self. The problem may not be to remove the conscious mind from observations, but to know which is us.

2.4 Objectifying Cognitive Landscape Images

This section considers five types of images which might be translated by the conscious mind into an object form^[18]. First are conceptualized images one might find near the centre of mainstream geography; second are images considered as typical examples from the external environment primarily; third are images from the imagination primarily; fourth are images at the theoretical extremes of mapping the physical environment; and finally, objectified concepts which are seen as representing a theoretical edge of mapping (human) spirit.

18. "Object form" means an objectified expression of cognition which exists as a discrete object outside the mind. See also footnote, 10.8.

The first and second sets of examples are very similar it would seem. They are discussed in: Robinson (1952), Robinson and Petchenik (1976), Thrower (1972), geographical-information systems literature, and most current courses in cartography. Many geographers would consider the centre of cartography to be not substantially different, in concept, from the centre of the second group - map representations focusing on physical environments.

Several authorities draw attention to the mapping of human perception of images from the unconscious. For example, Douglas Hofstadter cites Escher's drawings of interlocking and masquerading spatial expressions of the two poles of reality, presented in a fractal-like relationship, which were intuitively derived metaphorical images coming from deep within his unconscious. For example, see "Sky Castle", Escher, 1928 (Hofstadter, 1979, p.42).

This example is used in its relationship to geography because of its inclusion in a study of geographic thought as presented by Buttimer[19]. Within the main body of geographic works some of the best examples of objectified images are not presented in a graphic map. Wright's account of "terrae incognitae" is probably the best known. More recent is a work by Stephen Thirlwall, mapping a perception of a society's collective, internal landscape with music.

19. At the University of Ottawa, 1990.

Thirlwall questions "which landscape is reality and which is illusion; the physical landscape of nature, the human cultural landscape of built form and the human action or the internal landscape of thoughts, inspirations and perceptions within the human mind?" (p.2). The latter case has music, as an expression of culture, viewed as subject-images.

Mapping at the theoretical limit of representing the physical environment is, for many, the goal of cartography. If one follows definitions of geography such as, "science of describing the earth's surface..." (Buisseret, 1990, p.317), or more commonly as either a "science" or a "social science", it is inevitable there will be discipline-wide distortion which may be traced to a mis-application of Cartesian ontological dualism and related thinking. In the absence of a valid test it is not known to what extent distortion might occur because of "value-laden" views of landscapes and not "value directed"[20] views? The question needs raising.

Little rigorous work has been done in geography on mapping the apparent origins of human spirit and the sense of place as presented to one's un-(meta-)consciousness. Some of the more advanced work on this aspect of geography is Porteus (1990), Raffan (1993), W. Thompson (1989), Vastokas (1990), and Plato (as described in White, 1989).

20. Terms are from Wallace, 1987, p.2.9. One question keeps reoccurring in the author's mind: is anyone looking at the underlying forces which make people in our culture feel externally observed landscapes are more nearly earth-centred than internally observed landscapes? Why do some people imagine that the spirit-of-the-earth and internally-derived landscapes are less important than materially-based studies in geography?

Small doghouse in
front of house at
the farm. Photo of
the doghouse and the
small farm. Photo of the

3.0 STRATEGIC METHODS OF APPROACH

[map-makers can resort] to the study of configurations,
like the sailor in Edgar Allan Poe's "Maelstrom"
- McLuhan, 1964.

While drawing I sometimes feel as if I were a spirit-
ualist medium, controlled by the creatures which I am
conjuring up. It is as if they themselves decide on
the shape in which they choose to appear
- D. Hofstadter quoting Escher, 1979.

3.1 Introduction

This paper is not a final product which attempts to
summarize a limited analytical inquiry in order to resolve a
narrowly defined, answerable question. It is, instead, an
objectified aspect of consciousness - focused on the earth
as a whole and as represented in a nearby landscape - which
the author hopes to share with a larger audience using this
academic opportunity. It is also an attempt to look in both
directions with oneself.

This thesis is a temporal cross-section of objectified
thoughts in flux, offering a mirror/window for the author,
revealing new insights. It appears to be acid-free paper
with tiny specks of carbon laid out in repeating patterns,
drawn from the contents of a dictionary, which have been
joined together as a mason might assemble a wall of stone.
What kind of stones are being used here? Are they meta-

Opposite: author studies morphology at the Central Experi-
mental Farm. Photo credit: Rota Zigurs Bouse.

morphic, metaphoric, or metaphysic? Do we know how the rock/metaphor/metaphysic becomes the way it is? Do geographers tend to be more interested in one over the others? Rock is the easiest[1], most people seem to say. Metaphors are okay as long as they keep their distance. The latter is not discussed in mixed company.

At one level of academic discourse, one might consider the "question" this thesis asks as:

-has the development of Western knowledge been distorted to exclude serious consideration of non-material, non-empirically verifiable aspects of landscape perception;

On another level the "question" this thesis asks is entirely beyond a rhetorical gesture to share thoughts. Beneath this question are concerns articulated in a geographical[2] context most clearly within J.K. Wright's consideration of "geotheology", "geoteleology", (1966, p.251) and the "war-fare of science with theology" (p.258). Implicit in his works, especially his later writing, are seeds for observations mapped here. Central to this metaphoric process of exploration and cartography is form of "land and water" as aesthetic essentials and practical materials.

1. Rock may be the easiest to study in a material sense but the most difficult to know in an essential sense.

2. Recurring in all writing is the ambiguity of words. The word "geographical" in this case means the field of study in a formal, non-vernacular sense, complete with its apparent Western biases. The most frequent definition of "geography" in this paper is spelled out in section 10.5.

3.2 Background

Few disciples of current popular paradigms should disagree with Jim Cheney's belief that "voice is privileged to the extent that it is constructed from a position that enables it to spot distortions" (Cheney, 1989, p.118). In this case one hopes the privileged voice is matched with a privileged ear and eye to serve as the distortion-spotter. Notwithstanding Cheney's mixed metaphor, one presumes it is desirable to be in a position of geographic knowledge, perception, and good fortune to differentiate what is or is not distorted, how much exists, and how it affects the perception and cognition of those one is communicating with.

Perhaps his text, and its context, "seen as a teleological statement, a shaped system of reference that allows us to order and thus comprehend"[3] has been subjected to distortions not yet identified as such. Such distortion would be likely illusive, paradoxical, and not rationally knowable. Which way to turn? As a beginning one might ask: how much does a collective consciousness know of Hugh Prince's three realms of historical geography[4]?

3. Cheney seems to be exploring the "word" aspect of "terrae incognitae". His written maps of those so-called unknown lands seem to concentrate where the realms of external and internal are obviously linked along the metaphoric equator where ethics, earth, linguistics, and philosophy are located. Quote is from Cheney, 1989, p.123.

4. Prince has observed three different realms of historical geography: current reconstructions of real worlds, imaged worlds of the past, and abstract worlds of the past "invented in the minds of theoretical geographers" (p.5).

3.3 Planning the Study

This study can be viewed on three conceptual levels: first, as a study of self-awareness; second, as a study of the material and essential realms of the earth focused at a local level; and third, as a study of geography itself.

As mentioned in the acknowledgements on page v, the author first observed a glimpse of the coalesced concept-image of interrelationships while preparing ideas for several assignments. They included: authoring a technical article on colour analysis, developing criteria to divide all cultural works into two mutually-exclusive groups, understanding how one learns heritage conservation values, and finally, speculating on applications of four-dimensional maps. The challenge since then has been one of learning the necessary cartographic and academic conventions to map that multi-dimensioned concept-image to know it better.

Prince has argued that by "abandoning the attempt to study the spatial interrelationships of all features together at once we may renounce our claims to be geographers, and as historians we may turn to examining the changing character and extent of individual features one by one through time" (p.17). His argument pits synthesis against analysis, and then marries them. This study, in the spirit of Prince's argument, turned first to the study of place^[5], second to the self, and third to the literature.

5. Few sites have been studied with more rigor. The effects are not expressed in this paper in an analytic manner however.

The strategy was to learn as much as possible about the current and past forms of the site, expressing the findings in strictly graphic form. The next step (then only known to the author at the unconscious level) was to conceptually abstract those forms as undiluted physical energy, stripping away conventional forms of landscape recognition and perception. That step was followed by a repetition of the process, this time abstracting the concepts of all rational knowledge, time/space, human emotions, and everythingness/nothingness becoming. At that point interrelationships unknown in the written literature began to appear. For example, human perception of essential energy radiating from the landscape was observed. The energy creates such things as the concept of a "site portrait" (Ganza, p.11). One cannot "communicate how divine" (p.52) landscapes are unless one portrays them graphically, even if such a portrait "is imperfect and extremely difficult" (p.52).

As the study progressed, it was apparent the strategy had (unconsciously) aimed toward observation of the energy source behind Plato's "theory of 'Forms' (the 'ideal' theory) the theory that knowledge is 'recollection'"[6]. The superficial strategy was to simply make a "site protrait" of the

6. A.E. Taylor, 1929, p.50. He continues, "what we call 'learning' is really 'recollection', 'being reminded' of something...experience never presents us with [perfect things] it only suggests them or 'reminds us of them'" (p.54). This sense of recollection applies equally for the earth and for its non-homosapien dwellers. We may have an advanced sense of individual consciousness and an ability to learn from analyzing information from our external senses, but we seem to lack clear individual memories when it comes to recollections of underlying interrelationships.

Experimental Farm as a partial requirement for a Master of Arts degree. The rest of this paper was unplanned.

Generally, Forms are unknowable in a rational sense; not even abstractable. The concept becomes invisible. An essence of Forms is most closely reproduced in object-image form by art which has no cultural boundary. Paintings of landscapes, for example, can be seen two ways: as material forms or as essential Forms. The difference is illustrated in the objectified experiential knowledge of landscapes seen by Vincent van Gogh[7], contrasted to objectified intuitive knowledge of spirit as landscapes seen by Ogata Korin [8].

The former saw his landscape in a culture oppressed and suffocated by analytic and scientific biases. The latter saw a spirit-of-landscapeness (as a link with earth) in a culture grounded on synthetic and aesthetic biases. They differ. Korin's precise images are an expression of the spirit-of-the-landscape wanting to become conscious as an object; van Gogh's expressive images are looking into the essence of the object-image also wanting to become conscious as an object.

7. Van Gogh has produced very fine studies of cultural landscape, for example van Gogh (1888) and, on a smaller scale view, (1889). The latter, one of the most valuable pieces of portable cultural property to change hands, has a demonstrated material value of over seventy million Canadian dollars.

8. Korin's "Iris" (c.1700) is considered by some to be among the most aesthetically valuable works extant. It compares in name, subject, and impact with van Gogh, 1888.

The author has concluded there is need to evaluate again the ontological and epistemological principles upon which formal geography has become positioned. Buttimer has written a plea for a type of renaissance favouring the essential aspects of earth and humans in order to off-set distortions caused by the monopolizing power of the institutions in the West, entwined in cultural biases, which suppress freedom and contribute to a sense of oppression and oblivion (p.41).

Sometimes pattern recognition is hard to see when one looks directly at it. Sometimes a "detached, astringent, parsimonious and keenly critical"[9] approach is more fruitful if one is predisposed to be the opposite.

The author has concluded, among other things, that the "terrae incognitae" reported by Wright are real, not a mirage or illusionary reflection of light distorted by the atmosphere. Further exploration and mapping are called for.

9. Prince suggests these qualities for historical geographies dealing (on the surface) with the first realm - the ambient or external environment. Quote is from Prince (1971, p.5). Interestingly the author notes truly outstanding geographies related to cultural landscapes deal with aesthetics, attachment, gentleness, generosity and praise; as: Mead (1979), Semple (1932), Wright (1966), Tuan (1991), Porteus (1990), J.B. Jackson (1984), Graham (1988), and Thirlwall (1992). Also note the success of non-geographers to capture a spatially expressed sense of place, as: van Gogh (1888) and Korin (c.1700). Dynamic images capturing an essence of place are seen in films such as "Indochine"(1992) and "City of gold" (1960). A strong sense of essence is also found in audio-images such as Sibelius's "Finlandia", Mussorgsky's "Great gate of Kiev", or CBC radio broadcasts of Peter Gzowski's callers who describe the view outside their particular window somewhere in Canada.

3.4 Philosophical Considerations

The philosophical framework used for this study is based on a synthesis of extreme logical positivism[10] and the foundations of Zen Buddhism[11] and an obscure philosophical framework known as essentialism (see appendix 10.7). The framework used here differs from humanism in that it is earth centred - earth in its essential sense. This framework is not limited to arbitrary and illusionary aspects as presented through our external senses. The physical realm is seen as hardly more than an indentation in essential reality comparable to a bubble in water. The apparent visible forms which meet the eye are more than meets the consciousness.

As modified for purposes of this study, the author's philosophy has been built on a lengthy inquiry into the sources presented in Buttmer, 1993, during the three years prior to publication[12]. Earlier investigations by the author into differences between views from major cultural groups around the Mediterranean Sea and views from India, China, Japan, and native America were also influential.

10. Scholars generally agree that logical positivism has one defining characteristic: sole recognition in knowledge derived from external, empirical verification plus knowledge from pure logic or mathematics. (See also Gregory, p.273-4).

11. Sole recognition in intuition and extreme simplicity as the path to meaningful knowledge. This differs from traditional Buddhism which stresses the middle way to knowledge.

12. Buttmer's concepts were studied in two seminar courses in 1990 at the University of Ottawa: GEG 4111 & GEG 7908.

The philosophy used for this study is based on several theories; one of them being that cultures north and west of the Asia-Europe-Africa link tend to have a distorted perception which includes a predisposition toward a belief in the superiority of males, reason, analysis, physical reality, power, science and certainty. Opposite characteristics to these are deemed inferior.

Faith in this sense of superiority is supported by superficial, material progress - itself felt to be a desirable pursuit. Within each culture these beliefs are manifest in different ways - sometimes associating absolute consciousness with "the word", as the Bible and Qur'an; and sometimes harshly suppressing evidence of reality beyond that which can be verified using only these seemingly superior attributes.

A full explanation of the philosophy is beyond the scope of this paper. As an alternative, two examples are briefly outlined to demonstrate how the author sees this framework differing from formal philosophies. The first example cited here deals with Rene Descartes, the other involves Georg Hegel[13]

13. This crude and superficial discussion is in fact nothing more than a record of the process the author used to begin learning about formal Western philosophy. It is kept here in the body of this paper as a record of available formal knowledge while the bulk of this written text was put together. See appendix 10.7 for a more concise and coherent explanation of the framework used during this study - written after the paper was in its final form and the author had read how others explain such things.

According to Marc Denhez, lawyer for native peoples and heritage groups, it appears the human spirit - physical environment relationship has been sailing on a relatively uncorrected tack since the wide acceptance of dualism based on a marriage of human-oriented values and material-oriented values originating from Descartes (Denhez, ipc).

Any serious theoretical inquiry into perception of a cultural or natural landscape - as attempted in this paper's consideration of the Central Experimental Farm - needs to understand this apparent distortion by returning to the conceptual position of that tack and observe the historical events and implications. What happened in 1619? How might this paper convey one's mental images of circumstances, causes, effects, linkages, and threads tying it together. The author imagines how these issues might be presented in a television documentary on Descartes's initial revelation and the evolution of distortions in geographic perception since Descartes[14].

Is the underlying cause of Descartes' resentment of the scholastic method "consisting mainly in attempting to solve problems by citing the views of more or less eminent

14. How does one trace the links as might be done by James Burke; Kenneth Clark; Robert McCrum, et al; or David Suzuki? Can the content of the local TV broadcasts of "Connections", "Civilization", "The Story of English", and "The Nature of Things" be combined with the subject content of broadcasts of "The Brain: in Search of Ourselves", "Prisoner of Consciousness", "Vista Presents: Memories are Made of This", and other light-shedding telecasts on the concept of consciousness. See Bouse, 1988, for a discussion of these programs in particular and TV in general as perceived by the author.

writers or 'authorities', instead of dealing with the problems themselves[14]" (Wolf, p.247) again present in centres of formal learning? Has the uncorrected tack carried Western distortions of reality perception as far off course in the opposite direction as it was in 1619?

Descartes' observed correctly that if the "initial premises are false even the soundest deduction cannot lead to knowledge" (Wolf, p.248). How then did he suggest establishing basic notions of initial premises? "First principles says Descartes, are given by intuition alone." Intuition and deduction were considered by him as "the most certain routes to knowledge" (Wolf, p.428). The cognitive processes meant by intuition were "the undoubting conception of an unclouded and attentive mind, which springs from the light of reason" (Wolf translating Descartes, p.428).

He felt he had established a solid footing when he said that reason was the best thing to build knowledge upon[15].

14. Abraham Wolf quotes Descartes as "coming to the conclusion that there was no learning in the world such as I was formerly led to believe it to be...if we have not the capacity for forming a solid judgment on these matters, shall we become philosophers" (p.247). Note the use of the words: solid, judgment, and matters. They would seem to provide further evidence of a bias leaning away from pursuing things which might be thought of as soft, accepting, and dealing with essence. Evidence of this bias is not limited to Descartes; most major Western thinkers have held similar opinions. His well-known declaration might have been, "I feel, therefore I am" had his cultural predisposition been different.

15. Is it possible Descartes played down the fact that one's affective response about the fact of consciousness underpins one's sense of self-awareness? There would seem to be an emotional basis upon which rationally knowable consciousness has been constructed.

Descartes's views on thinking, reason, logic, passion, and emotion[16] were not always expressed in a consistent and clear manner. Some scholars observe he saw passion as: feelings, emotions, sensation, perception, retention, and adventitious ideas. Herbert W. Blunt has said, "with Descartes intuition does not connote givenness, but its objects are evident at a glance when induction had brought them into light" (p.324). It is the author's belief that Descartes instinctively saw ultimate Truth as unattainable. His goal[17] was then correctly pointed toward a full understanding which would be directed toward externally verifiable knowledge, with a concentration on those things provable with mathematics.

Jerzy Wojciechowski and Anne Buttimer have pointed out the views of Pascal and others who have also observed the role of passion and other affectively based perceptions to support reason and logical cognition[18].

16. Here "emotion" means instinctive feeling as opposed to reasoned thought, sensations which cannot be rationally known in their fullest sense, not reproducible with so-called artificial intelligence.

17. His method of observation and rigorously applied processes of reason to achieve worldly knowledge and a sense of connectedness seems to have been well-founded in personal, emotional attachments to God; seen as a concept of infinite everythingness.

18. See Buttimer's account of Pascal, (Buttimer, p.132). The author is grateful to Jerzy Wojciechowski and Barbara Farrell for providing reference to current literature on this subject; for example "part two: essays on the primacy of emotion" in Cytowic (1993). Cytowic argues, from a neurologist's perspective, it is time to reexamine Western beliefs about the nature of consciousness and perception.

During the past three hundred and fifty years popular understanding of Descartes' methods and goals have become increasingly distorted, operating at a global scale today because Western perceptions of reality more and more dominate the world. He did not seem to feel his method was a route to knowing Life and everything[19], unlike commonly held ontological views today. For him, his search may have been primarily a method to obtain more nearly certain knowledge about the material or physical world, not the spiritual world as made known to us through perception of essence.

He had a profound belief in God[20] and did not consider as conclusive, says Wolf, the "claims of our waking consciousness to a direct apprehension of real external objects". Descartes followed Pythagoras, Plato, and early Christian believers who tended, in Wolf's words, to "belittle the material world" (p.248). Current opinion that argues Descartes was firstly a scientist and materialist, does not recognize his firmly rooted foundation in spiritual reality as primary.

19. "Life", in this sense, means the essential or spiritual aspect of living as opposed to the material or physical. Its usage is from Eliot's "Choruses from 'The Rock'" and from Douglas Adams's "Hitchhiker's trilogy". "Everything", as used here, has simultaneous implications to becoming infinite nothingness and everythingness at the same time.

20. Likely he would not have agreed with current world views of his ontology any more than original Christians might support capitalism as it currently exists. Words, concepts, and ideologies are sometimes slippery things which distort greatly over time because of a small bias, or a small deviation from a needed bias, which remains discovered and uncorrected.

Another aspect of Descartes which is noteworthy to this study is his views on whether one could map portions of "terrae incognitae" using geometric forms. This morphological question as it relates to Descartes is discussed in Haldane and Ross, vol.2. Descartes did not see problems of translating mental concepts to geometrical form, rather it was "making people see as self-evident what is in itself self-evident" (Walsh, p.17 and 25).

The next example is drawn from the philosophy of Georg Hegel, noted primarily for his views on thesis/ antithesis/ /synthesis as a conceptual model to understand questions of becoming. Through a perpetual, dynamic process of coming together and reforming, this process offers both an analytic method for explanation and a metaphoric device to elucidate interrelationships at the edge of conscious knowledge about landscapes and other phenomena.

Hegel was inspired by a profound and direct knowledge of essential or spiritual reality. He correctly observed that superficial attention is toward a reliance on what is observed through the external senses, with a more profound attention directed upon one's intellectual conceptions which elude anyone who tries to fix them within a model based primarily on conscious understanding. For Hegel, "Spirit... is the fundamental reality, and everything that exists must accordingly be understood by reference to it" (Walsh, p.16).

According to the literature, Hegel's assessment of his own philosophy was, "the science of the actual world - it is the spirit comprehending itself in its own externalization" (Wallace, p.382). This statement may be a problem of translation or evidence of a subtle perception distortion. Could Hegel have said his philosophy was "the art of the actual world - it is the spirit comprehending itself in its own internalization"? Was Hegel's expressed certainty that his "doctrine" was the "one truth for the world" (Wallace, p.381) also evidence of distortion which is wide-spread and accepted as fact in most Western cultures?

It can be argued that Hegel's antithesis method, as applied generally to geographical questions, does not adequately address views other than those held by caucasian, academic, financially comfortable, middle-aged males. Can it be argued that his method would not produce value-free results unless one begins the process with a fuller cross-section of representation? Can it also be argued that one should then marry (in a four-way conceptualization) analysis, synthesis, reason, and passion in a dynamic, fluid framework?

Hegel stressed the fact that "ideas when held in their abstraction are almost interchangeable with their opposites - that extremes meet" (Wallace, p.381). If true, then a strict rational approach to understanding things will become incomprehensible chaos as one approaches an image of all interrelationships abstracted at the same time. Such complexities suggest their abstraction demands non-linear cognition.

3.5 Strategic Principles

The first strategic principle was to identify and pursue the objective: meeting academic requirements of the Faculty of Graduate Studies and Research while not entirely suppressing the author's views of geography, perception, and purpose. Achieving this aim suggested the need to mask or disguise unconventional thinking methods as much as possible while producing an exhaustive analysis in other areas to off-set the non-traditional aspects of thinking.

The second principle was to cooperate with others in pursuit of this goal. Faculty, students, archivists and librarians, visitors to the site, and others were invited to help the author know how one learns to comprehend the landscapes one is aware of[21].

Extensive record-keeping comprised the third strategic principle. Whenever possible xerographic excerpts of potentially useful information were produced. Photography, sketches, and written notes rounded out the records. Information came from the site itself, from secondary literature, primary archival sources, discussions with other people, and explorations into the so-called unconscious. Three universities[22] and three government departments[23]

21. The concept of "landscapes" as used here is defined in appendix 10.5.

22. Carleton University, University of Ottawa, and University of Nebraska.

23. Agriculture Canada, Department of Government Services (formerly Public Works), and the National Archives of Canada.

provided the bulk of the records, which focused on open space studies, historical atlases, historical geographies, local history, rural heritage perceived by urban dwellers, "city beautiful" ideas, and the site's physical evolution. Literature dealing with philosophy and human perception was not pursued until after this paper had been initially written and it proved necessary to conduct such research to fill gaps in expression.

The fourth principle was to make the thesis as short as possible, including only the most necessary details[24]. The fifth principle was to allow graphic communication to take the leading role in all cases. For example, the written part of each major section could not be put down in the word processor until all graphics were in their final form, providing a conceptual framework for the words to sit within.

A concluding principle was to allow the site itself to direct how it wanted to be seen within this paper. That is, to put the site's apparent interests toward recognition ahead of other concerns - to manipulate academic conventions to allow the landscape itself to occupy centre stage[25].

24. "The way to write a great thesis is to exclude everything ...not include everything...do only what is absolutely necessary", advised Stan Loten (ipc). This point is driven home in this case where nearly all the researched material on the site was not used in the paper. The excluded graphics, especially, were difficult to select - one's inclination is to put in too much.

25. Some may argue that the author's repetitive explanations of method and reflections on the unconscious dominate the paper. That may be true; it clearly appears that way. In this case it is argued the site seemed to force this text to appear as it does; unlike works such as Bouse (1993b) which are not introspective.

3.6 Strategic Conclusions

One aim of this study has been to search for, observe, and report on aspects of J.K. Wright's "terrae incognitae" so that a theoretical understanding might be made concerning human spirit and physical environment interrelationships. Simply put, the strategic concept has been to follow Hegel's thesis/antithesis/synthesis method - modified to accommodate as much as possible influences from other cultures, value systems, ways of sensing realities, and ways of processing information in one's mind.

The author has used a spatially represented architectonic conceptual model to hold and process information on perception, realities, knowledge, and interrelationships. This conceptual model is based initially on a combination of coordinate systems for conceptualizing the Newtonian colour-space model and various terrestrial coordinate systems. In both models one must imagine a theoretical geometry where pure white (or the north pole) is directly connected with its opposite, and where each pure hue (or equatorial extreme) is connected with its opposite. Abstractions of physical reality, essential reality, rational knowledge and emotional consciousness are then placed within the model for observation from a geocentric or neutral gray observation point. This conceptual viewing point has been reached, or so the evidence suggests, by holding an abstraction of all physical aspects of a single landscape as the

prelude to discovering its opposite - a view of the site without physical or material dimensions.

The strategy for this study required that a particular landscape be studied - a hypothetical consideration of landscape perception generally would not have been successful. It could not have been a study of the-study-of-landscapes. Only by viewing a particular place as the focus could one make the necessary abstractions for purposes of exploring, in a controlled manner, aspects of "terrae incognitae".

The selected landscape had to be a marriage of many important polar concepts as metaphors. For example: past/future, nature/culture, global/local, earth/sky, and so on. There needed to be a thematic edge involved - an overarching conceptual dividing line. Finally, the site needed to be of special heritage significance. In the end Ottawa's Central Experimental Farm[26] was selected as the geographic focus for this paper[27].

26. The Ottawa-Hull metropolitan area has a population of about one million people. The Central Experimental Farm is a 500 hectare open space of fields, trees, agricultural buildings, and campus-like government offices located near the current geographic centre of urban development (see location image in section 6.2). It has been a major tourist destination throughout its history. Bird's-eye views of the site were mass produced a century ago on posters sent out to entice immigration from afar in order to populate the Canadian Northwest with non-native peoples. The necessary metaphors for this study seemed to be present within this landscape.

27. This site was second choice. Initial research on application of the sequent imaging antithesis method was directed toward landscape patterns at the edge of the Canadian Shield (see footnote 2, section 9.3). Third choice was the Carleton University campus site, an expansion of Bouse 1993b.

4.0 TACTICAL METHODS OF APPROACH

for hundreds of years we have been imprisoned within
the confines of the perspective picture plane
-Bacon, 1967.

the use of aerial balloons for viewing the local
landscape introduced a sense of spatial connectedness
not perceived previously
-Dickenson, 1993[1].

4.1 Introduction

Tactical methods used for this study can be divided
into five areas: development of a precision four-dimensional
mapping procedure; development of a workable source citation
system for research when precision maps are used in lieu of
words to record historical and geographical information;
identification of terms to describe various projections;
preparation of an historical overview of multi-dimensional
mapping, and finally, development of a method to present
mental maps of the rationally unknowable.

Tactically, this study is unlike most within the field
of geography as it does not follow recognized techniques and
it is not aimed at critical analysis. Its aim is synthetic,
to isolate and elucidate questions to reflect upon.

1. Victoria Dickenson, paraphrasing observations made a century
before airplane flight when balloons were first used to observe
a fluid, linked image of the landscape, rather than a series of
distinctly separate features as previously shown on maps.

Opposite: symbolic Algonkin form (pre-Columbian) representing
(re)creation: the "turtle offers its back as a place for a new
world to be built" (Petroglyphs provincial park brochure).
Rubbing by Mara Bouse, 1993.

Another idiosyncrasy which separates this paper from most others is the non-leading role played by the written portion of the text. Most papers in geography tend to put illustrative material in with written text only as required to aid the development of an hypothesis (Tunbridge, 1992). Here, the words are a crude translation of spatially formed mental maps of abstracted interrelationships of energy, more precisely expressed with a non-linear medium. These words did not lead the graphic text, it was the opposite. One would not have gained a great deal by asking van Gogh to describe in words what it was he was trying to "say" in his paintings of the landscape (as van Gogh, 1888). The words appearing here, because of the nature of this abstruse topic, are only rough approximations of what might be visible in the maps, the photographs, and the site itself.

3.2 Definitions

To reduce ambiguity, the written text avoids specialist words whenever possible, with the few exceptions when a "heuristic" or two crops in to demonstrate the author's interest in etymology. The following definitions cover map projection terms which are ill-defined in the literature. Other definitions are contained in section 10.5, or for coined phrases such as "object-image" are explicitly or implicitly defined in the text. Terms such as "subject", "object", and "material" have many meanings and are used sparingly in this paper.

Bird's-eye projection. Type of map or image of the landscape as viewed on an angle located above using external or physical representation of forms. For purposes of this paper there are six basic types of bird's-eye image: distorted, plan-oblique, side-oblique, isometric, perspective, and theoretical (or computer-interactive) seamless. See diagram next page and other definitions.

Distorted. Pertaining to maps, a type of projection that cannot be used as a reliable source for superficial or physical surface measurements such as lengths.

Isometric. Cartographic projection term characterized by parallel lines, but lacking any Cartesian plane at right angles to the artificially-constructed viewing window. Sometimes use for bird's-eye maps[2], this type of paraline projection differs from perspective or orthographic projections which have converging lines or one scaleable plane.

Parallel line, or paraline. Cartographic projection term characterized by lines which do not converge. When represented in a simple Cartesian, three-dimensional matrix, this type of projection presents a view similar to perspective, but as if viewed from infinity. Type of orthogonal or orthographic projection, having a scaleable aspect.

2. Some authorities do not consider isometric projection maps to be, in fact, maps. Terms as "view" or "picture-map" are used in the literature. Harvey (1980, p.170) differentiates between birdseyemaps which are drawn "in strict perspective" and those "drawn to a uniform scale". He is silent on the isometric type of map which is scaleable along its three primary axes but not on the diagonal. Scale can be calculated using a form of descriptive geometry for dimensions on the diagonal.

Distorted projection

Side-oblique projection

Perspective projection

Isometric projection

Plan-oblique projection

Seamless[3] (simulated)

These diagrams are based on a composite of definitions from many sources. See individual word definitions in the text for details not related to basic appearance.

3. Conceptual or computer-generated displays of forms which transcend static types of presentation.

Plan-oblique. Cartographic projection term characterized by the plan view or horizontal plane represented to scale. Cannot be scaled from the projection on a diagonal line between horizontal and vertical. A type of Paralane drawing, differing from isometric by having an entire plane, the ground, represented to scale. The image appears to be viewed from two different points near infinity. In architecture this projection is imprecisely called axiometric or axonometric. Its vernacular name is God's-eye view. In engineering one hears the terms trimetric, or 45-degree dimetric, projection. Libraries use the descriptive term of very high angle bird's-eye map to scale. Cartographers and documentary art specialists tend not to use precise terms in order to differentiate among paralane projection types.

Perspective. Cartographic projection term characterized by parallel planes which converge as they might appear when the site is observed through a special viewing window. Cartographic use of perspective appears nearly one thousand years after the earliest examples of precise paralane bird's-eye maps. See also section 4.3.

Sequent Image. One of a temporal series of spatially representational large-scale maps, normally using plan- or side-oblique projection to convey a landscape's temporal morphology. An objectified four-dimensional map of a cultural landscape consists of a series of sequent images. When conceptualized (or held in a computer memory) as a

seamless web, these maps theoretically recreate a space and time matrix containing all physical and verifiable aspects of a landscape's morphology.

Sequent Imaging. The production or application of a a four-dimensional map of the cultural landscape. These precise multi-dimensional representations are produced using rigorous research methods equivalent to an historical research study. Map images expressing a series of at least three periods can be used for sequent imaging. There are four basic types of sequent imaging: graphic reconstructions of past physical sites; graphic representation of past perceptions (so called mental maps) of physical sites; graphic representations of hypothetical or composite landscapes (as Macaulay, 1973 or von Tscharner, 1987) ; and conceptual or computer representations of a seamless four-dimensional image existing only in consciousness or in a computer's "memory". Excellent examples (in fact the earliest known published example focused on a cultural site) are imaginary landscapes in children's literature[4].

Side-, vertical-, or elevation-oblique. Projection representing one vertical plane entirely to scale. Side-oblique projection is the oldest type of paraline landscape representation. Examples from China predate others by hundreds of years. A plan- (which see) or side-oblique temporal series can be said to comprise sequent images, as above.

4. David Macaulay, for example, has used this technique for two decades. Macaulay (1973) contains seven sequentially matching images of a hypothetical French site during construction of a gothic cathedral.

4.3 A Brief History of Multi-dimensional Mapping

the best journeys are those that leave no wagon tracks
...it is the journey of the spirit that has no limits
-Ni, 14th cent.

[some maps set] out to convey the shape and pattern
of landscape, showing a tiny portion of the earth's
surface as it lies within one's own direct experience
-Harvey, 1980.

4.3.1 Introduction

The author learned essential principles of reverse perspective analysis and other aspects of descriptive geometry as part of an education in architecture. Later experience with various organizations, most recently with Parks Canada, provided a rich environment to learn the techniques of rigorous analysis of evidence and of concise, clear synthesis using multi-dimensional, precision mapping.

It was not until the 1992 Canadian Cartography Association annual meeting that the author was made aware that sequent imaging is not in the literature. More surprising, it was observed that no one else in geography seemed to be rigorously pursuing general use of precise graphic study of temporal morphology. No coherent history of three- or four-dimensional maps has been found in the literature. Most certainly, a cursory reconnaissance was called for. The following account is a cursory compilation of ideas and facts relating to the evolution of perceiving the landscape as a precise, coherent whole: as metaphor or physical forms.

4.3.2 Eastern Developments

The first claims of precise three-dimensional bird's-eye maps are attributed to Wang Wei (699-759 current reckoning) and other artists. Described as "artist-scholar" [5], Wang is considered the most well known of those who developed the technique of precise, richly presented side-oblique images of natural and cultural landscape. These works are among the earliest examples of an objectified pure landscape, with no superimposed human drama - "a poem without words" (Tregear, p.97). Wang's shrines, temples, and scenes of nature were later copied from generation to generation rather as medieval monks copied religious texts.

The next significant period of bird's-eye maps to scale occurs at about the time when there was cultural contact from the West. During the end of the thirteenth century and beginning of the fourteenth in Japan there was a flourishing of bird's-eye maps to scale. Those pictorial topographic representations were sometimes an expression of deity. The "mandalas or diagrams of Shinto and Buddhist enclosures began to show more of the landscape in a direct and real sense" (Lee, p.336). Scholars generally agree that the landscape views of this type were objectified images of an internally inspired subject-image. They have the superficial form of external landscapes in a metaphoric sense - to be visible.

5. Skills attributed to Wang have given him an almost holy or mythical status (Sullivan, p.136). Some scholars find the accomplishments of that period to have evolved over several centuries, not with one person. Findings are not conclusive.

At that time, in China, Ni Tsan was producing bird's-eye maps that were "simple and stereotyped...[where]...one senses a curious detachment, as though there were no focus or even desire for one...making an aesthetic statement divorced from reality, and not a gross material thing" (Lee, p.413). Ni's maps were described later by Tao Chi as like "streams between the stones which roll and flow and issue by their own force" (Lee, p.412-3). Unlike many artist-scholar-mapmakers, Ni did not depict people in his maps. Shingles are delineated; leaves are delineated; ornamented fence-post are delineated; all with great attention. Lee, for one, speculates that Ni was contemptuous of humans. That seems doubtful; the opposite may be true^[6].

No scholar nor reference work consulted has made a conscious link with East-West contact during the fourteenth century and the spread of landscape recognition, as a concept, in Europe. Important related questions have also not apparently been investigated. For example, is there a causal relationship with Western knowledge of Eastern maps and the development of perspective drawing. Both seem self-evident on an examination of the evidence. Several Canadian and US scholars have indicated the topics seem unexplored.

6. Several recent artist-scholars in North America have made the point that they celebrate the human spirit by emphasizing its absence. This method can be an effective way of seeing. Note, for example, the words of Wright Morris who said, "the presence of people in the houses and barns was enhanced by their absence in the photographs (Morris, p.20).

4.3.3. Early European Examples

Prior to direct cultural contact between European and Chinese traders during the Marco Polo journeys, few attempts were made by Europeans to represent a bird's-eye image of the landscape. Surviving examples reveal a more primitive, traditionless product where side-views of buildings are laid flat in a haphazard manner. The examples contain no sense of perspective, single viewing point, affection for the place, nor projection consistency. One might speculate that Europeans were not conscious of an overview - detailed, complete, and coherent - image of their immediate landscape.

The situation seemed to change quite quickly. In about 1340 Ambrogio Lorenzetti made a detailed bird's-eye map of a hill town in Tuscany. It shows "the artist's awareness of the city as an organic entity...a major advance in visual representation because of the artist's ability to project the image of the entire city on a picture plane from a bird's-eye point of view. In it we see the voids and masses of the city and their interrelationship to one another, presented by isometric projection which preceded scientific perspective by many years." (Bacon, 1967, p.79).

By 1380 this transplanted mapping technique had reached as far as Paris. The Legrand map of that time is the first of many elaborately rendered bird's-eye images from a point of view west of the city. Other detailed maps have followed at about one hundred and thirty year intervals; for example Nicolay (1609), and Turgot (c.1737).

In contrast to the Eastern bird's-eye maps, the subject matter in Europe was typically urban. In fact, the author has not seen evidence of any bird's-eye maps of urban images from the early East. In contrast, there are few, if any, examples of detailed three-dimensional-appearing maps of non-urban images in Europe.

From the evidence, it seems self-evident that Europeans were given a gift of perception as a result of direct contact with the East. This resulting Easternization of Europe had many dimensions, some connected with how one is able to see and abstract the landscape - the immediate physical and essential environment. Everywhere art was then turning to vitalic and realistic representations of the "experiences of real, even ordinary, people" (Van Doren, 1991, p.128); away from the stiff, abstract religious themes of previous centuries. After at least a century the landscape-related concept of perspective was developed. It "said something radically different and new about the position and role of humans beings in the cosmos, in the world picture" (as previously cited).

4.3.4. North American Examples

One interpretation of pre-Columbian mapping in what is now Peru suggests most of the architecture and sculpture is stylized, metaphoric images of perceived landscapes (Stan Loten, ipc). Other examples include the petroglyph images near Peterborough, Ontario (see p.40).

Europeans brought their method of seeing the landscape to North America. Its effect on the landscape was dramatic. Perhaps no bird's-eye view is more able to illustrate this difference than the 1734 engraving of Savannah, US (Gordon, 1734). A powerful one-point perspective view documents repetitive, rectilinear plots in an Escher-like image of linear culture displacing random nature.

Urban growth during the last quarter of the nineteenth century contributed to the popularity of bird's-eye views of cities, villages, and individual farms over much of the US and Canada. See, for example, a lithograph of extant barns on the Experimental Farm in Belden (1879, p.37). Such views might be considered as part of the new psyche at that time, creating a sense of context through overview images and formula-written histories.

During the same period fire insurance companies were requiring highly-accurate bird's-eye maps of industrial sites such as the Chaudiere Falls area of Ottawa. Those maps, revised every few years with paste-overs on copies, now provide a rich source for temporal morphology. They are the first, albeit unintentional, precise four-dimensional representations of cultural landscapes. More recent examples of single-period bird's-eye maps include Shaw Photogrammetric's plan-oblique view of central Ottawa from 1971 and Unique Media's caricature-like view of downtown Toronto produced in 1988.

4.4 Sequent Image Mapping Procedures[7]

The temporal sequence of cartographic images in section 5 was produced by the following steps involving historical research, reverse perspective analysis, and conventional methods of preparing an overlapping series of very high angle bird's-eye maps to scale.

Control maps[8] were placed on a reflecting-projector [9] to enlarge all graphic information to a scale of 1:625 on several sheets of polyester drafting film. That series of blocked out sketch maps was then edited to correspond with extant physical features during selected periods. Next, copies of period aerial photographs and historical maps were brought to the reflecting-projector and projected to match the appropriate sketch map.

The vertical aspect of these maps was added by eye, without controlled measurement[10]. Photo-interpretation and additional plan measurements were made using a simple magnifier, the reflecting-projector, or a small mirror

7. Excerpted from Dubuc, revised 1986. That written text, prepared by the author, accompanies supplementary notes for the preparation of four sequent images illustrated in section 5.

8. "Ottawa & Environs", revised 1978, scale 1:1250.

9. This large, hood-enclosed apparatus has a viewing glass larger than one square metre.

10. The author has measured and drawn more than one hundred historic structures for archival or restoration purposes. As examples of photogrammetry, these drawings are crudely prepared. They should be considered as presentation drawings; emphasis is placed on visual readability and accuracy of the overall graphic presentation, not on calculation of measurements.

stereoscope. Initially, hundreds of period and recent photographs were consulted when filling in graphic details. Historians' notes, period reports, and other documentation were also used. Several site visits provided supplementary information on current sign and utility locations and other ancillary features.

High-grade polyester reproducible copies of the drawings were made using photographic processes. These copies then become original maps for intermediate periods, with the eradication and addition of features as necessary[11]. Diazo copies were taken to the National Air Photo Library, the National Archives photography collection, and other locations of numerous period documents which cannot be feasibly copied for research purposes[12]. Then began a cyclic process of viewing hundreds of period images at a setting, noting each new piece of information in one of many colours[13] on the appropriate diazo print. Revisions were made on each original, new diazo copies made, followed by a return visit to again view each period image. After four or five such cycles the process stopped generating new information which affected the delineated bird's-eye views.

11. While this process was done without electronic computer assistance, even now there are few programs which would be able to produce these simple maps faster or better. Currently, the only known facility able to match this work with computer-aided technology is the technical recording unit for Parks Canada.

12. These photographs cannot be feasibly copied because of costs and because of considerable loss of detail within the copy.

13. Coloured pencils were used, keyed to the different photographs containing new information. See also section 4.5.

4.5 Special Citation Problems

Clear and precise citation of primary sources is indispensable for rigorous scholarship and professional research. Without adequate citations full appreciation of the work is compromised. Precise citations afford others the opportunity of examining original sources and to verify them for accuracy, interpretation, content, and so forth. This opportunity for verification, according to Cook (1983), is essential for research to be cumulative.

Written work based on traditional sources is not difficult to cite owing to the numerous style manuals and examples used by others. Research based on obscure, uncopied, and not individually coded graphic material is more complicated. No style manual or archives citation guide[14] contains directions for recalling unnumbered, unorganized, and untitled photographs. There are few examples in the literature of such citations, none providing good answers to the problems at hand.

There are also few examples of detailed citations of research findings presented in cartographic form. Harley has made the observation that most maps lack any rigorous system of archival source citation, consequently there is considerable potential for misinterpretation (Harley, 1989).

14. For example: Archival citations: suggestions for the citation of documents at the Public Archives of Canada (1983) Terry Cook, ed.; The Chicago manual of style (1982); or The York Press style manual for writing and typing of scholarly works and research papers (1987) Saad Elkhadem, ed.

The author spent considerable time, perhaps unnecessarily, making inquiries to learn more about the twin problems of citing to numerous archival graphics which are uncatalogued and unnumbered, and citing from detailed original drawings which contain the analytical and synthetic parts of the research[15]. In the end the author concluded it would be extremely complex and of little interest to most other geographers to illustrate an example of rigorous citation to these obscure and numerous sources, from the detailed and superficially repetitive maps. Until such time as the line-work can be scanned and portions of each landscape detail identified with a paragraph or more research file of archival sources, it is not considered practical to provide more than a written summary of the process of coding parts of each feature with the source material.

Initially, it was not known that most other detailed original maps do not have a comprehensive dossier of the sources, cross-referenced with each aspect of the drawing. For the maps in section 5 the process seemed to require such thoroughness, if for no other reason than the author could not recall each photograph and needed detailed notes on each new set of diazo prints in order to recall where information had come from so archival sources could be found again and compared with the newly revised drawings after each polyester sheet had been updated.

15. Numerous enquiries were made on this matter at Carleton University and elsewhere. Some of the best advice came from G. Stone and M.K. Rombout, both with the National Archives Documentary Art and Photography Division.

Experience made it clear that without such additional reference work, it is not possible for this researcher - as well as other researchers - to locate individual sources again. Archival codings in many cases were no more detailed than the level of boxes, some containing many hundreds of loose and otherwise unorganized images. In this case the archives staff advised the creation of special detailed finding aids - a type of written map of each collection describing each important item sufficiently to locate the image at a future date. An example of one these finding aids is reproduced in appendix 10.3. Its purpose is three-fold: to illustrate an example of one of the finding aids produced for this research, to provide information for future researchers to the most concentrated single box of many held in various institutions, and to highlight an interesting side-benefit which developed from this process [16]. These particular detailed finding aids are not held by the archival institution. Those wishing to consult a few of the thousands of unorganized images are advised to reproduce and use the information in appendix 10.3 until such time as one becomes familiar with the various collections as a whole.

16. About ten percent of the contents of this particular holding, twelve files in all, had been misfiled into another accession collection ten years previous to the time this finding aid was produced as part of this research. It was only after preparing appendix 10.3 and cross-referencing its information with other archival records, it was discovered the files had been somehow mis-directed after several images had been copied for reproduction purposes. Eventually, the missing files were located and returned. Again, the finding aid proved helpful during the replacement of each file in its probable original location.

Until such time as computer-aided precision drawing becomes easier and more accessible for research purposes, the methods of citation used for this study seem appropriate. Cartographic examples of the citation method were intended for this paper, but omitted because of the considerable amount of time it would take to add a single compilation of citations to each sequential image. Reproduction scale also posed a problem. Details need to be reproduced at four times the scale illustrated here to be readable; at smaller scales, such as the 1:2500 reductions in section 5, the citation areas would be incomprehensible.

On a building by building basis it would take approximately one page of citation notes for each to record graphic sources for the series of sequent images. On a sheet by sheet basis it would take approximately twenty pages of citation notes for the periods from 1892 to 1946. It proved unfeasible and inappropriate to add this information to that provided here.

4.6 Presentation Tactics

Tactical aspects of presenting this research fall into two groups: those issues dealing with reporting on the process of the conducting the explorations into "terrae incognitae", and those dealing with crudely reported observations. The emphasis of this study is, at one level, on the physical evolution of the landscape forms of the Central Experimental Farm.

This approach differs from the more conventional types of morphological study, such as that defined by Cozen (1990, pp.143-4), which tend to emphasize social interplay with the built environment and mostly ignore the physical forms themselves. That more complex goal might be considered at some future date, after a basic examination has determined with confidence what the configuration of the forms as evolving physical manifestations actually is.

Generally, there seems to be a lack of graphically dominant or graphically balanced works in historical geography. The problems which result include omission of many details about the morphological history of the landscape in question, simply because there is no tradition of researching and presenting spatial information about historical landscapes (see criticism, appendix 10.6). Perhaps the closest thing to such a tradition are historic sites reconstructions[17], such as practiced by various political institutions for cultural purposes. Even within the context of multi-million dollar research missions to graphically and physically reconstruct a former cultural landscape, there is a substantial bias in favour of word-based perception and cognition of the evidence at the expense of spatially- or graphically-based cognition.

17. Many research reports are produced for major period reconstructions. A surprisingly small amount of data are derived using spatial methods of approach. Historians and archivists are not generally trained to interpret morphological information from graphic sources and to then delineate their findings as spatially-presented information.

There also seems to be a culturally derived bias[18] against the clear cognition of the temporal aspect of historically interesting sites. Few major projects[19] involving large-scale restoration or reconstruction in Canada provide a coherent and comprehensive picture of the site's physical evolution from the time of human occupation until the present. Normally, a few selected historic dates provide nodes upon which period information about physical appearance coalesces. Little if any research is conducted into the question of morphology before those dates or after, leaving enormous gaps in a complete temporal dimension of the landscape in question. This aspect of research and presentation has seldom been addressed, even for the most culturally valuable of Canada's historic sites.

18. Another possible culturally derived bias is the difficulty most people have thinking and expressing themselves in multiple dimensions. For example, during the previous two decades employed with Parks Canada, the author noted that most three-dimensional representations of sites required that an artist consultant be hired as delineator, as Desire Vanryckeagen, illustrator of the Redoubt Dauphine in Quebec. In general, there seems little emphasis put upon the ability to work, think, or present in three dimensional interrelationships. This apparent lack of emphasis is considered, for the purposes of this thesis, as causing the difficulty most people seem to have in perceiving and presenting spatial information concerning the local landscape. It would seem, based on the almost universal use of bird's-eye reference maps for complex landscapes such as a university campus, that people synthesize multi-dimensional cartographic information efficiently. Why is it then that current academic training does not prepare one to analyze complex spatial information with such methods?

19. Information concerning detailed historical research on Canadian cultural landscapes is based on observations made while serving as senior departmental specialist for architectural analysis and recording (1975-92), and findings from a 1989 research paper prepared by the author entitled: "Clio and the beaver: a capsule review of historical writing by the Canadian Parks Service".

The primary tactical approach for this study was to not reject all rough, unpolished written "sub-titles" to the un-objectifiable abstracted image of interrelationships which came into the author's mind when reflecting upon the anti-thesis of a four-dimensional abstraction of a cultural landscape[20]. The approach relied partly on conscious planning and organizing, and partly on selecting and editing texts which were produced when actually exploring various aspects of "terrae incognitae"[21].

After (re)reading the edited written texts which seem to crudely describe aspects of the so-called unknown lands of the inner reality of essence and spirit[22], it was decided that two alternative views needed to be presented [23] in order to imply the ideas this thesis attempts to objectify - images observed within the unconscious.

20. For this study the abstraction began by holding a mental image of the site of the Central Experimental Farm as it has existed as an evolving cultural landscape during the past two hundred years. This abstraction was limited to the physical forms only, as perceived electromagnetic energy in time and space.

21. The method of approach to present this thesis can be compared to erecting a dry (unmortared) masonry dome, where the falsework is a mental image of an idea and the stones are words and graphics carefully placed to hold each other up, to have meaning when viewed by others, and to represent however incompletely the initial idea. One's tactics for such work are partly intuitive, exhaustive, and chaotic.

22. Excluding, in a conceptual sense, external reality of physical energy and matter.

23. The sequent images in section 5 represent the primary idea (half the graphics in that section were completed as illustrated before writing began; the other half were not started until all written text was in examinable form). Alternative views, to imply an antithesis conceptualization, are contained in section 6 (begun in April 1991, completed in late November 1993) and section 7 (completed in December 1993).

4.7 Conclusion

Coherent presentation of the author's explorations of "terrae incognitae" as an outcome of the sequent image anti-thesis method demanded that this paper evolve according to leads given by the so-called unconscious[24]. Tactical guidelines included: first, conducting as little additional research as possible at the beginning not directly related to the Experimental Farm's history - to plow a deep but narrow furrow in order to allow deeply planted ideas to germinate and grow in the richness offered by this site (without encouraging unnecessary wanderings); second, editing those texts which came into consciousness while trying to present this paper so that they appear to be integrated parts of the thesis; third, conducting reconnaissance into epistemological and ontological questions which have appeared in the draft texts; and finally, disguising and simplifying inherent vagueness and complexity of the mental abstraction without losing it entirely[25].

An important aspect of this tactic was to give the impression that the written aspect of this paper represents ideas, not simply a rough translations of rationally unknowable spatial interrelationships of abstractions related to the nature, culture, and becoming.

24. These tactics followed the principle that an essence of the site should be allowed to enter into the author's unconscious, triggering deeply planted ideas which are then individually dealt with when they return to consciousness in the form of graphic or written texts.

25. Restating this guideline: it has been the author's intent throughout this process to have as little non-traditional work show as possible. Complexities of this vague and abstruse theme suggest to do otherwise would make this paper unintelligible.

5.0 SEQUENT IMAGES OF THE CENTRAL EXPERIMENTAL FARM

I could be bounded in a nut-shell, and count
myself a king of infinite space

-Jencks, quoting Shakespeare, 1983.

seek form, coherence, and meaning in the broken
intuitions which...experience offers...[the] true
value of our actions only begins to emerge when we
abstract ourselves from the temporal sequence -
'time before and time after' - in which they were
realized[1]

-Travis, on Eliot.

5.1 Introduction

This section contains a cartographic summary of the physical history of the Central Experimental Farm's site. Its primary intent is to provide evidence of the author's use of an abstracted image of physical reality in the form of time, space, differentiated mass and electro-magnetic energy to imagine its abstracted opposite[2]: spiritual

1. The word "form" in Travis's original text is in italic type. Here Travis is summarizing T.S. Eliot's work, perhaps the most compelling geographically-relevant literature of the twentieth century.

2. This so-called sequent imaging antithesis method was derived more from the technique of Perseus against the Gorgon than from Hegel. Part of the author's statement of academic interests requesting admission into a geography program read, "It would seem that a quantifiable relationship of the human spirit and matter might be studied in detail by looking at the works of society (such as early settlement patterns) and how society reacts to the same...as a front for a more metaphysical and hard-to-describe search for truth in a more fundamental sense" (correspondence to Carleton University, 10 May 1990). The Hegelian term "antithesis" has been selected for the name of this method because it sounds more learned.

Opposite: graphic text illustrating the sequent imaging antithesis method. The site is abstracted as undiluted physical energy (upper inside), between learned expression of historical geography, & vernacular subjective expression of geography as unconscious images, and opposite undiluted essential energy. (Based on: NAPL A-26; and Malak, 1990.)

reality as revealed in the form[3] of essential energy.

In the past geographers have referred to this opposite realm and its metaphorical lands and waters as "terrae incognitae".

The secondary intent of this section is to illustrate the physical evolution of the external forms of the site, to demonstrate an application of the sequent imaging concept, to provide a context of understanding upon which others may link cultural processes of change and use, and finally, to imply landscape perception and cognition biases within our current cultural language.

No detailed written text has been superimposed upon this section to "say" what should be explicit within the graphic text. Sections 6 and 7 in the accompanying volume contain implicit information for the viewer who has difficulty understanding this section in a direct, immediately intuitive manner. It is recommended that this section be viewed at the same time as the foldout illustrations, while also looking at the next two sections. The two-volume concept and the large-format foldouts are intended for this purpose.

These maps are presented at two different reduction ratios; 1:16000 and 1:2500. North is up for these examples.

3. Ferris, in 1992, quoted Ludwig Boltzman as saying, "for all, the ultimate subject of inquiry is not the outer universe but the nature of its dance with the mind" (GRogers, 1992, p. 5). Plato might have called this aspect of essential energy as "Form". The properties of essence, as a directly observed and reported upon phenomenon, does not occur elsewhere in the literature in an unclouded manner. References tend to be imprecise; such as John Locke's theory of essence, or Pierre Tielhard de Chardin, who "felt that the 'juvenile earth' possessed a 'quantum of consciousness'" (GRogers, p.39) to be made part of our life in a similar way that physical energy is made part of that which we call conscious life.

0 200m

FUTURE SITE OF
CENTRAL EXPERIMENTAL FARM

SITE PLAN: pre-1826
PLAN OBLIQUE PROJECTION

Dated 1993

FUTURE SITE OF
CENTRAL EXPERIMENTAL FARM

SITE PLAN: 1852
PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

SITE PLAN: 1892
PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

SITE PLAN: 1926

PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

SITE PLAN: 1992
PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

CORE AREA: 1892
 PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

CORE AREA: 1912
PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

CORE AREA: 1926

PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

CORE AREA: 1946
 PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

CORE AREA: 1972
PLAN OBLIQUE PROJECTION

CENTRAL EXPERIMENTAL FARM

CORE AREA: 1992
PLAN OBLIQUE PROJECTION

FROM NATURE TO CULTURE: A STUDY OF
OTTAWA'S CENTRAL EXPERIMENTAL FARM USING THE
SEQUENT IMAGING ANTITHESIS METHOD

volume B

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of

Master of Arts
Department of Geography

Carleton University
Ottawa, Ontario

1 December 1993

copyright
1993, David Bouse

Table of Content for Volume B

6.0	A TRADITIONAL HISTORICAL GEOGRAPHY OF THE SITE	
6.1	Introduction	101
6.2	Geological Influences	103
6.3	Pre-Experimental Farm History	
6.3.1	1826-1856: Cutting into the Landscape	108
6.3.2	1857-1886: Struggle and Speculation	115
6.3.3	Political Background & Site Selection	119
6.4	Experimental Farm History	
6.4.1	Initial Plan	123
6.4.2	Dynamic Compostion	130
6.4.3	Site Components	138
6.5	Urban Context	
6.5.1	Urban Open Space	149
6.5.2	Planning Studies	151
6.7	Conclusion	157
7.0	CENTRAL EXPERIMENTAL FARM: PHOTO-ESSAY	
7.1	Introduction	161
7.2	Selected Photographic Views	163
8.0	DISCUSSION	
8.1	Summary Statement	181
8.2	Reflections	183
8.2	Suggestions for Future Consideration	186
9.0	SOURCES	
9.1	Introduction	192
9.2	Institution and Non-institution Collections	193
9.3	General References (no code)	196
9.4	Primary Cartographic Sources (m-)	220
	Aerial Photographs (NAPL)	229
9.5	Summary of NA photo-card catalogue	231
	Published Images in Period Reports	237
9.6	Illustration Sources for this Paper	241
9.7	Additional Sources (p- or up-)	246
10.0	APPENDICES	
10.1	Introduction	251
10.2	Special Abbreviations	255
10.3	Finding Aid for NAC Box 5338	256
10.4	Reflections on an Article by Prince	272
10.5	Special Definitions of Common Terms	276
10.6	Benefits to Historical Research	280
10.7	Establishing a Framework of Meaning	286
10.8	Post Script	295
	Unbound Foldouts Index	299

6.0 A TRADITIONAL HISTORICAL GEOGRAPHY OF THE SITE

no visitor to Ottawa should think of leaving the city without seeing the Central Experimental 'Park' - as Park it surely is -Gard, 1902.

The historic evolution of the Central Experimental Farm has resulted in a collection of buildings reflecting the changing construction standards of virtually every decade of the last one hundred years
-Katz+Webster, 1990.

6.1 Introduction

This section contains a brief historical account of the site's morphology, presented in a conventional format as a contrast to the graphically presented conceptualization of morphology in section 5. Part A of this thesis points toward an abstraction of the site as physical energy within a time and space matrix. As an alternative, this section outlines a logocentric or word-based abstraction of the site as it is revealed through archival records.

Many urban centres have one large open space which provides a distinct contrast to the congestion and clutter common to large metropolitan areas. Such public open spaces help to define the cultural character of, and provide an identifying element for, the conglomerate of people residing there. Within the city of Montreal this character-defining

Opposite: Cottage, sheds, barns, and fields viewed from the former auditorium, looking south, c.1920. Photo credit: National Archives of Canada; PA-132970.

place is Mount Royal; in Vancouver it is Stanley Park; in New York City it is Central Park[1]. The latter is perhaps the most well-known of all large-scale open spaces which provides "a brief equivalent of a visit to the countryside" (p-Mumford, p.218) for urban dwellers.

Within metropolitan Ottawa there is an unusual example of this type of country-in-the-city open space - perhaps one of the more successful and least-studied of all such examples where a large tract of "countryside" has been included into the overall morphology of a city. The site is the Central Experimental Farm[2].

How did this site come about? How have its forms evolved? Can one assume a collective cognition of spatially expressable image of this place as a cultural landscape? These are some of the questions which one can ask about this unique and little understood site which is located next door to Carleton University, yet so little understood by its staff and students.

1. New York's Central Park is one of the most studied of all major urban open spaces; as: p-Stewart (1981), p-Fein (1968), p-Reed (1981), Mann (1981, pp.232-3), and p-Todd (1982). In contrast, the only recent studies of the Experimental Farm as an example of country-in-the-city open space are those conducted or initiated by the author; as: up-Bouse (1986) and p-H. Smith (1986). This major local site seems to have fallen between the cracks of geographical consciousness as a heritage site worthy of study.

2. Perhaps the best written description of the local landscape is contained in p-Davies, 1954, pp.159-186. Other noteworthy written accounts of the site's historical geography include: p-E. Archbald (1949), p-Agriculture (1924, 1939, and 1947), and Gard (1902, pp.6-11).

6.2 Geological Influences

The observable landscape of the Experimental Farm rests on hundreds of millions of years of sedimentary deposits. A Precambrian basement consisting of igneous and metamorphic rock about one billion years old is located more than 600 m under the surface. This physical supporting structure is laced with a series of faults[3] which have partly affected the surface topography on the east part of the site which slopes toward the Rideau River[4], while the majority of the land drains in on itself or slopes to the west.

Glacial till at the site provides sandy to clayey soils occasionally with 20 cm diameter stones rising to the surface because of uplifting frost. Prior to the second quarter of the nineteenth century much of this local landscape was covered by swamps; including the area west of the bluff, and in the lowland of the ancient river channel now occupied by Dow's Lake and Carleton University's lower campus.

3. These faults are part of the Ottawa Valley Rift system. Running under the east edge of the site is the so-called Gloucester Fault as shown in the upper map at the end of section 6.2. The differential vertical displacement along this fault under the Farm is as great as 200 m in some areas. Overburden, and erosion to overburden, mask most of the relative structural differences. (See Bouse, 1993a, for a brief graphic account of geological influences; see also up-Wilson, 1990, for a more detailed and analytical description of local geology.)

4. According to Joyce Lundberg (in personal communication; ips) there was a large southeastward-flowing ancient river channel located at the extreme east edge of the current site following the last Ice Age. Surveyors in the late eighteenth century, not knowing the channel originally flowed from the direction of the Ottawa River, sometimes referred to it as the "fork of the River Reddo (sic)" (p-Haig, p.47, quoting a 1791 Parliamentary committee report). High ground overlooking that former channel later become a factor in site selection for the Central Experimental Farm.

The literature is thin concerning pre-European human activity at this location. One scholar speculates that the small rapids near the southeast corner of the site was a camping site, positioned because of the necessity to portage from that point to above Hog's Back Falls (in Bouse, 1993a). More recent beliefs include a postulation that one must first consider the native American views of landscape as it might relate to this (as well as other) site(s), and not to allow oneself to be deceived by Euro-centric frameworks for perceiving and interpreting landscape forms[5].

The two maps on page 106 provide a contrasting set of images for the context of the site: the upper image illustrates a pre-1800s conceptual view, while the lower image represents a current digital image[6] map of the Ottawa metropolitan area. Human occupation of this area for the

5. James Raffan has observed (based on work by R.B. Hay and his own research) that the entire question of "emotive bonds to place, within [ones] whole lifeworld, have seldom been studied". The amount of expressed knowledge within an academic context concerning the concept of "landscape" as a fundamental part of our interrelationships with the earth "tells us more about the biases of modern geographers than it does about people's real relationships to their places" (Raffan, 1993, p1). He has observed a cognitive sense-of-place is largely knowledge that is processed in such a way that traditional geographic methods of analysis designed and carried out with a built-in predisposition for a so-called scientific way of thinking "would not find out very much about sense of place" (p.8). It is not simply an act of fantasy for current geographers to speculate on emotional aspects of what, in fact, human cognition of the local "landscape" was - occupying the same place in space now occupied by the Central Experimental Farm. In the eyes of local native Americans, an image of this landscape in particular (and all landscapes in general) may be beyond the current abilities for most Western-biased geographers to know in a coherent, conscious manner.

6. Remote sensing composite image, (detail) "Ottawa, Ontario"; 1990. 1:50000 scale. Energy, Mines and Resources.

thousand or more years prior to 1800 left a landscape of few obvious physical changes. Its morphology was mostly a non-linear, natural appearing integration of forms which, over time, became an integrated part of the so-called non-cultural landscape. Since that date, corresponding with the introduction of settlement based on Western cultural outlooks, the local vicinity has increasingly become covered with forms associated with urbanization: hard-edged, repetitive, enclosing, and hierarchical

The lower image of the current local environment also reveals field pattern sizes at the Central Experimental Farm. These patterns are distinctive in form when viewed from the site because of their repetitive regularity and unusually small size, sometimes no more than a few metres wide. At the larger scale of view one can compare them with the field forms found beyond the suburban edges of the metropolitan area. Larger scale aerial photographs from different periods illustrate seasonal patterns at a scale not apparent either from the ground or from a great height (as illustrated on the following page)[7].

Geological information concerning faults is suggested in the upper map as illustrated in more detail on page 107, a cut-away block diagram of part of the site. Geophysicists refer to these types of faults as "derelict"; that is, the two sides are no longer moving relative to each other.

7. It should be noted that test plot size fluctuates over time. The current trend is toward larger and fewer plots; in line with a similar trend found on commercial farms.

LOCATION OF PRE-1800 SITE RELATIVE TO GLOUCESTER FAULT (AFTER H.C. WILSON ET AL.)

(DETAIL) IMAGE OF OTTAWA AND ENVIRONS (ENERGY, MINES AND RESOURCES, 1990)

6.3 Pre-Experimental Farm History

Extensive elevated swamp - Mountains of Neepan (sic)
-Royal Engineers, 1827.

things quickly got out of hand...dozens of unauthorized squatters took up residence on the canal banks in areas not approved -Elliott, 1991.

6.3.1 1826-1856: Cutting into the Landscape

Swamps and dense tree cover characterised the appearance of the future site of the Experimental Farm prior to construction of the Rideau Canal in the late 1820s. Early maps of the period recorded most of the site as "Swamp on the Nepean Mountains"[1] (m-Royal, 1827b) referring to the elevated inward-draining lands above what was then known as Dow's Great Swamp. At the west edge of the future site was land labelled later as "bedrock outcrop" (m-Senecal, 1917). Generally, the vicinity of the future Experimental Farm was described as "'A useless waste'[2].

A combination of shallow soils, numerous stones, poor drainage, and no direct access to water transportation routes discouraged early settlement. The denseness of vegetation cover during the pre-canal period is best described in the following written account by John MacTaggart in 1826 during

1. Inscriptions extend through the west part of Lot K, Con.B, west of the current core area of buildings on the site. The map's representation of swamp overlaps the current site and extended for 500 ha to the south. Another map (m-Royal, 1829) illustrates "Elevated Swamp" over and around Lots L and M, Concession B.

2. Description by the Earl of Dalhousie, governor of the Canadas, referring primarily to the Township. Reported in B. Elliott, 1991, p.5.

preparation of the initial survey line between Hog's Back on the Rideau River (0.5 km south of the site) and the planned entrance for the canal into the Ottawa River (3 km north):

"...dark dense wood...often obliged to crawl on our hands and knees under the brushwood...unless the axemen cut holes, a prospect of five yards could not be obtained; doubtful what kind of land lay on either side, or directly before...[3] (p-Haig, p. 66).

At that time the topography or form of the distinctive bluff on the eastern part of the current site, including the arboretum area, was only known approximately. Period maps record a "Likely Gully" (m-Royal, 1827a) extending for nearly 1 km into the current Farm site from Dow's Swamp at approximately the low point south of the arboretum. It was not until construction of the canal, and clear-cutting of most nearby timber, that relatively precise maps could be made showing topography; see m-Royal, c.1831, for example.

The local physical forms of terrain, trees, and swamps in the immediate vicinity of the site were not affected in a direct sense prior to 1827. Before that time settlement was limited to a small area along the Rideau Rideau 2 km east and a number of sites near the Chaudiere Falls 3 km north.

3. MacTaggart's account covers the east part of the site. There is no reason to presume it was not applicable for other parts as well. The written description provides an idea of how the surrounding landscape appeared at that time to the European mind familiar with a greater sense of linearity, openness, and dominance over the landscape.

The township had earlier been divided into a system of rectangular lots of 80 ha (200 acres) according to conventional British methods (B. Elliott, 1991). The Experimental Farm's future site occupied the western two-thirds of Lots I, K, L, M, & N of Concession B; half of Lot M, Con.A; and most of Lot N, Con. A (see m-McNaughton, 1824).

The current parallel boundaries for the site, now defined by Baseline Road and Carling Avenue, were not part of the physical landscape in the early part of the nineteenth century. Initial surveys made in the late eighteenth century apparently had no significant representation outside the material upon which the maps were drawn. Lines[4] were not established then in their current location. It was not until after a number of mid-nineteenth century legal disputes, precise surveys were made which resulted in property line relocations of 40-60 m and a slight change of alignment (m-McDermott, 1848; and m-Royal, 1849).

There are no records of any pre-canal cultural works at the site[5]. Rocks, discontinuous swamps, native trees,

4. Two building complexes survive from the period before the current lot alignment was made in the mid-nineteenth century. Both the Clark-Booth barns (now building no.82) and the Kennedy-Booth barns (now building no.118) are distinct in the fact they are oriented on a slightly different system of alignment than other cultural works at this site.

5. The site had been surveyed and it was nominally owned by absentee landlords. This concept of land ownership was not related in a direct sense to morphology during the first quarter of the nineteenth century, early cartographic evidence provides a partial chronology of entitlements for each lot, notwithstanding minor conflicting or imprecise inscriptions. Earliest evidence suggests Lieutenant J. Stegman, surveyor, and the Clergy were initially assigned ownership to most of the lands now occupied by the Experimental Farm.

dense brush and indigenous animals were its primary character defining elements. Construction of the Rideau Canal to provide an alternative water route to Upper Canada, dramatically changed the appearance of the local landscape. Hillsides along the canal route adjacent to major works were denuded of trees[6], roads and bridges were constructed, buildings erected, and small plots broken for cultivation. The most significant change to the landscape in the immediate area of the site was creation of Dow's Lake, formed by two nearly parallel dams across Dow's Great Swamp in order to raise the canal's water level and reduce cut requirements to Brown's Inlet.

Today Dow's Lake[7] and the Rideau Canal comprise the eastern boundary of the Central Experimental Farm. At that time the flooded swamp or "drowned land" (Passfield, p.160) was covered with dead trees[8]. These stumps remained as prominent visible forms on Dow's Lake for sixty years until they were cut by Experimental Farm staff.

6. For example, see Passfield, p.167, Burrows watercolour of 1831-32; map, Swalwell, 1853, "...the greatest part was cleared by the Ordnance for two routes for the Canal & by the people working on the Canal"; or m-Lewis (1886): "poplar and willow second growth" inscribed over the west quarter of Lot K, Con.B.

7. Also called "Deep Pond" (m-Royal, c.1831) or "Lay By" (m-Royal, 1829).

8. See "The Drowned Land - Rideau Canal 4 August 1844", Seton watercolour; in Passfield, p.160; and Haig, p.67. See also m-Burrows (c.1840) and m-Clegg (c.1840) for low angle bird's-eye views of the east edge of the site during this period. Passfield's illustration (p.62) of m-Burrows is in black & white and without full citation.

At least two roads were constructed across the site during the second quarter of the nineteenth century. One extended from the west end of the north dam near the current Carling building (no.132), southeastward at the bottom of the bluff to a point in line with the west end of the south dam. The road then divided, one part passing along "the foot of the hill" (m-Royal, c.1831) to Hartwell's Lock, with an upper route leading up the hill and on to Hog's Back. Two bridges seem to be cartographically depicted spanning gulleys on the site east of Prince of Wales Drive[9].

By the 1840s this road had been relocated to a route matching the current route for Prince of Wales Drive[10], whose zig-zag configuration corresponds with "supposed [lot] side line[s]" (m-McDermott, 1848) and Ordnance boundaries from initial surveys. The 1848 map, as well as m-Swalwell (1853), delineates buildings, fences, lot lines, and other period forms. It also illustrates a portion of the "old Hog's Back road" or "road in 1830".

The first documented building on the site of the Central Experimental Farm was probably Finlay's (or Fenley's) tavern and house[11] located at the point where the road to

9. The road between Bytown and Hog's Back was likely an all-season unimproved route similar to that illustrated in Cockburn's watercolour entitled "Rideau Canal, Long Island on the Rideau River; August 1830" (Passfield, p.79). The north gully is now taken over by the Fletcher Memorial Garden, while the south gully is adjacent to the Farm pumphouse and the adjacent water beside Hartwell's Locks.

10. For example, see m-McDermott, 1848; and m-Royal, 1849.

11. See m-Royal, c.1831; and m-Swalwell, 1853.

Hog's Back forked with the road to Hartwell's Locks. That location, at a point part way down the well-known toboggan hill in the arboretum, was adjacent to two small fields of grain (m-Royal, c.1831). Later cartographic evidence reports less than 1 ha (2 acres) of cultivated land at the site of the future farm in the early 1830s.

Finlay, one of few authorized, rent-paying occupants in the immediate vicinity, was driven from his land by squatters John Shea and his son-in-law using "threats and intimidation" (B. Elliott, p.22). Early settlers to the site were typically illiterate, of either Irish or French ethnic origin. Most were squatters occupying crude dwellings abandoned by canal workers. Farmsteads tended to be located along the canal and adjacent to the canal road during the second half of the nineteenth century, away from the extremely swampy and stoney lands throughout the central and southwest portions of the future Experimental Farm site.

The Shea (or Shay) farmstead was initially located near what is now Birch Avenue east of the Saunders building. Before 1850 they established a new dwelling and collection of barns about 100 m south, near the current location of a surviving original residence for senior staff (building no. 60), about 100 west of the traffic circle[12].

12. Some of the most comprehensive records of early cultural forms at the site are contained within survey plans prepared as part of various legal disputes during the 1850s. The most detailed is m-Swalwell (1853) illustrating one lot and recording fences, field patterns, and building locations and functions for a thirty year period. See also m-Royal (1849) and m-McDermott (1848).

During the mid-nineteenth century a school was also located on the site, east of Prince of Wales Drive, opposite the flower gardens in line with building no.76. Two small areas labelled as "Low sunken land" (Swalwell, 1853) were next to the school, also east of the road to Hog's Back (now Prince of Wales Drive)[13].

Two additional farmsteads from the second quarter of the nineteenth century are worthy of note: one established by Garland (located 500 m south of the current traffic circle), the other larger farmstead was established by Kennedy, initially at a location half way between Garland's farm buildings and Hartwell's Locks (only 200 m west of the lockstation)[14]. The Garland site has been continuously occupied with structures for 150 years. Experimental Farm building no.82, one of two of the oldest agricultural works in the local area, was originally built at what was then the Garland farmstead more than 120 years ago. The Kennedy farm was relocated to two locations, one at the current site of Carleton University's main quadrangle, the other closer to Baseline Road (about 1000 m southwest of Hartwell's Locks).

13. The school was later relocated further south on what is now Prince of Wales Drive, still on the Farm site. Cartographic evidence from 1879 illustrates a school approximately 350 m west with the current location of Carleton University's library.

14. At that time less than half the land had been cleared and fields were generally small, cultivated plots averaged between five and ten hectares. A later description noted, "small holdings, the dividing fences were found to be well packed with surface stones collected from the fields; there were also many heaps at different points and large boulders scattered over the surface" (Saunders, 1888, [p.1])

6.3.2 1857-1886: Struggle, Prosperity, & Land Speculation

The three decades leading up to the establishment of the Central Experimental Farm were characterized by agricultural successes, marginal farming, sub-divisions to serve a growing urban Ottawa, and land speculation.

Proximity to transportation links and suitability of land for cultivation were major factors concerning the potential for agricultural prosperity. Lands consisting of mostly swamps, bedrock conditions, and sandy, stoney or clayey soils were unlikely to support successful farming. On the other hand, proximity to good roads or water transportation also improved one's chances for relative economic success. By the end of the third quarter of the nineteenth century, land speculation and registration of sub-divisions for future residential lots within Ottawa's growth were also a local factor influencing perceptions of the local landscape[15].

During the period before establishment of the Central Experimental Farm three farmsteads seemed to be associated with greater prosperity than the other smaller and less well-known properties. In 1861 those farms were occupied by the families of Donald Kennedy, John Lewis, and Richard Taylor. Next most valuable of these mostly owner-occupied

15. Nepeanville, registered in 1874 (B. Elliott, p.125), was superimposed over the current location of that part of the Experimental Farm from the arboretum past the traffic circle and beyond the main dairy barns (agricultural museum). Another sub-division for Lot I, Con.B, registered in 1883 as Plan 69, RF, is evidence of the landscape existing as a physical fact and an economically-based image. According to one newspaper account, it would be "only a question of time before [the farms to be acquired for the Experimental Farm] will be more valuable for city building sites" (Ottawa Daily Free Press, Sept.1, 1886, p.4).

farms within future site of the the Experimental Farm were those held by Patrick Kennedy, Alexander Kennedy, Thomas Stackpole, John Shea, John McAbe, and John McAmmond (NAC, census reel 1013). Each of the other holdings within this area were less than 5 ha, mostly occupied by retired people or those working in Ottawa.

As late as 1861, up to 80% of the total area of the financially less successful farms at this site were listed in census reports as "under wood". They tended to be on lands which would initially occupy the west half of the initial Experimental Farm property and showed a greater concentration of uncultivated land in locations of rock outcrop or difficult-to-drain swamp. At that time none of the farms at this location over 4 ha in size were listed as more than 50% under cultivation. Some, such as Shea's property were listed to be less than 20% under crops [16].

Though only a few superficial cartographic records of the site's morphology were produced during the period from 1857 to 1886[17], contemporary pictorial representations fill in gaps. The lithographic view of 1879 (reproduced on

16. Agricultural census data from 1861 indicates McAmmond's property (later acquired by Scott) of 80ha was 80% in woodland. Average areas of timber for the larger farms at this location were about 60% of the total of each property. The location of Shea's farm is later held by Tallion and Warnock (Belden, 1879). That property was sub-divided (on paper only) in 1874 for development (registered as Nepeanville). It was also the first site expropriated by the government in 1886, apparently before the decision had been made (officially) to select this site for the Central Experimental Farm.

17. Unlike the 1827-56 period, and periods after 1886, there are no detailed plan views of buildings, fences, and other works for this 1857-86 period.

page 118) provides an outstanding image of the forms of the cultural landscape at one of the more prosperous parts of the site. By that time Thomas Clark[18] had acquired the former Garland property, noted for his prize livestock he raised there. The full-page lithograph of the farmstead in Belden (1879) was one of the largest images presented in that noteworthy historical atlas[19]. The low angle bird's-eye view includes considerable morphological detail.

Clark called his holding "Canal Bank Farm" (Belden, p.37). That farm included a three-part combined barn[20], other barns and stables, and a symmetrical stone house with centre gable facing west toward the road. Evidence suggests this same combination barn survives today in recognizable form. The ashlar dwelling was demolished in 1929[21]. It was quite similar in appearance to another stone-walled house acquired by Experimental Farm, located 400 m north of the traffic circle. That dwelling, in contrast, had an ogee curve on the eaves of the gable instead of straight eaves as illustrated on page 118. See page 140 for a view of the other dwelling, used as a residence until the mid-1960s.

18. Clark was also reeve of Nepean Township at that time.

19. According to Bruce Elliott, the local work (Belden, 1879), is one of the best examples of its type regarding original work describing contemporary history and geography (B. Elliott, ipc).

20. A comparison of the 1879 lithograph and today's building no.82 (exterior form, framing, and joint details) suggests the centre and west portions, at least, survive from prior to 1879.

21. Compare NAPL-HA-27 and acc-1972-222, B-31 with m-McDermott (1848); Belden, p.33; and a list of buildings on the newly acquired Experimental Farm site as of April, 1928 (in NAC, RG 17, B II A, file 1-1-4A, 1927-34).

6.3.3 Political Background & Site Selection

There are three themes which can be argued as precipitating creation of a federal system of research or model farms: pressure from farmers during an economic depression, federal political attempts to control development of the Canadian West, or a tendency favouring centralization and science as an aspect of the path toward progress. One's perception of events connected with the formation of the experimental farms system can be viewed within the framework of these three contextual themes.

According to M. Archibald (1981)[22] and von Baeyer (1984)[23] the combination of agricultural methods seen as out of date, general economic depression, and other issues which affected the farmers' fortunes were cited by the federal government as justification for a major initiative to establish one or more agricultural research stations. In the past jurisdiction for this type of research had been, on a functional level, within the purview of the provincial governments[24].

22. Archibald's paper, "The Establishment of the Experimental Farms Branch, 1886", led to the recent decision by the Historic Sites and Monuments Board to declare the establishment of a federal research farm system as an event of national historical importance (Board resolution).

23. Both von Baeyer's 1984 work and Archibald's paper provide brief explanations of each of these three themes.

24. More than a decade earlier the Ontario government had established a research station and college in Guelph. Quebec is said to have had the first experimental farm founded 200 years previous, at Charlesbourg (Davies, 1932, p.234).

"Canada's possible future as a great nation depended on a contented and prosperous people...impossible unless agriculture were put upon a permanent and profitable footing", (p-Fowke, 1946 (p.200). This economic motivation was tied to farming in general, but more specifically agricultural development and immigrant settlement of the new North-West. That region was then not attracting the large numbers which were thought at the time as needed "for the support of the developmental overhead already incurred by the [federal] government, and for the prosperity of commercial, financial, and industrial centres of the Dominion" (p-Fowke, p.220).

Agricultural experimentation was seen as a prerequisite for this objective because of climatic and other limitations on agricultural practices in the new territory. In 1885 the federal government voted \$20,000 "for the establishment of a model farm"[25] (p-House, 1885) to be based on American and Canadian examples[26].

Cook (1987, pp.375-466) offers a series of images of the federal system of farms from a perspective of imposed federal and controlling capital propaganda aimed at potential immigrants to populate a westward expanding territory.

25. The term "model farm" was used initially in period accounts. For example, the first public announcement of the location of the Central Experimental Farm began, "The site of the Dominion government model farm has been fixed" (Ottawa Free Press, Sept. 1, 1886; p.4).

26. At the request of the Minister of Agriculture William Saunders "visited many of the agricultural colleges and agricultural research stations in the United States" (Saunders, 1886, p.2; reprint (Agri-1885); and made reference to other examples in Canada, Europe, and elsewhere.

Special posters, as illustrated next page, depicted colourful bird's-eye views of each newly-established experimental farm and were sent around the globe to reach the hoped-for audience. Their purpose was to create a favourable impression of the agricultural viability within the North-West.

Mastering the environment, idealism, central control and scientific discovery were the four cornerstones upon which many nineteenth century programs rested. During the 1870s traditional agricultural methods in Ontario had met with frustration and disappointment[27]. Many people in authority believed the new and proposed research farms could "master the scientific and technical complexities... [and allow farmers to] compete successfully in the global agricultural economy" (up-Nesmith, p.188). The move toward greater centralization and reliance on scientific beliefs such as hybrids and cross-breeding can be found in many non-agricultural accounts of the period, as Zellar (1987).

A more complete account of the site selection process is contained in Bouse (1991). It is argued there that soil variations and access to transportation were perhaps not the deciding factors for site selection in spite of claims by W. Saunders. Proximity to Ottawa and high ground providing a view of the city seemed to be major issues[28].

27. Reasons were largely cyclic economic trends in combination with declining nutrient quantities in the soils of central Canada.

28. Several examples of city overlooks were noted by Saunders in his 1886 report describing comparative sites. The role taken by Experimental Farm staff in local "city beautiful" initiatives and on site suggests the initial concept for the Farm was to be much more than a "farm" in its physical aspect and as an image held in people's minds.

FREE FARMS FOR THE MILLION

DOMINION OF CANADA

EXPERIMENTAL FARM
QUANDARY
MANITOBA, CANADA

EXPERIMENTAL FARM
INDIAN HEAD
NORTH WEST TERRITORY

RED RIVER VALLEY

Saskatchewan Valley

THE GREAT FERTILE PLAINS

and British Columbia

LARGE AREAS SUITABLE FOR GRAZING AND CROPS

VAST MINERAL RICHES

GOLD, SILVER, IRON, COPPER, SALT,
PETROLEUM, ETC., ETC.

Immense Coal Fields

ABUNDANT SUPPLY OF CHEAP FUEL

Railway from Ocean to Ocean

SEE REPORTS OF
BRITISH TENANT FARMERS
WHO VISITED CANADA IN 1910

CLIMATE THE
HEALTHIEST
IN THE WORLD.

CANADA HAS
5 Experimental Farms

representative of the whole settled
area of the Dominion, instituted for
the advancement of Agriculture

FREE FARMS OF 160 ACRES

Given to every Male Adult of 17 years and over, in the great Fertile Belt of

MANITOBA, CANADIAN NORTH-WEST AND BRITISH COLUMBIA

Deep soil, well watered, wooded, and richest in the world—early season of rainfall—Wheat—average 30 bushels to the acre, with hay farming.

VAST COAL FIELDS AT CONVENTIENT DISTANCE

GRANTS FROM 100 TO 200 ACRES ARE OFFERED IN OTHER PARTS OF CANADA

For full and full information, in pamphlet form, apply to the
HIGH COMMISSIONER FOR CANADA

DEPARTMENT OF THE INTERIOR

C-63432

6.4 Experimental Farm History

the Central Experimental Farm is now an accomplished fact...Professor Saunders and his associates have been engaged in bringing chaos into order[1]

-Ottawa Citizen, June 1888.

Canada's great nation-wide system of experimental farms and stations is a unique organization, serving primarily the needs of farmers, but without neglecting the interests of urban people

-E. Archibald, 1949.

6.4.1 Initial Plan

According to Wm. Saunders (CEF-1888, p.4), an "eminent landscape gardener"[2] prepared an overall development plan for the proposed Central Experimental Farm. Saunders went on to state, "this approved plan is being followed as a guide in all work". Today, the nearest record which might contain the cartographic information from that plan is m-Snow (1887), a map of the city of Ottawa with the then-under-development Experimental Farm site illustrated with considerable detail which did not always correspond to physical forms at site[3].

1. The first page of the 1887 annual report for the Experimental Farm stated, "the whole of this heretofore waste land [has been] brought under the plough".

2. Research has not discovered this designer's name, nor a copy of the so-called "approved plan".

3. Comparative analysis suggests that Snow's map of 1887 may be the closest surviving record to the original site development plan. Details of m-Snow (1887) show precisely represented roads, tree plantings, and building locations; most of them correctly positioned with subsequent construction work which had not commenced in some cases until 1888 or later. Building locations and road layouts which do not correspond with later development work seems logically represented as a proposal, rather than errors of representation.

Work at the site began almost as soon as expropriation proceedings were put in motion. Initial activities included removal of unwanted features of the previous farms, installation of an extensive system of subsurface field drains, stone removal, regrading, and other topographic changes. Some of the previous buildings were taken over until new buildings could be built. In other cases temporary double usage was assigned to the new structures erected at the site. For example, the seed testing and distribution building (one of the first completed works) doubled as administrative offices until the main offices could be built the following year[4] (CEF-1888, p.4).

The 1887 annual report included the following account of work: "[d]wellings for the several officers[5] composing the working staff are being erected, and substantial barns and stables are now approaching completion" (pp.4-5).

A hierarchy can be seen in the position and architectural style for buildings at the Central Experimental Farm.

4. The upper photograph at the end of section 6.4.1 illustrates the seed testing and distribution building (looking south) as viewed from the newly-constructed office.

5. Lower image on page 128 illustrated one of five original dwellings for officers; two survive. This exceptional example of late-Victorian Shingle style architecture is located north of the main dairy barns. The nineteenth century view is looking west. See also page 167 (a current view of this same dwelling, looking south).

For example, the major residences seem to have been given the most prominent location. Their placement around and within the main lawn[6] adds to a visual emphasis already created because of their distinctive forms. Administrative offices, laboratories, and public display[7] facilities seemed to fall between the ornate residences and the simpler structures for livestock[8].

The first years of construction saw five (two survive) elaborate residences for the senior staff and their families (in most cases a few single men or women also lived in each, according to the 1891 census data). Also constructed were three (one survives) staff cottages, an office-laboratory building, a conservatory-seed distribution building (survives), an implement building (survives relocated), a complex of attached barns (rebuilt), and other structures for livestock (a stable survives, relocated). Early plans of the site's layout, its architectural motifs, its ornamental plants, and its purposeful links with the formal parts of city's morphology suggest a public estate or a campus, not a conventional agricultural facility.

6. The main (or central) lawn is 2.4 ha in size.

7. The display function was cited in contemporary literature as a "museum". The meaning was for displays of grain samples, literature on farming, and other exhibits dealing with successful agricultural and horticultural practices.

8. The plan layout of the site compares favourably with many North American examples of large-scale gardens and parks. See Mann, 1981 for example. The Experimental Farm possesses aspects of an original, individualistic site as well as aspects of a traditional, collective effort - spanning aesthetic, practical, local, and global interests.

The road layout departs from the pre-farm configuration as well as from the precise concept delineated on the early site plans (m-Snow, 1887; and m-Agriculture, 1888). The most notable change at the site level to the pre-1886 layout can be seen in the use of a marriage of strong rectilinear geometry west of what is now Prince of Wales Drive, and, as a contrast, an uncompromising use of curvilinear circulation in the arboretum area overlooking Dow's Lake, and in front of each residence around the main lawn.

There was also a juxtaposition of hard-edged and soft transition devices associated with the circulation routes. Some were defined by wooden sidewalks or manicured landscape materials; others flowed visually into garden areas or fields without a definite line of separation. The layout and the details of form seemed to have been carefully planned according to campus traditions of that time[9].

9. William Saunders described nearly fifty agricultural research stations, campus layouts, and demonstration farms in his report to Parliament in 1886 (appended to the Minister of Agriculture's 1885 report). Much of his emphasis, in terms of descriptive information and number of paragraphs on each location, centred on agricultural campus examples. The following list contains those locations which took up ten or more paragraphs of description in the report (in order): Guelph, Ontario; Urbana, Illinois; Orono, Maine; Ames, Iowa; Geneva, New York; Columbus, Ohio; Manhattan, Kansas; and Cirencester, UK. Typically, those sites were recorded as being about 1 km (1-2 miles) from the nearby town. Many were noted as a showpiece as well as a research facility - a place where local farmers, and farmers from around the globe would feel a sense of welcome.

Tree planting initially occurred in four areas: around the buildings, along avenues giving access to the fields, within the arboretum, and in two special plantations[10] on the north and west edges of the site. The forest belts, a portion of which survives along Fisher Avenue, were comprised of different species set out at different spacings to monitor progress of long-term growth under a variety of conditions. By 1889 more than 10,000 trees[11] had been planted in these two plantations which, at a maximum, occupied five percent of the overall site (CEF, 1894, p.52).

East of the core area of buildings, on the high ground overlooking Dow's Lake, Saunders set aside thirty hectares of "very suitable land" for the "important purposes of an Arboretum and Botanic garden" (CEF, 1888, p.5). Here, considerable attention was given to aesthetic as well as practical considerations of silvaculture, where evergreens were mingled with deciduous trees for harmony of form and colour. In the 1893 annual report of the director, Saunders writes, "Nearly all [trees and shrubs] have made satisfactory growth, and ...are already attracting much attention from visitors" (p.47).

10. The stated objectives of these special areas were for experimental purposes related to forestry, for experimental purposes related to effects on adjacent crops, and for the purpose of "producing pleasing effects on the landscape" (CEF-Saunders, 1894, p.51).

11. Detailed records were periodically published for trees planted and performance by species. By 1893 there were "a total of 15,526 trees living in both plantations" (*Ibid.* p.52.) plus numerous trees planted around the buildings and along the so-called avenues lining both sides of the primary and secondary roads on the site.

PA-182236

PA-181867

FIG. 1. OFFICE BUILDING, MUSEUM AND CHEMICAL LABORATORY OF THE CENTRAL EXPERIMENTAL FARM.

BARN AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

6.4.2 Dynamic Composition

There was little relationship between "Nepeanville", as a registered subdivision, and the original design for the Central Experimental Farm[12]. Early plans, such as pre-construction designs and the post-construction configuration, reveal the primary similarity is the use of an intersecting road connected with Long Island Road (now Prince of Wales Drive). As built it is aligned 50 m north of the registered plan for Nepeanville (Bouse, 1991).

The earliest known plan of the Farm (Snow, 1887) shows two parallel lanes running north off this intersecting road. As built they are not parallel. Reason remains unknown; were they because of poor surveying, site execution problems, or a yet unknown set of influences.

On the other side of Long Island Road an arboretum was specified, using curvilinear road patterns found in major city parks and pleasure grounds of that period. Such designs were promoted by J.C. Loudon, Andrew Jackson Downing, Fredrick Law Olmsted[13], and others (Olmsted, 1870 [1970];

12. The earliest known copy of the original design for the Experimental Farm does not appear to be an original especially for the site, but rather a copy made from it.

13. Both Downing and Olmsted supported "the establishment of model farms of scientific agriculture" (Todd, 1982, p.47). They helped to move the English garden (or *jardin anglais*) landscape designs to public locations in North America, especially in or near urban sites. Curved pathways through these public lands such as parks, universities, and museum grounds, were meant to provide an enlightening and uplifting experience for visitors and those living nearby. For Olmsted, "the ideal urban environment was to be a synthesis of landscape and cityscape" (Fein, 1968, p.3). Today these places constitute collective works of cultural heritage and public art, as well as places for recreational and other practical activities.

Fein, 1968; Stewart, 1973; Favretti & Favretti, 1978; Mann, 1981; Kelly et al., 1981; and Zaitzevesky, 1982).

A type of hierarchy can be seen with the positioning and style of staff residence at the site; all of which were given a high priority and built at the same time or before the agricultural or office buildings. The first years of construction saw at least five elaborate dwellings erected for staff (two survive), several substantial cottages for staff (one of which survives), an office building, a conservatory/laboratory (which survives), and a main barn complex (rebuilt c.1913-4). Early plans of the core area suggest an elaborate self-contained estate or campus, not a conventional type of rural or agricultural facility[14].

In the early part of the twentieth-century a line from the Ottawa Electric Railway was extended into the Farm, turning around just south of the main lawn. By 1912, the date of the first known site plan with annotations, more than a dozen additional agricultural and working laboratory buildings had been constructed in a cluster southwest of the main lawn[15]. Separate buildings and ancillary structures for poultry, apiculture, and the Dominion Observatory were located to the northwest closer to Carling Avenue.

14. A useful graphic comparison of other major landscaped sites is contained in Mann, 1981. Nowhere perhaps is the marriage of agricultural landscape features and those found in public parks more successful on a large scale than one finds with Ottawa's Experimental Farm.

15. The main (or central) lawn is an original feature.

Buildings constructed (before or) during the 1887-92 period include the following, some of which are illustrated in Agriculture (1887). Surviving works on their original site are preceded with a dash (-); relocated or reconstructed works are indicated with a point (.):

- director's (or superintendent's) residence; 1887/88, razed 1935
- .director's stable; relocated, now bldg. no.77
- residence for officer (chemist); 1887/88, razed c1936
- residence for officer (horticulturalist); 1887/88, now bldg. no.60
- residence for officer (etymologist); 1887/88, razed 1935
- residence for officer (agriculturalist); 1887/88, now bldg. no.54
- no.1 cottage (or stableman's cottage); 1887/88, now bldg. no.86.
- cottage[16]; c.1888, relocated south 200m, razed c.1974
- cottage[16]; c.1888, located near main gate, razed c.1966
- seed testing & distribution building; 1888/89, now bldg. no.75
- offices, chemical laboratory & museum; 1888/89, razed c.1936
- .barn and stabling; 1887/88, burned 1913, rebuilt, now bldg. no.88
- engine house and silo; 1889/90, near barn and stabling, burned 1913
- piggery; 1890, several additions, razed c.1910
- .implement and harness shed; 1889/90, relocated 1929, now no.98
- granary; located between barn and piggery, disposition unknown
- root house; 1887/88, rebuilt, razed prior to 1936
- dairy; 1890/91, parts relocated c.1921, last part razed 1991?
- poultry house; 1887/88, several additions, razed c.1920

This group of structures constitutes the first phase of new buildings at the site after the establishment of the federal system of experimental farms. In 1891 it was reported, "The necessary buildings for carrying on the work on the Central Experimental Farm are now nearing completion" (CEF-Saunders, 1892, p.51).

16. These two cottages were nearly identical in appearance to no.1 cottage (NAC; PA-181983). See page 140, left three views, for examples of these three cottages for staff.

Note: all photographs reproduced in section 6.4 are from previously unpublished and unduplicated sources. This criterion for selection was adopted for three reasons: first, there are thousands of high quality images to choose from - excluding previously copied or reproduced archival views made selection easier; two, these views now also imply the wealth of previously unconsulted material; and three, each image here contributes new information for future research.

The orchards, flower beds, fruit beds, and other ornamental or silvicultural plantings located in the core area and to the east, north, and west are of interest. They complemented the architectural motifs used for the Farm's modest and show-piece works of architecture by setting a context for the ornate, irregular forms - and at the same time joining each building in an overall composition.

Between the late nineteenth century and the first quarter of the twentieth, the site changed little in its overall character. Forms changed, but the substance concerning form and composition was substantially as it was from the previous three decades. Such was not the case in the 1930s when the morphology of the core area began to show a new trend toward fewer and larger buildings.

Many structures were razed or relocated in that period including: three large, ornate residences; auditorium/water-tower; and numerous sheds & ancillary works. Such changes seem to have come from an expanding research staff and increasing use of larger-scale farming practices.

Other changes were made to the core area, including new facilities solely for public enjoyment. Gardens which were part of the private area southeast of the Horticulturalist's residence became public ornamental gardens. More attention was directed toward non-farmer visitors, a reflection of Canada's changing demography[17] and the growth of the adjacent metropolitan area.

17. When the Central Experimental Farm was established three of four Canadians lived on farms. Today only one in twenty five live on a farm.

Through all these changes, including more recent and severe changes to the architectural composition of the site, little alteration has been made to the basic layout and site orientation. Most underlying axes remained intact - the system of roads and lanes survives, many of the period buildings survive, and few incompatible works have been erected within the central or core area. For example, in the 1930s a new administration building (Saunders Building) was built on the pivotal location of the original Director's residence. While less compatible with the original buildings in form and detail, its location and initial function reinforced the overall design of the site.

Perhaps the most unhappy change to the site's overall appearance is the rerouting of the main entrance and the loss of the street railway terminal. Historically, most visitors entered the Experimental Farm through the route now occupied by the Carling Building parking lot. The previous alignment made the original administration building a visual terminating point of focus as one passed the central lawn from the north. Those coming to the site by street railway also approached the original administration building before their car turned to the right and circled the auditorium. In both cases speed and scale were reduced - forms were designed to reinforce a focus on the main lawn; its surrounding residences, barns, and offices; and a relative height-of-land overlooking Ottawa's skyline to the north and fields to the west and south.

NA: PA-181870

GREENHOUSES UNDER CONSTRUCTION, 1913

NA: PA-181869

LOOKING NORTH TOWARDS PARLIAMENT HILL

EXPERIMENTAL FARM - OTTAWA

NAPL A9914-43

AERIAL VIEW OF SITE, LOOKING NORTH 1931

NA: PA-175866

PANORAMIC VIEW OF SITE, LOOKING SOUTH, c. 1950

NA: PA-175864

VIEW OF SITE LOOKING NORTH, c. 1950

6.4.3 Site Components

This sub-section outlines a summary of the site's appearance as a collection of individual forms, each with a history of its own. More detailed accounts are provided in Bouse (1986 and 1991) and Wright & Trepanier (1982). Those sources review buildings, ancillary works, and major non-building areas of the landscape from the nineteenth century which survive today[18]; plus current cultural works within the areas where period buildings[19] are concentrated.

Taken as a series of individual physical images, these structures provide an inter-weaving of symbolic evidence of the important cultural role assigned to agricultural research during the past century, coupled with strong faith in quantifiable science and centralized authority. This morphological tapestry involves several hundred buildings and ancillary works, thousands of trees, and other aspects of the Experimental Farm's forms which have existed on the site during the past century. Too complex to address with coherence in this superficial account, it may be useful to focus briefly on two architectural types[20]; secondary residences and support buildings.

18. The two oldest structures on the site date from the mid-nineteenth century. Both are barn complexes and were acquired by the Department of Agriculture in the 1920s. Both are considered by the federal authorities having jurisdiction to be "non-heritage", according to criteria and procedures used by the Federal Heritage Buildings Review Office (FHBRO). See FHBRO reports 83-87 and 87-58. Problems exist; both with the concept of "non-heritage" and with research methods which are currently unable to establish factual construction dates at certain sites; see also appendix 10.6.

19. The term "period building" means one older than forty years.

20. Less well known examples were selected to round out several gaps of information concerning the site's architectural history.

The following plates[21] illustrate aspects of the less elaborate residences, most designed and built for Experimental Farm staff - others purchased with the land and taken over for staff use. On the left side of the first plate (p. 140) are three original cottages apparently identical in form and architectural detail. One survives, located south-east of the main dairy barns[22]. The cottage shown in the middle left view was moved from its original location near the current traffic circle several hundred metres south on Prince of Wales Drive. Characterized by irregular roof forms with multiple gables, side-wall shingles, and a lack of symmetry[23].

On the right side of the first plate are illustrated the gambrel-roofed former superintendent's house (upper left),

21. All photographs in this section are from previously unpublished and unlisted sources, not available for any but the most diligent researcher. This selection criterion was adopted for two reasons: first, there are thousands of high quality period images one might choose from to illustrate the hundreds of buildings and works - excluding all views somewhere available for general research purposes reduced selection problems to a more manageable number; second, each photograph reproduced here contributes new information to the study of the site's morphology. Photographs are by Department of Agriculture staff; held by National Archives of Canada: copy negative numbers are inscribed on each print reproduced here.

22. It required rather considerable cartographic analysis of these forms to positively identify the locations of each of the other two cottages. Problems are three-fold: they look the same; photographs are sometimes labelled by building number, occupant's name, or occupant's job title - each of which changed over the years and did not necessarily match other research information; and, in one case, the building was moved.

23. The architectural style is associated with the Shingle style, a variant of Queen Anne Revival.

MR KENDRICK COTTAGE No. 55

PA-181982

No. 27 SUPERINTENDENT'S COTTAGE

PA-181982

No. 94.

MARTYN COTTAGE, REAR

PA-181983

No. 44

CUNNINGHAM COTTAGE (REAR SIDE)

PA-181983

No. 10

RUMP COTTAGE, NO SCOTT HIGHWAY GATE

PA-181983

No. 5

SNIDER COTTAGE WATERFOWL PLANT

PA-181983

No. 9 ROBERTSON RESIDENCE

PA 161962

NA: PA-175861

POULTRY FARMER'S HOUSE, LOOKING EAST

PA 151962

NA: PA-175860

the hip-roofed cottage located on the current site of the sheep pens, and the hip-roofed (almost pyramidal) cottage located next to Dow's Lake on land now occupied by the Canadian Forces.

On the previous page are two examples of the form of a dwelling in its physical context. The upper example is of an ashlar structure dating from the mid-nineteenth century or before. Its symmetry and simplicity were typical forms for that earlier period. The aerial view, looking north from a point above the traffic circle, shows the house as part of a cluster of three near the original main gate. The lower left example on the page opposite is also illustrated immediately north of this stone house. The other stone house on the Farm, acquired as part of the Clarke-Booth farmstead, was not used for staff purposes[24]. The lower example is a large clapboard sheathed house initially built by the Kennedy family prior to acquisition by J.R. Booth in 1886. This structure is clearly visible in the oldest known photograph of the Farm site (copied as PA-182236), reproduced here at the end of section 6.4.1.

The photographs on pages 144-5 illustrate the forms of several ancillary features and less-well-known support buildings, none of which survive. The upper left example, looking southeast, shows a bench and perennial bed located

24. That dwelling, originally located southeast of the current barn no.82, was purchased in 1928 and demolished two or three years later.

west of the current traffic circle. In the upper right is an un-named and unidentified field shed, probable located near the tobacco barns. The two middle views of the following page illustrate forms of foundations: linear on the left and circular on the right. Both photographs also provide noteworthy information in the background subject matter. In the upper left of the left middle photo is a small shed with a ventilator on top, not recorded in any other evidence, graphic or written. On the right, across the road, is the original appearance of the horticulture building - today enclosed with additions, not recognizable as this building.

The bottom two views are from the initial dairy: the lower right is a detail of that published in 1891 as an image of scientific cleanliness, efficiency, and order. That image, plus plans, building construction details and interior photographs, were circulated across Canada in agricultural bulletins. The lower left view is a detail of the back of the building. A third view of the building is in the far right of the lower view on page 145.

Through the use of sequent imaging analysis, it has been determined that the shed in transit on the top of that page was located at three different sites before it was razed in 1983. Such determination was made prior to finding this remarkable evidence of how buildings were moved with such ease and without written accounts. The lower view shows a shed which replaced a previous structure at that location. It too was replaced; only its foundations surviving today.

NA: PA-182236

BENCH WEST OF CHEMISTRY BLDG

NA: PA-183146

FIELD SHED

NA: PA-182237

PIGGERY FOUNDATIONS 1911

Foreground - foundation Water Tile Silo

NA: PA-181979

SILLO FOUNDATIONS

NA: PA-181981

DAIRY, REAR (SOUTH) ELEVATION

DAIRY, FRONT ELEVATION (ENGRAVED VIEW)

PA-183143

PA-183144

29/5/36

The bird's eye maps in section 5 illustrate operational trends toward fewer and larger buildings since the 1930s. As well, more recent buildings have been less ornate, as became the architectural practice since the 1940s. For example, the machine shop (to the rear of the Main Dairy Barns until c.1930, since relocated 100m west) has multiple gables and simple, but pleasing, textured sidewall treatment. Such aesthetic considerations do not seem to have been followed on new construction at the Farm since the 1940s.

According to research by Canadian Inventory of Historic Building staff[25] stylistic treatments at the Experimental Farm can be broken down into three groups: irregular formed examples of the so-called Shingle style for nineteenth century dwellings, symmetrically formed - on two axes - examples of a modified Shingle style (Stick elements added), style for sheds, barns, and miscellaneous out-buildings during the first twenty-five years[26], and, for offices and laboratories, symmetrical forms fashioned in brick. An example of the first group is found in the cottage views, page 140 ; examples of the second include the large main barns complex, page 129 ; and examples of the third include the seed distribution house, page 128 .

25. For example: Janet Wright, whose observations were summarized in o-Bouse, 1984, sheet 0.

26. In 1911 a new director initiated a policy of designing, promulgating, and constructing less ornated buildings. The most recent example of the Shingle style is the current cereal barn (no.76), reconstructed in 1915 to Public Works designs after the more utilitarian, gambrel-roofed building had burned.

Each stylistic group is characterized by certain building materials and architectural forms[27]. Other types of architecture which bear mention include greenhouses (a small range was originally attached to the seed testing building) [28]; single examples of a work (as the two different water-towers); and various agricultural structures (as silos[29]). There was a wide variety of fencing, animal shelters (as small pig shelters historically located around the main piggery), and other minor works.

Gardens, tree patterns (along roadways, in orchards, or in landscape support roles), and ground surface treatments also contribute to one's perception of physical forms[30].

27. Shingle style buildings include the residences for senior staff and the cottages. Exterior treatment includes horizontal clapboard, decorative sidewall shingles, numerous gables, and non-symmetrical plan and elevation forms. Modified shingle style examples include most nineteenth century barns and shed. Their treatment includes vertical board & batten siding, sidewall shingles on the upper storey, and bi-symmetrical repetitive plan and elevation details. The third general category of forms applies to office and laboratory structures. Typically this type of occupancy was housed in buildings constructed of brick with stone trim. The first example, the non-extant main office, was the least simple in terms of form from this type; surviving examples tend to be restrained in an architectural sense.

28. Said to be the place Saunders developed Marquis wheat.

29. At least five silos were within the core area in 1926, numbers, locations, and styles change quickly.

30. Some of today's trees and hedges "were planted in the 1890s" (o-Agriculture, 1990). Equally important with the Farm's buildings, this study has not been able to discuss flora-delineated forms.

NA: PA-1715803

AERIAL VIEW OF SITE, LOOKING NORTH C. 1960

6.5 Urban Context

The Experimental Farm, now in the centre of the city with its arboretum, greenhouses and educational nurseries, is an element of civic pride...it must remain unchanged to fulfil its scientific function
-Greber, 1950.

There has long been a love affair between the city and this farm -Ray, 1988, quoting McClelland.

6.5.1 Urban Open Space[1]

Geographers such as Yi-Fu Tuan suggest a theory of early cities as temple communities, dwelling place of the source of human spirit as well as dwelling place of people (Tuan, 1977 and 1979). An aspect of this perceived relationship between a metropolitan centre and spiritual reality came from the relative safety and uniqueness of a city, surrounded by dark untamed countryside. In this context, the city is seen as a "rational environment" (Reissman, 1964, p.6) - controlled, predictable, and purposeful.

As cities grew, especially with industrialization and over-crowding, these roles between city and countryside came to be reversed - the former now is often characterized as unsafe and the latter as the dwelling place of the human spirit[2]. By the seventeenth century in Europe, parks were

1. Written text from 6.5.1 is from Bouse, 1991, pp.11-12.

2. For example, see Zelinsky's study of current concepts of spiritual reality as conveyed in cemetery nomenclature; in Lowenthal & Bowden (1976) Geographies of the mind.

being purposefully introduced into urban environments (Vance, p.229) for aesthetic and emotional, not strictly speaking economic and practical, reasons; to provide unique, restful places for the renewal of one's spiritual energy. Lewis Mumford (1940) writes of Olmstead, advocate of large-scale urban open areas, that his intent was "to provide for the masses...a brief equivalent of a visit to the countryside" (p.218). Landscape designers even then recognized the need for a "saving opposite" (p.218) within the city to contrast with crowding, hard surfaces, and repetitiveness.

Andrew Downing was another leader from the late nineteenth century movement to "re-ruralize" (Mumford, p.219) American cities. At that time a number of out-of-date fortifications in Europe and elsewhere were being recycled as public open spaces, to "help break up the clotted urban massing" (Mumford, p.221). A wide range of studies have been done noting open space distribution in urban areas, comparing such things as proximity to ethnic concentrations, property values, and the like. One study reported in Pinch (1985) concluded "today the better-off [financially] are closest to the major [metropolitan] parks" (p.129). In such studies, these open spaces are classed as a "point-specific" (p.8) type of public service.

According to Northam (1979) the meaning and purpose for open space in cities is somewhat unclear, serving no easy-to-grasp rational or tangible function. His studies have

suggested open space provides primarily a type of affective or emotional relief, operating at a psychological level which cannot be addressed cogently in a scientific or logical manner. Such observations are in line with the paradox which exists between physical aspects of reality and those dealing with spiritual aspects.

Today, the rational, controlled, predictable and purposeful environment of the city is rapidly becoming its opposite. Today, it is the countryside most people see as the dwelling place for the source of the human spirit. This perceived source has become, for many people, large open spaces within our metropolitan centres. Access to a countryside landscape is considered essential for many, in a similar way perhaps as access to a church would be seen as essential. Many people feel a deeply-rooted attachment to the earth, an attachment which can be met for residents of Ottawa at the Central Experimental Farm.

6.5.2 Planning Studies

There has been a close relationship between the Experimental Farm and the planning of Ottawa from the beginning. For example, in 1887-88 Farm staff oversaw the clearing of 2,600 protruding dead trees from Dow's Lake in order to "add very much to the attractiveness of its surroundings" (CEF-1888, p.6). Farm personnel supported the "city beautiful" movement and worked within the political system to introduce municipal improvements to the city.

By the turn-of-the-century numerous schemes were underway to promote aesthetic improvements and link the site with the adjacent urban community. In 1902, Gard cited work in progress to make the Experimental Farm as the south terminus for a "great driveway" (Gard, p.11) comprising a ceremonial route from the Governor-General's residence along the Ottawa River and Rideau Canal. The site was then described in the literature as, "a beauty spot worthy a visit of all lovers of the possibilities in floral nature" (Gard, p.11). Themes of "beauty and attractiveness of the farm" (CEF-1889, p.16) recur in the annual reports. It was, on one hand purposely designed with its arboretum, tree-lined avenues, hedges, and floral displays as a self-contained ensemble; and on the other, a place to view the skyline of the city with the Precambrian Gatineau Hills beyond. It was part of the city's experience, and a place removed from it.

Background details for the history of the metropolitan area and its planning are contained in Bond (1984), NCC (1966 and c.1982), Minton (1974), Taylor (1986), and B. Elliott (1991).

The first major planning study for the national capital was produced in its final form in 1905. Known commonly as the Todd report, it is said to have been the "first of a series of comprehensive [public] planning proposals for Ottawa indentify[ing] the farm as an inte[gral] part of Ottawa's park system" (CIHB report F07-84-004, p.205). Even earlier planning studies were then in progress.

In 1902 Gard wrote, "in time a great driveway is to be completed; it is now begun by the Commission...[and] will end at the Farm. No visitor to Ottawa should think of leaving the city without seeing the Central Experimental 'Park' - as Park it surely is" (p.11).

A more elaborate planning study was conducted in 1915. Known as the Holt report, it found there were only 142 ha[4] of developed parks and parkways in the metropolitan area[5], plus another 188 ha[6] at the Experimental Farm, described in the literature of the period as a "semi-public park" (o-Federal, 1915, p.128). That planning study called for the creation of sixty to seventy small additional urban parks and playgrounds while keeping the Experimental Farm as the primary public open space in the municipal area.

By the mid-1940s the well-known architect and planner Jacques Greber had been engaged to coordinate a lengthy study of the region and make recommendations concerning ceremonial works, open space, and other matters. Notwithstanding his often-used quotation that the Experimental Farm "must remain unchanged", his proposals specified considerable physical change for this site.

At that time it consisted of 600 ha, including lands acquired in the late 1920s and the mid-1940s. Greber's

4. Calculated from tables on pages 128-9 in o-Federal, 1915; converted to hectares.

5. Not counting public open space within Rockcliffe Park. The 1915 planning study made a differentiation between the parkland in Ottawa and Hull, and parkland located in Rockcliffe Park.

6. The initial land area of the site, not counting those parts of Dow's Lake used for water fowl studies.

proposal was to dispose of more than half of the site, converting it to residential use[8]. His judgement seems to have been based on the presumption that most public activity takes place in the core area and the arboretum, not the fields south of Cow Lane and west of Fisher Avenue. For the remainder of the site Greber called for relocating the Department of Health and Welfare to the northwest corner of the site, and constructing a national botanical garden in the southeast corner, opposite what is now Carleton University's campus. Clearly, the Greber proposals did not envision a continuation of horticultural research at this site. Cropland, pastures, and orchards were in most cases to be converted to conventional parkland[9] use or recycled for residential or other use.

The two drawings on the next page illustrate 1915 concepts of the site as proposed at that time. The lower bird's-eye image portrays the Experimental Farm as a central feature of the urban configuration. Above is a partial site plan indicating wider avenues, ceremonial steps from the arboretum to Dow's Lake, and other Beaux Arts forms called for at that time. Both are details from E.H. Bennett. See Bouse (1991) for explanation of the 1948-50 Greber plan.

8. There are four bound studies containing Greber's plans; two issued in 1948 and two in 1950 (there were English and French versions of the written text). The black & white large-format bound plate (no.31) in Plan for the National Capital; accompanying the 1948 volume of written text contains the most detailed image of the intent to dispose of more than half of the site for residential use and convert the remaining non-public areas to other, non-agricultural occupance.

9. Those parts of the site remaining as the Experimental Farm are labelled on the planning maps as "public open space, parks, & playgrounds" (Greber, 1950a, plate VI. op.p.58.)

155

38-60 PEOPLE / HECTARE

6.6 Conclusion

This section has set out to provide a cursory traditional explanation of evolving forms associated with the Central Experimental Farm in Ottawa. The object of this section has been to present a written account of the Farm as a nationally important cultural site[1], as an evolving research facility of Agriculture Canada, and as a major public open space within the national capital metropolitan region. It provides an alternative conceptual image of temporal morphology to that delineated in section 5[2].

Both this and the previous section have considered various levels of detail, each emphasizing different aspects of the site's forms changing over time. As well, several aspects of this site have been found to hold interest as a cultural landscape. They are: causal circumstances involving site selection; the site's role as an urban open space; and promoting (propaganda in support of) the site as a culturally significant landscape of fields, buildings, trees, agricultural research, public activities, and mental impressions and recollections held by those who enjoy visiting this place.

1. Found to be of national historical importance by the Historic Sites and Monuments Board of Canada. See plaque, on site.

2. Section 6, in contrast to the previous section, has focused on traditional perceptions while it implicitly reflects upon the ratio of passion to reason, or art to science, which is appropriate for geographical studies of the landscape.

Circumstances affecting acquisition include questions about J.R. Booth's role; did he have information of the government's choice before the process of selection was formally conducted; did his land speculation activities have an influence on the decision? These questions[3] require specifically directed research into Booth's methods of business, his political connections, and how, in fact, this site was selected.

The second point may be more problematic. Initiatives to promote the cultural value of the site as a treasure of local, national, even international worth may conflict with future plans of Agriculture Canada to dispose of (or reassign to another department) sizeable parts of the Experimental Farm[4] (P. Elliott, personal communication).

On the surface this section has examined the morphology of a unique agricultural landscape within an urban context.

3. Booth purchased part of what would become the original site at about the time the federal government made the decision to establish research farms. Substantial parcels of land were acquired to the immediate west and south, and across Dow's Lake to the east, before the site decision was announced. Currently, all evidence provides only circumstantial speculation.

4. Peter Elliott, former head of Friends of the Farm, has reported there are well-founded rumours suggesting that most or all of the land south of Cow Lane and west of Fisher will be abandoned by Agriculture Canada and declared surplus for urban development purposes. This idea was first put on paper in the late 1940s as part of the official federal plan for the national capital area (m-Greber, 1948; and 1950). In the mid-1960s the idea received considerable public press generated by a former chair of the National Capital Commission (see newspaper clippings in NCC vertical files on Experimental Farm buildings).

Below the surface these pages attempt to elucidate questions concerning the meaning of landscape[5]. Can an historical geography be produced which includes only conceptualization of the landscape's answerable questions? Conversely, can a geography on a local subject include only conceptualization of an emotional response unsupported by rigorous criticism? Are society and the landscape deprived by one or both extreme methods[6] of approach? How much science should be used to study a place; how much art?

It would seem one of the more important issues concerning this traditional view of the site[7] is the relationship between the place and the geographer conducting the study. Such an affective type of reaction seems to spring from deep within and beyond the observable forms and the mundane causes which created them. Could it be one's self which is being mapped in a study of the landscape - where each packet of energy we perceive strikes a chord within an orchestration recognizable at first only in our most distant unconscious mind. Do our emotions get in the way of truth; or is our direct and felt participation essential to the search?

5. Landscapes might be thought of as a combination of physical and essential energy providing a sense of context between the outer and inner realms. Through a process of using landscape recognition we seem to become conscious of our self and our many interrelationships with the landscape - nature becoming culture.

6. Why is it that our culture encourages a passionless geography, and at the same time causes most people to be genuinely fearful of a geography with its passion showing? Does the earth and its landscapes want us to see them as dust - as perceived only through external senses?

7. Section 6 is both a traditional view of the history of the Experimental Farm's forms, and a traditional view of geography.

7.0 CONCEPT OF PLACE IN PHOTOGRAPHS

Life, like a dome of many-coloured glass,
Stains the white radiance of Eternity

-Shelley, 1821.

Photographs can reflect the world, or they can reveal
the photographer...they can reveal ourselves to our-
selves...[they are] a model for a point in time that has
been selected, crystallized, and held out to us for
contemplation

-Borcoman, 1993.

7.1 Introduction

This section contains an objectified emotional image of the Central Experimental Farm, presented in the form of a photo-essay. Its purpose is to provide implicit information concerning the antithesis of an abstraction of the site's temporal morphology as revealed in empirically verifiable, rationally knowable, and physically defined form. This section introduces the concept of the human spirit and the human mind interpreting, without academic restraints, psychophysical and psychospiritual aspects of the landscape.

Section 5 addressed a synthesis of physical energy representing the form of matter in time and space: a geography of proveable knowledge concerning temporal morphology at the local level. In contrast, section 6 addressed a summary synthesis of historical research: rigorously conducted in a conventional manner spanning material facts, human impressions, and presumed motivation driving change.

Opposite: Central Experimental Farm photograph by Malak, one of Canada's top-ranked photographers. Reproduced with permission.

This section moves beyond an objectified landscape using traditional geographical methods of presentation. Here, the concept of affective perception is used to illustrate current forms. The following pages describe the site as textures, smells, sounds, serenity, curiosity, contrast, delight, warmth, chilling, and expectations. This section presents a geography of synthetic emotion, not detached critical analysis. It responds to a charismatic landscape which seems to want to be seen - noticed - as more than its outward physical forms appear on the surface.

7.2 Graphic Text

The following graphic text has no written aspect to "say" what the spatially distributed colours are themselves able to communicate more precisely and clearly than words. For some viewers, it may prove useful to have "illustrations" to elucidate this photo-essay. Each line in the footnote[1] corresponds to one page of the primary text[2].

1. Dirt, stones, horizon & landscape-becoming-linear;
 plowed field in one-point perspective/old barns in the city;
 grain & clouds responding to wind, cyclists & fences;
 clayey clods in front of test plots/ventilators & a bell;
 forms of former residences in current context;
 flowers, trees & buildings in a texture of space & time;
 weddings of people & cultures/ memories of places & times;
 shadows, sheep, sharing, children & cognition of reality;
 paths, gates, cows, children, eyes & communication;
 seeing, being conscious of & sharing foxgloves & irises;
 form & function/generations bonding with earth & each other;
 surveying stars & Canada/"Voice of fire in fields, no.42";
 looking out and looking in;
 maize, mass culture, portable heritage & semiotics;
 form of the face of former staff/fall sun warming the earth;
 rolling snowball, softness, shadows, birches & beehives; and
 chiaroscuro, absence of heat, & wind bringing tomorrow.

2. Four panoramas of the site are supplementary to the text in section 7. See unbound folded plates, back cover.

8.0 SUMMARY DISCUSSION

I have composed this essay on the off-chance that I might have been dwelling in some fertile interval between unfocussed innocence and the sterile arroyos of the land of expertise

-Bennett quoting Zelinsky, 1984.

...it's all bullshit, there is no truth, it's all bullshit -dialogue from cinema "Hero", 1992.

8.1 Summary Statement

This thesis has examined a mental image of geographical interrelationships using a cartographic method developed by the author to explore the extremes of physical environment and human spirit perception. This theoretical approach, employing subjective and aesthetic understandings married to objective and technical reconstructions, is called the sequent imaging antithesis method.

An ontological framework, distilled from a variety of philosophical sources, was delineated to accommodate various ideas implied within this mental image of interrelationships. That framework includes a synthesis of methods[1] to deal with apparent perception prejudices and distortions which have grown from Western tendencies toward an out-of-balanced

1. Philosophers and geographers include: Plato, Lucretius, Plutonium, Wang Wei, Chuang Tzu, Thomas Aquinas, Ni, Descartes, Hegel, Ritter, Husserl, Semple, J.K. Wright, and Buttimer.

Opposite: Author reflects on the Form of the Experimental Farm. Photo credit: Mike McConnell.

emphasis on spectator or scientific knowledge[2] of connectedness and existence.

This theoretical study, using Ottawa's Central Experimental Farm as an example, has revealed it may be possible for geography, at its most conceptual level, to focus on the Gorgon-like problem of viewing and mapping Wright's "terrae incognitae" by using a tactical method borrowed from Perseus, used by Chinese artist-scholars from one thousand years ago, and conforming to known physical theories for phenomena in extreme cases[3]. The primary problem encountered in this paper was not one of conceptually grasping the image of interrelationships - it was one of attempting to externally express or objectify this image. That is to say, to share an image of that which is generally considered to be rationally unknowable.

In a more practical vein, sequent images show promise as an aid for managing heritage landscapes, expanding public perceptions[4], and contributing to the rigorous study of our cultural landscape's temporal morphology. For some, expanding public perceptions of landscapes using this method to

2. From Buttimer, quoting excerpts of Abraham Maslow's Psychology of Science, 1966; plus interpretations by David Seamon (Buttimer, *ipc*). The poles which are described in the "spectator versus experiencer" concept of perception and cognition form an aspect of the reference system used for this study of "terrae incognitae".

3. For example, chaos theory and quantum theory postulate time-space relationships where opposites might meet.

4. Less attractive to many historical geographers is the inevitable application of sequent imaging principles to a "virtual reality-Jurassic Park-Disneyuniverse" commercial technology. Interactive time-space traveling might become in the future as nearly "real" as current cinema or TV images of "reality" using sensually replicated forms.

duplicate external illusions of reality-as-time-and-space is seen as a problem rather than an opportunity. For others, such technological progress becomes a metaphor and a benchmark providing conceptual points of reference for understanding and sharing more of that paradoxical reality within and beyond that knowable to science and reason[5].

The author sees evidence that Western society is moving from McLuhan's "global village" to a combination of global mind[6] and global universe - both currently dominated by a framework distorted in favour of materialism[7].

5. As observed and theorized by the author, this study is not an example of phenomenologic nor scientific enquiry. Instead, it is, not unlike Aquinas's attempt to bridge the historic conflict between the two metaphoric "Cities" - championed by passion (or faith) vs reason, or nature vs spirit - an attempt to link systems of knowing the earth in a conscious sense through external observation with those systems which reveal the earth through internal observations. What makes this study different is that it presents the outcome of abstracting a conceptual image of the landscape as undiluted physical energy only, in order to provide an image of its opposite: an abstraction of undiluted essence. Dynamic tension, in a conceptual sense, between these extreme abstractions allowed the author to journey to a "geocentric" or neutral platform for purposes of observing geographic interrelationships and cultural expression of observations made by others.

6. A "global mind" image might be seen as earth becoming to one person's consciousness as one's mind is to a single brain cell. Buttiner, p.69, discusses S. Fish's theory that academic literature creates a "community of readers tuning themselves into the larger 'conversation of mankind'".

7. Geographers should not object to materialism, reason, and other linear-like biases found in Western culture so long as discourse and action occur with the knowledge that such distortions exist. Recall Pascal's criticism of Descartes which was unwittingly considered by European intellectual society at the time to be supporting irrationality [rather than balanced thinking and perception] and a return to an ecclesiastical belief system then controlling Western Europe (Buttiner, p.132).

8.2 Reflections

This thesis might be summed up with the statement: the landscape is, therefore I feel (then become conscious). It rejects the commonly held interpretation of Descartes' statement[8] which presumes rational thought as metaphorical footings for the foundation of an undistorted knowledge of all things, especially things related to the earth. It challenges, in the strongest possible manner, current interpretations regarding certitude, observations of material reality, and rationally knowable reality which suggest a superior role for those phenomena over their opposites. It also challenges those who believe order is better than, not merely different from, chaos.

This thesis supports those who have preached or pleaded over the years that Western cultures are distorted toward uncompromising application of material empiricism, analysis, and other types of linear cognition which will only end in a deconstructed dust if carried to their logical conclusion. It supports those who sometimes doubt everything: their own existence, their values, their thoughts, and all external reality. The erring, active search for G.E. Lessing's Truth would seem to need more nearly equal application of passion and reason - in a collective, cyclic alternating dominance or in a shared and harmonious application.

8. As discussed in section 3.4, it may be that Descartes might have meant something different from "I think [rationally], therefore I am".

John Kirtland Wright, in one of his last published essays, spoke out against blindly assuming "there is no god but Science and Quantification is his prophet" (1966, p.288). It is impossible to know with certainty what types of "terrae incognitae" he was seeing in his mind during that later period represented mostly by unpublished works. One might speculate, based on the similarities and links with the expressed feelings and thoughts of other geographers who do not shut out most of their intuitively-derived perceptions, that there is a type of a subtle cyclic pattern to the interrelationships between earth and the human spirit which Wright was able to observe in a perhaps mirage-like manner.

Arguments in support of a geography based primarily on empirical materialism seem to be growing more out of touch and dust-like. To know everything about the physical earth will be to know nothing about the essential earth. One aspect of knowing without its corresponding opposite tends to cause distortion, accompanied by a false sense of being value free. One cannot know where one is, by looking only in one direction. One cannot know the earth and its occupants, by relying on paradigms of those favouring materialism, reason, and the practical arts at the exclusion of spiritualism, passion, and the theoretical arts.

This thesis began with no initial purpose^[9] but to

9. Consciously, the object was to disguise images of "terrae incognitae" as much as possible while meeting academic requirements.

obtain a Master of Arts degree while writing on the subject of the edge between nature and culture. For the author, as opposed to the viewer, the primary aim of this paper has been to objectify, in an understandable manner[10], aspects of a mental image of what seems to be that which J.K. Wright spoke of as "terrae incognitae". That is to say, for the author this thesis is an attempt to indirectly map aspects of the unconscious containing inherited knowledge of the earth and its associated forms - to map one's own conscious understandings through repeatedly revising and rereading one's own words and graphics as they become more nearly like the mental image in question.

Some may say the organization of this academic work is not logical nor well thought out. Such criticism, from a perspective of empirical materialism and externally acquired knowledge, is justifiable - the author has made little attempt to disguise the fact that this study has intuitive origins and, like Escher's observation (section 2.2), comes from a process not unlike the spiritualist medium.

From the perspective of "essentialist geography", "pre-modernist geography" (see appendix 10.7) or similar frameworks of understanding this thesis is a record of unconscious perception becoming conscious. The superficial

10. Aware of an interest in, and predisposition toward, Buttimer's poesis and mosaic, the author's plan was to produce something which would be accessible to a wide audience at some level of meaning, while at the same time to at least indirectly and in a subjective manner "address criticism and emancipatory interests of all other practices" (Buttimer, p.15).

aspects of this paper dealing with historical geography, images of the current site of the Experimental Farm, and the maps which have been reworked in a form of four-dimensional cartographic representations are primarily a foundation for the mental processes which were (and are) taking place within the author's mind. (T)here, observations of nature and matter becoming spirit and essence are being made.

Somehow, by pushing so hard to please the demands of the scholastic context, while not being untrue to one's own idiosyncratic nature, this thesis came out - rather more by fortune than design.

The author recalls and ponders the meaning of Joyce Weiland's seven metre wide sculpture entitled "Defend the earth" mounted nearly twenty years ago on the main floor of the Canadian Institute for Scientific and Technical Information. What were her observations at that time concerning the role of science and reason as related to humans and the earth? What role do women, native peoples, perceived mentally ill, children, and others have in geography as the study of how humans and the earth interrelate? What role does the earth have? Does it in fact have a spiritual aspect which is real and not simply a metaphor? Is most of Western society blind to the non-physical energy which is mostly seen as a desire for connectedness?

The author recalls and ponders the visual arts from the East, especially six hundred to twelve hundred years

ago; from this continent, somewhat more recently; and from Africa. As representations of landscape they might suggest that Western perception is aimed for Eliot's "Dust"[11], a quantified and analyzed material reality of time and space without passion, synthesis, and Life. While material empiricists engage in a scholarly search for geographic things, the spiritual realm will pass by in the opposite direction.

8.3 Future Considerations

On the practical level sequent imaging and other applications of multi-dimensional graphic reconstructions are useful management tools for heritage conservation purposes. The use of precise, three dimensional representations will allow future managers the ability to visually become familiar with the physical evolution of heritage sites under their care. This technology, in conjunction with word-based management systems and geo-information systems, will provide an opportunity for more accurate and economical designs with reduced risks to bona fide heritage objects.

There is great opportunity for public use of this method of graphically reconstructing a cultural landscape's temporal morphology. Past experience has demonstrated a significant increase in awareness of the site as an overall landscape under change when the sequent imaging process is

11. Teleological reference to all things becoming either physical energy or essential energy. See Canadian Commission for Unesco (1977); and Eliot (c.1962), "Choruses from 'the Rock'".

presented to the public. Examples in Dawson City and elsewhere in Canada have been able successfully to reach a wide audience to increase awareness of the fluctuating, non-static aspect of heritage landscapes. Previous methods, such as site restorations, tend to reinforce a simplified and limited temporal dimension to cultural landscapes.

Perhaps the most important role sequent images can play is to upgrade the quality of research on complex and irregularly laid out sites which have substantial photographic or cartographic evidence from the past. Current research methods used by the heritage conservation community lack a level of rigor of graphic literacy when compared to linguistic literacy. Researchers, as most academics, are taught to read and to write, not to see and to communicate in spatial media. This problem is considered by the author to be a serious short-coming within the entire field of geography as well as the more specific field of studying cultural landscapes for purposes of showing them respect, bringing them into a less distorted understanding, and learning more about our interrelationships with the earth.

Commercial application of sequent imaging principles will be unavoidable. This paper[12] is, in a way, a plea

12. The author does not suggest avoiding application of sequent imaging in order to slow down vulgar or profane use of the principles. Rather, it is hoped that society can be encouraged to view detached spatial replication of past cultural landscapes as something to set apart, to make special, and to detach from the everyday - in short, to have these images serve a somewhat similar role to that in Eastern societies one thousand years ago.

to those who are not in favour of commercially packaged simulated time-space travel to past environments using computer-interactive systems. The author feels future research in this area, without understanding that reality Plato viewed as Forms, will result in a sterile presentation which cannot avoid polarizing humankind - one group finding an opportunity for nearly unlimited freedom to move in time and space but without any sense of essence; the other group finding their passion toward human spirit divorces them from the surrounding technology-human hybrids which Western culture is propagating.

If those who favour passion, intuitive perceptions, and aesthetics over reason, external perceptions, and science do not take a commanding role for the next few decades at least, it is possible that there may be a separation within society. As projected by the author, one group will move closer to robot-interactive linear thinking, materially-biased controllers of externally observable power, and judgment. The other group will move closer to the beliefs of the past concerning the role of affectively based perception, essential reality, and enjoyment of purpose.

*

*

*

Scale 1" = 10' 0"

1/2" = 1' 0"

Angles

One Light

Side Elevation

Detail of Dormers

Section at A.A.

Plan at B.B.

Plan at C.C.

Section at D.D.

Detail of Truss

Detail of Basement Entrance

Detail of Vestibule door

9.0 SOURCES

If thou dissects the heart of any atom
Thou shall behold within it the sun

-Masterson quoting Hatif, 1992.

If I do not greatly delude myself, I have not only
completely extricated the notions of Time, and Space
...but I trust, that I am about to do more...in this
evolvment to solve the process of Life and Consciousness

-Humphrey quoting Coleridge, 1992.

9.1 Introduction

The following groups of cited and other important sources are separated to facilitate referencing from the cartographic and written text. Prefix codes used for latter sub-sections are outlined in appendix 10.2 and in the table of contents. Appendix 10.3 contains an example of one finding aid prepared by the author as part of this study. Only those individual photographic images from that collection cited in sections 5 or 6 of this paper are listed a second time here. Those citations can be found here under acc-1972-222, box 5338 or under PA-xxxxx.

All primary historical sources and older (pre-1953) sources dealing partly or primarily with the Central Experimental Farm are omitted from the following general listing of citation and background information sources[1].

1. These lists (9.2, 9.3, and subsequent sub-sections) are not comprehensive nor complete; many sources were not recorded at the time of consultation.

Opposite: (detail) Construction drawing for a new chemistry building at the Central Experimental Farm, 1897. Source: Public Works departmental headquarters plan room (B-001); drawer 30-A (animal nutrition bldg; no.59); original plans (one sheet) on linen.

9.2 Consulted Institutions and Non-institution Collections

The following institutions and collections provided special source materials for this study, most of which are not practical to list as individual items. Partial listings of consulted thematic areas are given. (See appendix 10.2 for abbreviations used here.) On occasion, staff provided background on the subject areas not available within the archival records. For example, historians evaluating FHBRO submissions for the Farm's buildings explained the process of research and review in far greater detail than one could reconstruct from the dossiers on each CEF period building.

Canadian Agriculture Library (Nancy Sharpe):
Ag. Canada annual reports from the fourth quarter of the late 19th cent.; CEF annual reports 1887 to 1950; CEF agricultural bulletins to 1920; historical series on Can. experimental farms; early records of senior officers.

Agriculture Canada Research Branch; Centre for Property Management and Public Relations (Peter Lalonde):
blow-ups of period aerial photos; current & previous detailed inventories of buildings; and client-oriented physical planning concepts.

Bruce Elliott collection: assorted copies of period records obtained for Elliott (1991) concerning the site of the Farm before and after acquisition.

Canadian Heritage; Buildings History: vertical file on agricultural stations research compiled for J. Harris.

Canadian Heritage; Canadian Inventory of Historic Building (CIHB): special lists of local and government-owned period buildings; dormant FHBRO and Building histories.

Canadian Heritage; Federal Heritage Buildings Review Office (FHBRO): vertical files on various CEF submissions; general FHBRO literature.

Canadian Heritage; Historic Sites & Monuments Board of Canada: file concerning the designation of the establishment of the Canadian experimental farms system as an event of national historical significance.

Canadian Institute for Scientific and Technical Information (CISTI): current colour perception theory; mechanical-physical methods of documenting cultural morphology; and background on Wieland (c.1972).

Carleton University; map library and department of geography's collection of theses and research reports: large-scale maps of Ottawa (showing how the CEF has been represented cartographically); monographs on bird's-eye mapping and documenting cultural landscapes; and assorted (comprative) very high angle bird's-eye maps to scale.

City of Ottawa; Municipal Archives (David Bullock, et al.): period transparencies; local period maps; and period planning studies by the municipality.

Government Services; Public Works Tupper Building basement - technical documents and plan room (rm B-001): CEF drawings from the late 19th cent. to mid-1960s.

Government Services; Archtectural & Engineering Services dedicated to Canadian Heritage - Heritage Conservation Services technical documents room: reports and drawings of the CEF site and buildings prepared 1983-1986.

McLuhan Program for Culture and Technology; Perspective Unit: database on pictorial mapping terms; period sources of perspective contained in the records (earliest from nearly 4000 years ago); and ideas on development of a conscious ability to know cognition of 3-D space - reported by Kim Veltman, director of the Perspective Unit.

Natural Resources Canada; Canadian Geoscience Information Centre: geological information and various soils classification maps and reports for the local area.

Natural Resources Canada; National Air Photo Library: aerial views of the CEF 1920-1992; oblique aerial views of the site 1922-1931 (more recent oblique views are held by the National Archives and Carleton University's archives and special collections unit).

Ottawa Public Library; Ottawa Room & branch libraries: local perceptions of the CEF as recorded in vertical reference files; rare monographs (in the Ottawa Room); period newspaper articles not elsewhere copied; and other records.

National Archives of Canada; Documentary Art & Photography: CEF and vicinity, Dominion Observatory, and 19th cent. rural buildings views in the public reference collection; all experimental farm and Agriculture Canada accessions, graphic finding aids and printable item-level descriptions; and selected 19th cent. Ottawa accessions.

National Archives of Canada; Architectural and Cartographic Records: CEF site and building records; comparative Agriculture Canada building drawings; and local maps and written accounts 1826-1950.

National Archives of Canada; Manuscript Division: correspondence from Ag. Canada staff (especially 1886 and 1887) on microfilm; maps and written records in period dossiers; and other records not previously copied by the Building History staff at Canadian Heritage (in J. Harris's vertical files).

National Gallery of Canada Library (Maija Vilcins): influences on early 14th cent. European bird's-eye maps; scholarly documentation of first millenium bird's-eye maps to scale from the East; objectified examples of intuitively-observed maps from non-western sources; evidence of traditions of pre-1340 European expressions of "landscape" as a coherent, conscious objectification of mental maps or subjective images of the physical environment.

National Gallery of Canada; Collections & Research: files on Joyce Wieland's works relating to earth, perception, and objectification of internal landscapes.

Nepean Public Library: transcribed 19th. cent. census data for (future and operational) site of CEF and vicinity.

National Capital Commission; records (Michele Marshall): period planning studies by the federal government (especially those involving CEF staff and designated for city-wide application, as for the proposed scenic driveways); heritage resource perception (as demonstrated in the various lists of heritage properities); and dossiers on selected CEF buildings.

National Capital Commission Library (Gwen Hughes): monographs and vertical files on local planning and former FDC or NCC chairs speaking out repeated in the newspaper on selling most of the CEF site for residential development.

University of Nebraska; architecture library: 19th. cent. urban open space; designers and promoters of large-scale open space; and methods of mapping landscape.

University of Nebraska; agriculture library: agricultural campus design and historical geographies of such sites or demonstration farm sites.

9.3 General Sources (no prefix code)

Adams, Douglas. 1980.

The restaurant at the end of the universe, and four other titles in the "Hitch-hiker's guide to the galaxy trilogy" (sic). Adapted from BBC radio broadcasts. Pan Books; London.

Allen, John L. 1976.

"Lands of myth, water of wonder: the place of the imagination in the history of geographical exploration"; in Geographies of the mind (hereafter Geographies...mind) Lowenthal & Bowden, ed. American Geographical Society. Oxford University Press; New York.

Anstey, T.H. 1986.

One hundred harvests: Research Branch Agriculture Canada 1886-1986. Historical series no.27. Canadian Government; Ottawa. [written account of the institution]

Arendt, Randall. 1989.

"Conserving rural character and open space through innovative land use techniques". American Planning Association. Videotape [VHS format].

Bacon, Edmond N. 1967, revised 1993.

Design of cities. Viking Press; New York. [quote: 10.0 from p.11 (after Wolfflin's Principles of art history, 1915); quote: 4.0, from p.43]

Barnes, J.T. and J.S. Duncan. 1992.

Writing worlds: discourse, text and metaphor in representation of landscape. Routledge; London. [cited in Raffan, 1993]

Bennett, David. 1984.

"Getting there: experience and episemology"; Discussion paper no.2; Department of Geography; Carleton University; Ottawa. [quote: 8.0, from p.27]

Bernstein, Jeremy. 1993.

"I am a camera"; in Cranks, quarks and the cosmos. Harper Collins; New York. pp.103-113. [electro-magnetic perception theory]

Beresford, M.W. and J.K.S. St Joseph. 1979.

Medieval England and aerial survey. Cambridge University Press; Cambridge, UK. [excellent comparative study of landscape morphology]

Boghossian, Paul A. and J. David Velleman. 1989.

"Colour as a secondary quality"; in Mind; vol.98, no.389; pp.81-103. [Western theories of external sensing and cognition of electro-magnetic energy]

- Boorstin, Daniel J. 1992.
 "The riddle of creation: a prologue", "Conjuring with time and space" and "The wilderness within"; in The creators. Random House; New York. pp.4-72; 512-553; and 642-748. [epistemological background]
- Borcorman, James. 1993.
Magicians of light: photographs from the collection of the National Gallery of Canada. National Gallery of Canada; Ottawa. [quote: 7.0, from p.12]
- Borduas, Paul Emile. 1956.
 "3+4+1". Oil on canvas, 2 x 2.5 m. National Gallery of Canada; Ottawa.
- Bosch, Hieronymus. c.1500
 "Garden of earthly delights". Painted front and back on three hinged wood panels, 2.2 x 4.0 m. Museo del Padro; Madrid. [symbolic representation of "terrae incognitae"]
- Bouse, David[2]. 1988.
 "Images of our technological society: questions about television's role in the search for Truth". Unpublished paper prepared for Carleton University 12.402.
- _____. 1991.
 "Wright, John Kirtland"; seminar presentation notes for Carleton University 45.435/545; 5 March 1991. [includes reading notes for Wright (1966) prepared for a reading tutorial, 12 Oct.1990]
- _____. 1991.
 "Ottawa's Central Experimental 'Park': a cartographic analysis of an agricultural research station becoming an urban landmark". Unpublished paper, a portion prepared for course work, held by Carleton University Library; Ottawa.
- _____. 1992.
 "Creating an image: analysis of historic sites using sequential paraline bird's-eye maps". Unpublished paper given at Cartography 1992, Montreal; the annual meeting of the Canadian Cartography Association and Carto-Quebec (hereafter: Cartography 1992, Montreal).

2. Some of the author's cited words are listed here, others are listed in footnotes. An in-text reference (p.8) notes that most of the author's essays in geography have been intuitively-based studies about dividing phenomena into two mutually exclusive groups as metaphors for essential & material aspects of the earth. Titles include: "Factors affecting nineteenth century sheep distribution in Lanark County", 1990, for J. Clarke, Carleton University 45.535; "In search of an edge - the Canadian Shield: an assessment of settlement patterns in a forest environment in the Mississippi River area", for A. Buttmer, University of Ottawa, GEG 7908.

- Bouse, David. 1993a.
 "Historical atlas of a campus: Carleton University".
 Unpublished plates and supporting text held by Carleton
 University Library; Ottawa.
- _____. 1993b.
 "Designing a cultural heritage site atlas: Ottawa's
 Central Experimental Farm and the application of sequent
 imaging". Unpublished paper given at the annual meeting
 of the Canadian Association of Geographers, 3 June 1993
 (hereafter: CAG 1993, Ottawa).
- Bowden, Martyn J. 1976.
 "The great American desert in the American mind: the
 historiography of a geographical notion"; in Geographies
 ...mind; Lowenthal & Bowden, ed. [and telephone communi-
 cation re: J.K. Writght's later, unpublished written works]
- Brenaurer, James, and David Rasmussen. 1988.
The final Foucault. MIT Press; Cambridge, Massachusetts.
- Bretez, Louis. c.1739.
 [Bird's-eye map of Paris; commonly known as the Turgot
 plan; illustrated in Atlas des anciens plans]
- Bronowski, Jacob. 1978.
The origins of knowledge and imagination. Yale Uni-
 versity Press; New London.
- Brunskill, R.W. 1970.
Illustrated handbook of vernacular architecture. Faber
 and Faber; London. [excellent examples of temporal
 sequences of 3-D drawings of period buildings]
- _____. 1978.
Vernacular Architecture of the Lake Counties. Faber &
 Faber; London.
- Buisseret, David. 1990.
 "Nineteenth-century landscape views"; in From sea charts
 to satellite images: interpreting North American history
 through maps (hereafter cited as Sea charts); Buisseret,
 ed. pp.111-142. University of Chicago; Chicago.
- Burton, Pierre. 1960.
 "City of Gold". [short historical documentary motion
 picture on the past and current cultural landscape of
 Dawson City, Yukon] National Film Board.
- Buss, Helen M. 1993.
Mapping our selves. McGill-Queen's Press. [a balance of
 personal, theoretical, critical, and cultural reflections]

- Busseret, David and Christopher Baruth. 1990.
 "Aerial imagery"; in Sea charts; Buisseret, ed. pp.283-310.
- Buttimer, Anne. 1993.
Geography and the human spirit. Johns Hopkins University; Baltimore. [quote: 1.0, from p.11]
- Canadian Commission for Unesco. 1977.
 "A working definition of culture for the Canadian Commission for Unesco".
- Canadian Society for Color. [various dates]
 Correspondence, working papers and minutes for the CSC and the International Colour Association. Unpublished records relating to psychophysical and mechanical-physical perception of (visible) electro-magnetic radiation.
- Capra, Fritjof. 1983.
The turning point: science, society, and the rising culture. Bantam, Toronto. [quoting Sorokin, p.33]
- Carter, Harold. 1983.
 "In whose image is the city made? the physical form of urbanism"; and "suburbs, estates and fringe belts: the structure of urban extension"; in An introduction to urban historical geography. Edward Arnold; London. pp.114-129; 130-148.
- Cartwright, Fraser. 1991.
Urban dynamics. Oxford University Press; Toronto.
- Cheney, Jim. 1989.
 "Postmodern environmental ethics: ethics as bioregional narrative"; in Environmental Ethics, vol.11, no.2. pp. 117-134. [see section 3.2 of this paper]
- _____. 1993.
 "Ecosystem ecology and metaphysical ecology: a case study"; in Environmental Ethics, vol.15, no.2. pp.99.
- "City of Gold": see Burton (1960).
- Clifford, James. 1988.
 "The art-culture system: a machine for making authenticity", figure: p.224; in The predicament of culture: twentieth-century ethnography, literature, and art. Harvard University Press; Cambridge, Massachusetts. [compare with reworking of Buttimer's diagrammatic interrelationships in "Writer, artist, and geographer: a cursory review of the written works of William R. Mead", Nov.1990, unpublished paper by David Bouse for GEG 7909 and 45.590]

Conzen, Michael P. 1981.

"The urban landscape: historical development and management"; in Institute of British Geographers special publication, no.13. J.W.R. Whitehand, ed. Academic Press; London, et al.

_____. 1990.

The making of the American landscape. Unwin Hyman; Boston et al. [analytical and rational approach to the study of landscape morphology]

Conzen, Michael P. et al. 1993.

A scholar's guide to geographical writing on American and Canadian past. University of Chicago geography research paper no.235. University of Chicago Press; Chicago. [contents of this work provide an implicit definition of academically imagined historical geography]

Cosgrove, Denis. 1982.

"The myth and the stones of Venice: an historical geography of a symbolic landscape"; in Journal of Historical Geography, vol.8, no.3; pp.145-169. [Ruskin's views of cultural landscapes as source of inspiration]

Crone, G.R. 1978.

Maps and their makers: an introduction to the history of cartography; 5th ed. Dawson-Archon Books; London.

Cytowic, Richard E. 1993.

The man who tasted shapes: a bizarre medical mystery offers revolutionary insights into emotions, reasoning, and consciousness. G.P. Putnam's Sons; New York.

Danto, Arthur. 1990.

"The artworld"; in 20th century theories of art, Thompson, ed. Carleton University Press; Ottawa. pp.531-544. ["making" landscapes provides clues to discovering nature]

Danzer, Gerald. 1990.

"Bird's-eye views of towns and cities"; in Sea charts; ed. Buisseret. pp.143-164.

DeVorse, Louis. 1990.

"Eighteenth-century large-scale maps"; in Sea charts, ed. Buisseret. pp.67-88.

Dickenson, Victoria. 1993.

[quote: 4.0, from conversation of this thesis; Dickenson is a director and the Canadian Air Museum.

Dickson, Jennifer. 1986.

"Lechery in the garden"; in Parachute, no.44.

Di Stefano, Roberto. 1987.

"Le monument pour l'homme"; in ICOMOS/Information no.3. Paris.

- Downs, Roger M. & David Stea. 1977.
Maps in minds: reflections on cognitive mapping. Harper and Row; New York.
- Dudycha, Douglas J. 1990.
 "Geographical information systems: tools for spatial analysis"; in Reflections and visions; Preston & Mitchell, ed. Department of geography publication series no.33; University of Waterloo; Waterloo, Ontario. ch.9.
- Dyson, Freeman. 1992.
From Eros to Gaia. Random House; Toronto.
- Eaglespeaker, Kenneth. 1989.
 "Sacred heritage means preserving people, places, and things"; in ICOMOS Canada English speaking committee newsletter: special issue; p.11. [also presentation at the ICOMOS Canada 1988 annual conference]
- Earl, Christine E. 1991.
 "Current research in cartography". Unpublished research paper for Department of Geography, Carleton University, Ottawa. [comprehensive and perceptive summary; quote: 10.0 from p.12, quoting Harley]
- Eisentrager, James. 1990.
 "Compound five no.28". Acrylic on canvas, 1.0 x 1.4 m. Excerpt illustrated op. section 2.0 from a University of Nebraska brochure; 1993. [empirically derived structure without emotions]
- Eliot, T.S. [c.1962]
 "Four quartets"; "Choruses from 'the Rock'"; and "Landscapes" in The complete poems and plays: 1909-1950. Harcourt, Brace & World; New York.
- Elliot, Bruce S. 1991.
The city beyond: a history of Nepean, birthplace of Canada's capital: 1792-1990. City of Nepean, Ontario. [outstanding historical background covering the surrounding township]
- Emlen, Robert P. 1987.
Shaker village views: illustrated maps and landscape drawings by Shaker artists of the nineteenth century. University Press of New England; Hanover and London. [Bird's-eye maps that "express culture unconsciously are more useful as objective cultural indexes": Prown.]
- Erbon, Didier. 1991 [trans. Betsy Wing]
Michel Foucault [English]. Harvard University Press; Cambridge, Massachusetts.

- Farrant, Penelope, et al. ed. 1980.
Eugene Emmanuel Viollet-le-Duc: 1814-1879. Architectural Design profile series, Academy Editions; London.
 [essays and examples of Viollet-le-Duc's ideas on cultural landscapes, sometimes in contrast to Ruskin's view of period sites]
- Fischer, Eric, et al. 1967.
A question of place: the development of geographic thought. R.W. Beatty; Arlington, Virginia. [comparasion of Western examples of written geographical views of place]
- Fletcher, Banister. 1961.
A history of architecture on the comparative method; 17th ed. Athlone Press; London. [Very high angle bird's-eye maps of the Tower of London: 1597 and 1918, p.436.]
- Foucault, Michel. 1980.
 "Questions on geography", ch.4; in Power/knowledge: selected interviews and other writings 1972-1977. Harvester Press.
- . [trans. A.M. Sheridan Smith]
The archaeology of knowledge. Tavistock Publications.
- Ganza, Kenneth S. 1987.
Journeys of the spirit: landscape portraits of places in China. Department of art, Memphis State University; [Memphis, Tennessee].
- Garner, H.F. 1974.
The origin of landscapes: a synthesis of geomorphology. Oxford University Press; New York et al.
- Gleick, James. 1987.
Chaos: making a new science. Viking Penguin; New York.
 [esp. pp.163-5 re: Goethe's theory of human perception of colour, as opposed to visible electro-magnetic perception]
- Gordon, Peter. 1734.
 Engraving of Savannah, founded 1733, in one-point bird's eye perspective. Carl Feiss collection. Reproduced in Bacon, p.205.
- Graham, W.H. 1988.
Greenbank: in the country of the past. Broadview Press; Peterborough, Ontario.
- Greenbie, Barrie B. 1988.
Space and spirit in modern Japan. Yale University Press; New Haven & London.

- Gregory, Derek. 1986.
 "Landschaft"; "time-geography"; in The Dictionary of Human Geography; 2nd. ed. R.J. Johnston, et al. ed. Basil Blackwell; Oxford, UK. pp.251-2; 485-7.
- Grossinger, Richard ed. 1978.
Ecology and consciousness. North Atlantic Books; Richmond, California. [esp. pp.30-4, 206-212]
- Hall, Nina. 1993.
Exploring chaos: a guide to the new science of disorder. W.W. Norton; New York & London.
- Hagerstrand, Torsten. 1983.
 "In search of the source of concepts"; in The practice of geography; Buttner, ed. Longman Group; London. pp.238-256.
- Hammacher, A.M. 1967.
Van Gogh. Hamlyn Publishing; London, et al.
- Harley, J.B., and David Woodward. 1987.
The history of cartography volume one: cartography in prehistoric, ancient, and medieval Europe and the Mediterranean. University of Chicago Press; Chicago.
- Harley, J.B. 1989.
 "Historical geography and the cartographic illusion"; in Journal of Historical Geography, 15, no.1; pp.80-91. [starts with H.C. Darby in the early 1960s]
- _____. 1990.
Maps and the Columbian encounter: an interpretive guide to the travelling exhibition. American Geographical Society et al.
- Hart, John Fraser.
The look of the land. Foundations of cultural geography series. Prentice-Hall; Englewood, New Jersey. [with many perspective drawings of period vernacular agricultural landscape forms]

- Harvey, P.D.A. 1980.
"The pictorial inheritance"; in The history of topographical maps: symbols, pictures and surveys. pp.169-185. Thames and Hudson; London. [quote: 4.3, from p.9]
- Hawking, Stephen W. 1988.
A brief history of time: from the big bang to black holes. Bantam; Toronto.
- Hay, R.B. 1988.
 "Toward a theory of sense of place"; in Trumpeter, 5 no.4; pp.159-164.
- Hebert, John R. 1984.
Panoramic maps of cities of the United States and Canada. Library of Congress; Washington.
- Heil, John. 1983.
Perception and cognition. University of California Press; Berkeley et al. [challenges empirically based cognitive psychological theories of visual sensing and producing mental representations]
- "Hero": see Ziskin, 1992.
- Herzog, Patricia S.
Conscious and unconscious: Freud's dynamic distinction reconsidered. Psychological issues monograph 58. International Universities Press; Madison, Connecticut. [embraces awareness of internal perception and includes an ability to distinguish inner and outer landscapes]
- Higuchi, Tadahiko. 1983 (trans. of 1975 work)
The visual and spatial structure of landscapes. (A trans. of Keikan no kozo.) Massachusetts Institute of Technology. (Gihodo Publishing; Tokyo). [outstanding example of synthesis of landscape-related issues]
- Hoeller, Stephan A. 1982.
The gnostic Jung. Theosophical Publishing House; Wheaton, Illinois. [(un)conscious mapping of "terrae incognitae"]
- Hofstadter, Albert, and Richard Kuhns. 1964.
Philosophies of art & beauty: selected readings in aesthetics from Plato to Heidegger. University of Chicago Press; Chicago.

- Hofstadter, Douglas R. 1979.
Godel, Escher, Bach: an eternal golden braid. Vintage Books; New York.
- Hodgkiss, A.G. 1981.
Understanding maps: a systematic history of their use and development. Wm. Dawson & Son; Folkestone, UK.
 [ch.9]
- Hondius et al. 1617.
 "Nova totius terrarum orbis geographica ac hydrographica tabula"; reprinted [no date] Santoro Graphics.
- Hoskins, W.G. 1959.
 "Fieldwork: the landscape", ch.8; in Local history in England. Longmans; London. p.106
- Hui-min Chen, Arthur. 1992.
 "On the historical and a-historical discourse of spatiality"; in Architecture + culture proceedings. International research symposium; Carleton University Sept.1992; Donais et al.ed. (hereafter, Architecture + Culture) Ottawa. pp.81-85. [argues modernism's concept of space is reduced to physical aspect only]
- [Hum-Hartley, Susan, and David Bouse] (pub.pend.)
 "Special investigation and analysis: colour"; article III.10.2; in Architectural Conservation Technology Manual Heritage Conservation Program; Architectural & Engineering Services for Canadian Heritage; Department of Government Services.
- Humphrey, Nicholas. 1992.
 "Water and wine" (ch.28) and "Being and nothingness" (ch.29); in A history of the mind. Chatto & Windus; London. pp.207-219. [quote: 9.0, from p.xix]
- "Indochine"; see Wagnier (1992).
- Innis, Harold. 1951.
Bias of Communication. University of Toronto Press; Toronto. [discusses paradigm shift theories dealing with cognition tied to modes of communication]
- Jackson, John Brinckerhoff. 1984.
Discovering the vernacular landscape. Yale University Press; New Haven. [comprehensive and perceptive]

- Jackson, Peter. 1989.
 "Introduction: maps of meaning"; in Maps of meaning: an introduction to cultural geography. Unwin Hyman; London. pp.1-24. ["cultures are maps of meaning through which the world is made intelligible", p.2]
- Jacobs, Jane M. 1993.
 "The city unbounded: qualitative approaches to the city"; in Urban Studies, vol.30, no.4/5; pp.827-848.
- Jakle, John A. 1987.
The visual elements of landscape. University of Massachusetts Press; Amherst.
- Jellicoe, Geoffrey and Susan. 1987.
The landscape of man. Thames and Hudson; London.
- Jencks, Charles. 1983.
Kings of infinite space: Frank Lloyd Wright & Michael Graves. Based on BBC broadcast by Jencks. Academy Editions; London. [quote: 5.0, from p.3, quoting Shakespeare's Hamlet; II,ii.]
- Johnston, Johanna. 1975.
 "A farmer: 1844-1847"; in Frederick Law Olmstead: partner with nature. pp.30-4. Dodd, Mead & Co.; New York.
- Jung, Carl G. 1964.
 "Approaching the unconscious"; in Man and his symbols; Jung ed. Dell Publishing; New York. [quote: 2.0, from p.77]
- [Kamakura period] c.1300.
 "Kumano Mandala". Colour on silk, scroll 1.3 m. [medium-angle bird's-eye map to scale, showing Shinto shrines] Cleveland Museum of Art. Also illustrated in Lee, c.1964; p.335.
- Kearns, Gerry. 1993.
 "Historical geography"; in Progress in human geography 16, no.3; pp.406-413.
- Keates, J.S. 1982.
Understanding maps. Longman; London.
- Keisteri, Tarja. 1990.
 "The study of changes in cultural landscapes"; in Fennia 168:1, pp.31-115. Helsinki. [numerous temporal sequence perspective drawings of 2 or 3 phases]

- Keith, W.J. 1980.
The poetry of nature: rural perspectives in poetry from Wordsworth to the present. University of Toronto Press; Toronto. [preface]
- Kelly, Bruce, et al. 1981.
Art of the Olmsted landscape. [pp.1-3] New York City Landmarks Preservation Commission; New York.
- Killam, Christopher. 1992.
 "Woodlawn cemetery as place". Unpublished research essay held by the Carleton University Map Library. Ottawa.
 [example of objectified affection]
- Kniffen, Fred B. 1936 [1962].
 "Louisiana house types"; reprint from Annals of the Association of American Geographers, XXVI. [early analytical study of architectural forms in the landscape]
- _____. 1951.
 "Geography and the past"; in Journal of Geography 50. pp.126-128.
- Korin, Ogata. c.1700.
 "Iris". Colour on gold paper, pair of six-fold screens 1.5 m high. Nezu Museum, Tokyo. [illustrated in Lee, c.1964; p.480.
- Lee, Sherman E. [c.1964]
A history of far Eastern art. Prentice-Hall; Englewood Cliffs, New Jersey.
- Lehtinen, Ari Aukusti. 1991.
 "The northern natures - a study of the forest question emerging within the timber-line conflict in Finland"; in Fennia, 169, no.1; pp.57-169. [p.58]
- Lessing, G.E. 1979.
 "Wolfenbuttlter fragmente" (trans. excerpt); in Oxford Dictionary of Quotations 3rd. ed. p.314. [offered a choice between all Truth in God's right hand and just the erring, active search for Truth in his left, Lessing would "humbly take His left"]
- Lewell, John. 1985.
Computer graphics. Orbis Publishing; London.
- Levesque, Josee. 1993.
 "Remote sensing of soil characteristics in the visible/ near infrared, thermal infrared, and hyperfrequencies bands". [pp.1-4] Unpublished research essay for Carleton University 67:590.

- Loten, Stan. 1992.
 "Pre-Incaic architectural form and constructional technique at Marcahuamachuco, Peru"; in Architecture + culture... Ottawa. pp.153-6.
- Lorenzetti, Ambrogio. c.1340.
 "A Tuscan town" Picture Gallery; Siena. [colour reproduction on front & back covers of L'art au moyen age Europe; also Bacon, p.79]
- Lowenthal, David. 1967.
 "Environmental perception and behavior". Department of geography research paper no.109. University of Chicago; Chicago. [outlines 3 realms of landscape: nature, thinking/feeling, & behaving - all interrelated]
- _____. 1976.
 "The place of the past in the American landscape"; in Geographies...mind; ed. Lowenthal.
- _____. 1985.
The past is a foreign country. Cambridge University Press; Cambridge, UK.
- Luce, A.A. 1954.
Sense without matter or direct perception. Nelson; London. [p.164]
- Lukacs, John. 1968.
Historical consciousness: or the remembered past. Harper & Row; New York. [p.5]
- Lyons, Thomas R. and Thomas Eugene Avery. 1977.
Remote sensing: a handbook for archaeologists and cultural resource managers. US National Parks Service; Washington.
- Macaulay, David. 1973.
Cathedral: the story of its construction. Houghton Mifflin; Boston.
- Mak, Kathy. 1992.
 "Image maps: integrating remote sensing, GIS, and cartography". Unpublished paper given at Cartograhya 1992, Montreal.
- Malak. 1990.
Ottawa and the national capital region... Key Porter.

- Martin, Geoffrey. 1987.
 "Foreward"; in Carl O. Sauer - tribute; Kenzer. Oregon State University Press; Corvallis, Oregon. pp.ix-xvi
 [Sauer attempted to omit the influence of intuition and imagination in his approach to landscape studies]
- Mann, William A. 1981.
Space and time in landscape architecture history. Landscape Architectural Foundation; Washington.
 [numerous comparative examples of plan forms]
- Margolis, Howard. 1993.
Paradigms and barriers: how habits of mind govern scientific beliefs. University of Chicago Press; Chicago.
- Masterson, Charles. 1992.
 "Isfahan: drawing an understanding"; in Architecture + culture... Ottawa. pp.214-222. [quote: 9.0, from p.214; quoting Hatif of Isfahan, the second line was published with italic type]
- McLuhan, Marshall H. 1964.
Understanding media: the extensions of man. New American Library; New York. [quote: 3.0, from p.viii, see also Poe (1967); see also pp.157-8, relevance to cartography as objectified cognition]
- Mead, William R. 1983a.
 "A commonplace geography". Liverpool papers in human geography, no.15.
- . 1983b.
 "Autobiographical reflections in a geographical context"; in The practice of geography; Buttner, ed. Longman Group London. pp.44-61. [quote: 10.6, from p.56]
- . 1979.
 "William R. Mead, interview by Torsen Hagerstrand". Dialogue project transcript series G11. Videotape [PAL format] and printed transcript. Lund University; Lund.
- Meinig, D.W. ed. 1979.
The interpretation of ordinary landscapes: geographical essays. Oxford University Press. New York & London.
- Mikesell, Marvin W. 1976.
 "The rise and decline of 'sequent occupance': a chapter in the history of American geography"; in Geographies... Mind; Lowenthal & Bowden ed. pp.149-169. [analytical view of concept of temporal cross-sections of landscapes]

- Mink, Louis O. 1987.
 "Modes of comprehension and unity of knowledge", ch.1;
 in Historical understandings. Cornell University Press;
 Ithaca, New York. pp.35-60.
- Moore, Roberta Louise. 1971.
 "Some patterns of sequent occupance in the inner city
 of Ottawa". Unpublished research essay for Department of
 Geography; held by the Carleton University Map Library.
- Morris, A.E.J. 1988 (2nd ed.).
History of urban form before the industrial revolution.
 [esp. pp.24-9, 48-9, 74-93, and 104-5] Longman Scientific
 & Technical; London. [illustrated]
- Morris, Wright. 1982.
Wright Morris: photographs & words. Friends of Photo-
 graphy - Matrix Publications; Providence, Rhode Island.
- Mussorgsky, Modeste. 1874.
 "The great gate of Kiev"; in "Pictures at an Exhibition":
 orchestral version by Ravel. [musically objectified
 image of a so-called mental map, derived from an unbuilt
 conceptual sketch by Victor Hartmann - the gate has only
 existed outside the mind on paper and in sound]
- National Capital Commission. 1979.
 "Central Experimental Farm..."; in The guide to Canada's
 capital. NCC; Ottawa. pp.104-5. [plan-oblique bird's-eye
 map by Shaw, compare with Shaw Photogrammetry, 1979]
- _____. 1987.
 "A capital in the making: reflections of the past visions
 of the future". Planning Branch, NCC; Ottawa.
- Nesmith, Tom. 1988.
 "The philosophy of agriculture: the promise of the
 intellect in Ontario farming, 1835-1914". Phd thesis,
 Department of History, Carleton University; Ottawa.
- Ni Tsan (or Ni Zan[3]). c.1360a.
 "Lion grove in Suchou". Ink on paper. Current location
 unknown; illustrated in Lee, c.1964; p.412.
- _____. c.1360b.
 Inscription from Hu Jing et al. comps., Shiqu baoji
 sanbian (1816; Taipei, 1969) vol.4; pp.1623-4. [cited
 by Ganza, 1987, p.7.

- Nicolay (attrib.) c.1609.
 Very high angle bird's-eye map of Paris; illustrated in
Atlas des anciens plans.
- O'Brien, Michael J. and Dennis E. Lewarch. 1984.
 "The built environment", ch.8; in Grassland, forest, and
 historical settlement: an analysis of dynamics in north-
 west Missouri. Studies in North American archaeology.
 University of Nebraska Press; Lincoln. pp.231-265.
 [extensive use of precisely delineated paraline drawings]
- Orians, Gordon H. 1986.
 "An ecological and evolutionary approach to landscape
 aesthetics"; ch.2 in Landscape meanings and values;
 Lowenthal, ed. Allen & Unwin; London.
- Passfield, Robert W. 1984.
Building the Rideau Canal: a pictorial history. Fitzhenry
 & Whiteside; Don Mills, Ontario. pp.62-3, and 78-9.
- Peters, Ellis. 1991.
 "Introduction"; in Cadfael country by Robin Whiteman.
 [Ellis has created an imaginary 12th cent. landscape
 which is presented in at least 18 titles in the her
 Cadfael chronicles and other works of geographically
 enriched fiction]. Macdonald; London.
- Petroglyphs provincial park.
 Sacred rock carving records. [illustration op. section
 4.0 is a rubbing from a facsimile carving made at the site.]
- Poe, Edgar Allan. 1967.
 "A decent into the maelstrom", reprint in The American
 tradition in literature. W.W. Norton; New York.
- Porter, Dale H.
The emergence of the past: a theory of historical
 explanation. University of Chicago Press; Chicago.
 pp.178-9.
- Porteus, J. Douglas. 1977.
 Environment & behaviour: planning and everyday urban
 life. Addison-Wesley; Don Mills, Ontario.
- _____. 1986.
 "Inscape: landscapes of the mind in the Canadian and
 Mexican novels of Malcolm Lowry"; in Canadian Geographer
 30, no.2. pp.123-131.
- _____. 1990.
Landscapes of the mind: worlds of sense and metaphors.
 University of Toronto Press; Toronto. [comprehensive
 & perceptive, esp. ch.10, "Otherscapes"]

- Prince, Hugh C. 1971.
 "Real, imagined and abstract worlds of the past"; in
Progress in Geography; vol.3. pp.4-86. [see section 10.4]
- Raffan, James. 1993.
 "Drawing conclusions". Unpublished paper presented
 at the annual conference of the CAG, Ottawa, Ontario,
 3 June 1993. (draft copy)
- Rapoport, Amos. 1969.
House form and culture. Prentice Hall; Englewood Cliffs,
 New Jersey. [excellent record of morphological methods
 of 25 years ago]
- Richason, Benjamin F.
Atlas of cultural features: a study of man's imprint
 on the land. [introduction] Hubbard Press.
- Robinson, Arthur, and Barbara Bartz Petchenik. 1976.
The nature of maps: essays toward understanding maps
 and mapping. University of Chicago Press; Chicago.
 [analytical approach to theoretical questions]
- Robinson, Brian. 1993.
 "Aesthetics and theoretical geography". Unpublished paper
 given 2 June at the CAG 1993, Ottawa. [text of paper,
 oral presentation, and concluding discussion]
- Robinson, Philip.
Irish historic towns atlas: Carrickfergus. Royal Irish
 Academy.
- Robertson, Alan R. 1992.
 "Color perception"; in Physics today; December, 1992;
 pp.24-9: special reprint.
- Rogers, Gordon. 1992.
 "Mutation, mind and epistemology: an examination of the
 concept of territoriality in humans as an informational
 and evolutionary phenomenon". Master of Arts thesis;
 Department of Geography, Carleton University; Ottawa.
 [consulted at the conclusion of final editing - reference
 to Pierre Tielhard de Chardin needs further research]
- Rogers, J.M. 1992.
 "Itineraries and town views in Ottoman histories"; in
The history of cartography, volume two, book one:
 cartography in the traditional Islamic and South Asian
 societies (hereafter History of Cartography); ed. Harley,
 et al. pp.228-255. University of Chicago Press; Chicago.

- Sauer, Carl O. 1929.
 "The morphology of landscape"; in University of California Publication in Geography 2. pp.19-53. [introduces concept of "unit landscape"]
- Schouls, Peter A. 1992.
Reasoned freedom: John Locke and Enlightenment. [pp.19 and 49] Cornell University Press; Ithaca and London.
- Schwartzberg, Joesph E. 1992a.
 "Introduction to South Asian cartogrphy"; in History of Cartography; ed. Harley, et al. pp.295-331.
- _____. 1992b.
 "Cosmographical mapping"; in History of Cartography; ed. Harley, et al. pp.332-387.
- Seamon, D. [attributed] c.1990.
 "A summary-contrast of science versus phenomenology"; issued by Buttimer, University of Ottawa, 13 Nov.1990 for GEG 4111.
- Semple, Ellen Churchill. 1932.
The geography of the Mediterranean region: its relation to ancient history. Constable & Son; London.
- Shelley, Percy Bysshe. 1821.
 "Adonais" [quote: 7.0, from LII]
- Short, John Rennie. 1991.
Imagined country: environment, culture, and society. Routledge; London.
- Sibelius, Jean. 1899.
 "Finlandia". [symphonic poem and musically objectified mental map of the Finish landscape] [Sibelius, as a composer on geographic themes, has been cited in W.R. Mead, 1987 and 1983.]
- Sitwell, O.F.G. 1981.
 "Elements of the cultural landscape as figures of speech"; in The Canadian Geographer; 25, pp.167-180.
- Sitwell, O.F.G. and Olenka S.E. Bilash. 1986.
 "Analysing the cultural landscape as a means of probing the non-material dimension of reality"; in The Canadian Geographer, vol.30, no.2; pp.132-145.

- Sim, Stuart. 1993.
Beyond aesthetics: confrontations with poststructuralism and postmodernism. University of Toronto Press; Toronto.
- Skelton, R.A. 1964 (revised and enlarged work by Leo Bagrow)
History of cartography. C.A. Watts; London.
- Smith, Julian. 1986.
 "Avoiding compromise"; in Bulletin: the Association for Preservation Technology, vol.18, no.1 & 2. Special Environment Canada-Parks issue. pp.11-2.
- Soja, Edward W. 1989.
Postmodern geographies: the reassertion of space in critical social theory. Haymarket series. Verso; London.
- Sorkin, M. 1992.
Variations on a theme park: the new American city and the end of public space. Noonday Press; New York.
 [cited in Jacobs, 1993]
- Sprung, Mervyn. 1987.
The magic of unknowing: an East-West soliloquy. Broadview Press; Peterborough, Ontario.
- Sternberg, Robert J. 1990.
Metaphors of mind: conceptions of the nature of intelligence. Cambridge University Press; Cambridge, UK.
 esp. pp.1-5 [cognitive aspects of inner & outer realities compared with 7 metaphors, one being "geography"]
- Stewart, Ian R. 1973.
 "Central Park 1851-1871: urbanization and environmental planning in New York City"; Doctorial thesis, Cornell University.
- Taylor, Alfred Edward. 1929.
 "Plato"; in Encyclopaedia Britannica, 14th ed.; vol.18. pp.48-64.
- Taylor, D.R. Fraser. 1985.
 "Progress in contemporary cartography"; in Education and training in contemporary cartography; D.R.F. Taylor, ed. John Wiley & Sons; Chinchester, UK. pp.3-25 & 109-114.

- Thirlwall, Stephen Lawrence. 1992.
 "Musical landscape: a definition and a case study of musical landscape in its contribution to the development of quebecois identity". Master of Arts thesis; Carleton University Department of Geography; Ottawa. [quote: 2.0, from p.8]
- Thompson, D'Arch Wentworth. 1961 (abridged reprint)
On growth and form. University Press; Cambridge, UK.
 John Tyler Bonner, ed. [seminal work in morphology]
- Thompson, William Irwin. 1989.
Imaginary landscapes: making worlds of myth and science.
 St. Martin's Press; New York. [exceptionally lucid objectification of essence and matter perception]
- Thrower, Norman J.R. 1972.
An examination of cartography in relation to culture and civilization: maps & man. Prentice-Hall; Englewood Cliffs, New Jersey. [quote: 1.0, from p.1]
- Tuan, Yi-Fu. 1976.
 "Geopieté: a theme in man's attachment to nature and to place"; in Geographies...Mind; ed. Lowenthal et al.
- . 1979.
 "Space and place: humanistic perspective"; in Philosophy in Geography; Gale & Olsson. D. Reidel; Dordrecht, Holland. pp.387-427.
- . 1990.
 "Realism and fantasy in art, history and geography"; in Annals for the Association of American Geographers; 80, no.3. pp.435-446.
- Tunbridge, John. 1992.
 "Guidelines for preparation of geography term papers"; modified from notes produced by Trent University.
 Department of Geography, Carleton University; Ottawa.
- Turgot plan: see Bretez (c.1739).
- Underwood, Guy. 1969.
The pattern of the past. Pitman publishing; London.
 [argues physical forms reveal everything]
- Unesco. 1975.
 "European charter of the architectural heritage for submission to Unesco", Strasbourg.

Unesco, Can. Comm.: see Canadian Commission for Unesco.

Unique Media. 1989.

"Toronto downtown". 1989/88. Not to scale. Unique Media; Don Mills, Ontario.

van der Schans, Rene. 1990.

"The WDGM model, a formal systems view on GIS"; in International Journal of Geographical Information Systems, vol.4, no.3; pp.225-240.

Van Doren, Charles. 1991.

A history of knowledge: past, present, and future.
[middle ages and Renaissance, especially pp.118-129]
Ballantine Books; New York.

van Gogh, Vincent. 1888.

"View of Saintes-Maries". Oil on canvas, 0.6 x 0.5 m.
Rijksmuseum Kroller-Muller, Otterlo. ["endowed with a searching vision which seems to penetrate to the essence of every thing and every living being" (Hammacher, 1967, p.36) within the landscape]

———. 1889.

"Irises". Oil on canvas, 0.7 x 0.9 m. Location unknown.
Purchased at auction on 11 Nov. 1987.

van Hoorn, Willem. 1972.

As images unwind: ancient and modern theories of visual perception. University Press Amsterdam; Amsterdam.
[comprehensive history of visual perception theories]

Vastokas, J.M. c.1973.

"Sacred art of the Algonkians". Mansard Press;
Peterborough, Ontario.

———. 1990.

"Landscape as experience and symbol in native Canadian culture"; in Perspectives of Canadian landscape: native traditions; ed. Vastokas. Roberts Centre for Canadian Studies; Toronto. pp.55-82 [cited in Raffan, 1993]

von Baeyer, Edwinna. 1984.

Rhetoric and roses: a history of Canadian Gardening 1900-1930. Fitzhenry & Whiteside; Markham, Ontario.
[many CEF references such as to "city beautiful" work]

———. 1987.

"Horticultural odyssey of Isabella Preston"; in Canadian Horticultural History...vol.1, no.3; pp.125-175.
[international, especially Eastern, perception of employee formerly at site who developed hybrid irises, lilies, and other ornamental plants]

- Veltman, Kim. (pub. pend.)
 ["The sources of perspective" (current working title)]
 A work of the Perspective Unit at the McLuhan Program
 for Culture and Technology.
- Vrana, Ric. 1989.
 "Historical data as an explicit component of land
 information systems"; in International Journal of
 Geographical Information Systems, vol.3, no.1; pp.33-50.
- Wallace, Iain. 1987.
 The global economic system. [Text to accompany Geo.
 45.220] Carleton University; Department of Geography;
 Ottawa.
- Wallace, William, et al. 1929.
 "Hegel..." and "Hegelian philosophy"; in Encyclopaedia
 Britannica, 14th ed.; vol.11. pp.379-385.
- Wallis, Helen M. and Arthur H. Robinson. 1987.
Cartographical innovations: an international handbook
 of mapping terms to 1900. Map Collector Publications.
 [terms for bird's-eye maps/views not coherent nor consis-
 tant with descriptive geometry terms in other fields]
- Wang Wei (attributed) c.750.
 "Wang Ch'uan" Copied: colour and ink on silk, scroll;
 height 0.3 m. Seattle Museum of Art. [represented
 subject is Wang's country estate; considered by some
 scholars as one of the first examples of an objectified
 representation of an externally-percieved landscape]
- Wargnier, Regis. 1992.
 "Indochine" [feature length motion picture of a semi-
 historical geography of southeast Asia] Produced in
 France; distributed in Canada by CFP Distribution.
- Weinberg, Steven. 1992.
 "Against philosophy"; ch.VII in Dreams of a Final
 Theory. Pantheon Books; New York. pp.166-190.
- Whatmore, Sarah. 1993.
 "Agricultural geography"; in Progress in Human Geography,
 17, no.1; pp.84-91.
- White, David A. 1989.
 "The 'Form' of the earth" and "The 'regions' of the earth"
 in "Soul and the nature of the earth"; ch.12 in Myth and
 metaphysics in Plato's Phaedo. Associated University
 Press; Salem, Massachusetts. pp.228-235 [description of
 where we think we live and relates our perception with the
 true earth]

- Whitehand, J.W.R. 1987.
 "Urban morphology"; in Historical geography; ed. M. Pacione. Croom Helm; London et al. pp.250-276.
- Whittlesey, Derwent. 1929.
 "Sequent occupance"; in Annals of the Association of American Geographers, vol.19; pp.162-5.
- Wieland, Joyce. 1968.
 "Reason over passion". Quilted cotton 2.5 x 3 m; National Gallery of Canada; Ottawa.
- _____. c.1973.
 "Defend the earth: defendez la terre". [a commissioned "ecology quilt"] Quilted cotton 2.5 x 7 m; Canadian Institute for Scientific and Technical Information; Ottawa.
- Wilford, John Noble. 1982.
The mapmakers. Random House; New York.
- Williams, Michael. 1989.
 "Historical geography and the concept of landscape"; in Journal of Historical Geography, 15, no.1, pp.92-104. [begins with works of H.C. Darby]
- Wilson, Alexander. 1991.
The culture of nature: North American landscape from Disney to the Exxon Valdez. Between the Lines; Toronto.
- Wilson, William H.
The city beautiful movement. Johns Hopkins University Press; Baltimore and London. [eventually replace by the "city practical" movement, based on engineering values]
- Wright, John Kirtland. 1965 (reprint of the 1925 work)
 "Cosmogony, cosmology, and cosmography"; ch.6 in The geographical lore of the time of the crusades: a study in the history of medieval science and tradition in Western Europe. Dover Publications; New York. [reviewed 40+ years after written as "a monument of exact and patient research" (Crone, 1966; in The Geographical Journal, vol.132; p.139)]
- _____. 1966.
Human nature in geography: fourteen papers, 1925-1965. Harvard University Press; Cambridge, Massachusetts.

- Xiao-tu Xu. 1992.
Architectural space: the cultural image"; in Architecture + culture...Ottawa. pp.128-134. [non-physical basis for concepts of space cognition]
- Zaitzevsky, Cynthia. 1982.
Fredrick Law Olmstead and the Boston park system.
 [preface and illustrations] Belknap Press of Harvard Univesity Press; Cambridge, Massachusetts and London.
- Zeller, Suzanne. 1987.
Inventing Canada: early Victorian science and the idea of a transcontinental nation. University of Toronto Press; Toronto.
- Zimmerman, Michael E. 1988.
 "Quantum theory, intrinsic value, and panentheism"; in Environmental Ethics, vol.10, no.1. [examination of Callicott's theoretical paradigm constructed on a quantum physics theory metaphor - arguing pros and cons of dualistic-appearing characteristics]
- Ziskin, Laura. 1992.
 "Hero". [full-length fictional motion picture] Story by Laura Ziskin & Alvin Sargent and David Webb Peoples. Columbia Pictures.

9.4 Primary Cartographic Sources* (m-)

McNaughton, Jno. 1824.

"Nepean" 1:31680. [Map of surveyed lots, rivers and drainage divides.] Surveyed 1823-24. NAC, NMC53765.

Royal Engineers. [1827]

"Sketch of the Route of the Rideau Canal from grand entrance bay to the foot of the Black Rapids". 1:18000 +/- . [Map illustrates "Extensive elevated Swamps Mountains of Nepean"(sic) in the vicinity of and extending to the west part of Lot K, Con.B.] NAC, NMC-21762.

Royal Engineers. 1827.

"Sketch showing the proposed line of the Rideau Canal from the River Ottawa to the Head of Long Island..." 1:24000+/- . [Map illustrates "Swamp on the Nepean Mountains" overlapping the CEF site and extending for 500 ha south.] 7 July 1827 & 17 August 1827. NAC, NMC16813; and colour original (R)H1/410/Rideau Canal/1827.

. 1829.

"Diagram of Parts of the Townships of Nepean & Gloucester showing the Rideau Canal from the Ottawa to the Hogs Back". 1:15840. 24 June 1829. [Map illustrates "Elevated Swamp" overlapping Lots L & M, Con. B.] NAC, NMC3203.

. 1832.

"This is the Draft of Plan sent to the Secretary's Office March 1832 [?] the situation of the sto[n]e ...". 1:7500+/- . [Includes ownership: Lot K listed "Clergy"] NAC, NMC3539; and colour original H2/430/Nepean/1832.

* Location cited here is to the most nearly original item consulted or to the location most frequently visited during the analysis. For example, the headquarters Plan Room at Public Works Canada has an original print of the published 1926 topographic map of the site while the National Archives only provides a microfiche copy for reference purposes. In that case Public Works (PWC-PR) is listed as the location. When recommended citation practice for an item is not to the most nearly original - as the case with the National Archives where recommended reference is to the microfiche location only - both locations are cited when the original map contains unique, important information.

Royal Engineer's. c.1832

"Plan of the Rideau Canal from the Sappers Bridge in By Town up to the Hartwell Locks..." 1:4150+/-.
[Illustrates location of quarry near original CEF entrance, Fenley's Tavern in arboretum and wheat fields above & below slope.] NAC, NMC15450-1/2; and original H11/410/Rideau Canal/n.d.

McDermott, Michael. 1848.

"Plan of Lot Letter N in Concession B of the Township of Nepean" 1:1584. [Illustrates house and barns labeled "Garland's" at the site of Clark's farm, and a larger farmstead labeled "Kennedy's" located 200m southeast.] NAC, NMC11347.

Royal Engineer's. 1849.

"Rideau Canal: Sketch No.1 to accompany report on Mr. Donald Kennedy's claim to Land in Lot M. Con.B. Township of Nepean". 1:3168. [Illustrates roads and buildings similar to McDermott, 1847.] NAC, NMC-22129; and colour original H3/430/Nepean/1849.

Swalwell, Anthony. 1853.

"Plan of the part of Lot K in Concession B, Nepean, which is west of the part of the lot taken by the Ordinance for Canal purposes..." "not to scale". April 22, 1853. [Detailed map of buildings, fences, and land use with some references recalling land use activities 20+ years previous.] NAC, NMC3551; and colour original: H3/430/-Nepean/1853.

Austin, W.A. 1857.

Map of the Counties of Carleton & Russell... 1:126728
[Authorities consulted include: J.A. Snow, PLS; and Donald Kennedy, PLS.] NAC, NMC19361.

Walling, H.F. 1863.

Map of the County of Carleton, Canada West. Surveyed and drawn by Gray, et al. D.P. Putman; Prescott [Ontario]. NAC, NMC43061-2/4.

Belden, H. 1879.

"Carleton County"; 1:158400. "Nepean Township"; 1:39600. "Gloucester Township"; 1:55448. "Nepeanville" detail; 1:7920. All published in H. Belden: New Historical Atlas of Carleton County; pp.14,15,18, 19, & 49. [See also reprints of these maps by Ross Cumming, published in 1976.] OPL-OR.

[Agriculture, Dept. of]. 1886.

"Plan showing Lots M,N,L,K,I Con B. (R.F.) Nepean" 1:7920. [Apparently delineated when land acquisition for the CEF began.] NAC, record of the Department of Agriculture, RG17-I-1, vol.500, file 54911-54940.

Lewis, J.B. 1886.

"Plan shewing that protion of Lot K Con B. (R.F.) Nepean west of the Long Island Road". 1"1200. Oct. 19, 1886. [Does not include buildings, less annotation than Swalwell, 1853.] NAC, NMC22130; and original H2/430/Nepean/1886.

Snow, John A. & J. Frederick. 1887.

Map of the City of Ottawa...and adjacent suburbs... 1:7920. [Map for Exhibition purposes; illustrates (proposed) road and building layout for then-being-acquired CEF site. Two versions of map exist, with and without dated copyright credit.] John A. Snow; Ottawa. OPL-OR.

[Agriculture, Dept. of ?]. 1888.

"Plan of the Central Experimental Farm Township of Nepean Ont. showing the position of the roads, buildings and drains". 1:2400. March, 1888. NAC, NMC record from RG17 M-78903/75.

Brophy, J.B. 1895.

Plan of the City of Ottawa & Vicinity. 1:9600. A.E. Mortimer; Ottawa. NAC, NMC H1/440/Ottawa/1895.

Agriculture, Dept. of. 1896.

"Plan of Central Experimental Farm: Ottawa, Canada"; in Experimental Farms, Report...for 1895. 1:7000. Appendix to the Report of the Minister of Agriculture. [Illustrates tree-lined roads, 5 circle intersections, forest belts, & approximate locations of buildings.] Opp. Fig. 1. Ottawa. ACL.

Agriculture, Dept. of. 1896.

"Plan of the Central Experimental Farm" [The fold-out print held in RG17 is inscribed with a pencil sketch of a (proposed/planned?) loop for the new street railway. Map illustrates roads (some with trees), forest belts and outlines for 15 buildings (omitting Sheep House, Root House, & unlabeled stone dwelling near entrance of buildings illustrated in Agriculture (1897).] NAC, Records of the Dept. of Agriculture, RG17, volume 2810, 14/3/5. [Same map, without pencil inscription is found in Sessional Paper 8C, 1896, opp. p.2. [See also, NAC, NMC B/450/Ottawa/1896 (Experimental Farm).]

Agriculture, Dept. of. 1897.

"Plan of Central Experimental Farm: Ottawa, Canada".
1:5700+/- . In Guide to the Central Experimental Farm
prepared for Year 1897 with Information Regarding Crops
etc. [Land use areas annotated (24 major uses), forest
plantations, roads & lanes, 15 (of 18) buildings are-
keyed & named.] CIHB.

Ker, N.J. (approved by). 1902.

Twentieth Century Map of the City of Ottawa and
Vicinity. 1:15350. A.S. Woodburn; Ottawa. [First
site plan with accurately appearing locations propor-
tions for roads and buildings, others being more schem-
atic.] NAC, NMC11418; and V3/440/Ottawa/1902.

Agriculture, Dept. of. 1905.

"Plan of Central Experimental Farm: Ottawa, Canada."
in "Report of the Agriculturalist"; in Experimental
Farms: Reports...for 1904. 1:11250. Appendix to the
Report of the Minister of Agriculture; Sessional Paper
No.16. 1905. [Illustrates field patterns with areas,
annotated uses, tree-lined roads, and rough building
locations.] pp.16-7. ACL.

Defense, Dept. of (Militia &). 1906.

"Ottawa Sheet"; 1:63360. NAC, NMC79157; and G3400/
S63.c36/-no.14/1906.

_____. 1908 (also revised 1918, and new issue 1925).
As above, with date changes.

Reid, Basil. 1909.

Twentieth Century Map of the City of Ottawa and Vicin-
ity: shewing latest surveys and improvements. 1:21000.
[First illustration of street railway on the CEF. The
legend for numerical codes for the CEF not located.]
Reid's Book Store; Ottawa. NAC, NMC4254; and colour
original, H3/440/Ottawa/1909.

Abbott, G.F. 1909.

Map of the City of Ottawa. 1:15500+/- . NAC, NMC-
27215; and R/440/Ottawa/1909.

Agriculture, Dept. of. 1912a.

"Central Experimental Farm - Ottawa"; in A Guide to
the Dominion Experimental Farm. 1:20000+/- . [Illust-
rates land use area, accompanied by 4 page description
of 3-5 year rotations for about 60 identified plots
covering about 100 ha.] p.24. Ottawa. ACL.

_____. 1912b.

"Grounds of the Horticulture Division"; ibid. 1:12000
+/- . p.28. [Includes accompanying keys for 34 of
40 illustrated buildings and for 27 areas of horticul-
tural use.]

Cauchon & Haycock. 1913.

Map of the City of Ottawa and Vicinity. 1:12000.

March 17, 1913. City of Ottawa. OMA

Bennett, E.H. & Jules Guerin. 1916.

"General birds eye view of the cities" and "overlay key". No scale. Looking northward showing the location of the...parks...and future expansion of the city. [The CEF is the second most visually prominent form after the river system.] Drawing No.1; in Canada, Federal Plan Commission of Ottawa and Hull: Report of the Federal Plan Commission of the General Plan for the Cities of Ottawa and Hull, 1916. Map dates: January, 1915. CU-RBR.

Bennett, E.H. & E.L. Cousins. 1916a.

"Map of the Highway System showing parks...in the vicinity of Ottawa and Hull". 1:190080. Drawing No.8, ibid. [Indicates existing parks and areas platted in the proposal for Drawing No.21.] Dated: Oct. 1914 & January 1915.

. 1916b.

"Plan of the Central Area showing existing and recommended streets, parks, and public buildings". 1:12000. Drawing No.9, ibid. Dated: January, 1915.

. 1916c.

"Diagram of Present Built-up Area and Population Density, showing also probable future expansion". 1:76800. [Park areas shown in green.] Drawing 20A & 20B, ibid. Dated: January 1915.

. 1916d.

"General Plan of Street System, Parks, Playgrounds, and Waterways also sub-division of surrounding areas". 1:48000. Drawing No.21 in Holt Report. January 1915.

Bennett, E.H. 1916.

"Diagram of Business Manufacturing and Residence Areas: existing conditions". 1:28000. Indicates location of residential areas considered as "first class", "ordinary", or "poor". Drawing No.19A, ibid. Dated: January 1915.

W.L.S. [CEF staff?]. [1917]

"Plan of the Central Experimental Farm, Ottawa, Ontario. 1:960. Inscribed: "traced by W.L.S. Sept. 30th 17". [Largest scale and one of most detailed delineations of all extant period plans; measures nearly 150cm in width; ink & linen.] PWC-PR, drawer 331-A.

Industrial and Publicity Bureau. c.1925.

Pictorial and Tourist Map of the City of Ottawa and District. 1:30000. [Illustrates a suggested motor tour through CEF, the street railway loop and various annotated points of interest at the site.] CUML.

Energy, Mines, & Resources (hereafter, EMR). [1925 & later]
Annotations of flight paths for period aerial photography superimposed on Topographic Map 31G/5, Ottawa Sheet. 1:63360. Dept. of Defense. Map dated 1925. NAPL.

Topographic Survey of Canada*. 1926.

Central Experimental Farm and Vicinity, Ottawa. 1:4800. [Based on aerial photography, see EMR (1925M0.) Extensive annotation, including 95 keyed building names & numbers.] PWC-PR, drawer 331A.

Agriculture, Dept. of. 1930.

"Plan of Cereal Experimental Grounds". 1:9000+/-.
In Guide to the Cereal Experimental Grounds - 1930.
Ottawa. Opp. p.3. ACL.

Lowe, John. 1932.

"Central Experimental Farm, Ottawa, Canada"; 1:4800.
[Central Experimental Farm] Drafting Room, Drawing No.267; Aug. 17th, 1932. [Illustrates an area west of Kennedy/Booth Barns labled "45 Ac. Tented City".] NAC, NMC 486.

[Anon.] c.1935.

"Central Experimental Farm: Ottawa, Ontario" (inscribed in pencil on an ink-on-linen drawing). 1:960. [Map covers southeast quarter of current site. Similar cartographic style to WLS (1917).] PWC-PR, drawer 331B.

Public Works, Dept. of. 1937.

"Federal District Commission: Central Experimental Farm Driveway". 1:2400. Illustrates roads built by Commission [Driveway, Maple, Birch, Highway No.15, Arbor-etum loop, not Centre Ave (Ash) & Winding Lane]. PWC-PR, drawer 331A.

Agriculture, Dept. of. 1946.

"Map of Main Building Area: Central Experimental Farm: Ottawa, Ontario". 1:1200. [Apparently uses a unique key numbering system for buildings.] PWC-PR, drawer-331A.

* The Topographic Survey was then part of Mines & Resources, now EMR. This map was entirely revised and republished in 1946 (Mines, 1946M).

Mines & Resources, Dept. of. 1946.

Central Experimental Farm East of Fisher Avenue, Ottawa
1:4800. Revision of map of 1926. [Extensive annotation, also 1.5 m contour (5') & 99 keyed building names and numbers.] Cartography by Hydrographic and Map Service. CUML.

Agriculture, Dept. of. 1948.

"Map of Main Building Area of Central Experimental Farm Ottawa, Ontario". 1:1200. [Includes 28 named & numbered buildings.] Inscribed: "G.H.[] 12 Oct 48". PWC-PR, drawer 331A.

Greber, Jacques. 1948a.

"Ottawa-Hull & the Environs". Illustration No.26 in Canada, National Capital Planning Service: Plan for the National Capital, Canada: Preliminary Report; 1948. Map dated 1946. CU-RBR.

_____. 1948b.

"Proposed Park and Recreational Areas". Illustration No.36, ibid. Map dated 1948.

_____. 1950a.

"Land Value Plan of Ottawa, Hull, and Vicinity". Plate VIII; in Canada, National Capital Planning Service: Plan for the National Capital, Canada: General Report. 1950. Dated 1946.

_____. 1950b.

"Distribution of Neighbourhood Units..." Plate XXVII; ibid.

_____. 1950c.

"Existing Open Space, Ottawa-Hull and Vicinity". Plate 16 in Canada, National Capital Planning Service: Plan for the National Capital, Atlas: Annex to the General Report; 1950. Map dated 1948.

_____. 1950d.

"Ottawa-Hull and Environs (The Master Plan)". Plate 8; ibid.

_____. 1950e.

"Proposed Open Space"; Plate 17, ibid.

_____. 1950f.

"Population Densities & Land Uses"; Plate 15, ibid.

_____. 1950g.

"Schedule of Executions [or Operations]"; Plate 18, ibid.

Senecal, C.O. (geographer & chief draughtsman). 1917.
Ottawa: Carleton and Ottawa Counties (sic). 1:62260.
 Dept. of Mines Publication No.1662. [To accompany
 W.A. Johnston: "Pleistocene and Recent Deposits in the
 Vicinity of Ottawa with a Description of Soils"; Mem-
 oir 101; No.84, Geological Series. Canada. Dept. of
 Mines. 1917.] Colour. [Source for Greber, Atlas
 (1950), plate 5.]. EMR-ML.

Johnston, W.A. 1917.
 "Description of Soils"; Memoir 101, ibid. pp.40-8.

[Unknown]. c1928.
 [Sketch of soil patterns for Lots M & N, Cons. B & A;
 prior to acquisition.] 1:5500+/- . NAC, RG17, Series
 BVII, vol. 2810, file:143 5/Booth.

Ontario Agricultural College & Experimental Farms Service.
 [no date]. "Soil Map of Carleton County". 1:63360.
 B&W, diazo. EMR-GL.

_____. 1944.
Soil Map of Carleton County. 1:126720. colour.
 [Reduced and recaptioned version of above map; in-
 cluded as a fold-out in G.A. Hills, et al.: Soil Sur-
 vey of Carleton County, 1944; report no.7 of the Ont-
 ario Soil Survey. CUML.

Hills, G.A. et al. 1944a.
 "Land Use Classes", Fig.14 in Soil Survey of Carleton
 County, op.cit. p.87. CUML.

Greber, J. 1950.
 "Surface Geology". 1:63360. Plate 5 in Greber, Atlas
 (1950). Prepared from Dept. of Mines publication No.
 1662 (1917). Colour. OPL-OR.

1967.
Carte des sols - Soil Map: comtes de Labelle-Hull-
 -Papineau. 1:63360. Carte No.1. [Contained in Paul
 Lajoie: Etude Pedologique des comtes de Hull, Labelle
 et Papineau. Canada, Dept. of Agriculture in coopera-
 tion with Macdonald College and the Quebec Dept. of
 Agriculture.] Colour. CUML.

Agriculture, Dept. of. 1967.

Soil Capability for Agriculture. 1:250000. Canada Land Inventory. "Ottawa 31 G". Cartography: Soil Research Institute; Ottawa. CUML.

_____. 1976a.

Soil Capability for Agriculture in Gloucester and Nepean Townships. 1:25000. Canada, Dept. of Agriculture; Ottawa. [Also contained in Marshall, et al. 1979.] CUML.

_____. 1976b.

Soils of Gloucester and Nepean Townships. 1:25000. Canada, Dept. of Agriculture; Ottawa. CUML.

Geological Survey of Canada. 1977.

Surficial Materials and Terrain Features: Ottawa-Hull: Ontario-Quebec. 1:250000. Map 1425A.

Marshall, I.B., et al. 1979a.

"Physiographic subdivisions of Nepean and Gloucester Townships". Figure 6 in Soils, capability and land use in the Ottawa urban fringe. Ontario Soil Survey Report No.47. Agriculture Canada and Ontario Ministry of Agriculture & Food. CUML.

_____. 1979b.

"Surficial Materials of Nepean and Gloucester Townships". Figure 7, ibid. Generalized from J.E. Harrison & J.R. Belanger, 1976

Land Resource Research Institute. c1982.

"Agricultural Systems...". In E. Huffman & J. Dumanski Agricultural land use systems of the Regional Municipality of Ottawa-Carleton; 1983. LRRL Contribution No. 82-07. Agriculture Canada. CU.

Ottawa-Carleton Regional Council. c1988.

"High Capability Soil for Agriculture (classes 1, 2, and 3)". 1:400000. Map 28 in Official Plan of the Regional Municipality of Ottawa-Carleton, consolidated, 1988. CU.

Royal Canadian Air Force (RCAF). 1920.

H2-42 [43 & 45]-1920. Scale 1:9000+/- . Black & white.
First generation prints held by Energy, Mines and
Resources; National Air Photo Library (hereafter, NAPL).

_____. 1922.

H5-18 [19 & 21]-1922; revised as HA5-18, 19, & 21.
Obliques, looking northwest. Black & white. NAPL.

_____. 1924.

HA27-2 to 25. Scale 1:4500+/- . Black & white. NAPL.

_____. 1925.

HA40-38 and -42 to 45. Obliques, looking northwest.
NAPL.

_____. 1928a.

A3-58. Oblique, looking south. Black & white. NAPL.

_____. 1928b.

A4-1 to 38. Scale 1:5000+/- . Black & white. NAPL.

_____. 1928c.

A26-19 to 48. Scale 1:5000+/- . Black & white.
NAPL.

_____. 1930a.

A2180-28 to 36. Scale 1:3000+/- . Black & white.
NAPL.

_____. 1930b.

A2199-38 to 43. Scale 1:3000+/- . Black & white.
NAPL.

_____. 1930c.

A2201-50 to 54. Scale 1:10000+/- . Black & white.
NAPL.

_____. 1931.

A4414-43. 1931. Oblique, looking north. Black &
white. NAPL.

_____. 1945.

A7542-1 to 21. Scale 1:10000+/- . Black & white.
NAPL.

_____. 1950.

A12500-25 to 30, and -67 to 71. Scale 1:10000+/- .
Black & white. NAPL.

_____. 1953.

A13637-155. Scale 1:16000+/- . Black & white.

Spartan Air Photo Services. 1957.

[Aerial view of main dairy barns vicinity]; in
Ottawa Citizen. OR-OPL.

(Contract flyer). 1961.

A17150-1 to 33. Scale 1:8000+/- . Black & white.
 NAPL.

_____. 1968.

A20599-1 to 17. Scale 1:7000+/- . Infrared, black &
 white. NAPL.

_____. 1976.

A31016-236. Scale 1:16000+/- . Colour. NAPL.

_____. 1978.

A31222-121 to 126. 1:6000+/- . Infrared colour. NAPL.

_____. 1985.

A31407-83. Scale 1:8000+/- . Colour. NAPL.

_____. 1987.

A27092-5 to 85. Scale 1:3000+/- . Black & white.
 NAPL.

Agriculture Canada. Central Experimental Farm. Facility
 Management Unit.

Collection of aerial mosaics and enlarged, retouched,
 or otherwise modified images using early RCAF photos,
 1928 to 1945.

Other aerial, not from a collection, Citizen see also DAP

A. Summary of holdings in the Documentary
Art & Photography (DAP) reference collection

Photographs are listed here in the approximate sequence each was copied for the Documentary Art and Photography reference collection (based on anticipated or actual public demand for such a copy). Their original collection, accession code, and brief annotations are also included here for reference purposes.

DAP code/list*/collection & accession/[comments]

C-006893	o		[Dom.Observ.]
PA-009100	+	Topley, 1936-270	[main lawn]
C-009329	+	Interior, 1936-271	" "
PA-009546	+	# Topley, 1936-270	" "
009700	+	#	[main lawn, c.1910]
009800	#	"	[carraige/#60]
009840	+	o	
009843	+	"	
009853	+		
009861	+	#	" [panorama, c.1912]
-2	+	#	" [panorama, c.1900]
-3	+	#	" [admin.office]
009865	+	#	
009871	+	#	"
-2	+		
-3	+		"
-4	+		
009876	+		"
009886	+	#	
010291	+		"
-2	+		
-3	+		"
010296	+	#	" [Dom.Observ.]
-7	+	#	" [admin.office, 1912]
010300	+	#	
-1	+	#	" [hedges & ventilators]
-2	+	#	" [bio.lab.bldg., 1912]
-3	+	#	" [same image as above]
-4	+	#	" [similar to 10296]
010306	+	o	"
-7	+	o	
-8	+	#	"
010312	+		
-3	+	#	"
010455	+	#	
-6	+	#	"
010510	+	#	" [arboretum in winter]
010542	+	#	" "
-3	+	#	" "
-4	+	#	" "
010546	+	#	" [OESRW/trees "]
010550	+	#	"
010966	+		
PA-011283	+	#	"
C-011374	+	#	Carre 1933-223 [panorama, pre1897]

* Those views listed by DAP's on-line reference system as of July 1992 under the heading of Central Experimental Farm are indicated with a plus sign [+]; those views confirmed to be in the card catalogue: reference collection under Ottawa/Parts/Experimental Farm are indicated with a number sign [#]. Confirmed locations under other sub-headings are indicated with a small circle [o]. A question mark [?] after the DAP code indicates conflicting numerical data on the printouts and the card file.

PA-012251	+	#	Topley, 1936-270 [1894 view]
-2	+	#	[Office, 1894]
-3	+	#	" [Barns, 1894]
012265	+	#	[Poultry, 1894]
012267	+	#	" "
012268		#	[Cereal Bldg, 1894]
012441	+	#	" [same as 12251, *]
012892	+	#	" [Dom.Observ.]
012924	+	#	"
013126	+	#	
PA-013128	+	#	"
C-017811		o	
PA-021117		#	[fields]
021164		#	" [fields]
026071	+	#	
026244	+	#	"
027715	+	#	
-6	+	#	" [panorama, 1895]
027719	+	#	
027720	+	#	" [Barns, 1895]
-1	+	#	" [Poultry, 1895]
-2	+	#	" [similar to 012268]
-3	+	#	" [Offices, 1895]
-4	+	#	" [dwelling/bees, '95]
-5	+	#	" [#54, 1895]
-6	+	#	" [opp.60 res, 1895]
-7	+	#	" [#60 res, 1895]
-8	+	#	" [other res, 1895]
-9	+	#	" [dir.res.north, '95]
027730	+	#	" [dir.res.south, '95]
-1	+	#	" [fields/fence, '95]
027897	+	#	"
-8	+		
-9	+		
027900	+		
-1	+		
-2	+		
-3	+		
028041	+	#	" [carriage/#54]
028080	+	#	"
-1	+	#	" [lawn/Barns, 1899]
-2	+	#	"
-3	+	#	
-4?	+	#	" [arboretum, 1899]
PA-028085	+	#	
C-030579	+	#	Carre, 1933-223 [panorama, c.1897]
PA-034063	+	#	Woodruff, 1952-016
-4	+	#	
034198	+		Dept.of Interior, 1936-271
034400	+	#	[car/poles, 1920s]
-1	+	#	" [2 sets of gates]
-2	+	#	" [OESRW waiting rm]
-3	+	#	"
034405		o	
-6	+	#	" [#1, #8, #9]
-7	+	#	" [a 3-part panorama
-8	+	#	looking south & west
-9	+	#	" from #76, c.1920]
034410	+	#	

(list of DAP reference collection holdings, cont.)

PA-037694 + # (Nelles) IBC, 1969-095
 042241 + Topley, 1936-270
 042304 + o
 -5 + o "
 -6 + o "
 -7 + o "
 043194 + # Interior, 1936-271 [034409]
 043196 + # [same as 034407]
 043198 o
 043227 o "
 -8 o "
 -9 o "
 043385 + #
 043635 # " [same as 034406]
 045676 # Woodruff, 1966-084
 -7 + #
 045679 # "
 048026 + # Interior, 1936-271 [034404]
 048128 + # [same as 034402]
 048138 + # " [CEF 1901 report]
 048141 +
 056653 o
 056759 o
 056760 o
 084502 o "
 -3 o
 086861 # John Boyd, 1971-120
 107454* o [Plus more than 75
 107559 o other views of Obs.]
 111489 #
 120332 + Booth family, 1979-208
 125935 + o [unknown] 1979-140 [Dairy, 1900]
 126426 # Agriculture, 1972-222, box 5338
 -7 #
 -8 #
 -9 # "
 126430 + #
 126446 # "
 -7 #
 126572 # " [#95]
 -3 #
 -4 # " [#91]
 -5 #
 -6 # "
 -7 # [interior #91]
 -8 # "
 -9 #
 126580 # "
 -1 #
 -2 # "
 -3 #
 -4 # "
 -5 #
 -6 # " [#26]
 -7 # [#59]
 -8 # "
 -9 #
 126590 # "
 -1 # [#94]
 -2 # " [#95]
 -3 # [#91 in 1911]
 -4 # " "
 126605 # [#95 in 1912]
 126665 # " [Flax before 1922]
 126776? + # Agriculture, 1982-247

PA-127434 + # Agriculture, 1972-222
 -5 #
 -6 # "
 -7 + #
 -8 + # "
 -9 + #
 127440 + # "
 -1 + #
 -2 + # "
 -3 + #
 -4 + # " [panorama/WT,south]
 -5 + #
 129429 # "
 130407 + # Agriculture, 1982-247
 -8 #
 -9 + # "
 130410 + #
 -1 + # "
 -2 + #
 -3 + # " [from Civic, c.1920]
 -4 + # [views of various
 -5 + # farm implements, all
 -6 + # photos by CGMPB/NFB]
 -7 + # "
 -8 + #
 -9 + # "
 131600 + # Interior, 1971-271 [WT,north]
 131604 + #
 -5 + # "
 132615 + # Agriculture, 1982-247, box 4475
 -6 + # [from north,c.1890]
 -7 + # " [air photos, 1963:
 -8 + # from NE
 -9 + # " N
 132620 + # E
 -1 + # " SE
 -2 + # SE
 -3 + # " SW
 -4 + # arboretum]
 -5 + # " [panoramas/WT, 1961]
 -6 + #
 -7 + # "
 -8 + #
 132931 + # " [Sheep Barns, 1941]
 -2 + #
 -3 + # "
 -4 + # [stucco res. E1600]
 -5 + # "
 -6 + #
 -7 + # " [Info kiosk, 1938* 117
 -8 + #
 -9 + # "
 132940 + #
 132942 + # Agriculture, 1972-222, box 5338
 -3 + #
 -4 + # "
 -5 + #
 -6 + # "
 -7 + #
 -8 + # " [Poultry overview
 -9 # panorama - 2 parts]
 132950 + # "

(list of DAP reference collection holdings, cont.)

PA-132951	#	Agriculture, 1982-247	
132953	#		
132955	+ #	"	
-6	+ #		
-7	+ #	"	
-8	+ #		
-9	+ #	"	
132960	+ #		
132970	+ #	"	[panorama, c.1920]
-1	+ #		
132973	+ #	"	[Hort/fore. E2279]
132975	+ #		[Tennis, 132932]
132981	+ #	"	[WT/45, 132626]
135729	+ #	Agriculture, 1972-222	
135730	+ #		[Booth barns]
-1	+ #	"	
-2	+ #		
-3	+ #	"	
135870	#		[Macoun res/027728]
-1	+ #	Agriculture, 1982-247	
-2	+ #		[these views are staff portraits]
136874	+	"	
140404	+		
143204	+	"	
143701	+		
-2	+ o	"	
143705	+	Agriculture, 1982-247	
143707	+ #		[interior, 94]
-8	#	"	
143711	+		
-2	+	"	
143715	+ #		
144870	+	NFB, 1971-271	
144872	+		[this group includes
144879	+	"	war-time office con-
144880	+		ditions at the CEF]
146053	+ o	C.E. Saunders, 1964-143	
-4	+ #		
-5	+	"	
-6	+		
-7	+ o	"	
147417	+	Agriculture, 1982-247	
-8	+ o		
-9	+ #	"	
147420	+		
-1	+ o	"	
155204	+	NCC, 1986-004	
165240	+ o	Merrilees, 1980-149	[CEF ex-
-1	+ o		tension of OESRW
-2	+ o	"	near Civic H.]

Pre-1912 views in DAP reference collection

		<u>pre-1895</u>	
Poster	[similar to published lithograph]		C-063482
Agriculture	view of fields/Dir.Res. from Carling		PA-132616
Topley,	Dir.Res., road, stable behind		012251
	Office & Cereal (#75) small trees		-2
"	Main Barns from west		-3
	Poultry on right		012265
"	more Poultry & other dwellings		012267
	Cereal, greenhouses, barns behind		-8
"	[same, better quality, as 012251]		012441
		<u>1895</u>	
"	trees & path [not good]		027715
	from Main Barns, city on horizon		-6
"	hedge		027719
	Main Barns from north		027720
"	Poultry complex		-1
	Cereal (#75) similar to 012268		-2
"	Offices		-3
	House & bee hives		-4
"	#54 Residence		-5
	opp. #60 Residence		-6
"	#60 Residence		-7
	Hort. Residence		-8
"	Dir.Res. from north		-9
	Dir.Res. from south		027730
"	fields/fences/gate/hedge		-1
		<u>1897</u>	
Topley	lawn in winter, Barn/#54 on horiz.		PA-027897
Carre (Powell)	from Offices, #60, city on horiz.		C-030579
"	from Offices, opp.#60/Dir.Res.		C-011374
		<u>1898</u>	
Topley	from #54, lawn/Dir.Res./carriage		PA-028041
"	??		028080
		<u>1899</u>	
"	lawn/Main Barns		028081
	flower beds/Main Lawn		-2
"	beds/Main Lawn		-3
	trees (arboretum?)		-4
"	" "		-5
		<u>1900-1905</u>	
(Nelles) IBC	Main Barns/Dairy on right, c.1900		PA-125935
Topley	from Dom.Observ. 1905		037694
	garden party, 1905		042306
"	" "		-7
"	trees/road/path		009871
	flower beds/Dir.Res. behind		009700
"	[not in Ottawa/Parts/CEF]		009843
	#60/trees/city on horiz. c.1900		009862
"	Lawn/#59/Offices/2 Residences, c.1900		048138
Ag.1982/box4475	#60/#59/Offices/Main Barn from Dir.Res.		132615
		<u>1906-1912</u>	
	Dom.Observ. 1909		PA-037520
	flower beds/Dir.Res. behind		009700
	flower beds/carriage/#60 behind		009800
	Office/Lawn/from Dir.Res.		009863
	road/opp.60 Res./Dir.Res. behind		009865
	Office, 1912 [clear view]		010297
	#12, Bio.Laboratory		010302
	drive, Dir.Res. behind, c.1912		010455
	winter fences/trees, c.1912		010543
	#91 u.c., 1911		126593
	Piggery under construction		-4
	#95 u.c., 1912		126605

Graphic illustrations related to physical evolution of the site found in Experimental Farms Annual Reports; Dept. of Agriculture; 1891-1951.

237

Annual Reports, under various titles for the years 1890 to 1950, indicated by year only, as ...1892. CEF-1893 (or other years) indicates publication date, not year of coverage.

Fig.I; Experimental Dairy Building. [Floor plan.] p.55.
...1890 (CEF-1891).

and

Fig.III; Piggery. [Floor plan.] p.57.

Figure 1.- Office Building, Museum and Chemical Laboratory of the Central Experimental Farm. [Engraved elevation view (north).] frontispiece. ...1891 (CEF-1892).

Fig.2.- Building for seed testing and seed grain distribution. [Engraved exterior, looking south.] p.46.
...1891 (CEF-1892).

and

Fig.3.- Barns and Stables, Central Experimental Farm, Ottawa. [Engraved exterior, looking south.] p.52.

and

Fig.IV.- Dairy Building, Central Experimental Farm. [Engraved exterior, looking south.] p.88.

Figure 1. [same as 1891.] frontispiece. ...1892 (CEF-1893).

and

Fig.2. [same as 1891.] p.41.

Figure 1. [same as 1891.] frontispiece. ...1893 (CEF-1894).

and

View of forest plantation - Central Experimental Farm, Ottawa. [Screened photograph.] opp. p.49.

and

Grass-beds - Central Experimental Farm, Ottawa. [Screened photograph, poultry houses and foreman's farm behind.] opp. p.193.

Fig.1.- Office Building, Museum and Chemical Laboratory of the Central Experimental Farm. [Engraved exterior, looking south, corner of seed testing building visible.] ...1895 (CEF-1896).

and

Fig.2.- Building for testing the vitality of seeds and for the distribution of seed grain. [Reworked engraving based on Fig. 2, 1891.] p.51. 1895 (CEF-1896).

and

Fig.6.- View of some of the sample Hedges, on the Central Experimental Farm. [Screened photograph.] opp. p.65.

and

Barn at the Central Experimental Farm, Ottawa. [Engraved exterior, looking southeast.] p.196.

and

Ground Plan of Poultry Buildings, Ottawa. [Floor plan.] p.243.

Fig.1.- [same as Fig.1, 1895.] frontispiece. ...1896
(CEF-1897).

and

View of the uniform test plots of grain at the Central Experimental Farm, Ottawa. [Screened photograph looking north, Dow's Lake on the right.] opp. p.10.

and

View of the Arboretum and Botanical garden at the Central Experimental Farm, Ottawa. opp. p.74.

and

Group of ornamental trees and shrubs on Central Experimental Farm. [Screened photograph looking toward site of current 132 (Carling Building).]

and

View of the Apiary at the Central Experimental Farm, Ottawa. [Screened photograph; brooder room on the right.]

Apple Tree Sprayed with Lime Mixture, Central Experimental Farm, Ottawa. [Screened photograph; brooder room and foreman's house, plus 2 other buildings behind.] opp. p.96. ...1899. (CEF-1900).

3. Office building and Laboratory with surrounding plantation. [Screened photograph; includes 3 non-extant buildings and part of central lawn.] Frontispiece. ...1901. (CEF-1902).

and

Chemical Laboratory, Central Experimental Farm, Ottawa, Ont. [Screened photograph looking east.] opp. p.137.

Bulletins: see Period Written Works for full title and authorship of these works.

View of the plots of grain... [same as 1896 annual report]
Bulletin No.26. Jan., 1897.

View of some of the uniform test plots of grain 1897, at the Central Experimental Farm. [Screened photo looking N; Main Barns, Dairy, and other barns behind.] Bulletin No.29. 1898.

Building and open bin used in manure preservation experiments. Men engaged in sampling and weighing manure. [Screened photo looking N; Sheep Barn and otherwise-not-illustrated Root House behind.] opp. p.27. Bulletin No.31. Dec., 1898.

and

A Summer Home. [Screened photo of pig pens; original piggery, Main Barns, Implement Shed and two unknown sheds (otherwise not illustrated) behind.] p.34.

Piggery at the Central Experimental Farm. [Screened photo; looking east of original piggery & gable-roofed wing.] Bulletin No.33. June, 1899.

Sheep feeding in alfalfa pasture, second year of growth. Central Experimental Farm, Ottawa. May 31, 1904. (Photo by Frank T. Shutt.) [Screened photo; looking N, Biological Lab (now 12, Forage Crops Building) behind.] Bulletin No.46. June, 1904.

Sprayed Potatoes. Unsprayed Potatoes. Central Experimental Farm, Ottawa, 28th September, 1904. Photo by Frank T. Shutt. [Screened photo; looking northeast; Director's Stable (now 77, Potting Shed) behind.] p.32. Bulletin No.49. April, 1905.

1.- Piggery at Central Experimental Farm, Winter quarters for Sows at right-hand end. [Screened photo; looking northeast at original piggery with gable-roofed wing & flat-roofed wing beyond. Unique view of three segments together.] opp. p.16. Bulletin No.51. June, 1905.

Fig.50.- A double poultry House with its runs. Central Experimental Farm, Ottawa. [Sketch of exterior view.] p.61. Bulletin No.54. February, 1906.
and

Fig.51.- Ground plan of poultry house, fig.50.

Planche III. La mise en silo a Ottawa. [Screened photo; looking east at Main Barns.] Bulletin No.67. 1911.
and

Planche IV. Truies portietes a la ferme experimentale centrale, Ottawa. [Screened photo of Experimental Piggery (now 91A) and flat-roofed wing, looking northeast.]
and

Planche V. Dechargement dans la cave a racines. [Not yet sure where this photo was taken?]
and

Planche VI. Un groupe de veaux de race latitiere bien en forme. [Screened photo; looking east, Building 86 & previous Cereal Barn (reconstructed as 76) behind.] p.28.

View of main piggery, Central Experimental Farm, Ottawa. (Photo by F.T. Shutt) [Screened photo; looking north at current 91 (less south & east additions) plus the flat-roofed wing of older vintage.] p.32. Bulletin No.78. May, 1914.

Brooder House for Poultry Division. [Architectural drawings of Building 37; 1:48 and other scales.] pp.34-37. Bulletin No.87. (Revised)
and

Pigeon House and fly at Ottawa. [Screened photo; looking west at extant 32?] p.31.

9.6 Illustration Sources

This section contains full source citations and, for some graphic material, methods of preparation. See also list of illustrations for volumes A and B, pp.x - xv.

"Report of the Director"; in Experimental Farms reports... for 1892; p.41. Engraving illustrated same scale as the original text, including caption. xv

From Wright (1966), op.p.90; there reproduced from Elisha Kent Kane's Arctic explorations...vol.I; 1856. Detail hand coloured for this thesis by the author. Reproduced with written permission of Harvard University Press. op.1

Upper right image reduced detail of the site, colour aerial photograph, NAPL: A-30014. Lower right image enlarged detail of the southeast portion of the site; false colour infrared vertical aerial photograph NAPL: A-31407. Lower left image reduced from illustration of Eisentrager (1990). Upper left image is a mosaic of a detail of Hondius et al. (1617) and reworked plans of the northwest portion of the site, mid-20th century; hand coloured for this thesis by the author. Xerographic original composite illustrates the concept of object- and subject image perception. op.25

Photo credit: Rota Zigurs Bouse. Academic copies of this image are xerographically reproduced without hues. op.41

Rubbing credit: Mara Bouse, 1993. From Petroglyphs provincial park, near Peterborough, Ontario. op.61

Examples of bird's-eye map projection types sketched by the author for this thesis. 64

Graphic text opposite p.84 is reproduced on transparent acetate film to provide an externally sensed aspect of simultaneous transparency and reflection regarding landscape perception. Upper inside image is based on p.94 (this paper), illustrating part of the site near the current traffic circle in 1926, reworked and hand coloured by the author. Lower inside image is a screened negative of part of the site southeast of former auditorium location (from NAPL: A-26, 1924) laid over two recent photographs by the author. Lower outside image is from Malak, 1990, p.99; used with permission of the photographer (see also credit for op.p.161). Upper outside image is a screened positive print of part of the site northwest of the former auditorium (from NAPL: A-26, also 1924); hand coloured by the author for this thesis. Three quadrants are illustrated at the scale of 1:2400; essential energy and non-objectified mental map perception is not represented to scale. op.84

- Very high angle bird's-eye maps to scale of the site delineated by the author for this Master of Arts thesis. 86-90
 Pre-1826 information in part based on research for Bouse (1993a, plate A3), m-Royal Engineers (1827 & [1827]), and Christine Earl (cartographic artwork used for Bouse (1993a, figure A3.1). 1852 information based primarily on m-Driscoll (1851) and m-Swalwell (1853). The remaining three maps are based on extended research of original graphic sources. Delineated ink on polyester film at the scale of 1:8000; xerographically reduced 50%.
- Very high angle bird's-eye maps to scale of the core area including the main lawn, main barns cluster, and ornamental gardens delineated by the author for Parks Canada, Public Works Canada (now Government Services), and Agriculture Canada. Pre-site information for the 1852 map based on m-Swalwell (1853). Source citations for the detailed maps of the site impractical to include in this paper. Early estimates suggested about 100 pages of citations would be required - in some cases three to five original sources were used for a single building for one period. The original maps for the core area were delineated ink on polyester film at the scale of 1:625; photographically reduced 50% prior to xerographically reduction of another 50%. See also p.298. 91-97
- (detail) NA: PA-132970; copy negative from original print in National Archives acc.no.1982-247, Agriculture Canada. op.101
- Location map sketched and hand coloured by the author for this thesis. Geological fault information after Simpson, 1978; in H.C. Wilson et al. "Application of borehole geophysics to groundwater energy resources", p.15. The lower figure, a digital image map, is a detail from Canada Centre for Remote Sensing; 1990: "Ottawa Ontario", scale 1:50000; reduced photographically x5. 106
- Geological section map delineated and hand coloured by the author for this thesis. After Carleton Energy Services (1990) block diagram in "Carleton University: the groundwater project", here illustrated to scale 1:16000 (vertical and horizon). Northeast is at the top. Inset key map from digital image cited above; fault lines after Simpson 1978. 107
- Details from Belden (1879). Site map from Nepean Township pp.18-19 (enlarged nearly $x2\frac{1}{2}$); inset from "Canal Bank Farm ..." reduced x4. See also reprints of the original work. 118

- Immigration poster from National Archives: record group 15, vol.682, file 321 252. Similar lithographic images of the site were reproduced in other publications, such as one inscribed, "Am Bk Note Co. N.Y."; reproduced in The first half century of Ottawa (p.66), by McLeod Stewart; 1910. Xerographic reproduction of a colour transparency of the original work. 122
- Both photographs from the National Archives acc. no.1982-247 box 4487, Agriculture Canada. Upper reproduction copy no. PA-182236; lower copy no. PA-182237. Both images appear to be from the 19th century, the upper view may date from 1890 or earlier. 128
- (detail) Map of the City of Ottawa...and adjacent suburbs..., by Snow & Frederick (1887). Xerographic copy (enlarged x2) from the original. Upper inset (detail) from m-Agriculture 1897 (Guide to the Central Experimental Farm...) foldout map enlarged here. Lower two insets from "Report of the Director"; in Experimental Farms reports ...for 1895; fig.1 (left lower inset) and p.196 (right inset). 129
- Both views from the National Archives (NA) acc. no.1984-307 box 3622, items 59 & 60; Mary Alice Chapman collection. Both were taken in 1913 from the water-tower above the auditorium. Reproduction copy nos. PA-181869 (lower), and PA-181870 (upper). 135
- (detail) "Experimental Farm, Ottawa"; National Air Photo Library: A4414-43 (1931, oblique or scenic aerial view). 136
- Lower detail from NA: acc.no.1982-247, item 21944A. Upper image same accession, item 25442. Reproduction copy nos. PA-175864 (lower) and PA-175866 (upper); the former is cropped to about $\frac{1}{4}$ its original area of view. 137
- Six photographs from NA: acc.no.1972-222, box 5338. Selections from the fifth and tenth folders listed under "group B: houses"; contents of the latter assigned copy no. PA-181982, and the former assigned PA-181983. Inscriptions (in white on the original negative and in black on the print) are reproduced complete - only the corresponding PA-code has been added outside image border. 140
- Oblique aerial views from NA: acc.no.1982-247, item 57050 (lower) and 57055 (upper). Both inset images are from AC: acc.no. 1972 -222, box 5338, tenth folder in "group B: houses", copied as PA-181982. 141

Five photographs from the National Archives. Two from acc.no. 144
1982-247, box 4487 (upper left & middle left); one from acc.
no.1982-247, box RV1-062, item E-1626 (upper right); and two
from acc.no.1972-222, box 5338 (middle right from an untitled
half-folder in "group D: dairy barns"; lower left from folder
titled "Dairy Building, 1920, no.42", in "group A: admin. &
lab. bldg."). Reproduction copy nos. are PA-182238,
PA-182237, PA-183146, PA-181979, and PA-181981. Line
illustration (lower right) from Experimental Farms reports...
for 1891, p.88; Agriculture Canada central library.

Upper view from NA: acc.no.1982-247, box RV1-058, item E-189; 145
the lower view from box RV1-059, item E-732 ("E" codes
inscribed on the originals by Agriculture Canada staff).
Reproduction copy nos. PA-183143 and PA-183144.

(detail) Oblique aerial view of site; from NA: acc.no.1982- 148
247, item 57051. Reproduction copy no. PA-175863.

(detail) "Plan of the central area showing existing and 155
recommended streets, parks, public buildings", dr.no.9
dated Jan. 1915 by Bennett & Cousins; in Report of the
Federal Plan Commission of the general plan for the cities
of Ottawa and Hull, 1916 (reduced 80% of period scale and
reproduced as part of a mosaic map for the upper right
third as illustrated in this thesis). "General plan of
street system parks, playground, and waterways..." (same
credit) was enlarged x3 for the lower left two-thirds.
Inset map (detail) from "Diagram of present built-up area..."
dr.no.20A. (same source); reduced photographically x2½.

(detail) "Ottawa-Hull and environs (the master plan)", 156
plate 8; in Plan for the National Capital, atlas: annex to
the general report, 1950. Partly enlarged from colour
photography (covering mid-20th century site area) and partly
from black & white xerography. Hand-written annotation
(by the author) transcribed from plates 15 and 18 (same
report). Inset map (detail) from "Existing open space,
Ottawa-Hull and vicinity", plate 16.

Photo credit: Malak. Ottawa and the national capital op.161
region..., p.99; 1990. Xerographic reproduction.

Xerographic prints (derived from photos of the site made 163-79
by the author for this thesis). First generation
images at this scale and context.

Photo credit: Mike McConnell. Academic copies of this image are reproduced without hues. op.181

(detail) Construction drawing for the new chemistry building; Public Works plan room; bsmt. Tupper bldg. Full-size xerographic copy of water-colour on linen original plan. op.192

(detail) "Centra Experimental Farm and vicinity, Ottawa"; issued by the Topographic Survey of Canada. Annotated print held by Public Works plan room; bsmt. Tupper bldg. op.251

Xerographic print of sequent image produced by the author. 298

Plates L & R are xerographic prints (derived from photo-mosiaks produced by the author for this thesis).

Plate P illustrates a detail of NA: PA-132616 (upper) and a three-photo mosiac of PA-34407 to 9 (lower). Illustrated captions from the original photo album are reproduced.

Plate A is a photo-mosaic from NAPL: HA-27, reduced x1/3. Annotation transcribed by the author from Topographic Survey (1926) used for illustration op.p.251.

von Tscharner, Reneta et al. 1987.

New Providence: a changing cityscape. Harcourt Brace Jovanovich; Orlando, Florida. [six sequential views of a typical American cities]

von Tscharner, Reneta et al. 1987.

New Providence: a changing cityscape. Harcourt Brace Jovanovich; Orlando, Florida. [six sequential views of a typical American city]

Le Guillou, Jean Claude. 1988.

Versailles: histoire du chateau des rois. Deux Cogs d'Or; Paris. [sequential bird's-eye perspective views]

Haldane, E.S. and G.R.T. Ross; ed. 1912.

The philosophical works of Descartes. 2 vol.

Walsh, W.H.

"Metaphysics"; in The encyclopaedia Britannia; 15th ed., vol.24; pp.1-26.

Wolf, Abraham. 1929.

"Descartes, Rene"; in The encyclopaedia Britannia; 14th ed., vol.7; pp.244-253.

Glavin, Stephen John. 1987.

"Creating sound symbols from digital terrain models: exploration of cartographic communication forms". Master of Arts thesis, Department of Geography, Carleton University, Ottawa.

Alex Maller, University of Nebraska.

Taylor, A.E. 1929.

"Plato"; in The encyclopaedia Britannia; 14th ed., vol.18; pp.48-64.

[blank]

9.7 Other Published and Unpublished Sources

Published sources listed here coded as p-xxxxx; unpublished sources coded as up-xxxxx.

Agriculture, Department of. 1912.

"Dominion Experimental Farms - a guide to the Experimental Farms and Stations". Ottawa.

_____. 1924.

"The organization, achievements and present work of the Experimental Farms". Ottawa.

_____. 1939.

"Fifty years of progress on the Dominion Experimental Farms, 1886-1936". Ottawa.

_____. 1947.

"The Dominion Experimental Farms". Ottawa.

_____. 1962.

"Central Experimental Farm: Ottawa, Ont.". 75th anniversary, 1887-1962. Cat.no.A52-2862.

Agriculture Canada. 1986.

Tableau. Centennial Issue; June, 1986. Research Branch.

_____. 1990 (revised).

"Central Experimental Farm: downtown on the farm". Publication no.5147/E. Cat.no.A15-5147/1989E. Supply and Services Canada.

Alonso, William. 1970.

"The history and the structural theories of urban form" in Gutman, et al: Neighborhood, city, and metropolis. Random House; New York.

Anstey, T.H. 1986.

One hundred harvests: Research Branch, Agriculture Canada 1886-1986. Agriculture Canada Historical Series no.27.

Archibald, Edgar S. 1949.

"Dominion Experimental Farms"; in Canadian Geographical Journal. June, 1949.

Archibald, M. 1980.

"The establishment of the Experimental Farms Branch, 1886". Unpublished internal research report for Parks Canada.

- Cook, Ramsey. 1987.
 "The triumph and trials of materialism: 1900-1945"; in
 C. Brown: The illustrated history of Canada. pp.375-466.
- Davies, Blowden. 1932.
The charm of Ottawa. McClelland & Stewart; Toronto.
 [Esp. pp.234-242]
- _____. 1954.
 "The Experimental Farm"; ch.23 in Davies: Ottawa:
 Portrait of a Capital. McGraw-Hill; Toronto. pp.157-
 166.
- Gard, Anson A. 1904.
The hub and the spokes or, the capital and it environs.
 Emerson Press; Ottawa & New York. Esp. pp.6-11.
- Lett, William Pittman. 1884.
 The City of Ottawa and it surroundings. [written by
 City of Ottawa clerk as part of a Council resolution]
 Ottawa.
- Minton, Eric. 1974.
Ottawa: reflections of the past. Nelson, Foster and
 Scott; Toronto.
- Pinch, Steven. 1985.
Cities and services: the geography of collective con-
 sumption. Routledge & Kegan Paul; London.
- Reissman, Leonard. 1964.
The urban process: cities in industrial societies.
 Frere Press; New York.
- Smith, Helen. 1986.
 "Down(town) on the farm"; in Canadian Heritage, vol.12
 issue 3. pp.14-17.
- Taylor, John H. 1986.
Ottawa: an illustrated history. History of Canadian
 cities series. Canadian Museum of Civilization and
 James Lorimer; Toronto.
- Utas, G. 1981.
 "Heritage report: the Central Experimental Farm, 1981"
 Unpublishe paper for Environmental Design, Public
 Works.
- Woods, Shirely E., Jr. 1980.
 Ottawa: the Capital of Canada. Doubleday Canada;
 Toronto. pp.167-8.

10.0 APPENDICES

...beholding (seeing with understanding) is just not a mirror which always remains the same, but a living power of apprehension which has its own inward history and has passed through many stages

-Bacon quoting Wolfflin, 1967.

[new interactive mapping technologies] become the message, not just the new form or medium of our knowledge

-Earl quoting Harley, 1991.

10.1 Introduction

These appendices contain thesis-related information which is inappropriate or impossible to integrate within the body of the graphic and written text. Some sections, as 10.3, would not be accessible to any other researchers if not included here; others, as 10.8, contain observations recorded after the body of this paper was prepared and to attempt to integrate them within would imply revisions throughout - causing unacceptable delays and changing the the intent of the thesis itself[1].

The next appendix, 10.2, lists all abbreviations used or considered for use in this paper. It is followed by a

1. The current version of this thesis began only five months before its final due date. Preparation took more than four months, leaving less than one month for final proof-reading and all revisions. Introducing ideas from 10.8 into the main body of this paper would compromise its aspect dealing with "a temporal cross-section of objectified thoughts" (p.41, this paper) and necessitate special consideration for more time.

Opposite: map of the Central Experimental Farm containing proposed roadwork for scenic driveways, one of at least five alternative schemes prepared in the early 1930s. Credit: Public Works plan room.

descriptive finding aid for a single box of loose, otherwise unlisted archival photographs held by the National Archives of Canada. Those items, nowhere but here itemized and listed for research purposes, formed the highest concentration of morphological information relating to the preparation of the sequent images in section 5.

The value of this finding aid, produced here as appendix 10.3, is demonstrated first by the author's necessity to prepare it in order to relocate previously consulted photographs. A second and fortunate benefit relates to locating lost images. While this listing was being prepared it was discovered that twelve files of photographs originally housed in the box had been unknowingly mis-filed after archival consultation more than a decade previous and placed into another unrelated archival group. The material had been so located for ten years and without this finding aid would have been extremely difficult to determine it was missing. There are no other alphanumeric description of the contexts of this particular box more detailed than a single line description for the entire contents. The box, no. 5338, is part of acc-1972-222 at the National Archives. It appears to contain working photographs from the Central Experimental Farm's architect's office, taken between 1920 and c.1945.

Appendix 10.4 contains reflections on an artical by Hugh Prince dealing with broad types of landscapes. It is one of few geographically directed works by others dealing with unconsciously-derived "imagined" images.

Appendix 10.5 lists special definitions of terms which differ from conventional usage and, for this paper, take on metaphorical and multiple meanings. See also section 3.2 for technical definitions relating to multi-dimensional cartography.

A short essay on several benefits to cultural heritage management of historic sites is contained in appendix 10.6. That essay argues segent imaging can improve the accuracy and precision of historical research for applications where graphic evidence covers much of the history. Morphological aspects of many historic sites cannot be coherently and correctly addressed without employing a higher degree of graphically-based analysis heretofore used for site research. In this case study of one complex of barns on the Experimental Farm it is argued that conventional research methods cannot date the actual construction for many of the buildings to within ten to fifty years.

Appendix 10.7 contains a nine-page summary of ideas held subjectively by the author during the preparation of this thesis and expressed externally only after the body of the graphic and written text was put into its final form. The importance of this section is that it introduces two (new) frameworks of geographical meaning as antitheses to post-modernism and materialism. By implication the author hopes to suggest current paradigms fall far short of providing a comprehensive spectrum for viewing human-earth relationships as a collective understanding of geography.

Appendix 10.8 is a three-page "post-script" containing ideas related to this paper which were developed in the form presented after the body of the text was put together. It provides a more coherently objectified view of the subject-object paradox which permeates throughout the author's thoughts on the essence of geographic matters.

Appendix 10 ends with a series of unbound foldout graphic plates contained in the pocket of the back cover. Those images are not explicitly linked with the main graphic and written text. The viewer is encouraged to lay some or all of appendix fold-outs upright on a table when viewing sections 5 through 7. Restrictions in format prohibit packaging a suitable series of images of the Central Experimental Farm to accompany the ideas discussed in this master of arts thesis. As a compromise, the author advises viewers to abstract an image of being at the site while consulting simultaneously volumes A and B after removing the foldout images and setting them upright, partly unfolded.

Guided tours of the site, an Imax film, a James Burke video or so-called interactive virtual-reality might be offered as poor by transportable substitutes for the mental maps of the site held by the author. As a substitution for the author's mental maps of "terrae incognitae", there is nothing which can be cited which is appropriate for a paper in geography. If the latter images are not simply a mirage superimposed on gross gulability, further exploration into a geocentric observation platform is warranted.

10.2 Special AbbreviationsSpecial Abbreviations and Citation Codes

A-xxxx-xx	code for most NAPL images since 1922
acc-xx-xx	code for NAC photographic sources not copied, the first four numbers represent the date this accession was acquired by the archives
ACL	Agriculture Canada Library, Sir John Carling Building
Ag-xxxx	code for Ag.Can. annual reports
bul-xx-xx	code for a CEF bulletin, the first set of numbers represents the series number while the second numbers represent the date of publication
CEF	Central Experimental Farm
CEF-xxxx	annual report of the Experimental Farms
CIHB	Canadian Inventory of Historic Buildings, a program of Environment Canada and the Canadian Parks Service
da-C-xxxx	reference to a documentary art source
DPW	Department of Public Works, now Public Works Canada
EMR	Energy, Mines and Resources, federal ministry
FDC	Federal District Commission, now NCC
FHBRO	Federal Heritage Buildings Review Office, a program coordinated by the Canadian Parks Service
HA-xxx	code for very early NAPL images
NA	National Archives of Canada
NAPL	National Air Photo Library, a program of EMR
NCC	National Capital Commission, formerly FDC
p-xxxxx	code for a published source related primarily to section 6 of this paper
PWC	Public Works Canada, previously DPW, currently Department of Government Services.
PWC-DR	Public Works Canada: documents room or plan room.
up-xxxx	code for an unpublised source related primarily to sectin 6 of this paper

10.3 Finding Aid for NA Box 5338

Most folders are first labeled as "C.E.F. Ottawa" or "Ottawa, Ont.", followed by the group title and letter designation "A" through "X". Such initial labeling is omitted here from each folder description except as noted. The occasional number in the left column in square brackets [] refers to a recently assigned reference code by DAP staff (Documentary Art & Photography).

Group A: Admin. & Lab. Bldg. (118 views in 28 folders*)

No.42, Dairy Building, 1920 [now 57].

- [1] [Contains 13 views of building under construction;
4 views copied for the DAP reference collection:
PA-132942, 3, 4, & 7.]

Cereal Bldg., No. 77 [now 75].

[Contains 5 exterior views; one showing part of old auditorium & watertower behind.] Dated 1937, inscribed E954 on the negative.]

No.7, Botany Laboratory and Office [now 74].

[Two exterior views, made after additions.] Negatives inscribed E1595 & E1613.

Bacteriology Bldg., No.77 [now 75].

[Contains 3 photos (1925-26) and one printed (engraved) view (from 'Report of the Director') dated in ink '1895'.]

[Views from the "Water Tank"].

- [5] [Two views, looking north & northwest, c.1946, basic caption on back of prints, nothing on the folder.]
Prints inscribed E2371 & E2373.

[Without sub-title].

[Three exterior views of 3 buildings.] Horse Barn, 1941; Horticulture small glass house, 1942; Horticulture Tool Shed no.15 [using 1946 numbering system, 17 for current system, now razed], 1942.

[Unidentified interior view].

[One print.]

No.15, Administration Bldg. [Saunders Bldg.].

[Contains 6 exterior views.] Old Office Bldg.; No.41 Director's residence [now 54]; and [newly constructed Saunders Bldg.] DAP reference collection: PA-127440; inscribed E943 on the negative.

Farm Machinery Bldg. #47.

[Contains 2 views, both in DAP reference collection: PA-127441 & 2.] Prints inscribed E821 & E822; 1936.

Chemistry Laboratory, No.12 [now 59].

- [10] [Contains 11 views before & during construction of north addition]. DAP reference collection: PA-127434, PA-127438, & 9.

(group A, cont.)

No.7, Botany Laboratory [now 74].

[Contains 11 views of original portion of structure under construction].

77, Cereal Building Addition Underconst. [now 75].

[Contains 2 exterior views, one with old water tower in background]. Dated 1928/9; inscribed GH-278 & 9 on negatives.

Horticulture - 40 [now 55].

Dated 1936-37 and 1941; print of former inscribed E815; negative of latter inscribed E1623. [Cold storage addition, under construction.]

Main Office Building, 13 & 15.

[Contains 3 photographs and one printed engraving; old main office illustrated in 2, razed c.1936; building no.15 illustrated in 2, new main office or Saunders Building; one of the latter inscribed GV-91.]

Forage Crops Building, No.21 [now 12].

[15] [Contains 2 views.] Inscribed on the negatives E-903 & GG-584.

No.21, Forage Crops Building [now 12].

[Contains 2 views: GG-582 & GG-584, duplicate from previous folder.]

Forage Crops Building, No.21 [now 12].

[Contains 2 views: GG-581 & GG-583.]

No.31, Poultry Administration Bldg. [now 34].

[Contains 1 exterior & 1 interior view.]

No.31, Poultry Administration Bldg. [now 34].

[Contains 4 interior views.]

Administration Bldg., 1936 [now 49].

[20] [Contains 3 exterior views.]

Photo - Nitrogen Lab/ry Chemistry, 1935 [now 59]

[Contains 1 interior view.]

Dairy Building, 1920, No.42 [now 57].

[Contains 2 interior views and several exterior: some undated, one dated 1920, another 1937; one view shows rear of old dairy building, since re-located to south edge of site and renovated as a dwelling.]

(group A, cont.)

Horticulture [now 55].

[Contains 7 exterior views, one interior; Canning Building E-815; one view illustrates new (current) south addition on Horticulture Building; four views of one story addition on Canning Shed, now 56.]

No.42 [now 57].

Dairy Building, 1920/21. [Contains 2 exterior views].

No.15, Administration Bldg. [now 49].

[25] Saunders Memorial Building before official opening in 1936, photos by M. Gissow. [Contains 2 prints and 5 negatives, 1936 and 1941.]

Administration Bldg., 1936 Photos [now 49].

[Multiple copies of exterior views inscribed on negatives: GV-91 & 2; another (non-CGMPB) view inscribed E-2372 (from Water Tower); folder includes a letter dated 1936 to "the assistant architect, CEF", Mr. Graves.]

Poultry Office Building [now 34].

No.31, dated 1920/21. [Contains 4 exterior views of building under construction.]

Poultry Administration Bldg., No.31 [now 34].

[Contains 4 interior views.]

#25 Apiculture (Bee Division Office Bldg) [now 26]

Three views, E904, 1937 (PA 126584); E1638, 1941 (PA 126582); and a winter view (PA 126586).

No. 12. Chemistry Building [now 59]

Two views, E1596, 1941 (PA 126589) and E1598 (PA-126587).

(Laboratory & Greenhouse Buildings)

No. 7 Botay [sic] Office and Laboratory Bldg.

No. 47 Farm Engineering Building (PA 126591)

No. 47 " " (PA 126590)

No. 12 Chemistry Laboratory & Office Bldg, E-911

No. 38 Horticulture Greenhouses, E-941

* series totals do not include items mis-filed 1982-present, including the above last three sub-series groups.

Group B: Houses (68 views in 15 folders & one envelope)

No.96, DeForges Residence.

Inscribed E1605, E1608, & E1609 on negative and dated July 1941 on the prints. DeForges Residence and radio station.

[Mounted photographs between folders]

[30] Photo dated 1941; Farm foreman's home, 1948; Scott residence before alterations, 1950. One mounted view from a non-CEF site; 3 views of Farm Foreman's House, 1948; and 4 views of Scott Residence before alterations, 1950 (brick construction)].

Houses [half-folder only].

Old Gilbert House, 1920/21 [3 views]; and Dominion Poultryman Residence, No.9 [3 views]. [Both dwellings are stone, est. construction dates c.1830s; one has a straight centre gable, the other a multiple curved gable; both one-and-a-half stories.]

[Folder untitled]

"Caldwell" Farm Residence, Merivale Road [brick dwelling]. [Contains 3 exterior views, 2 with people measuring or inspecting the structure.]

Nos. 2, 84, 10, 44.

Martyn Cottage, rear [inscribed E-1610]; Snider Cottage, waterfowl plant [E-1587]; Rump Cottage, Prescott Highway Gate [E-1607]; and Cunningham Cottage (east side) [E-1602].

[Mounted photographs between folders.]

[Three views.] Office and Residence, ROP Central Testing Station, 1954.

No.27, Houses, Superintendent, 1921.

[35] [Contains 9 exterior views, four of a gable-roofed combined dwelling, and five of a gambrel-roofed dwelling.]

Houses [Superintendent's House].

[Contains 9 exterior views, two of a gable-roofed combined dwelling, and seven of a gambrel-roofed structure; some views are the same as the previous folder.]

Houses.

[Contains 4 views of 3 different dwellings: Nos.9, 14, & 96.] Robertson Residence, No.9, inscribed E-957 [stone, multiple curved gable]; 'Old Residence', No.14, inscribed E-931, [now 60]; Short Wave Radio Station Poultry Foreman's House, No.96, rear and Poultry Foreman's House, front. All dated 1937.

(Group B, cont.)

Houses.

[Contains 6 views of 5 different dwellings, one was photographed in two locations: Nos.27, 44, 55, 83, & 84.] Cunningham Cottage, No.44 [west of current 95] 1937, inscribed E-937; McKendrick Cottage, No. 55 [now 86], 1937, inscribed E-936; Alexander's Cottage, No.83, 1937, inscribed E-907; Superintendent's Cottage, No.27, 1937, inscribed E-905; Martyn Cottage, Plot Foreman, No. 84, (#78 struck over) 1937, inscribed E-908; and "Martin" [erased] Cottage No. 84 "in original location", 1937, E-890.

Nos.14 & 55.

[Contains 2 views.] McKendrick Cottage (south), [now 86], 1941 [viewed from south behind fence, auditorium visible in background]; and No.14, Rothwell Residence (rear) [now 60], inscribed E-1597.

Alexander's Cottage.

[40] [Contains one exterior view.] No.83; inscribed 1941 and E-1606.

Nos.9, 82.

[Contains 4 views of 2 dwellings.] Residence, Dominion Poultry Husbandman [side & rear views], 1941, E-1594 & 1600 [DAP reference collection copy PA-132934 of same view taken from a print in accession 1982-247.] [Illustrates gravel walks, flower beds, & turf: walls are stucco covered]. Mitchell Cottage, No.82, [portion of old dairy, renovated and relocated on old south boundary?].

No.41, Director's Residence [now 54].

[Contains 2 views, rear with clothesline, vegetable garden, and other features], E-1590 (DAP reference collection: PA-127437); [also a detail of sidewall type shingles], E-1618.

No.1.

Reid Cottage, Prescott H'way (front), 1941, E-1590 (Copied as PA-127436), E-1592, and E1593 (PA-127435). [Illustrates style of fence posts and light standards as they appear today.]

No.17. Tennis Club House.

[Contains one print; this building relocated recently to a location south of arboretum], 1941, DAP reference collection: ??.

No group B items were mis-filed.

Group C: General Barns (27 views in 6 folder*)

Experimental Barn [now 95].
[45] [Contains 8 interior views.]

No.99, Field Husbandry Plot Barn.
[One exterior view.] 1941, E-1622.

Experimental Barn [now 95].
[Contains 11 interior views.]

"Barn No.4" west of Main Booth Barn [file no.] 98.
[One exterior view.] 1941, E-1604.

Forage Plants Division, No.22.
[Contains 4 exterior views.] Forage Crops Barn,
'#23', GG-563, 1931-2, by CGMPB; [Two views of cellar,
1920; and one of barn in 1924.]

Forage Shed, No.22 [24 struck out].
[50] [Contains 2 prints, duplicate copy of GG-563 (see
above); and an exterior view 1920, E-906.]

Experimental Barn Mar No. 45.
Five views: 1 interior (PA 126576), 1 under under
construction (PA 126605), and 1 including horses (PA-
126575).

Group D: Dairy Barns (56 photos plus printed material in
17 folders and one envelope*)

Plans & Description Main Cattle Barn [now 88].
[51a] [Envelope containing excerpt from "Experimental
Farms" Sessional Paper No.16, 1916. pp.401-24,
includes plates of architectural drawings.]

Glass-lined Silo, 1952.
[51a] [Single, mounted photo not in a folder**. Illus-
trates terra cotta silo to the right, west of current
No.88.]

Main Cattle Barn [now 88].
[51b] [Contains 2 interior & 2 exterior views; one shows
street railway tracks and worker with back turned;
another with silos dominate (also illustrates street
railway powerline supports).] DAP reference collection
PA-129429.

* Mis-filed 1982 until recently.

** Put into an envelope numbered "51", Oct.1991.

(D: Dairy Barns, cont.)

[Without sub-title].

[52] [Contains 3 views.] No.52, Main Cattle Barn, 1937, E-913 (also PA-126446; E-955 (also PA-126447); [and view from the north].

Main Cattle Barn [now 88].

[Contains one interior & two exterior views; all in DAP reference collection. PA-126427 illustrates partially unpainted doors, clear view of street railway powerline supports, and worn (and tilted) stepping stone.] Comment "attn to roof detail" written on folder. Other views copied as PA-126426 & PA-126428.

Cattle Barn Interiors.

[Contains multiple copies of 2 interior views of current building 88.]

Cattle Barn Interiors.

[55] [Contains multiple copies of 2 interior views, one print has written instructions to printer and caption on reverse.]

Cattle Barn Interiors.

[Contains 3 views of current 88.]

Cattle Barn Interiors.

[Contains 3 views of current 88.]

Main Cattle Barn [now 88].

[Contains 4 interior views.]

Main Cattle Barn [now 88].

[Contains 4 interior views.]

Main Cattle Barn, No.52. [now 88].

[60] [Contains 2 interior views.]

Old Main Cattle Barn [now 88].

[Contains 2 interior views.]

Main Cattle Barn [now 88].

[Contains 3 interior views.]

[Untitled half folder].

Silo Blocks: concrete & Natco Tile.

[Untitled half folder].

[Contains 2 views; west silos under construction; Horticulture Building visible in background; one view to be added to DAP reference collection.]

(D:Dairy Barns, cont.)

Old Main Cattle Barn, No.52 [now 88].

[65] [Contains 3 interior photographic views and 2 exterior published views, one from 1895 (engraved view) the other is heavily retouched with a "3" in the lower left corner.]

[Without sub-title].

[Contains 4 views.] Rear of Dairy Bldg. [hot-beds or cold-frames in foreground, current 94 beyond], inscribed 1941, E-1642; Tennis Club House [now relocated], 1941, E-1640; Carpenter Shop & Garage, 1941, E-1644; and Poultry Plant (DAP reference collection: PA-132948) [panoramic view of sheds and landscape features].

Dairyman's Cottage, 1940.

[Contains 7 views, one of "House Re-Built from Old Dairy Bldg."; four of dwelling [then 83] under construction; and two of occupied dwelling.

Grade Barn

[Contains 5 views and a sketch for an unconstructed addition.] PA 126572 & PA 126573. [E947 is not located in this collection.]

E: Horse Barns (16 views in 6 folders)

[Without sub-title].

[Contains 5 views] Poultry Plant (DAP reference collection PA-132950); Horticulture Green Houses from rear, 1941, E-1641 (also PA-132949) [view of old water-tower in distance]; Sheep Barns [with farm equipment in foreground], 1941, E-1646; Horse Barn, E-958; and a non-CEF view.

Horses.

[Contains 2 exterior views.] Small Horse Barn, No.58 [now 90A, razed 1986]; and No.53, Horse Barn [now 90], 1937, E-958 [duplicate view from previous folder].

[Without sub-title].

[70] [Contains 2 exterior views of razed 90A.] No.67, Small Box Stall Barn, GP-99; and Stallion Barn (south side), 1941, E-1628.

Main Horse Barn [now 90].

[Contains one interior view & one exterior view (GP-93); the latter with new sidewall shingles after east addition.]

Horse Barn [now 90].

[Contains one interior view & one exterior view (GP-98); the latter captioned "addition to Main Horse Barn".]

Horse Barn (Interior) [now 90].

[Contains 2 interior views & one exterior (from the old water tower.)]

F: Steer & Cattle Shd. (11 views in 5 folders)

House on Booth Farm.

[Contains 1 exterior view of dwelling, Booth Barns in background.] GH-281 (DAP reference collection PA-135731).

No.97, Beef Cattle Barns (Booth) [now 128].

[75] [Contains view of barn complex from west (1941, E-1680) and a non-CEF view.]

Beef Cattle Barn [now 128].

[Contains 4 exterior views of renovation work in 1937.] E-916 (PA-135730), E-917, E-918 (PA-135732), & E-919.

Booth Farm [now 128].

[Contains 2 exterior views: GH-280 (PA-135729) and a three-print panorama/photomosaic.]

Steers Feeding Quarters [now 128].

[Contains 2 exterior views, GP-101 & GP-103.]

[No. 45 Experimental Barn, now 95]

[Contains 1 view: E945, PA 126592.]*

[Note: no "G" or "H" dividers in the box]

I: Sheep Sheds (22 views in 5 folders)

Sheep Barn - 1939.

[Contains 3 exterior views.] Nos.56 & 57, 1939, E-1312 & E-1314; and Winter Sheep Quarters, showing 1929 addition at left, GP-89 [many details illustrated].

Sheep Barn Extension, 1939.

[80] [Contains 4 exterior views: E-1313 and three of barns under construction, old water tower visible in rear.]

* Mis-filed 1982 to present.

Sheep Barn Extension.

[Contains 12 exterior views: one of Main Dairy Barns; one of Sheep Barn, No.57, 1925, E-956; two of Main Sheep Barn (1 with & 1 without silo); and eight of south extension under construction.]

Sheep Barn.

[Contains 2 exterior prints, 1 of GP-89 (duplicate of above), and 1 with silo (without roof).]

Connaught Rifle Range.

[Contains unidentified sheep barns, 1932, not from the CEF.]

J. Piggeries

Piggery

[Contains 4 views under construction and complete, c.1910.] PA 126593 & PA 126594.*

Piggery

[Contains 4 views: 3 interior and 1 of the foundation under construction.] PA 126574, PA 126577, PA 126578, and PA 182337.*

#68 Piggery

[Contains 5 views, 2 exterior & 3 interior.] PA 126579, PA 126580, and PA 126581.*

* These folders had been mis-filed since 1982.

K. Poultry Houses (35 views in 10 folders and 1 envelope)

[Mounted photographs between folders]

[Four views mounted separately: Poultry Laying House, R.O.P. Central Testing Station, 1954, photo by J. Potvin, Hull.]

No.31 Poultry Administration Bldg. [now 34].

[85] [Contains 4 exterior views: E-1473, E-1474, E-1475, & E-1508.]

Poultry.

[Contains 2 exterior views of unidentified sheds.]

Waterfowl Houses.

[Contains 3 exterior views of sheds near Dow's Lake.] 1941, E-1588, E-1589, & E-1591.

Poultry.

[Contains 1 interior view & 5 exterior views.] Brooder House; Poultry Supply Bldg., 25/26; and Poultry Breeding House, 24/25.

Poultry.

[Contains 2 exterior views of laying house.] GB-642 & GB-643.

Poultry.

[90] [Contains 2 exterior views: "Cockerel House", 27/28, GB-458; & "'Jamesway' Pointed Arch House for Poultry", 27/28, GB-455.]

Poultry.

[Contains 6 exterior views of small huts or brooder houses.]

Poultry.

[Contains 2 views: GB-256 & GB-258.]

Poultry.

[Contains 2 views of poultry houses, one illustrates a brick building in the background.]

Poultry.

[Contains 2 views, 1924/25.]

L. Apiary Bldgs Equi. (Contents of one or two folders mis-filed)

No.25, Honey House, 1936.

[95] [Contains 2 exterior views: E-823 & E-824.]

Bee Building, No.25 [now 26].

[folder blank, mis-filed]

M. Tobacco Buildings (8 views in 3 folders)

Tobacco.

[Contains 4 views of three buildings.] Tobacco Curing Barn, No.48, 1937, E-938; Tobacco (Office and) Warehouse, 1937, E-940; & 1941, E-1636; and Tobacco Barn, 1941, E-1635.

Tobacco Office and Warehouse.

[Contains 2 views of No.79, multiple prints of E-818, (building under construction); one print from 1941, E-1633.]

Tobacco Barn (Curing) 28/29.

[Contains 1 interior view & 1 exterior view.]

N. Sheds, Garages (listed by folder)

Carpenter's Shop [now 98].

[100] [Contains 2 exterior views of relocated building.] GP-87 (DAP reference collection PA-132945) & GP-88.

Implement Shed No.64.

[Contains 1 print of south shed 105B, razed 1983.]

Nos.51, 11, 19, & 100.

[Contains 4 views.] No.100, Field Husbandry, Fertilizer & Storage Shed, 1941, E-1626; No.51, Weigh Scales Shed [razed, 1986], 1941, E-1612; No.11 Fire Reel House (Opposite Main Barn), 1941, E-1632; and No.19, Tool House [near Cereal Building?], E-1634.

Nos.54, 50, 71.

[Contains 4 views.] No.54, Carpentry Shop, 1937, E-948 & 1941, E-1625; No.50, Tractor Shed [numbering system unknown, does not match 1926 nor 1946?] E-946; and No.71, Auditorium & Water Tower, 1937, E-933 [not yet part of DAP reference collection].

(N: Sheds, Garages, cont.)

No. 72, Carpenter's Shop.

[Contains 2 exterior views.] 1941, E-1614 & E-1616.

Garages.

[105] [Contains 2 exterior views.] Garage & Hen House -
- Dom. Poultry Husbandman, and Dom. Chemist's.

Nos. 37, 76. Horticulture Shed.

[Contains 4 exterior views: 2 of a complex of sheds and lean-tos labeled as "No. 37, Horticulture Shed", 1941, E-1620 & E-1627; 1 of "No. 76, Horticulture Work Shop" (now 77), 1941, E-1615; and 1 unidentified shed under construction (current 26 is in the background). Numbering system unknown, not 1926, nor 1946.]

O. Greenhouses (29 views in 7 folders)

Greenhouses (Cereal).

[Contains 2 views.] Inscribed GH-120, 1925-6; and GH-276, 1928-9. [Part of current 75.]

Greenhouses. No. 8.

[Nines views.] Botany Header House, 24/25; Botanical Laboratory, 23; and Botany Greenhouses, mum show.

Greenhouses.

[Contains 2 views.] Forage, GG-562 [before full second story added]; and Cereal SW [now 75], GH-274. [Latter view illustrates roof of Horticulturalist's Residence (now site of Macoun pool) and Old Adm. Bldg.'s roof.]

[Without sub-title].

[110] [Eight views.] Horticulture Greenhouses, GV-69 & GV-70; Cereal Greenhouses [3 views]; Botanical Lab Greenhouses, 1924 (2 views); and Forge Crops Greenhouse GG-562a.

Greenhouses (Cereal).

[Two views, one exterior & one interior, c.1935.] GH-275 & GH-277. [View from the Water Tower, DAP reference collection PA-127445, Pump House 1945.]
What does the above mean? Must check!

(O. Greenhouses, cont.)

No.38, New Greenhouses.

Octagonal Greenhouse, E-1603, 1941.

New Greenhouses, 1924.

[Five views.] No.21, Forge Division, E-912; Tobacco, 1936-7, E-817; [and 3 other views].

P. Fruit & Root Cellars (One folder)

No.39, Hard Fruit By Products - 1937.

[Two exterior views.] Inscribed: E-953, 1925; and E-1624, 1941.

Q. Silos, Granaries, Elev. (Two folders)

Cereal No.73.

[115] [Illustration of the brick ancillary building, 1936.] Inscribed: E-819 & E-820; both copied for the DAP reference collection: PA-127443 & PA-127444.

Cereal

[Contains 2 views] Cereal Barn South Field [now 82], E910; and Cereal Barn No.73, E928 (copied as PA 126585).*

R. Smoke, Slaughter Hs. (No folders, no photos)

* File had been missing since 1982.

My notes say "see subseries 118, 119, 120, & 121 for four mis-filed folders, others not located - see PA 126585"
What does this mean? Must check!

[No "S", "T", "U" dividers in the box]

V. Log Buildings (no folders, no photos)

[No "W" divider in the box]

X. Miscellaneous

Gates.

[Illustrations of stone gate piers, labeled "upper gate" and "lower gate".] Four of six views copied for the DAP reference collection: PA-134951 through PA-134954.

[Without sub-title].

Portable Information Booth, 1938, inscribed E1069; Information Office, 1937, inscribed E932 [old electric railway waiting room]; and an unidentified farmstead, E1492. [A sign with "[MILT]ON COURT" is visible over the door of the dwelling in the latter view. Does not appear to be of the CEF. Check with PA 132937 & 41; see also box 75, acc.1982-247.]

Flax Building. [folder mis-filed in box 5338]
One view copied as PA-126665.

Flax Building. (labeled as part of group "Q", this box*)
[Five views, 1920-23; and one apparently more recent view: GS-20.]

No.81, Flax Buildings. (labeled as part of "Q"*)
[120] [One view.] Laboratory Addition, 1941, E-1627.

Flax Bldg.
GS-21, 1927/8; E-939, Flax Mill, No.81; Flax Barn, No.80, both 1937.

* The above Flax Building folders seem to have been mis-filed within box 5338. Perhaps in 1982.

[Without subtitle].

Pumphouse, 1945. [One view.]

[No photos in the folder numbered "123"]

Booth Farm.

Barn west of Ash Lome (sic), E922.

[Various envelopes of prints not in folders].

[125] Includes: oblique view of [now 77] E-816, c.1937;
unlabeled, unidentified horse barn, CEF?

[Various envelopes of negatives mostly which have not
all been matched with the prints contained in box 5338.]

N.B.

Some folders are currently out of the intended or
original sequence.

10.4 Reflections on an Article by Prince (1971)

One of the clearest brief descriptions of geography I have seen to date is contained in Hugh C. Prince's text of "Three realms of historical geography". His paper was written "to open broad vistas of research, to indicate new approaches to knowledge of the past and also to suggest how these investigations may lead to an enlargement of the studies of non-historical specialists" (p.4).

Prince outlines three realms of knowledge related to historical geography (and by implication all geography) as:

- reconstruction (or expression) of experiences of real worlds using scientific methods,
- reconstruction (or expression) of experiences of imagined worlds using aesthetic methods,
- (re)construction (or expression) of synthetic or abstract worlds using theoretical geography.

Those three realms seem to cover the scope of that which is related to the physical environment and the human spirit.

Important points on the three realms include the following. The first realm, as Prince defines it, presumes a scientific slant. "At its finest, [such analytical] scholarship is detached, astringent, parsimonious and keenly critical. In the hands of the timid workers the results are vague and meagre."(p.5) The second realm is accessible partly because "of the 'perceptual surfaces' (Brookfield, 1969, 53) of the past to discover 'behavioural environments'

(Kirk, 1952; 1963) that differ from our own" (p.24). "For the ancient peoples, 'the "real" world transcended the pragmatic realm of textures and geometrical space, and was perceived schematically in terms of extra-mundane, sacred experience. Only the sacred was "real", and the purely secular - if it could be said to exist at all - could never be more than trivial' (Wheatley, 1969, 9)."[1] (p.24) For many, "reality on earth is only to be experienced through imitations of heavenly archetypes"(p.24).

The "third realm of inquiry is being invented in the minds of theoretical geographers" (p.5, perhaps paraphrasing Harvey, 1967; 1969; not clear). "Increasingly the possibility emerges that models may be used to depict a large number of changing abstract landscapes..."(p.5). Prince thinks of the theoretical world of inquiry mostly as applied to the physical or material (or metaessential) sense, not so much in the metaphysical or essential sense as per the second realm.

Prince makes a point that in "some areas the historical geographer is offered a unique opportunity to recreate Urlandschaften from documentary evidence" (p.7). He mentions the use of static temporal cross-sections "like a single frame taken from a moving picture"(p.9). A single image of one moment, he points out, doesn't allow one to know temporal morphology.

1. This quote, and to lesser extent the previous quote, contain quotations within quotations.

There are several important points Prince makes that I should include. "In 1885 Joseph Wimmer stated that the aim of 'historical geography is to compare the geographies of different periods of time in the same area'"(p.12). Through the medium of photographs taken from the same viewpoints after an interval of fifty years Walter Philips (1963)"...[with] a series of seven dioramas represent in three dimensional form stages in the changing appearance of the Harvard Forest" (p.12). Prince claims those images "fail to portray the process of development" (p.12). He also talks about Norman Thrower who "suggested making a 'film sequence' of cross-sections drawn at frequent intervals" (p.12). Prince doesn't see the real advantages to Thrower's suggestion. He said it would only convey a "superficial likeness, not an explanation of change" (p.12).

Is Prince here alluding to the sequent imaging anti-thesis process I will be attempting to convey in this paper? Does he see the "dust" or "ashes" aspect of reality as only that which can be held by time, space, matter, and physical energy (that stuff verifiable by science and knowable by reason and logical cognition); or is Prince rejecting the value of what I call sequent imaging (as per his description of Thrower's "film sequence" analogy). How can one study temporal morphology without knowing the form and the change of form over time? How does one know how, physically, the cultural landscape changed without doing exactly what Thrower suggested?

Prince's chess analogy (p.12) seems to defeat his argument; knowing where each piece was in sequence seems more important than knowing how they were moved on the board. Obviously, it's some aspect of the human spirit (or might it be previously undetected earth-based forces). The pattern, the speed, and other morphological basics are missing from what he thought. What point is he making?

My sequent imaging method is called by him "static pictures" (p.12). The processes for "those changes will be unaccounted for or, at best, only implied" (pp.12, 13) according to Prince's view. His argument against comparison with biological order seems weak. Does biology proceed in an "orderly preordained sequence of steps" (p.13); or is it all a bit more complicated? While the article is the one of the best accounts[2] consulted in the published literature to date, it too shows evidence of a subtle distortion toward reason and science. So close. I want to learn more about Hugh Prince, his other writings, how he learned what was important, and his thoughts about human spirit and its inter-relationships with the essence and the material of our earth.

2. [93-11-19] After rereading these four pages, now that the initial idea has been crudely expressed, I reflect on those works which most closely approximate my image of the core of geography's object. Anne Buttimer's new book is clearly the exemplary "guide to the understanding of geography as a manifestation of the human spirit" (Tuan; in Buttimer, 1993; p.xi). Other outstanding works of geography (as I see it, p.278, next appendix) are: Eliot (c.1962), Higuchi (1983), Ni Tsan (c.1360), van Gogh (1888), and of course Wright (1966). I am not looking at the academic or professional practice of geographers; my interests are in simply understanding and sharing the earth's inter-relationships with us.

10.5 Special Definitions for Common Terms

This section contains several special definitions of commonly used terms which make more nearly explicit the metaphorical aspects of this paper. These separately defined terms normally mean these definitions when they occur in the text. One term "earth" - the original focus of geography - has two meanings in the text: one, as a conceptual metaphor for an architectonic image of interrelationships; and two, the sum total of material and spiritual phenomena associated with this planet and its occupants as observed via physical energy and essential energy.

Bias. A directional force needed to correct otherwise distorted patterns (preferably with minimum effort) for purposes of clarity of communication. For example, in a radio it is the force applied to the cathode of a receiver as a physical reference. A diagonal path along the warp and weft of any type of interwoven thing such as essential and physical energy[1].

Communication. Process of sharing involving two or more individuals from the conscious, aesthetic, physical, or metaphysical/meta-aesthetic realms.

1. Scholars are not in agreement on whether the word at one time meant a door way, or having two faces. To some extent the property of light-speed is a bias relating to essence and visible electromagnetic energy - one serves as a metaphor for the other - both are a doorway into consciousness-becoming. Between these two realms is a condition, requiring a force to make the bridge. A bias may be either distortion-correcting force or a deviation from the path the force should take. Removing all biases leads toward dust, understanding all biases leads toward G.E. Lessing's erring, active search.

Consciousness. Characteristic ascribed to humans (as defined in Buttimer, 1993); consisting of self-recognition, sensing a space-time context and possessing a tension to simultaneously coalesce and become separate[1].

Collective consciousness. A synthesis of conscious communication; becoming simultaneously one holistic awareness of the spiritual and material realms on a societal or global scale[2].

Culture. A form of communication through time and space involving consciousness. See also: Unesco (1977).

Distorted. A type of cognition or perception that one cannot always use as reliable. Those who favour reason tend to judge distortion through external observations; those who favour passion tend to understand distortion through internal observations. Distortion is measured from the bias.

1. Awareness accompanied by attributes of passion and reason; knowledge accompanied by concern. Context affirmation for the material realm comes primarily through one's external senses, aided by science and technology; context affirmation for the essential realm comes primarily through one's internal senses, aided by aesthetics and art. The number and characteristics of internal senses supplying information to one's consciousness have not been established within the context of Western culture.

2. Collective consciousness is to individual linguistic & spatial cognition and individual humans, what a person's mind is to a neurotransmitter and a brain cell. Attempt to imagine an abstraction of us metaphorically as a one-celled creature one billion years ago contemplating a twentieth century human brain. At the theoretical level this concept is part of a cyclic process of becoming again - the external landscape becoming also essence and consciousness; "terrae incognitae" becoming also conscious and objectified; and human consciousness becoming essential, material, and aware for the first time what it is.

Essence. Energy not in the form of consciousness, mass, nor physical radiation. Perception of essence is observed in the spirit-of-place concept, in human emotions, and through ones unconscious or so-called predisposition.

Geography. The study of the human spirit and physical environment interrelationships: spatial, temporal, and emotional. Its defining aspect is that it alone as a field of enquiry looks at the intersection between human spirit and the earth as revealed to human consciousness at least in the profane, external sense.

Heritage (adjective). Pertaining to heritage as defined below. This usage is broader than the sometimes narrow and sometimes contradictory definitions used by the Department of Canadian Heritage programs[3].

Heritage (noun). A legacy or inheritance. A distinct property perceived as one's legacy or past - as seen by an individual, a society, or the collective. The term is divided by some authorities into two overlapping groups: natural or cultural: natural heritage seen as mostly earth-related, cultural heritage seen as mostly human-related. Geography, as a discipline, has been the study of heritage in the collective sense. Communication (sharing) affects the scope and intensity of one's perception of heritage.

3. Current federal buildings policy defines the term in a highly restrictive manner, occasionally excluding works designated elsewhere to be of national importance. In contrast, Parks Canada literature defines the term generously to include both natural and cultural aspects of the physical environment.

Landscape. Recognized perception of contextual forms. An external or internal spatial matrix made visible with electro-magnetic energy carried to human eyes for external forms and essence carried to human unconsciousness for the internal. In the West landscape has been seen as something to have dominion over. In the East the landscape is seen as something to show dignity toward.

Left-handed. A metaphor for those individuals who are inclined to favour, more or less: passion, synthesis and internal realities. Extreme left-handedness is perceived as destructive or atrocious by those who favour the opposite: determined by a combination of genetic and cultural factors. Left-handed people are not adverse to improvisation and mixing things up a bit.

Map (verb). To recall a relationship of things expressed in a mostly spatial or graphic manner.

Map (noun). A held consciousness of interrelationships. An expressed statement of that consciousness in an objectified manner so it can be seen, understood, criticized, enjoyed, and applied to practical or theoretical uses.

Right-handed. A metaphor for those individuals who are inclined to favour, more or less: reason, consistency, analysis, and external realities. Extreme right-handedness is perceived as cold and not-seeing-all by those who favor the opposite: determined by an opposite combination as for left-handedness. These (metaphorically) right-handed people are not adverse to rules and having everything put in order.

10.6. Heritage Management Benefits with Sequent Imaging

when we make an effort to understand, we destroy the
object of our attachment

-Mead, 1983, quoting Levi-Strauss.

when we identify something as old and we mark the site
we dissociate it from its surroundings, diminishing its
continuity with its milieu

-Lowenthal, 1979, p.111.

10.6.1 Considering the Value of an Old Barn

In June 1987 a group of heritage experts and representatives from the Canadian Parks Service, Public Works, and Agriculture Canada met to consider an old barn complex[1] located on the Central Experimental Farm. They were given an informal report which had been prepared according to procedures developed by the Federal Heritage Buildings Review Office (FHBRO). Their task was to evaluate the cultural value of that old barn complex and determine if it qualified for consideration as a heritage building[2].

The structure was part of Thomas Clark's "Canal Bank Farm" (Belden, p.37) while he was reeve of the township.

1. First cartographic evidence of barns at this location appear in m-McDermott (1848); first conclusive illustration of these structures is found in a full-page lithograph in Belden (1879, p.37); two of the three interconnected barns are built of heavy-bent, mortice and tenon framing.

2. According to government policy a federal heritage building is any federally owned structure more than 40 years old "that has been designated as either classified or recognized for its heritage character by the Federal Heritage Review Office" (Environment, 1982). Period buildings not so designated by FHBRO receive no special consideration prior to major repair work or demolition. They are not afforded special consideration for age, or any other reasons connected with cultural significance.

The farm was also widely known because of the many prize-winning farm animals shown by Clark at local fairs. In 1886 the site was purchased by John R. Booth, influential Ottawa industrialist who was acquiring large quantities of land within and on three sides of the site which would in a few months be chosen for the central farm in the federal government's initiative to establish a national system of agricultural research stations[3]. In 1928 the buildings and the site were acquired and incorporated into the Central Experimental Farm to accommodate its growing research needs.

Today the complex appears much as it did in the nineteenth century, a prominent visual landmark as one travels into Ottawa along Prince of Wales Drive. It is one of only two documented surviving federal agricultural buildings from the mid-nineteenth century[4]. It is also one of only two surviving agricultural buildings at the Experimental Farm from the nineteenth century[5].

After deliberation, the group of experts and departmental representatives found the complex lacked sufficient heritage character or cultural significance to be considered

3. The most complete published account is found in Elliott (1991).

4. Based on data supplied by the Canadian Inventory of Historic Building, Canadian Parks Service.

5. The other nineteenth century building is the Kennedy-Booth barn complex, now known as building no.118. The next oldest agricultural buildings at the site, as opposed to domestic, laboratory, or carpentry buildings, are the original parts of the main piggery and the experimental piggery both dating from about 1910.

as "heritage". To make this determination they followed a scoring system based on a standard set of criteria. The complex received a score of zero[6].

Part of the explanation for this illogical decision by the Federal Heritage Buildings Review Office is found in the biases contained in the evaluation method. For example, each building is considered only on its individual merit not as a component of a more significant whole. Also, works which lack ornate features or are not built according to studied architectural styles fail to receive heritage status on most occasions[7]. The aesthetics and craftsmanship of utilitarian buildings are scored to a single set of criteria which are weighted in favour of grand, upper class structures.

The other difficulty in this case came from a lack of precise and accurate information about the old barn complex. Research methods used by the heritage experts were not suited to the complicated nature of this particular site, nor to the types of evidence available. As a result the review group did not have knowledge of important facts concerning the structure's origins, history, and associations.

6. FHBRO has considered 31 works from the Central Experimental Farm: six have qualified as "heritage"; 10 received scores between 20 and 48 (less than 50 is not considered to be a federal heritage building); and 15 were given 0 (less than 50, not calculated) according to FHBRO files to Dec., 1991.

7. According to FHBRO staff some buildings found to be of national historical significance by the federal body legislated to make such decisions have failed to score as "heritage" if they are plain and poorly constructed. The criteria seem to be weighted in favour of the aesthetic preferences of the group who initially prepared those criteria. Vernacular and unusual aspects of the cultural landscape suffer the consequences (except when the results are "adjusted" to allow nationally significant works to avoid being labelled as "non-heritage").

This example demonstrates some of the short-comings found within the federal heritage designation process as it was applied to those Experimental Farm buildings reviewed to date. The task at hand seems to be more complex and vague than words can describe. It is almost as if a responsive, yet standardized approach to that part of the cultural landscape held by government was, defacto, a contradictory expression.

The argument in favour of graphic expression to illustrate the morphological histories of sites addresses several parts of the problem in the previous example. How?

First, consideration of a work is seen immediately as part of a whole. That relationship, while considered in the current FHBRO scoring system, is not emphasized in its word-based approach. Second, a larger quantity of evidence is unearthed when using a cartographic approach in combination with current methods. Third, visual considerations of aesthetics, setting, and integrity with the surroundings are easier to conceptualize and assess when modeled graphically, not only linguistically. And fourth, three-dimensional cartographic representation is a more effective method to expand and enhance perceptions of the observer. Well executed bird's eye maps contribute to an increased perception of cultural value. This process of shaping perceptions and was wide-spread in the late nineteenth century as posters (C-63482) and historical atlases (Beldon, 1879) show us.

10.6.2 Need for Greater Cartographic Involvement

The argument in favour of greater use of cartographic methods when studying cultural sites acknowledges that maps are not neutral or objective in the common sense of the term[8]. However, words are equally not neutral, and have a tendency to be more subtle and hard to unmask. In a sense, cartographic express becomes more nearly true to the object in question, moving from one's consciousness to ideas presented external to the mind without the ambiguity of a non-spatial process of analysis of the evidence and of the presentation.

Harley (1989) & (1990) and responses in the literature to those two articles provide a useful point of reference for this argument. His point that we "have failed to question the inner logic, the rhetoric, and the style of the map in the same way as we would question the syntax of a written word" (Harley, 1989, p.83) may provide an explanation why many academic geographers and heritagespecialists tend to regard maps as less than an equal partner. with

8. Commonly, the term "objective" has come to mean ideas presented externally (as the philosophical sense) without being coloured by feelings, opinion, or other forms of bias. If not an oxymoron, this sense implies people should and can think as a universally adaptable computer. In fact, there may be an enormous, hidden bias at work in instances when one attempts to purge passion, intuition, and other non-scientific influences from one's thinking. Those that claim feelings, opinion and other (obvious) forms of colouring should be removed, as opposed to being understood and built upon, seem to have limited their ontological world to a black and white reality of one dimension.

linguistic expression. Harley's criticism is a problem of use, not of the medium. A graphic approach, especially one using computer-aided delineating, is able to make source citations in a similar manner as one finds on typical written works.

One of the goals of the thesis these notes are appended to is to encourage the application of sequent imaging techniques for important cultural landscapes. When the landscape is complex, as the case of the Central Experimental Farm, or when it is difficult to mentally recreate the morphology as it evolved, sequent images can be used to provide information in a comprehensive form which can be easily comprehended.

Sequent images seem to aspects which are superior to period maps, period photographs, and written texts, concerning the analysis and presentation of cultural landscapes. This section has attempted to provide a brief outline of advantages, without moving too far from the primary aims of this thesis[9].

9. The initial direction of the thesis moved from the site's evolving forms as a focus to the process of analyzing morphology using sequent images. It moved again as the final text was being written to become a theoretical study of the earth's role in landscape perception and cognition. It fact, in some respects it moved so far from the previous focii of place and method that it has become unrecognizable as anything but metaphor.

10.7 Establishing a Framework of Meaning

Before this paper could be written it proved necessary to conceptually construct two previously undelineated frameworks of geosophy[1] or geographical thought. These two conceptual philosophies are described here as a touch-stone for those who might be able to understand the substantial distortions to formal geographic thought caused by biases currently contained within the principles and methods of materialism and post-moderism. This short discussion follows, and is linked with, Robinson (1993)[2]. It is included here as an appendix to this thesis because its content is causally linked to the subject of the thesis: without this ontological basis in conceptual form, the paper could not have been produced.

Brian Robinson asks in his paper, "why theory...why aesthetics...and what's in it for geography?" (p.1). He begins by asserting that the humanistic approach to geography and aesthetics has been noteably weak on theory (p.1). A graphic relationship is then delineated as a triangle with the three "labels" (p.2) of humanism, post-

1. Geosophy is a term coined by J.K. Wright in "Terrae incognitae: the place of the imagination in geography" in 1946 (1966) pp.82-85. It is to geography what historiography is to history.

2. "Geographical theory and aesthetics", presented at the 1993 Canadian Geographical Association annual conference; Ottawa. The text is said to be "an introduction to a work on aesthetics, theory, and geography" (p.8).

-modernism, and materialism at each corner. He then discusses his conceptual journey along the paths and roads found within his triangle.

From the outset, Robinson's paper was "hoist on the petard of dichotomies - humanism v modernism, empathy v bricolage, narrative v fragmentation, sense v nonsense, time v space..." (p.6). He then claims to go beyond these "false dichotomies" (p.6) or "crutches" (p.7) and to arrive at a "dialectic between the three points" (p.6) of his triangle of labels of meaning. Next, he finds "there is a landscape, and an itinerary through it that is not dependent on...the triangle" (p.6). No explicit idea of that imagined itinerary is offered in Robinson's paper.

That paper concludes with an expressed feeling that "what humanism has moulded and fixed has been shattered and dispersed by mind games" (p.7).

Near the middle of that paper is a table of key-words to which Robinson retreats, claiming "the neutrality of a diagrammed sequence" (p.4) to explain in outline his views of the so-called major "labels" of meaning. The key-words corresponding to the three previously mentioned frameworks are reproduced below:

	<u>humanism</u>	<u>post-modernised</u>	<u>materialist implications</u>
(i)	history	indeterminacy	ruptures/restoration
(ii)	topophilia	boundaries	regions/relativism
(iii)	authored	identities	feminism/separatism
<u>analogies</u>	highways	crossroads	networks/cul-de-sacs

(after Robinson, p.5).

No explanation was offered in his written text on the meaning of the two frameworks of meaning on the right. For the words under "humanism" he writes, "some readings of the grid might be; (i) history's founding sources and origins are displaced by histories where may (sic) times may meet: (ii) confirmation of the great good place is unnamed by the transgression of boundaries: and (iii) to say the sayable and to speak for the already spoken for implies an overdeterminism which dare not recognize itself as silence (into which other voices have come to haunt paternalistic humanism)" (p.5).

For some observers the triangle and diagrammed sequence can be self-evident examples of bias felt by those who support some form of post-modernism or materialist theories. Part of the problem in the dialectic process grows from the view that humanism is an antithesis of other frameworks of meaning, rather than a synthesis. Robinson and many other geographer-theorists are only looking at one-quarter of the relationships which exist it would seem.

The "terrae incognitae" explored as part of this thesis provides evidence that the remaining three-quarters of the relationships involve aspects of geography which may not be directly knowable to all. Some geographers go so far as to claim the non-existence of the unconscious in any form for anyone. They seem to feel if they are not able to have a first-hand experience of a phenomenon, or if scientific methods are unable to "prove" it, then it cannot exist.

Materially-biased geographers seem to want to avoid a dialectic on issues dealing with spiritual reality and with essence. By putting humanism as a pole, rather than as a mid-point, they pull the discussion and the conclusions off of centre in a difficult-to-detect but nonetheless distorted manner. The process of overcoming this distortion of perception in Western, formal geography will require practitioners to view the interrelationships in a broader and more comprehensive perspective than that sketched by materialists, post-modernists, and others who base their world-view on external senses and reason. The following diagrammed sequence suggests the seed for such a broadening of view.

First, imagine an opposite to those "labels" Robinson describes as post-modernism and materialism. Let us call these two conceptual frameworks of meaning: "pre-modernism" and "essentialism". For discussion purposes let us make a diagram of relationships within a square: materialism opposite essentialism, post-modernism opposite pre-modernism and humanism in the middle.

Second, add to Robinson's diagrammed sequence the following concepts:

	<u>essentialist implications</u>	<u>pre-modernism</u>	<u>humanism</u> (repeated)
(i)	becoming/understanding	determining	history
(ii)	atoms/oneness	no boundaries	topophilia
(iii)	intuitivism/cohesion	perceiving	authored
<u>analogies</u>	parking-lot/hyperspace-bypass	paths	highways.

By introducing these two additional major "labels" one can move from an ontological triangle to a square and then to a multidimensional spatial matrix of interrelationships. Humanism, in its forms promoted by Semple, Wright, Buttimer, Tuan, and W.R. Mead then might be seen to move from a marginalized point in geography to a point nearer the centre of discourse and formal thought.

It is self-evident that until such time as the two above-mentioned new concepts are considered with equal value as their opposites, any dialectic will move to a grossly distorted presumption that the metaphoric model of geography as theory is a relationship on a flat triangle - rather like the OT maps of antiquity. Western thought has acknowledged essentialist foundations since Pythagoras and his concept of Forms. It is only a recent detour in thought which has lead away from direct knowledge of the superior reality accessible only from within, not proveable by science, and not rationally knowable in a coherent, comprehensive sense.

There are several advantages to recognizing the equality of essentialism and pre-modernism with materialism and post-modernism. Firstly, abstracting the interrelationships of these four frameworks of meaning allows one to see past the maelstrom of "cleaned decks"[3] and "childlike meaninglessness" (p.7) left to those who only see geographical ontology as an unsatisfactory trinity of humanism, materialism, and post-modernism.

By adding two additional frameworks of meaning, it is possible to conceptualize a fuller relationship of issues dealing with geography. Cul-de-sacs and boundaries are balanced by a knowledge which derives from a view from the middle, from within, and from beyond: a knowledge derived from reality absent of time, space, matter, physical energy, and reason; a knowledge derived from a love of earth and earth-human relations.

The thesis to which this brief criticism is attached is not an example of either essentialism or pre-modernism as conceptualized here; instead, this thesis claims for itself a foundation of synthetically derived humanism, taken from a marriage of the four opposite corners - much as conventional humanism has been formed, except here the synthesis has been conscious of underlying forces pulling in each direction. The object for conceptualizing and abstracting these two new frameworks has been simply to explain, however superficially and crudely, the subtle but nonetheless substantial difference between the framework of meaning used for this study of the Experimental Farm and those used elsewhere in the field of geography.

This paper argues for a return to overlooked knowledge, at least until distortions caused by the bias toward reason, science, and external sensation within the current practice of geography can be elucidated and understood. Without equal consideration for emotion, art, and internal sensation it is inevitable that geographic perception will be distorted.

The following diagram illustrates: first, a simplified version of Robinson's objectified abstraction; and second, a conceptual model of the antithesis of that image. The lower left portion of this diagram is meant to be seen as an interlocking aspect missing from the other image's abstraction. See also the diagram on the following page where these conceptually spatial interrelationships are incorporated into one quarter of a diagram of consciousness, physical reality, spiritual reality, and becoming...ness.

This diagram illustrates the relationship between some geographers' views of philosophical frameworks (after Robinson, 1993) as compared with an objectified mental map held as a crude foundation while producing this thesis.

While it is beyond the scope of this appendix to delineate in full detail the nature of the philosophical framework within which this thesis has been compiled, it may be helpful to view the following crude diagram of relationships which can be compared to Robinson's work and the recent work by Buttimer (1993). The mental map of spatially represented architectonic phenomena behind this diagram is simplified here in a conceptual slice brought into two dimensions. This diagram describes a more comprehensive image of all things than is written about in part A. The author's conscious knowledge of interrelationships at the time part A was compiled consisted of only a slice of the right corner of this conceptual diagram, looking toward "terrae incognitae".

This diagram illustrates a spatial interrelationship between nature, in the form of undifferentiated essence and matter coming into consciousness - the earth and our landscapes made self-aware within our minds.

Post modernism, materialism, and other forms of Western philosophy have tended to favor linear-biased cognition and an analytical view of the earth. In contrast, pre-modernism and essentialism, as conceptualized here as abstracted hypothetical frameworks of meaning, favor turbulent-biased cognition and a synthetic view of the earth. In Robinson's paper he focused on the lower right quartile as represented spatially in the previous diagram. In contrast, this thesis has attempted to explore those metaphorical "terrae incognitae" alluded to in Wright's work by moving to an abstraction of only physical reality in order to conceptualize its opposite and identify mappable aspects of spiritual reality.

The sequent imaging antithesis method presumes a conceptual base which has been rooted in humanism but spans through the spectrum of beliefs held by followers of materialism, post modernism, essentialism (as hypothesized), and pre-modernism (as hypothesized). This conceptual base presumes one must take the existence of external reality as seemingly perceived by our external senses on faith. It presumes the same for the so-called internal reality. They are neither strictly proveable, but are so well presented in their masquerade costumes that belief in them seems warranted, if for no other reason than one's consciousness is too complex a thing to be fooled all the time.

10.8 Post Script

In a superficial sense the primary objective of this paper is to demonstrate sufficient knowledge and skills to satisfy the requirements for a master of arts degree in geography. That objective, explicit in this case, has provided a conceptual tension with two underlying objectives: to allow the Experimental Farm to produce its own "geography"[1], and to know and share an objective[2] sense of place for the site.

1. If the site (and the earth) did not interact directly in the preparation of this paper, a raven-like "trickster", or "divine madness" (Ficino, in Hofstadter & Kuhns, p.235) was causing most of these words to appear on the screen of my word-processor. I kept trying to write a superficially traditional thesis - other things kept appearing on my screen.

2. The term "objective" is vague and seemingly mis-used in many instances. People often feel the term should mean: without distortion, unbiased, and factual - based only on reason, logic, and predictable external sensing and rational cognition processes. In fact, the term has traditionally meant "belonging not to the consciousness or the perceiving or thinking subject, but what is presented external to the mind, real" (Concise Oxford dictionary of current English, 6th.ed.). The word comes through Latin meaning: thing presented to the mind. In contrast, the word "subject" comes through Latin as: something under, close to, or becoming the thing presented to the mind. All conscious knowledge using cultural symbols is, by definition, not objective - simply because that which is objective can only be outside the conscious mind. To let it in, as the case of perceiving a landscape or imagining that colour exists, is to make it no longer objective. Concepts of colour and landscape are subjective ideas - not objective things. Sensations of love, or cognition itself, come to the mind from non-external senses at least in part. Such attributes involve a thinking mind. For many works in geography one's attempt to eradicate all trace of the so-called "subject" tends to create significant distortions to those images presented in one's text. Crudely put, those objects outlined in conventional geographical texts are distorted by a value-laden predisposition which directs one to try and eradicate emotional, non-physical aspects of the place being studied. The object (in this case the Experimental Farm) does not want - will not allow itself - to only exist in the mind of this geographer as science and reason. This site is mostly passion - and it enjoys being recognized as more than dust floating in space.

I have spent part of the past several years attempting to communicate an objectified and appropriate image of the Experimental Farm. This particular effort has been successful in one important, unexpected way. It has led me to unclouded (to the extent that any cognition can be so claimed) understandings which are consistent with a theory of essential quanta coming to our scientifically verifiable meta-essential reality[3] and made visible in human emotions, culture, and actions. Clouded, but comprehensive observations were made at the time the coessential themes of this thesis came together as a single abstracted image. At that time, however, interrelationships were less clear and without the culturally derived labels one needs to share the mental map in detail. The reason for choosing an academic form to objectify parts of this image was to create the need to acquire knowledge of the labels I should use and the metaphors which are more likely to be understood by others[4].

3. Meta-essential is to the physical reality what meta-physical is to the spiritual reality.

4. To date, only two references have been found in the recent literature which suggest a distinct non-physical reality consistent with the observations of this study of the Experimental Farm. John Locke, at one point, is said to have suggested that the discovery of "essence" was the primary goal of science. Pierre Teilhard de Chardin, on the other hand, has postulated that the earth has an inherent sense of life "which had to pass through to the biosphere...until the appearance of the self-reflective consciousness in humans, whereupon...consciousness became conscious of itself" (Rogers, 1992, p.39). The findings of my study suggest Teilhard was observing (or presuming), in a clouded manner, essential energy radiating from the earth and acting upon our unconscious and non-rationally conscious minds.

The synthesis of the obvious, personal objective to satisfy degree requirements, working in tension with the idiosyncratic objective to express an appropriate sense of place, has caused this thesis to contain the ideas one finds recorded on the paper. To an extent these pages contain

no more than a rough sketch, or first draft, of an outline of mental maps concerning the Farm, landscape perception generally, and the earth itself.

In this thesis I have addressed issues of nature, perception, cognition, culture, form, and Form. If I have not done justice to this site, I have at least attempted to follow the lead of where the local landscape seemed to want me to go with the graphic and written text of this paper. If I have failed to present a deep sense of affection for the place - I have at least tried; in spite of the academic conventions which are sometimes at polar opposites with an expression of emotional attachment to the earth and its landscapes. When it comes to geography: I feel it is better to have loved the earth and failed to satisfy thesis requirements, than not to have loved the earth at all.

This paper has been about the love of earth. More fundamentally this work has been about a love of inter-relationships among people, land, water, culture, plants & animals, sunshine, climate, consciousness, and other forces focused on the forms of the Farm.

Unbound fold-outs (inside back cover)

Plate L: (upper) photomosaic looking north and east from Cow lane; (lower) panorama from Carleton University looking southwest to northwest.

Plate R: (upper) photomosaic looking southeast to southwest from same location as plate L (upper) - both upper images are part of a single ground-level panorama; (lower) mosaic illustrating the site as seen from one of the arboretum's look-outs - viewing east and south. The field barn near the centre of the upper photomosaic can be seen in the view op. p.101, c.1920. Camera station for upper mosaics in plates L and R would be above the two chimneys at the boundary hedge in the c.1920 view.

Plate P: Two period panoramas, (upper) c.1890 view looking southeast from a point near current Carling building; (lower) mosaic from the cereal barn, current building no.76, looking south, c.1920. Source: National Archives, PA-132616 (upper); and PA-34407 to 9 (lower).

Plate A: Aerial photomosaic of the site, 1924, scale 1:6600. Source: National Air Photo Library, HA-27.

Note: photographic reproductions in section 6 (pp.101-159) have not been previously published nor available in a public reference collection. Original images are held in various Agriculture Canada accessions in the National Archives of Canada, not yet reproduced by that institution for reference purposes. Funding for these reproductions of period photographs provided by Carleton University's Faculty of Graduate Studies and Research.

Paper stock:

Colour xerographic reproductions printed on Plover Bond, 25% cotton fiber. Black & white reproductions printed on Bell-Fast bond, 12(M) for volume A and 10(M) for volume B.

Plate A

Aerial photomosaic of the site: 1925
(annotation derived from period sources)

THS
M.A.
1994
B68
V.1
1 of 4

Plate L

Cow Lane photomosaic (left half); &
panorama from Carleton University

THS
M.A.
1994
B68
v.1
1 of 2

CORE AREA LOOKING NORTH

COWLANE LOOKING NORTHEAST

DUNTON TOWER, CARLETON UNI.

LOOKING SOUTHWEST

CORE AREA LOOKING WEST

HARTWELL'S
LOCK'S
RIDEAUMNAL

Plate P

Two period panorama photographic views
(& period lithographic bird's-eye view)

THIS
M.A.
1994
B68
V.1
3 of 4

Looking South, c. 1890
 Residence (now 60)
 Office, Lab. & Museum
 Residence
 Seed Testing & Distribution (now 75)
 Director's Residence
 Barn & Stabling (rebuilt c. 88)
 Residence (now 54)
 Director's Stables (now 77)
 NA: PA-132616

Looking South c. 1890s (pre-1897)
 Cottage
 Residence (now 60)
 Office, Lab. & Museum
 Residence
 Residence
 Director's Residence
 Seed Testing & Distribution (now 75)
 [Cottage and Stables (now 75)]
 Implement (now 98)
 [Director's Stables (now 77)]
 [Barn & Stabling (rebuilt c. 88)]
 Residence (now 54)
 Dairy House
 Complete with bird's eye view of site illustrated on p. 122
 Steward, 1910, p. 66 x

335. View at Central Experimental Farm.
 NA: PA-34409
 333. Stables at Central Experimental Farm.
 NA: PA-34408
 Panoramic View from Attic of Cereal Barn (now 76) looking Southwest, c. 1920 (combined photographic mosaic - 1993)
 334. Barns at Central Experimental Farm.
 NA: PA-34407
 * Stewart, McLeod, 1910. The first half century of Ottawa. Endale Press Ottawa (from Ann Bk Note Co.)

Plate R

Cow Lane photomosaic (right half); &
arboretum photomosaic

THS
M.A.
1994
B68
V.1
4 of 4

LOOKING EAST

KENNEDY-BOOTH BARN

LOOKING SOUTH

COW LANE
LOOKING SOUTH
WEST

DOW'S LAKE / RIDEAU CANAL

CARLETON UNIVERSITY

LOOKING SOUTHEAST

← TOBACCO HILL →

FORMER SITE
OF ENLAGE
TOWERS