R A L U T

S E N I O R S C H O L A R S S Y M P O S I U M

MASSEY COLLEGE, UNIVERSITY OF TORONTO

March 29, 2007

Harold ATWOOD Jon COHEN Dennis DUFFY William PAUL Robert SALTER Rivanne SANDLER David SMITH Germaine WARKENTIN

Front Cover – Lord Macaulay's "New Zealander" (as interpreted by Gustave Doré) as used in Dennis Duffy's presentation published within.

Contents

Introduction 4

The Presenters 5

Opening Remarks: Chancellor David Peterson, Master John Fraser 6

The Biological Concept of Continuous Passive Motion (CPM) of Joints for the Healing and Regeneration of Joint Cartilage, From its Origination to Research to Clinical Applications: Robert Salter 7

The Art of Poetic Dialogue: An Iranian Woman Speaks Out: Rivanne Sandler 10

Global Warming and the Terrestrial Carbon Cycle: William Paul 15

What Did Radisson Know?: Germaine Warkentin 21

Nervous Investigations with the Fruit Fly *Drosophila*: Harold Atwood 27

Voltaire's Relations with the Publishers of His Complete Works (1748-1752): David Smith 32

William Lyon Mackenzie King's Artificial Ruins: Garden Gnomes or Cultural Gestures: Dennis Duffy 37

Believe it Or Not! The 1930s Was a Technologically Progressive Decade: Jon Cohen 43

Introduction

The eight papers published in this volume were all presented at the second annual Senior Scholars' Symposium. This event was organized on March 29th 2007, by the Retired Academics and Librarians of the University of Toronto (RALUT) to showcase the ongoing research of its membership. As in the past, the symposium was held in the stimulating environment of Massey College and brought over sixty retired colleagues out to enjoy the day-long proceedings.

The diversity of topic and the high standard of research evident in the presentations were striking. The appreciative reaction of those attending has encouraged the Senior Scholars' Committee of RALUT to make these papers available to the entire RALUT membership.

We have a double purpose in this undertaking. The first is to show-case the intellectual vitality of retirees. And the second is to encourage retirees to present the fruits of their own research at future RALUT symposia (to be held every year in the early spring).

The organizers of both this and next year's event – John Dirks, Merrijoy Kelner and John McClelland – take great pleasure in urging you to read this monograph and are grateful to Cornelia Baines for editing and Ken Rea for publishing it.

The Presenters

Harold L. Atwood: Departments of Physiology and Cell and Systems Biology.

Jon Cohen: Department of Economics.

Dennis Duffy: Department of English, University of Toronto.

William Paul: Department of Laboratory Medicine and Pathobiology.

Robert B. Salter: University Professor Emeritus and Senior Scientist Emeritus the Research Institute of The Hospital for Sick Children.

Rivanne Sandler: Department of Near and Middle Eastern Civilizations.

David Smith: Department of French.

Germaine Warkentin: Department of English and Centre for Reformation and Renaissance Studies.

Opening Remarks

The Hon. David Peterson, Chancellor of the University of Toronto, opened the proceedings with warm words of appreciation for the continuing contribution retired faculty and librarians were making to the University, remarking that "... all the things that you have given to this university, that you continue to give, and your involvement and commitment, intellectual and spiritual are of great benefit to this university .... Please continue to stay involved, we need you, and we need your institutional knowledge, your passion ... and we need you going forward as the University of Toronto continues to fulfill its very lofty ambitions."

The Master of Massey College, John Fraser, then added his welcome, noting that Massey College relied heavily on retirees, many of whom were among the college's most active senior fellows. Retirees also occupy important administrative posts in the college. He assured those present that Massey was a highly appropriate venue for scholarly gatherings such as this Senior Scholars Symposium because of its traditions, programs and location.

The Biological Concept of Continuous Passive Motion (CPM) of Joints for the Healing and Regeneration of Joint Cartilage, From its Origination to Research to Clinical Applications

Robert B. Salter

From the era of Hippocrates it has been well established that, unlike other tissue, diseased and injured joint cartilage have virtually no potential either to heal or to regenerate. Furthermore, such abnormal cartilage inevitably leads to progressively severe arthritis.

From 1955 to 1970 the author's combined basic and clinical research consistently demonstrated that prolonged immobilization of a joint is definitely deleterious to the joint cartilage. Nevertheless, the universally recommended treatment for diseased and injured joints was prolonged immobilization of the involved joint. Intermittent active motion produced by the individual's own muscle power was better than immobilization but still was not adequate.

From his 30 personal and clinical observations, all of which favored joint motion, the author hypothesized that since intermittent joint motion was better for cartilage than immobilization, continuous motion should be even better still. It was obvious that because of the fatiguability of muscle, continuous motion would have to be passive i.e. by a mechanical device.

Accordingly, in 1970, the author originated the biological concept of continuous passive motion (CPM) of a diseased or injured joint for the healing and regeneration of the cartilage. Nobel laureate Albert Szent – Giorgi has stated "Discovery consists of seeing what everybody could have seen but thinking whatever nobody else has thought."

From 1970 to 2007 and ongoing – the author has conducted basic research on the effects of CPM on 35 experimental models of a wide variety of disorders and injuries in the knee joint of the rabbit.

These research projects have all been carried out in keeping with the author's "Cycle of Medical Research to Find the Solution of an Unsolved Clinical Problem" (Figure 1). In each of these projects the continuous passive motion was provided by a mechanical device electrically driven: The control groups included immobilization (IMM) and intermittent active motion (IAM). In all but one of these projects the gross and microscopic results of CPM were strikingly better than those of IMM and IAM.

One such model is a full thickness fracture that crosses the cartilage. In this model at four weeks, IAM Safranin O stain (a marker for cartilage) was virtually not seen, was barely seen weak with IAM and was almost perfectly seen in 80% of the CPM treated joints. Furthermore,

when this experiment was repeated but extended to six months,there was no post-traumatic arthritis in any of the CPM treated joints. Such excellent healing of the cartilage had not been previously reported in the scientific literature.

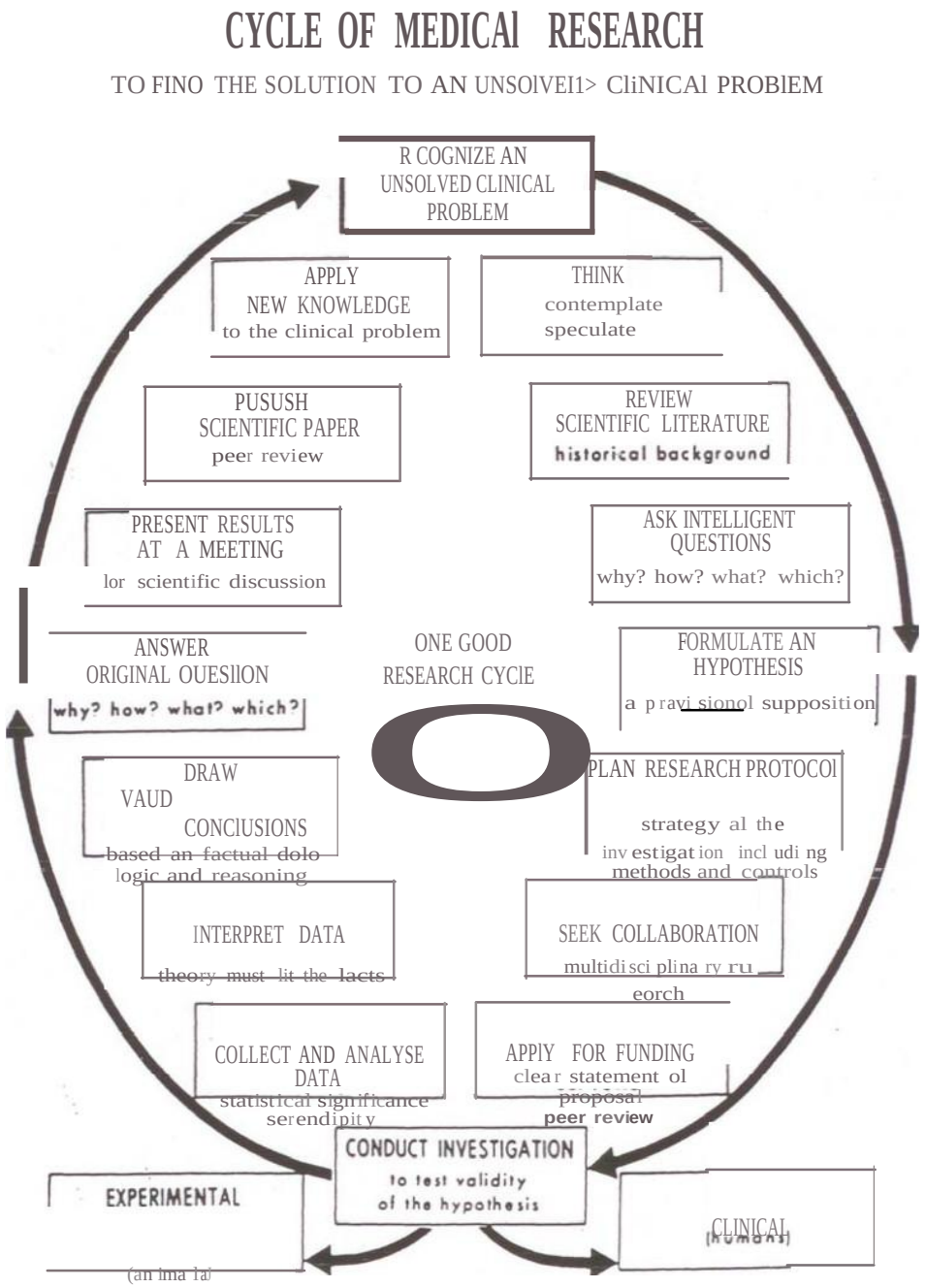


Figure 1. The "cycle of medical research," outlining 16 phases or stages of the scientific method relevant to applied research.

From the author's 35 aforementioned experimental projects the following observations were made:

- CPM is well tolerated by both adolescent and adult rabbits and would seem to be relatively painless.
- CPM has a significant stimulating effect on the healing of joint tissues, including cartilage, tendons, and ligaments.
- CPM prevents adhesions and joint stiffness.
- CPM does not interfere with the healing of incisions over the moving joint and, indeed, enhances such healing.
- The time-honoured principle that healing tissue must be put to rest is incorrect; indeed, it is this principle that must be put to rest rather than the healing soft tissues.
- Regeneration of articular cartilage through new cartilage formation, both with and without soft tissue grafts, is possible under the influence of CPM. This represents a turnabout of traditional thought.
- The recommended indications (uses) for CPM in patients include the total treatment of a wide variety of diseased or injured joints.

From the author's clinical applications the following results have been demonstrated:

- Relative freedom from pain.
- Maintenance of an increased range of joint motion.
- Normal wound healing.
- Absence of complications.
- Short period of hospitalization.
- Short period of rehabilitation.
- Results are better than those of historical and experimental controls.

The worldwide clinical applications of CPM devices have been extensive. As of 2006, it has been estimated that over nine million (9,000,000) patients have been treated by CPM in 8,000 hospitals in 18 countries.

The biological concept of continuous passive motion (CPM) represents a paradigm shift and an example of translational research.

The Art of Poetic Dialogue: An Iranian Woman Speaks Out

Rivanne Sandler

In the twentieth century, in Iran as elsewhere in the world, female poets slowly stepped onto the literary stage. Poets never write in a vacuum and women poets often refer to conventional literary techniques. But their experience of the society in which they write is different from the experience of their male colleagues. In Iran as elsewhere, society was invariably unfriendly, even hostile to women's creative efforts. This experience left its mark on their poetry. As women steadily assumed authorial responsibility, they wrote in a manner that illustrated their experience, both as women and as poets.

In the first half of the twentieth century, some Iranian women poets departed from the classical style of poetry. They wrote in what they called the 'new style,' or the 'Romantic' style, 'Realism' or 'European' or 'no special style'. Whichever style they chose for themselves, it is clear that these women were attempting to find a style that spoke to their yearning to write as women. One of the stylistic conventions established by early women poets in Iran is the 'poetic conversation.' It is an apt poetic tool for expressing a female perspective and is utilized by the poet Simin Behbehani.

Behbehani was born in Iran in 1926. She tells us that her life was the life of a poet from the very beginning. She grew up in "an environment of poetry, enthusiasm and action." She was seventeen when she married. She remained married for twenty years and had three children, but it was not a happy marriage. She married a second time and remained married for 14 years until her husband died suddenly. She became a high school teacher to earn a living. Her first collection of poetry was published in 1951. She continues to write.

Contrary to the literary convention of the time, Behbehani elected to write in a classical form of lyric poetry known as the ghazal. Classical forms were falling out of favour with modern poets who preferred a free form style of poetry. Behbehani continued to use the ghazal and to assert the contemporary range of this classical form. Behbehani addresses the issue of whether classical forms permit poetic relevancy by saying that she changed the fixed meters and rhymes of the ghazal to suit her personal poetic needs. Additionally, she freed the ghazal of, in her words: "set themes and expressions" associated with the meters by incorporating natural, everyday speech, and repeating and extending the meters at the beginning of a poem. "I have said things in this style that were neither customary or possible to say in the traditional ghazal." Behbehani's comments suggest that she wants to write as a 'new' poet even though she has chosen to wear 'old clothing.'

Behbehani is especially adept at using the literary device of poetic conversation to bring to public attention all manner of concerns, both social and personal. Her poetic conversations are always tied closely to the experiences of her life and her lifetime.

How does Behbehani, make her poems relevant? In order to demonstrate the poetic dialogue in action, let me refer to an early poem by Behbehani, 'Green Blood', published in a 1963 collection. The poem opens with a classical exhortation: "Oh ill-fated bird." This bird does not sing sweet tunes, quite the contrary. The bird complains so loudly of the world's unpleasantness that the poet's "ears ache from your complaints." The poet continues to inform her audience of the effect of the "world's unpleasantness" on her. It would appear that the 'you' she is addressing is no longer the bird, but rather the unpleasant world: "My shoulders droop because of you…the sound of your footsteps intrudes on my heartbeats." The poem then addresses a "flower stock covered with snow/ what hope is there of flowers; As long as life bearing liquid is frozen in your veins… Oh grave of the soul's garden; not one tulip has opened; since my breast became your wasteland; …I'm consumed every night/ by your painful world …"

Thus far, the poetic speaker could be a male or a female; the complaint is nonspecific. But in the concluding lines, the poetic speaker assumes a distinctly feminine tone; and the world seems to take on a more masculine demeanour:

In a moment out of time, if I laugh coquettishly / your demonic fury is a slap in my face;

Your cruelty wears my nature down/ your chains enslave my poems;

What you say makes me swallow my words...

No shred of desire does she have/ and no hope of pregnancy

A stone with a woman's shape / the barren woman sharing your bed

Behbehani has made language choices that identify the poetic speaker as female. But perhaps of even greater interest, is the way in which the poem has 'grown' into commentary beyond the personal. Is it a comment on society, on society's reactions to Behbehani's poetry? Is the poem a commentary on government, or on a generic authority? There are many possible implications.

Behbehani tells us that the 1950s were the years of her adolescent turmoil. The poems she wrote in the 1950s deal with the strong emotions that dominate the young, especially when they are in love. Her early ghazals, she says are testimony to "the intense erotic feelings, and the push-and-pull effect of anger and the desire for reconciliation of young people in love." Behbehani insists that the traditional ghazal is capable of expressing strong and conflicting emotions such as the passions of the young.

Women who wrote poetry in Iran in the early decades of the twentieth century held various views about whether poetry was the proper venue for the expression of womanly emotions. We are told that more than one aspiring poet who wished to put her inner feelings on public display was hindered by familial disapproval. But one young woman born in 1883 insists that she wrote verse "to converse with my heart." Women write conventionally and they also write provocatively. But uniformly women write about subjects that are of concern to them.

Simin Behbehani uses poetic dialogue to address socially sensitive issues from a female perspective. In a poem 'Dialogue', published in a 1973 collection, a conversation takes place between two entities labelled 'you' and 'I.' The 'you' is cautious, and evasive; the 'I' is feisty, and passionate. The 'you' character backs away from involvement; the 'I' has an answer for every obstacle the 'you' character puts in the way of their relationship.

You said: I am going to kiss you; I said: do what you want to do

You said: What if someone sees us? I said: I'll deny it

You said, What if we have bad luck and the rival comes through the door?

I said: I'll charm him away…

You said: what if some day I tell you to go away

I said: I will procrastinate for a long time

The poem concludes with the lines:

You said: what if I remove the chains of your love from my ankles

I said: you know that I will find someone who is more imprudent than you.

This poem may be a chronicle of the ups and downs of a relationship. But the 'you said'/ 'I said' technique gives the poem the characteristic of social commentary. It examines the restraints placed by a prudent society on passionate involvement. The careful 'you' puts up all sorts of barriers to meet the overtures of the eager 'I.' Behbehani makes artful use of the metaphors of trading and raiding in this discussion of love; these metaphors further suggest that the poet is making a statement about society.

Behbehani has spoken about the challenge of extending the scope of the lyric to comment on public life:

> From early on, my poems have reflected my social milieu and conditions, though in effect, these reflections have been reflections of my individual and emotional reactions to the society and conditions in which I have lived. I have never ignored inner,

> individual, and private feelings. I have never set out deliberately to write socially or politically engaged poems. Yet often, without intending to or being aware of it, my poems have been very much engaged in this way. Reacting to and provoked by the outside world, I reveal the world within (Cup of Sin, xxiii).

Behbehani's poem 'Can You Fly?' in a 1981 collection is addressed to "you," identified in a line at the bottom of the poem as the first group of political prisoners released from prison in 1978. The poet thinks of the prisoners as: "a maple tree; blooming with the branches of your convictions." The poem takes us through various responses and emotions to the prisoner release. While the responses seem personal, they could also be the feelings of other witnesses to this event. The poet wonders what lies ahead for the prisoners: "wings have to believe in flight before they soar once again." She comforts herself with the thought that: "those who were your enemies are now in chains and those who joined you are wiser for the experience."

Towards the end of the poem, Behbehani inserts herself as "I" directly into the poetic conversation. She questions her adequacy to write about those whose life she has not shared, and who unlike her, have forsaken life's comforts: "Whereas I avoided the fire out of fear / you inhabited it."

As in many of her poems, she worries about whether poetry is up to the task of expressing the unspeakable: "For someone who finds sweetness palatable, to speak of bitterness is unpalatable."

Behbehani asks: is poetry up to the challenge of pertinent commentary. She answers:

> A poem is inadequate to keep you going / but throughout her life;
> Simin has always taught your principles in her ghazals.

The poem 'What a Cold and Sombre Silence' from a collection published in 1981 is dated "the evening of Black Friday, 1978," a day of historic demonstrations and death. The poem describes 'you':

> *No scratch on your face / to show your inner weariness;*
>
> *Nor from your breast, a cry / to indicate a broken heart*
>
> *The poet instructs 'you,' identified as a breeze that has closed its eyes in horror and its lips in shock to: "Warn me of bullets, if you see the glint of bayonets."*

The poem then asks:

> *"How many heads were lost fighting for a head covering?"*

The poet along with her fellow citizens are:

... left with nothing but cries and curses

And the final line:

When I scream, Oh God…. you imitate me with an 'Amen.'

The poetic dialogue, i.e. the poet's conversation with others gives Behbehani's poems a contemporary, inclusive tone, even when there is no reply. In order to illustrate this point, let us look at a single-voice commentary by Behbehani. In a poem published in 1973 'My Little World' the poetic speaker describes a place where:

The air necessary for breath and life

Is a lid bearing down on hundreds of voices …

The poet takes refuge from: "… this great cesspool of despair."

In this poem, the poetic speaker is a solitary onlooker rather than a participant in the world's drama. She ultimately withdraws from life into a small corner of safety where she can be alone "in a small, secluded corner." Rather than listening docilely to the single speaker's opinions, the reader is pushed by Behbehani's poetic dialogue to think carefully, to consider the intent of words, and to contemplate a response.

References

This paper makes use of sources in Persian.

For translations of a selection of Simin Behbehani's poems consult: Farzaneh Milani and Kaveh Safa, editors and translators*, A Cup of Sin. Selected Poems*, New York: Syracuse University Press, 1999.

Global Warming and the Terrestrial Carbon Cycle

William Paul

Sunlight ranging from ultraviolet through visible to infra-red enters the earth's atmosphere at about 340 watts per square meter of earth area. It then undergoes reflection and absorption, the remainder striking the globe's surface where it again undergoes reflection and absorption.

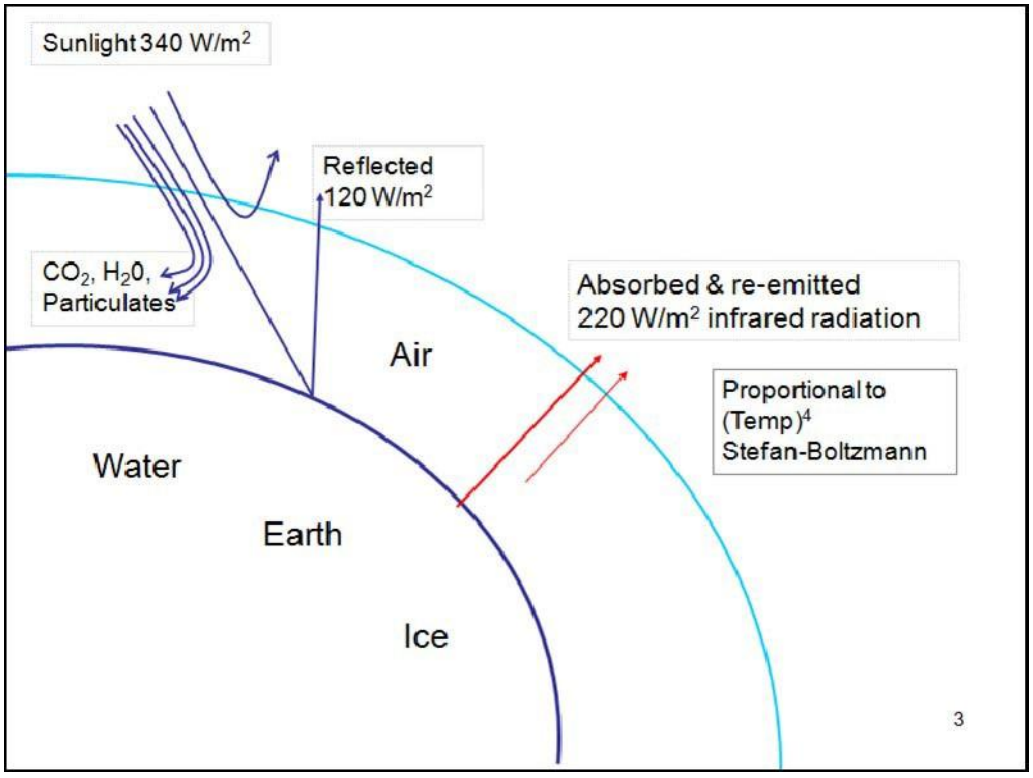


Figure 1

The absorbed energy warms the air and all the liquid and solids on the earth's surface (Figure 1). The warmed components on earth now radiate the absorbed energy into outer space as infra-red light at wavelengths longer than incoming sunlight. The incident sunlight, of course, reaches only half the earth at any one time, while the infra-red radiation outward is continuous. It will be seen in Figure 1 that the absorbing elements in the atmosphere are water, carbon dioxide and particulates such as soot and aerosols. Oxygen and nitrogen are quite transparent to sunlight.

Of particular interest is the role of carbon dioxide which is often regarded as the most important absorber, or "greenhouse gas". This term is used although the global event is not quite like the garden facility. The presence of CO_2 in the atmosphere has been brought to the

fore by the establishment of a laboratory on the mountain Mauna Loa on the island of Hawaii in 1958. Here frequent sampling has provided a continuous record of atmospheric CO_2 to this day.

The site was chosen because it is far from major sources of CO_2 from industry and automobiles as well as large continental areas of green plants which are CO_2 sinks. Furthermore it is believed that the site, far from land, will provide enough mixing to consider the samples as global averages.

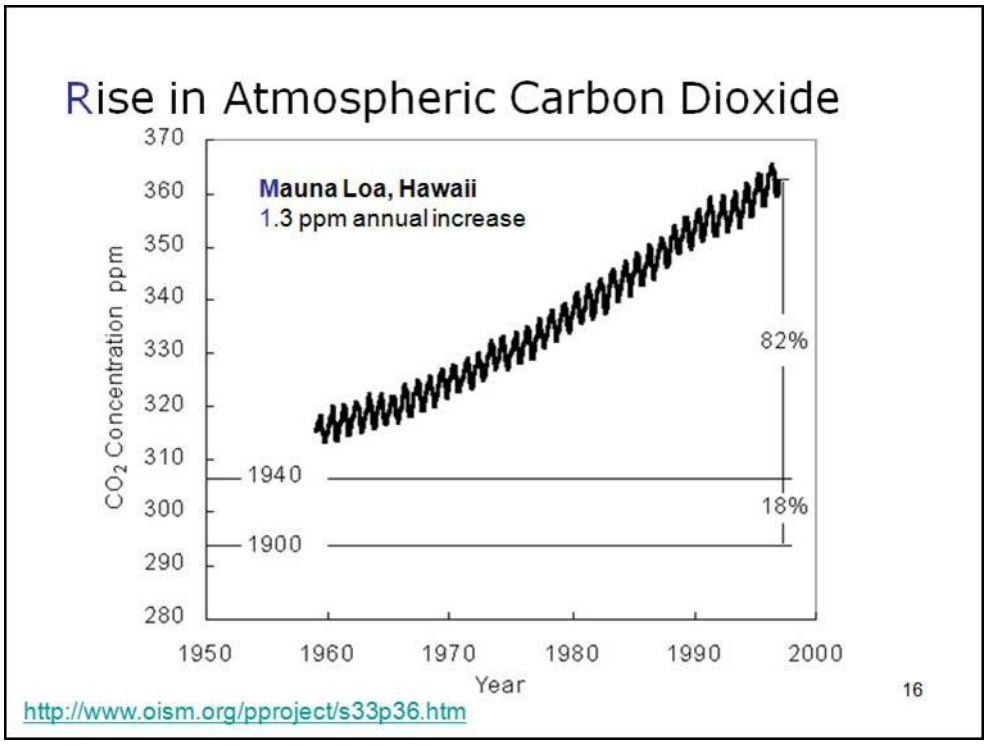


Figure 2

A published graph from this station from 1958 to 1997 appears in Figure 2. It will be observed that measurement is sufficiently precise to show up the seasonal cycle where levels are lower in the summer of the northern hemisphere with higher land mass and vegetation, and higher in winter when there is reduced photosynthesis.

It is also apparent that there is a regular annual rise in global atmospheric CO_2 amounting to about 1.3 parts per million (ppm).This rise which is believed responsible for global warming is generally ascribed to the increasing output of CO_2 arising from the increasing use of fossil fuels. An appraisal and understanding of the place of CO_2 in our environment requires an examination of the whole terrestrial carbon cycle.

That carbon cycle is represented diagrammatically in Figure 3. Carbon dioxide enters from earth to atmosphere in three main ways. First is the origin in respiration of all living animals plus that

which arises from decaying vegetation. Although this quantity must be considerable, we cannot measure it, and it must be derived indirectly. Volcanoes and the combustion product of burning wood due to land reclamation, usually considered together, is 1.5 billion tonnes of carbon per year. The aforementioned CO_2 product of burning fossil fuels is 6.5 billion tonnes of carbon.

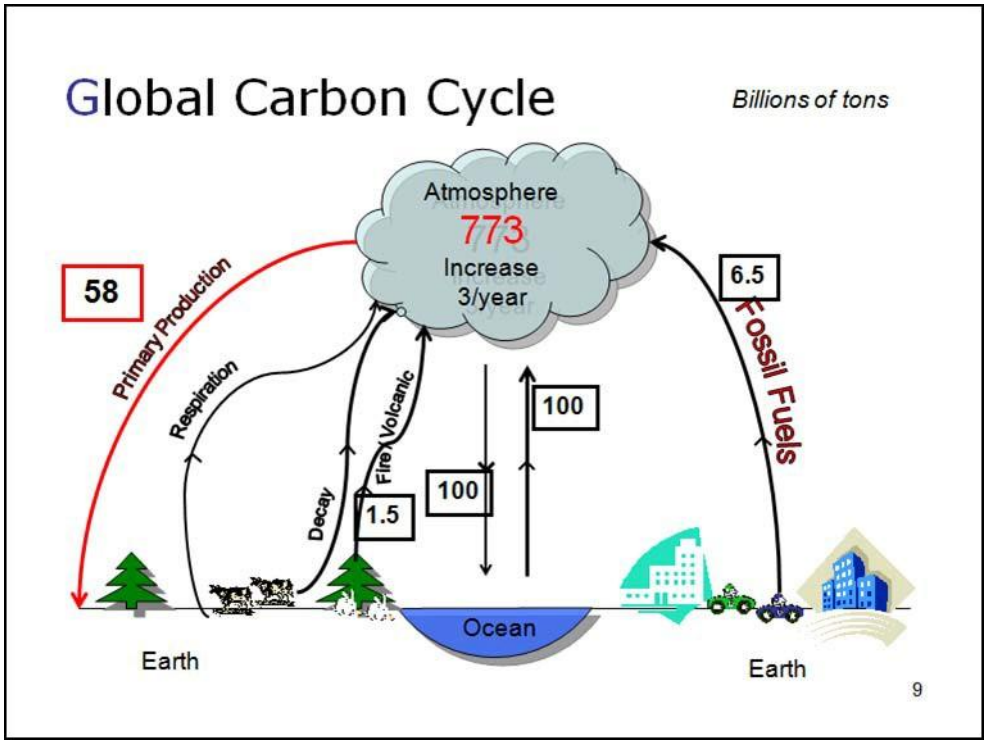


Figure 3

Carbon dioxide is withdrawn from air by the photosynthetic activity of chlorophyll in green plants which use the energy of the sun to generate biomass. This material, which is the basis of all life on earth, is now referred to as Primary Production. Global Annual Primary Production represents the amount of atmospheric carbon dioxide absorbed for photosynthesis. If we can measure Primary Production, we can calculate the amount of carbon dioxide taken from the atmosphere. Over the last two decades, attempts have been made to arrive at this quantity, but quantification on a global scale was uncertain.

The successful launching of two satellites in 2002 which provide a measure of chlorophyll on earth, provided the possibility of using integrated field work along with the satellite mapping to arrive at a measured estimate of Global Annual Primary Production. This was presented in a publication by S.W. Running *et al*. (1) in 2004 as containing 57.7 billion tonnes of carbon. This number is entered in Figure 3 rounded to 58 billion tonnes. It is thus possible to calculate that the terrestrial CO_2 derived from respiration and decay is 53 billion tonnes.

The interchange between air and ocean appears at the bottom of Figure 3 showing movement of carbon dioxide in both directions. This process has been known for a long time but evaluation is difficult. Carbon dioxide concentration in air is not altered by other substances in air, but sea water contains marine life as well as chlorophyll containing phytoplankton which live and grow on CO_2.This separate carbon cycle will have widely varying levels of CO_2. Where marine life is active, CO_2 levels will be high and the gas will diffuse into air. Where phytoplankton flourish, CO_2 levels will be low and CO_2 will diffuse into sea water.

As part of a research effort in fisheries, the Pacific Marine Environmental Laboratory in Seattle, has anchored CO_2 measuring instruments at convenient sites to determine partial pressures in air and sea. (2) These records, along with similar data obtained from ships at sea, were used to calculate flow rate in both directions. Results of this research have been published in several places, but I will use figures provided by the Wood's Hole Oceanographic Institute on Cape Cod. (3). These are entered on Figure 3. Transfer rates seem high at 100 billion tonnes of carbon per year, but it must be noted that this is across 130 million square miles of air-ocean interface.

We now can compare the contribution of combined natural sources to atmospheric CO_2 with anthropogenic sources such as burning coal, oil and gas. The natural sources contribute (100 + 53 +1.5) more than 20 times as much carbon as does the anthropogenic source (6.5). Or putting the contrast in another way, the part of the carbon cycle which removes CO_2 from the atmosphere onto land (58) and into the sea (100) takes all but 2% of the input (53+ 1.5 +100 + 6.5). A substantial reduction in fossil fuel CO_2 would only result in an insignificant reduction in the total input of CO_2 to the atmosphere.

Measurements of the natural components such as Primary Production have an estimated margin of error of about 10%. Atmospheric CO_2 and fossil fuel output for various reasons are remarkably accurate with an error of about 2%. However, evidence that fossil fuel is the sole source of the gradual increase of atmospheric CO_2 seems to be lacking.

Although CO_2 is an important greenhouse gas even at a low concentration in the air and assumed to be the important element in global warming, there have been some discrepancies. A graph of global mean surface temperature is shown in Figure 4. Here from 1880, which is about as early as we can go, temperature was uniform for forty years, followed by a steep rise to 1940. From there until 1965 there was a marked cooling. In the early 1960's, there was some fear that we were entering another ice age. Referring again to Figure 2 we see that although the record at Mauna Loa began in 1958 with CO_2 at 315 ppm, the authors indicate a level of 306 ppm in 1940. Thus, there was a rise in CO_2 while the global surface temperature went down. This simply suggests that other elements, probably climatic, have some bearing on global

warming. Arguments have been made that the cooling was due to an increase in volcanic activity during this period. I have not seen a survey that supports this explanation.

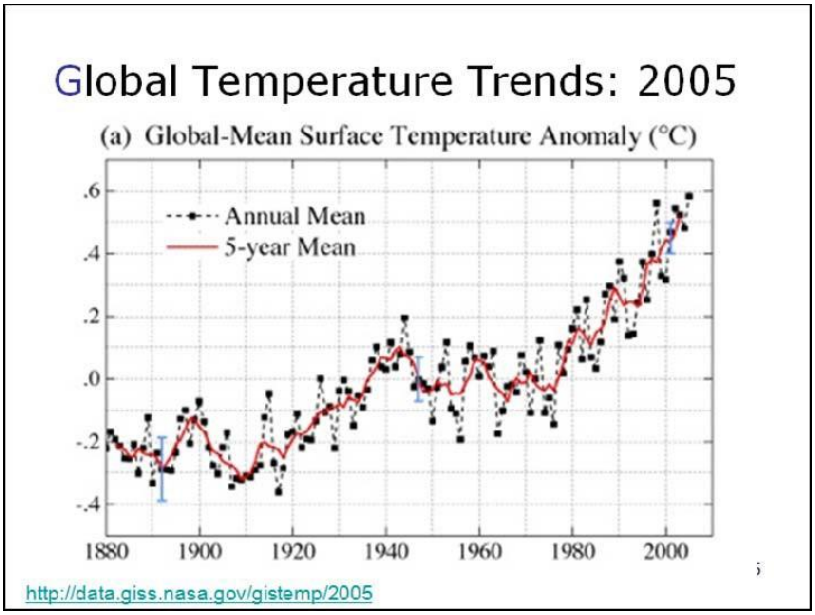


Figure 4

Figures 5 and 2 show that both fossil fuel consumption and atmospheric CO_2 have increased from 1950–2000. Although global warming has been attributed to increases in atmospheric CO_2 and, although both fossil fuel consumption and CO_2 levels have increased from 1950, it is curious that the magnitude of change is very different. Fossil fuel consumption has increased 250 % while atmospheric CO_2 has increased only 14 %. There may be more than CO_2 production from fuels involved in global warming. How much does atmospheric water vapour contribute to global warming? Interestingly NASA plans to use satellites to measure global atmospheric water vapour.

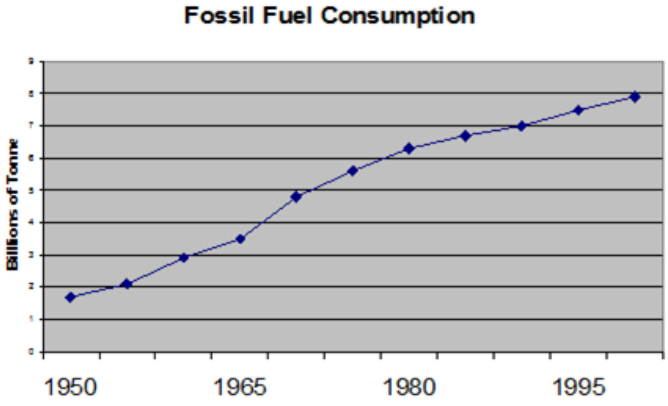


Figure 5

In conclusion, global warming is not in doubt although there is some question as to exactly what drives it. It is also certain that the warming is anthropogenic and due most likely to our expanding use of coal, oil and gas.

As a final note, our ability to precisely measure atmospheric carbon dioxide and to estimate carbon dioxide emitted by fossil fuels has made it inevitable that the two would be linked.

References

(1) A Continuous Derived Measure of Global Primary Production. S.W. Running *et al*. BioScience 54 No.6 p547 June 2004.

(2) Pacific Marine Environmental Laboratory, Seatle , Washington. http//www.pmcl.ndra.gov/co2-home.html

(3) http//www.whte.org/carbon/index.htm.

What Did Radisson Know?

Germaine Warkentin

RESEARCH MARCHES ON! Since I wrote this paper, I've discovered that Radisson didn't write what he knew the way I thought he had. The documents describing his geographical ideas turn out in large part to record de-briefings by the Abbe Claude Bernou, interviewing and editing what Radisson told him. To find out the details, see my article, "Radisson Èdité par l'Abbé Bernou: Les Prétendues «Pétitions» de 1677 et 1681." In éditer la nouvelle france, ed. Gré goire Holtz and Andreas Motsch. (Qué bec, Les Presses de l'Université Laval, 2011), 151-175. Or, if you like, see Appendix A of my forthcoming Pierre-Esprit Radisson,The Collected Writings, vol. 2: The Port Nelson Relations, Miscellaneous Writings, and Related Documents (The Champlain Society and McGill University Press, Fall 2014).

Let's begin not with "What did Radisson know?" but "What do we know about Radisson?" Probably lots, if we were brought up in Canada, where Radisson and his brother-in-law Groseilliers are remembered as the hairy-chested wilderness men, "Radishes and Gooseberries," that we of a certain age learned about long ago in school. Most people think Radisson is the guy who owns the hotels. But if you read his *Voyages* and other documents, which I'm editing for the Champlain Society, you encounter a man who amply justifies the epithet, "this mercurial genius" one historian has applied to him.[1] Where did he come from, what were his experiences, what did he write about, and most important, what did this unusual man know?

Born in France sometime in the mid- or late1630s to a family from around Avignon, Radisson may have been born in the south himself. He died in London in 1710, a pensioner of the Hudson's Bay Company (HBC) and a "decay'd gentleman," as a melancholy entry in the parish burial register of St. Clement Danes describes him.[2] In between, he and his brother-in-law Groseilliers had a major effect on the map of today's Canada, because in the late 1660s they managed to persuade Charles II to establish the Hudson's Bay Company. We are *up here,* and the Americans are *down there*, in part because of what Radisson and Groseilliers were able to persuade Charles II to do.

What the two of them knew about North America was based on their lives in New France in the 1650s, on their explorations of northern New York State and the area around the Great Lakes, and in the 1680s of the west coast of Hudson Bay. Radisson arrived with his half-sister at Trois Rivières in 1651; she married Groseilliers in 1653. Shortly after his arrival the young Radisson was captured and adopted by Mohawks, and he came very close to staying with them forever. The social network of these explorers was thus impressive, including not only French settlers, Huron friends, and a Mohawk adoptive family, but eventually the five fabled Kirke brothers who held Quebec from 1629-32, one of whose daughters Radisson would marry in the early 1670s. The two adventurers thus understood what the economic resources of the interior of North America might be, and had the contacts to exploit them. Scorned by the governor of New France they took their knowledge to London, and the rest is history.

---

1. E.E. Rich, *The History of the Hudson's Bay Company 1670-1870*. 2 vols. (London: Hudson's Bay Record Society, 1958), I. 307.

2. For biographical details, see Germaine Warkentin, "Pierre-Esprit Radisson," *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004).

Radisson wrote six journals of his travels. The first four are in a fascinating Francophone English, and were long thought to be some sort of translation. Editing Radisson for the Champlain Society, I've found that the copyist was Nicholas Hayward, a scrivener skilled in French translation and a member of the London Committee of the HBC. He would never have produced anything like what Radisson actually seems to have written in his own exuberant English. The sole piece of writing in Radisson's own hand is a letter exhibiting a perfectly acceptable small, practised hand of the period; clearly he had some education. There is also a beautiful manuscript atlas in Chicago's Newberry Library: once owned by none other than Elizabeth I's chancellor, Lord Burghley. Later on Radisson owned it too, and on the flyleaf put his name to say so. 'J'apartiene a pierre Esprit Radisson serviteur du Roy de la grande Bretaigne a tous sont qui ces presente.' *[I belong to Pierre Esprit Radisson, servant of the King of Great Britain, as this testifies to all.]*[3]

There exists no other direct evidence of his intellectual life; no other books he owned, no prose treatises, and no letters exchanged with entrepreneurs or savants. Nevertheless Radisson gives us much to study. He was a superb raconteur, but if his writing is full of bravado, it's also candid about his fears. He was a supremely confident role-switcher, sometimes the conquering European, sometimes the war-like Mohawk, always experienced and wary, whether in the wilderness or in a courtly environment. Thoughtfully analyzed, his writings reveal the knowledge base of a seventeenth-century man, apparently a gifted linguist, who could survive for seventy years between France and England, between Algonquin and Iroquois, between royal court and London tenement.

Radisson was a man of the very late Renaissance – pre-revolutionary, pre-enlightenment, and to a degree even pre-mercantile. The south of France where his family originated was a world apart from Paris: sun-bleached, arid, thinly populated, with a very ancient history, and legally not French at all, for Avignon was part of the Papal States; one HBC man termed Radisson an Italian. The social structures he would have known as a child were intensely hierarchical, based on local patron/client relationships that ran back for generations. He evidently acquired an education (uncommon among non-aristocratic Frenchman in his day) but not likely an elite one, for there are no classical, literary or historical references in any of his writings. He knows more than one would expect about boats, so perhaps he was intended for the sea. If he followed French custom at the time he would have left school at fourteen or fifteen. When he came to

3. For the documentary sources for Radisson's writings, see Grace Lee Nute, *Caesars of the Wilderness: Médard Chouart, Sieur des Groseilliers and Pierre Esprit Radisson, 1618-1710* New York, 1943; Germaine Warkentin, "Radisson's *Voyages* and their Manuscripts," *Archivaria* 48 (Fall, 1999): 199-222, and "Who was the Scribe of the Radisson Manuscript?" *Archivaria* 53 (Spring, 2002): 47-63.

New France in 1651 he seems to have been about that age, and that was when his *real* education began.

To have written his first four journals in that delightful Francophone English I mentioned should not surprise us, because Radisson emerged from a linguistically very complex environment; there were a number of languages and dialects in the France of his day. Amidst such plurality, linguistic ability was a key to survival as the centralizing drive of the emerging French state increasingly imposed the concept of a "national" language. Radisson's English is stumbling in the First Voyage but improves as he continues to write, though he never conquers the mysteries of the English verb. He reveals a surprisingly large vocabulary, easily using bookish words like "circumjacent" and "equipolent". There are familiar words with obsolete meanings: "off-spring," meaning tributary, and "filthy," sometimes meaning "murky." There are words now entirely lost to us like "waynage," possibly meaning some sort of tackle, or "wagg" meaning "to move from place to place." Furthermore there is a noticeable underlay of the proverbial in his discourse, which would suggest his social formation in a situation where the ancient languages and dialects of old France were still current. For example, near the end of Voyage IV Radisson writes, "those of New England in generall made proffers unto us of what ship wee would [take] if wee would goe on in our Designes, but wee answered them that a scalded cat fears the water though it be cold ." This habit of using proverbs crops up even in depositions made late in life.

Despite Radisson's role in the formation of a major trading company, he really belonged to the court-dominated society of the early modern period, rather than the mercantile one of the later seventeenth century that formed other fur traders. Anyone who tried to rise in such a hierarchical world was enmeshed in a complex web of obligation, prudence, and self-interest. In such a situation the courtier's sense of the justice or injustice of his treatment was paramount, and in his later life Radisson constantly depicts himself as a man who has served his masters well but has never been rewarded. Note that in asserting his ownership of the Newberry atlas, he described himself as "serviteur du roi." In the 1670s this was no casual statement, but an individual's clear signal of his status. Another vital feature of late Renaissance life, in both France and England, was religion, which was an intensely political issue as well. Radisson's shape-changing makes it difficult to identify his religion for certain, a problem others also had; his sometime patron the French Abbé Claude Bernou grumbled that he suspected him of wavering in his Catholicism. In fact, all three of his wives were Protestants, so the Abbé may have not been far wrong.

Three documents – two *memoires* ca. 1677 and 1681, and a narrative of 1697, the latter for the Hudson Bay company – suggest what Radisson's geographical and economic ideas might have

been.[4] They display a fascinating mixture of traditional French geographical knowledge (in 1681 at least he believed in the notion of a Western Sea) and English seafaring canniness (he and Groseilliers gained their early fame by saying they could prove the existence of a North-West passage). The petition of 1677 is an expert account of the geopolitical position of the French in early Canada, essentially the same one offered by historians today. However, though Radisson has a fair sense of the scope and size of the continent, when he brags about its riches it's pretty clear that his knowledge is confined to those areas he has visited.

What where his sources of information? Every sailor and trader encountered sea-port gossip, but that can rarely be documented. However, Radisson refers several times to maps and charts, and his atlas in the Newberry is devoted not to the Americas but to Europe and the eastern Mediterranean. He would certainly have encountered maps and charts in the chambers of the geographical Abbé Bernou and among the investors in the HBC. In 1684 Lord Preston, the English Ambassador in France, described his arrival at La Rochelle from New France*: "I hear Radisson is come charged with a great number of them,* [maps and charts] *which are doubtlesse drawne for his purpose."*[5] In 1697 Radisson referred easily to the "Old Authors who give no limit to Canada to the North." What old authors would he have read – indeed, what books would Radisson have known, and where would he have obtained them? In Voyage II he mentions the Jesuit *Relation* of 1648-49 describing the martyrdom of Jean de Brébeuf. The relatively sophisticated vocabulary of Voyage IV certainly indicates that he was reading *something*; perhaps some collection of travels.

Yet how would he, chronically hard-up, have obtained access to such books? There were no public libraries in seventeenth-century London. Ecclesiastical libraries existed, but the one great collection of manuscripts and books, that of Sir Robert Cotton, was almost inaccessible at this time. Thus any gentleman who needed research materials – even men like Sir Roger Twysden, the historian, or Sir Edward Dering, the antiquary – had to rely on the volumes he himself owned or could borrow from learned friends. Chances are Radisson owned other books besides the atlas, but so far none has come to light. And there was certainly no larger collection in London accessible to a man without a patron.

Oddly, it is the deeply suspect Voyage III that suggests who that patron might have been. It purports to chronicle a journey that took Radisson far enough south into the present day USA to encounter the sources of the Mississippi. Though Radisson says he was accompanying Groseilliers, the presence of his signature on a document in Quebec at precisely that time

---

4. All three are reproduced in Nute, *Caesars of the Wilderness*; see her Appendices 3 (1677), 5, and 12.

5. Preston Papers, BL Add. 63760, f. 19v.

suggests he could not have done so. But if few Radisson scholars have accepted the Third Voyage at its word, its very gaps prompt us to think about the conditions under which all four early Voyages were composed. When Radisson composed the first four *Voyages* in London he was waiting for Groseilliers to return from the trip to Hudson Bay from which Radisson's ship, the *Eaglet*, had been turned back by bad weather.

The storm-beaten *Eaglet* put into Plymouth to refit on August 7, 1668. Radisson is recorded as once more receiving his allowance from the investors in the proposed company beginning on November 6, so from that date he would have had means to support himself in London.[6] But what was he doing in the intervening three months? I think that frustrated of his voyage and almost certainly without means, he headed for his patron and stayed either with Prince Rupert or at one of his houses until his allowance was restored. During another difficult period in 1674, it was Prince Rupert he turned to. In 1668 the Prince was easily accessible either at his new London house in Spring Gardens or at Windsor Castle, where as governor of the castle he was decorating the Round Tower with emblems of battle and exploration.

In the legendary freedom surrounding Charles II, the "courtier in buckskin" and the man Lord Orford called a "savage mechanic" would certainly have met.[7] The charismatic and soldierly Rupert was deeply interested in exploration. He was a master of the major European languages, a mathematician, with artistic tastes, and absorbed in everything military. This "glamourous and courageous" personage is just the sort of man Radisson would have been attracted to.[8] The prince was involved in plans for the new company as early as December, 1667, and his secretary Sir James Hayes was continuously involved in Radisson's tumultuous affairs from 1668 until 1685. Though Radisson was not the man to shrink from calling on a noble patron, even so, had he been reluctant to approach Rupert, Hayes could have made it easier, as he later – grumblingly – made so many things easier for Radisson. None of the other men in the circle of prospective company investors is known to have been a book collector. Prince Rupert, however, had an excellent library, catalogued in 1677, for use in his chemical and entrepreneurial research.[9] Long ago Grace Lee Nute took note of Rupert's library, but she never

---

6. See Nute, *Caesars of the Wilderness*, 115.

7. For the "courtier in buckskin" see Philip Child, "Pierre Esprit Radisson and the Race of *Coureurs de bois*," 416. *University of Toronto Quarterly* 9.4 (1940), 416. Lord Orford's remark is quoted by Eliot Warburton, *Memoirs of Prince Rupert and the Cavaliers* (1849), III, 491.

8. Ian Roy, "Prince Rupert," *Oxford Dictionary of National Biography.*

9. The catalogue is now in the British Library: Ms. BL Sloane 555.

went on to ask whether Radisson had access to it. I think he may have, in fact I'm not sure where else he could have consulted those "old authors."

To conclude, then, what did Radisson know? If we map the boundaries of his knowledge, what we find is a man from an ancient, barren and remote part of France, who grows up in a pluralistic linguistic environment. He has an education of some sort, may possibly have been a secret Protestant, is left to make his own way and follows his half-sister to New France. When she marries into the Groseillier clan he adds their connections to the Mohawk ones he has unexpectedly acquired, and these are enriched by his later marriage into the Kirke family. He is a man of the late Renaissance, with a respect for court patronage and the political symbols by which it is communicated. He calls himself a servant of the king, and his contacts in France like the Abbé Bernou are likewise denizens of the court, as were eventual patrons in England such as the earl of Marlborough. He knows about boats, and maps and charts. There is no time to point out his apparent musicality, his modesty on sexual topics, and his sociability. He has an expert's sense of the place of New France in the Americas, environed as it is by the English, the Spanish, and the many Native nations he has encountered, but he is sufficiently a risk-taker to romance about the rest. And he may have filled out the half-remembered details of his brother-in-law's reminiscences about that Mississippi voyage with information sifted from books in his patron's library. This, at least, is the Radisson I meet with as I edit and annotate his writings. Whether it will be the Radisson I am left with at the end of my project remains to be seen.

Nervous Investigations with the Fruit Fly *Drosophila*

Harold L. Atwood and Balaji Iyengar

The fruit fly, *Drosophila melanogaster*, was selected early in the 20th Century as an organism of choice for studies in genetics, and many basic features of modern genetics emerged from resulting investigations. Much more recently *Drosophila* has been adopted by neuroscientists as a genetically amenable "neural organism" – one in which basic mechanisms of synapse formation, synaptic transmission, and complex behaviour can be measured and analyzed, with the advantages of superior genetic procedures to aid analysis of gene functions in the nervous system. An added attraction is that *Drosophila* shares many basic behavioural and genetic characteristics with higher organisms, including mammals. In a current project, we seek to link specific nerve cells to initiation of movement using genetic techniques to modify neurotransmission.

Important discoveries from *Drosophila* which have proven to be fundamentally significant for nervous system functions include several ion channels and molecules that regulate neurotransmitter release. One of these is a protein now known as Dynamin which was found as a result of the pioneering work of David Suzuki's laboratory on temperature-sensitive mutants (Grigliatti *et al*., 1973). When populations of *Drosophila* susceptible to genetic mutations were exposed to abnormally high temperatures, a small number became paralyzed, but recovered when the temperature was reduced to normal. These flies produced stable stocks in which the temperature sensitivity was retained. One of the genes responsible for the temperature sensitivity was called *shibire* (a Japanese word meaning paralyzed). Physiological studies by Kazuo Ikeda and co-workers (Koenig *et al*., 1983) revealed that the *shibire* mutant has abnormal synaptic transmission because synaptic vesicles, found in the presynaptic nerve endings and responsible for chemical synaptic transmission, are depleted by activity at high temperatures and can not be re-formed (Kawasaki *et al*., 2000). The Dynamin protein made by the *shibire* gene is required for re-formation of synaptic vesicles by presynaptic membrane retrieval (Figure 1). It utilizes energy derived from splitting an energy-storing compound, guanosine triphosphate (GTP; Damke *et al*., 2001). The mutant protein is not able to function normally at temperatures above 29^0 C due to a change in its amino acid sequence which alters its functional characteristics. The discovery of the Dynamin protein in *Drosophila* led to its discovery in synapses of other phyla; it is an essential component of mammalian and human synapses.

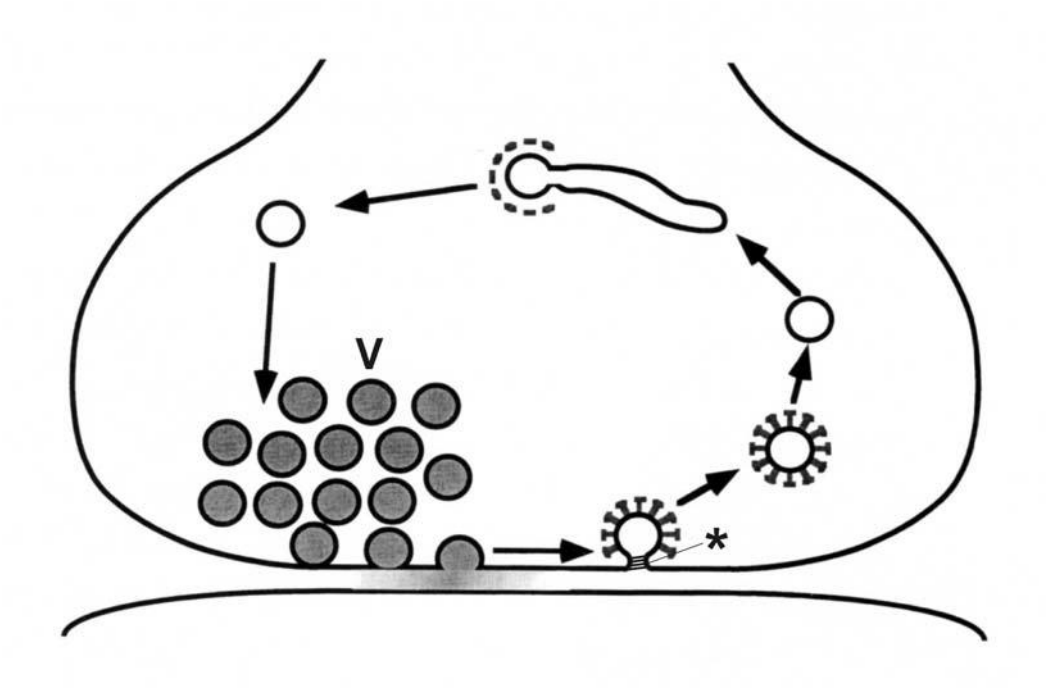


Figure 1. Diagram of the recycling of synaptic vesicles in the presynaptic nerve terminal. Recycling is responsible for sustaining synaptic transmission during nervous activity. The Dynamin protein acts at the stage of vesicle retrieval from the surface presynaptic membrane (asterisk). After several steps of intracellular processing, the recycled vesicles are re-filled with neurotransmitter (V) and can be used in neurotransmission. Mutant Dynamin blocks retrieval at 29^0 C or above.

The temperature-sensitive *shibire* mutation provides a method to analyze the roles of individual nerve cells, or small groups of them, in behaviour. With modern techniques of genetic manipulation (Lee and Luo, 1999), one can introduce the mutant gene into one or a few nerve cells in the *Drosophila* nervous system (Figure 2). Then, when the temperature is raised, the nerve cells encumbered with the mutant protein become reversibly incapacitated; their synaptic transmission fails, but is restored when the temperature is lowered. Behavioural acts that require these neurons are consequently altered at the elevated temperature. The neurons responsible for the altered behaviour can be visualized in the nervous system by including the gene for Green Fluorescent Protein (which does not affect synaptic transmission) as a transgene expressed in the same neurons as the mutant Dynamin protein (Iyengar *et al*., 2006). The connections of the marked neurons within the nervous system can then be traced, and eventually a circuit responsible for the observed behaviour can be defined.

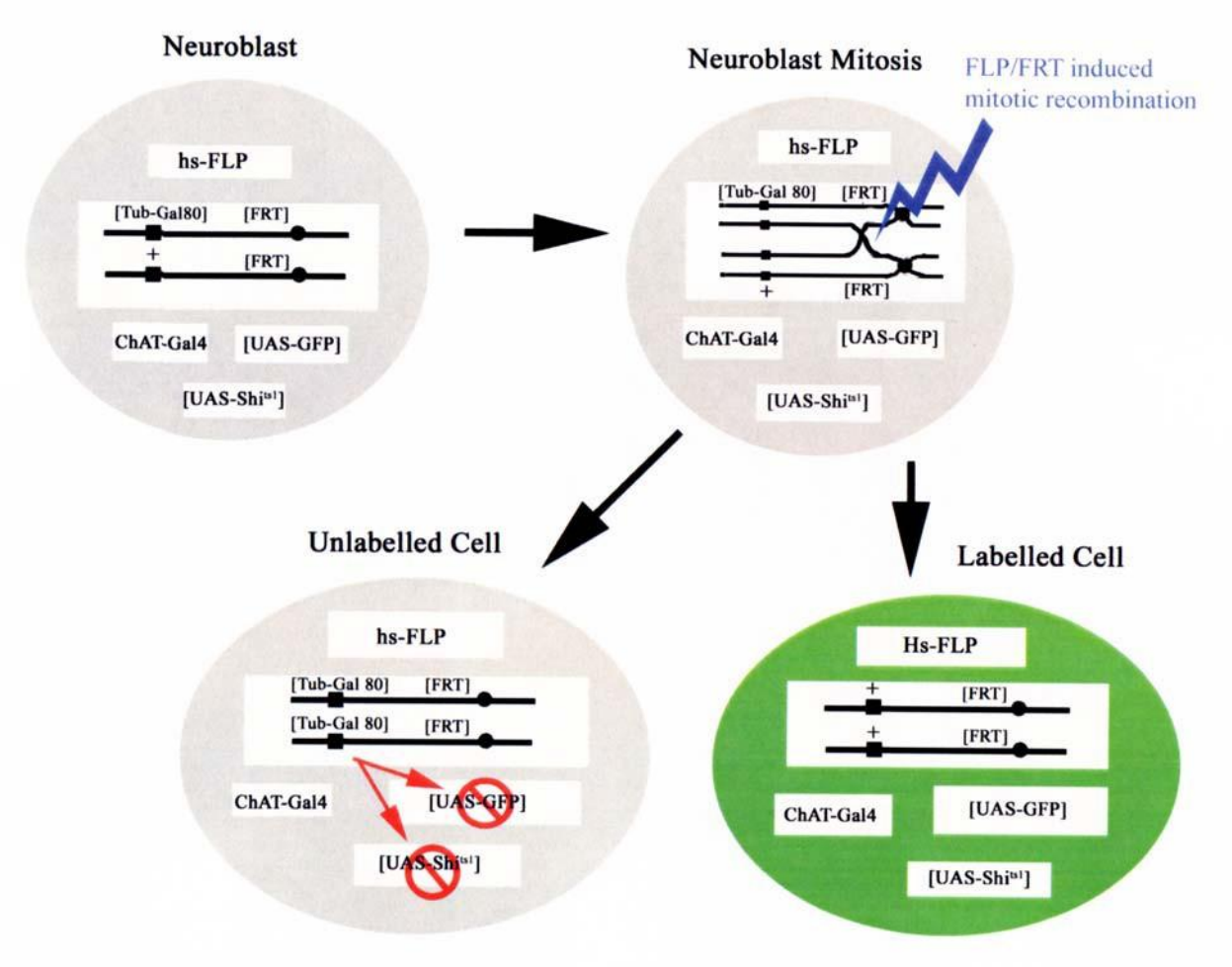


Figure 2. Diagram of the procedure for producing small sets of *Drosophila* neurons that express both Green Fluorescent Protein (GFP) and mutant Dynamin (from the M.Sc. Thesis of Jennifer Chou, Department of Physiology, 2006). The strategy used to create GFP-tagged, random neuronal clones is known as MARCM (Mosaic Analysis with a Repressible Cell Marker; Lee and Luo, 1999). This method is based on the creation of a heterozygous individual, in which homozygous neuronal cell lines are randomly generated, thus creating a mosaic nervous system. The generation of homozygous cells depends on induced mitotic recombination triggered by the heat-sensitive FLP-FRT system: the FLPase enzyme acts on the FRT recombination sites to induce chromosomal recombination.

The gene for yeast transcription factor Gal4 is introduced into the Drosophila genome under the choline-acetyltransferase (ChAT) enhancer. Thus, Gal4 will be produced in cholinergic neurons, which are numerous in the central nervous system. The parental females carry two UAS contructs, UAS-GFP and UAS-shits1. The Upstream Activator Sequence (UAS) promotes production of GFP and mutant Dynamin when Gal4 is available. However, the male parent carries a gene for the repressor of Gal4-induced transcription called Gal80, linked to the Tubulin enhancer. The progeny will contain cells that are heterozygous for the expression of Tubulin-linked Gal80 (Tub-Gal80). The progeny cells will not express any of the UAS genetic contructs due to Gal 80's binding to the UAS sequence, which prevents access for Gal4. The introduction of the FLP-FRT system into the parental genomes enhances mitotic recombination. Recombination events, which occur at low frequency, will produce two kinds of daughter cells. The unlabelled ones have two copies of Tub-Gal80, and there will be no production of protein by

the UAS constructs. The labeled cells lack Tub-Gal80; the Gal4 transcription factor, driven by the neuron-specific choline-acetyltransferase (ChAT) promoter, will activate the transcription of the two UAS constructs. This will label the cells green with GFP. Also, the mutant *shibire* gene will produce mutant temperature-sensitive Dynamin protein, leading to silencing of the neuron's synaptic transmission when the ambient temperature is raised above 29 degrees C (the 'restrictive temperature'). (MARCM procedure for cholinergic neurons was developed by Dr. Balaji Iyengar).

In our preliminary studies utilizing this procedure, we have found that locomotion in the *Drosophila* larva can be affected by inactivation of small numbers of nerve cells within the central nervous system. Normally, the larval *Drosophila* crawls through its food with a regular peristaltic action. Inactivation of small groups of neurons projecting to or from the last abdominal ganglion disrupts rhythmic locomotion. Also, neurons projecting to or from specific small synaptic centers in the brain affect initiation and speed of locomotion. These experiments have defined regions of the nervous system that participate in initiation and maintenance of locomotion. The network appears to depend on participation of small numbers of strategically placed nerve cells.

The method of reversible inactivation of synaptic transmission is one of several new approaches to nerve cell function in *Drosophila*. Another procedure is based on light-activated channels which cause extra activity in nerve cells upon illumination. All of these procedures that depend upon genetic manipulation are much easier to implement in *Drosophila* than in other organisms that exhibit highly developed behaviour.

Acknowledgements: Research was supported by a Discovery Grant from NSERC, Canada. Contributions to the research project were made by Jennifer Chou, Marianne Hegström-Wojtowicz, and Professor Ana Campos (McMaster University).

References

Damke, H., Binns, D.D., Ueda, H., Schmid, S.L., and Baba, T. (2001). Dynamin GTPase domain mutants block endocytic vesicle formation at morphologically distinct stages. Mol. Biol. Cell 12: 2578-2589.

Grigliatti, T.A., Hall, L., Rosenbluth, R., and Suzuki, D.T. (1973), Temperature-sensitive mutations in *Drosophila Melanogaster*. Molec. Gen. Genet. 120: 107-114.

Iyengar, B.G., Chou, C. J., Sharma, A., Atwood, H.L. (2006). Modular neuropile organization in the Drosophila larval brain facilitates identification and mapping of central neurons. J. Comp. Neurol. 499: 583-602.

Kawasaki, F., Hazen, M., and Ordway, R.W. (2000). Fast synaptic fatigue in *Shibire* mutants reveals a rapid requirement for Dynamin in synaptic vesicle membrane trafficking. Nature Neuroscience 3: 859-860.

Koenig, J.H., Saito, K., and Ikeda, K. (1983). Reversible control of synaptic transmission in a single gene mutant of *Drosophila Melanogaster*. J. Cell Biol. 96: 1517-1522.

Lee, T., and Luo, L. (1999). Mosaic analysis with a repressible cell marker for studies of gene function in neuronal morphogenesis. Neuron 22: 451-461.

Voltaire's Relations with the Publishers of His Complete Works (1748-1752)

David Smith

My paper is part of an ambitious new international project – to prepare a physical bibliography of all eighteenth-century editions (about 20) of Voltaire's *Œuvres complètes*. The main purpose of a physical bibliography is to describe the physical attributes of an edition and the circumstances surrounding its publication and reception. I have taken on five editions: two published by George Conrad Walther of Dresden in 1748 (8 volumes) and 1752 (7 volumes), two by Robert Machuel of Rouen in 1748 (12 volumes) and 1750 (9 volumes), and one by Michel Lambert of Paris in 1751 (11 volumes).

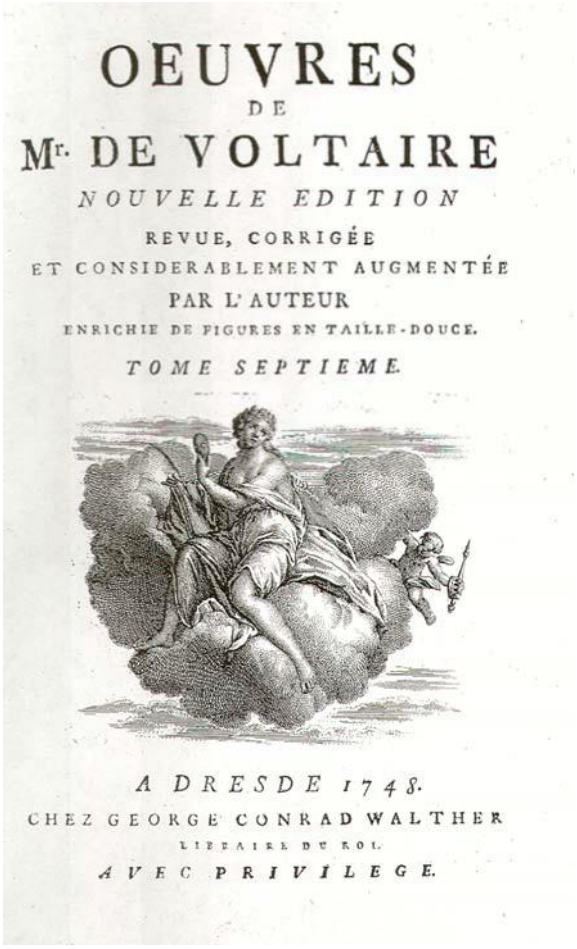
Why have I chosen this limited corpus? Having reached "a certain age", I deemed it unwise to take on more. And the period I have selected has its own logic, being placed between two editions of his works that the author supervised on the spot: the Ledet edition of 1743 and the Cramer edition of 1756. Finally, the 1740s and 1750s are the area in which I have done most of my previous work.

I propose to trace Voltaire's relations with Walther, Machuel and Lambert to determine his purposes and his methods when publishing his complete works. This brief enquiry will reveal not only aspects of Voltaire's character but also his values and his priorities.

Voltaire is well known today as the author of *Candide* and for his reference to Canada as "a few acres of snow" not worth fighting for. He is also known for his poetry, tragedies and histories that made him the most famous European writer of his day. He was so prolific that the nineteenth-century standard edition of his complete works has 52 volumes while the first Besterman edition of his correspondence has 107 volumes. Less well known is the fact that he was also an astute businessman, one of the richest men in France, for whom the profits from his literary works were but a drop in the ocean.

The five editions under consideration were all printed and published in cities remote from the author who, between his return from England in 1729 and his departure for Prussia in 1750, lived mostly in France. He had abandoned hope of publishing his *Œuvres complètes* in the capital, because he was convinced that the French censors would never permit the inclusion of works such as his *Lettres philosophiques* that had already been condemned as anti-religious. This explains why he gladly accepted the 1747 offer by Walther, publisher to the Saxon court in Dresden, where the local censorship was tolerant of French works.

Remembering previous brushes with the French authorities, Voltaire probably did not participate in the 1748 edition brought out by Machuel, the Rouen publisher of clandestine works. In fact, Voltaire vigorously denied all complicity in this edition and reported it to the authorities, describing it as full of apocryphal irreligious material. He succeeded in having it suppressed.


OEUVRES
DE
Mr. DE VOLTAIRE
NOUVELLE EDITION
REVUE, CORRIGÉE
ET CONSIDERABLEMENT AUGMENTÉE
PAR L'AUTEUR
ENRICHIE DE FIGURES EN TAILLE-DOUCE.
TOME SEPTIEME.
A DRESDE 1748.
CHEZ GEORGE CONRAD WALTHER
LIBRAIRE DU ROI.
AVEC PRIVILEGE.

However, when he was safely in Prussia, he was able to participate discreetly in Machuel's second clandestine edition of 1750. Voltaire sent him instructions based on the Walther 1748 edition. The originals have been lost, but their contents have been clearly described in sales catalogues. Moreover, this 1750 edition contains a few new works that must have been sent to Machuel by Voltaire. Dealing with this publisher was a risky business. He was a specialist in secretly bringing out works that the censor would not allow, but at the same time he might publish works that Voltaire preferred to disown.

Soon after his arrival in Berlin in 1759, Voltaire was astonished to discover that Malesherbes, the new director of book trade in France, had authorized Lambert to publish everything that was in the Walther 1748 edition, including even the *Lettres philosophiques*. Clearly, as with the

great *Encyclopédie*, Malesherbes was anxious to retain within France any commercial profits arising from these publications. Voltaire was even more astonished to hear that Lambert had undertaken his 1751 edition without consulting either the author or his mistress and niece, Marie-Louise Denis, who was acting as his agent in Paris. Voltaire quickly intervened, sending Lambert detailed instructions, which have survived, and new works such as his short story *Micromégas*.

Finally, Voltaire collaborated with Walther in producing his second 1752 edition, but the author was in Berlin or Potsdam, the publisher was in Dresden, and the printer, Breitkopf, was in Leipzig. Communication among them was not easy.

After falling out with King Frederick in 1753 and leaving Prussia, Voltaire would have liked to return to Paris, but despite the intervention of Mme de Pompadour, Louis XV obliged him to stay well away from the capital. He settled finally in Geneva where he spent the rest of his life, only returning in 1778 to Paris where he died at the age of 84.

Thus during all the period under consideration, Voltaire was obliged to send his texts to his publishers by post, by courier or in the diplomatic bag. Sometimes he sent them a copy of a previous edition of his works, indicating either on slips of paper stuck on the leaves or on separate sheets the revisions to be made in the new edition. More often, he assumed that his publisher already possessed the latest edition of his works. The Walther 1748 edition was thus based on the 1743 Ledet edition and itself served as copy text for the Lambert 1751 edition.

The great drawback of publishing in a distant city and especially in a different country was that the author was unable to correct the proofs of any of the five editions in question. Shipping proofs from Paris or Rouen to Prussia, or from Leipzig to France was impossible. Breitkopf could perhaps have sent proofs from Leipzig to Berlin for the second Walther edition, but he may not have had enough type to enable him to wait for their return and would thus have had to lay off pressmen. (Printers usually had enough type for five or six sheets; then the type had to be distributed for use for the next sheet.) Voltaire may have felt it unnecessary for him to do his own proofreading when the compositor had set up his texts from a printed edition. The only work he is known to have proofread was *Micromégas* for the 1752 Walther edition, doubtless because it was submitted in manuscript. We will see that he used other methods to ensure the accuracy of his texts.

Why during this period did Voltaire deal with three different publishers? Mainly to ensure that his works reached as many readers as possible. No publisher had the monopoly of the European market. Though we do not have enough documentation to know where these three publishers distributed their products, it seems safe to say that their markets overlapped very

little. We know, for instance, that Walther's 1748 edition, though it sold out quickly, was not readily available in France.

To make editions of his works affordable, Voltaire advised against large formats. The two 1748 editions were in octavo, but thereafter Voltaire insisted that new editions be in the smaller duodecimo. This meant that the type used was smaller, less paper was consumed, fewer volumes were needed, and the end product was less expensive. (It should be noted that the cost of paper relative to that of labour was much higher in the eighteenth century than it is today.) King Frederick of Prussia, who was thrifty but could afford products of high quality, disapproved of Voltaire's policy: "I think it would have been more convenient for readers," said the king, "if the size of the type and the number of volumes had been increased."

At the same time, Voltaire wanted to ensure that the text of his works was as accurate and authentic as possible. Being in no position to correct proofs, he insisted on seeing each volume as soon as it had left the press and on making any necessary changes in the form either of cancels (that is, replacement leaves) or an errata page. In the case of Walther's 1748 edition, Voltaire went to extraordinary lengths to improve the presentation copies intended primarily for royalty. Not only did he correct their errors by hand, but he also hired a Berlin printer to produce new works and new additions, which he then proceeded to have bound into the presentation copies.

What were his methods of ensuring wide distribution of his works? Being superb at publicity, Voltaire systematically launched a campaign to discredit previous editions and to praise each new edition, even before it had appeared. In the *Mercure de France* he skewered the Ledet 1743 edition as "full on every page of errors and inaccuracies so flagrant as to revolt every reader". In the preface to Walther's 1748 edition he decried five previous editions as "a disgrace to the book trade". Once the Walther edition was out, however, he began criticizing its printing errors both to Walther and to others: "These German publishers are not such crooks as the Dutch, but they make lots of printing errors. All these editions are good only for lighting the fire." He was careful, however, not to offend Walther to whom he was already proposing a second edition. His criticism of the Lambert edition came as a backhanded compliment: it was the "least bad" of the editions to date! To his niece, Mme Denis, he classed them all as "bastards" that he would like to "disinherit".

At the same time he praised the quality of editions in process – they would be more accurate than their predecessors and include many corrections, revisions and new material. He published laudatory announcements in periodicals and wrote new prefaces for upcoming editions comparing them favourably with previous ones. The importance of this tactic emerges from a 1751 letter of Mme de Graffigny: "Turgot [the future economist and minister] brought

me two volumes of the new Lambert edition in which there is new material and there is a lot of it."

Obviously, Voltaire wanted to control his publishers as much as possible. When bargaining with them, novelty and accuracy went hand in hand. In order to put pressure on them to ensure the accuracy of his text, he held out the prospect of new material that would help sell the edition. For example, he told Walther that his edition would sell only because of its "*extrême correction*" and its "*pièces neuves et intéressantes*". Voltaire did not hesitate to resort to veiled threats. He wrote to Walther: "You must enjoy the fruits of this great enterprise, but you will lose them if you don't do what I tell you." He held back delivery of new material for the later volumes until he had seen the earlier ones and had made corrections, at the same time issuing this warning: "I repeat that if you were so unwise as to bring out your edition without this material, I would be obliged to discredit it. I would have another one published and you would be ruined. Be careful, and make sure you deserve all that I'm doing for you." Imagine talking to a university press that way in 2007!

If you find Voltaire's conduct a bit unscrupulous, consider this! In 1747 Voltaire offered to buy 400 copies of the Walther 1748 edition that he planned to send to France, but once the edition was printed he withdrew his offer without apology. Moreover, to encourage Walther to bring out his second edition, Voltaire had promised him the manuscript of his *Siècle de Louis XIV (The Age of Louis XIV)*, but he ended up having the work printed privately in Berlin by Henning in 1751. To console Walther, he belittled the importance of first editions (which were prone to errors) and offered him 2400 copies of the Berlin edition, but at a price so high that Walther had to beat it down before accepting.

In conclusion, Voltaire, like any self-respecting author, sought first to ensure the accuracy and authenticity of his texts. Because he was never on the spot, he was unable to supervise directly the printing of the Walther, Machuel and Lambert editions. In lieu of correcting proofs, he had to content himself with preparing cancels and errata. To impose his will upon his publishers, he tempted them with new and revised works, knowing these would be coveted because they increased sales. He did not hesitate to use threats if his publishers were inclined to disobey his instructions. His second objective was to ensure as wide a readership as possible for his works. He thus published edition after edition, always lauding the one in the press at the expense of those that had already appeared. For the same reason he sought to reduce the price of these editions by using small formats and small type. In short, for Voltaire, a crafty businessman as well as an author, the end justified the means.

William Lyon Mackenzie King's Artificial Ruins: Garden Gnomes or Cultural Gestures

Dennis Duffy

One gray winter morning in 1941, during London's Blitz, a young Canadian diplomat found himself on a strange errand. Westminster Hall had been bombed the night before, and Lester B. Pearson was visiting the ruins in order to scout out some refuse from the damage. Upon locating the appropriate rubble, he was then to arrange for its shipment to Ottawa. Vincent Massey, Canada's high commissioner to London, had performed similar errands in times past. This job fell to the new boy. He found some rubble, which the Royal Navy then conveyed to Canada via submarine.

Do you watch the same movies that I do? Then you know that these broken stones bore arcane hieroglyphics leading to the deepest secrets once encased in Solomon's Temple. Or if that strikes you as too fanciful, then how about the rare radioactive element—key to the superweapon—mysteriously lodged within those stones?

On the other hand, you may read Canadian history rather than view schlock films. If that's the case, then you will have figured out why those distinguished Canadians were running around stockpiling rocks. Their errand was as bizarre as any in sci-fi. They were furnishing the Right Honourable William Lyon Mackenzie King, Canada's Prime Minister, with additional material for the artificial ruins with which he had dotted Kingsmere, his country property in the Gatineau. Think of Mackenzie King as the Burke and Hare of the Blitz. Just as these Regency entrepreneurs viewed death as the great purveyor of saleable bodies for dissection, so King discovered in aerial bombardment a foundry supplying his peculiar building materials.

We now know that these were far from the sole peculiarities about Mr. King, but seancing and numerology are not my subjects today. I'm talking about the ruins at Kingsmere. And while I could not resist initially classifying them as Mackenzie King's outsize equivalent to garden gnomes, I now want to speculate instead on the deeper cultural message that the Kingsmere ruins convey.

To do this, we must first map Kingsmere's dimensions in the spirit of its proprietor, and then measure the cultural weight of ruins in the Edwardian culture that had so shaped King. Then we will understand why he sent his trusted servants on those unusual errands.

Mackenzie King's ties with Kingsmere originated in an act of love. However one wishes to define love, however varied its physical forms, the fact remains that Mackenzie King loved Bert Harper and mourned his loss deeply. King and the man whom he elevated in death to Galahad

(in the memorial statue to Harper that stands near Parliament Hill) discovered the site on the Thanksgiving weekend of 1900. The aspiring and idealistic pair had slung their bicycles off the train at Chelsea, Quebec and indulged in a holiday cycle in the Gatineau region, outside the Ottawa they intended to conquer. The Gatineau's fall colours captured them, and they vowed to return.

Kingsmere from http://data2.collectionscanada.ca/ap/c/c 1

Within a little more than a year, Harper had died trying to save a young woman's life. He left Mackenzie King to write his former roommate's biography (*The Secret of Heroism*) and press successfully for a statuary memorial near Parliament Hill, where the figure of Galahad represents the dead Harper. The statue was unveiled in 1905 with the Prime Minister officiating, the result of a very junior minister's application and perseverance. Love had overcome bureaucratic inertia and Harper's obscurity. By 1901, King had purchased his first parcel of land in the district which had already become "old Kingsmere" to him. By 1903, he had a small cottage and slept in a tent on the property when his visiting mother occupied the cottage. We can follow his subsequent purchases and tireless improvement of the property, an exercise whose roots lay in the memorialization of a lost youthful love and whose continuation embraced the last years of the most important person in his life.

The entwining of Kingsmere with a dead and romanticized past grew even stronger with the death of Isabel Grace Mackenzie King in 1917. Her visits to Kingsmere had transformed Mother into the spirit of the place for her son; her idealized portrait—he kept a candle forever burning

before it—serves as a metonomy for the property in general. Mother's stay at Kingsmere had translated real estate into sacred space. Her death had occurred elsewhere, but the memory of her visits there had consecrated Kingsmere.

From http://farm1.static.flickr.com/49/148103383_550559c6b1_m.jpg

What swelled into Mackenzie King's estate signified far more than can be conveyed by the term "cottage," or "country property" or "vacation home." "Dunrovin" or "Mon Repos" do not cover this. What Mackenzie King rhapsodized over every spring when he returned, what made him squeeze every minute from his Ottawa business that he could, and drag numerous civil servants, political allies and visitors to Kingsmere went beyond "unwinding." He took pride in ownership, in cultivation, acquisition and improvement; he enjoyed the role and garb of a country squire. He enjoyed recounting how a touring group of landscape architects were so arrested by the charms of Kingsmere that they cancelled their other Ottawa appointments in order to take a closer look at King's property (Diaries October 17, 1947). That garden pride, that landscape pride, is typical of the species of improvers in general. Mackenzie King's Great Good Place however, sprang out of something deeper than gardening. Only when we turn to the ruins that he created out of others' leftover materials can the full meaning of Kingsmere loom from the mist.

This ruin-building that Mackenzie King took so seriously had a lengthy history. In 1510, Francesco Maria Pesaro, Duke of Urbino commissioned the painter and set designer Girolamo Genga to "construct a house with the form and appearance of a ruin" ("Girolamo Genga" in Gieorgio Vasari, *Lives of the Artists*). The literature devoted to the folly and to the constructed ruin assure us that Pesaro wrought something greater and more persistent than he knew. But ruins deploy a cultural force more powerful than the merely decorative. By the time that Mackenzie King introduced them to the Ottawa Valley, a century of Romantic reflection had transformed ruins—historical and constructed—into objects at once arresting, compelling and monitory.

In Canada, ruins radiated a fascination beyond the monitory. In a country that Mackenzie King had himself described as consisting of too much geography and not enough history, ruins once constructed could then be construed as a mark of Canada's outgrowth from a set of histories, European, Classical, Medieval. A variety of cultural steroids, ruins added symbolic bulk to the weak historical corpus that the colony offered. Ruins implied continuity, a single history, the sort of One Canada vision inculcated by such classic historical novels as Gilbert Parker's best-selling *The Seats of the Mighty* in 1896.

Ruins to a striver from such a culture exercised an influence extending beyond History's finger-wagging and reproving. They declared also that Mackenzie King and his nation partook of a past grandeur that had to be registered—absent any material presence—symbolically. Bruce Hutchison wrote that Kingsmere's ruins attested to something that King was not. If we drop the negative, Kingsmere's ruins testify to something that King and his country emphatically felt themselves to be: heirs to a European empire's traditions and history. Imperial Canada was meaningless without this sense of heritage. We have to see King—typically—performing two seemingly contradictory actions simultaneously. On the one hand, weakening Canada's subservience to Great Britain in political life; on the other, asserting through his amassing of rubble and recasting it into ruins, Canada's virtual possession of the trappings of a European past. We are talking, after all, of the kind of sensibility that could come up with a formula like "Conscription if necessary, but not necessarily conscription."

"A ruin," one of the most acute theorizers of the phenomenon notes, "can be defined as *the disjunctive product of the intrusion of nature without loss of the unity that man produced* (Florence M. Hetzler, "The Aesthetics of Ruins: A New Category of Being," *Journal of Aesthetic Education* 16 #2 (1982) 105-08; emphasis in original). Of course, disjunction. That is, nature—exercising its relentless mutability—overturns the works of mankind. Yet ruins persist despite their naturalization, evidences of a single vision that mankind once imposed upon the 'scape. More diverse in meaning than any integrated structure, ruins bespeak triumph and loss at once, the mixedness that is experience itself. Hetzler puts it best: "The ruin brings all together:

nature, the man-made, and man. There is a new integrity of the three". The forces involved in creating a national state out of a vast and (to settler eyes) uninhabitable wilderness corresponds to this cast of characters, with the technological order created by world ever striving to harness and control the fact of nature or earth.

From http://www.library.otago.ac.nz/gfx/Exhib 1

King was himself the colonial coming to terms with the decline of Britain's power and yet seeking to preserve its imaginative essence in the Canada that he was in the process of creating. Lord Macaulay's "New Zealander" (as interpreted by Gustave Doré) observes the ruins of London from the dramatically-highlighted shadows, as did Mackenzie King from the hinterland of a declining empire. Rather than sketching ruins however, he realized them, within an allusive environment that he had founded as an act of love and improved as an act of personal and (through his benefaction) national industry.

This may seem too heavy a weight of meaning to rest upon a set of fake ruins gracing an eccentric politician's private estate. But can we view Kingsmere's ruins as parts of a larger cultural enterprise? The Kingsmere enterprise lay in the service of one man's dream, but that dream was not without its expression within the national culture. That dream-quest sought nothing less than the reversal of a cultural surge that had reshaped the West since the

Enlightenment, and which had battered even provincial, colonial Canada since the 1880s. That is, constructing the ruins suited in a very material fashion the anti-Modernist agenda.

If Modernism had proven the Enlightenment's heir in secularizing the sacred, then the Kingsmere ruins fought in the rollback. The new official Ottawa that Mackenzie King sought to construct out of Bytown would have—if realized—shunned any evidence of the Modernist in its architectural statement. Beaux-arts was the style he admired and imposed, holding back for at least a decade the appearance of the Modernist in his capital (David L. Gordon, "William Lyon Mackenzie King, planning advocate," *Planning Perspectives* 17 (2002) 97-122). The fragments "shored against my ruin" found in a keystone Modernist poem like Eliot's "The Waste Land" had now been reassembled at Kingsmere. That is, these ruins had now been shored against cultural fragmentation. The force of King's imagination transmuted what had been thoroughly secular and material into Wagnerian magic fire. Facades rescued from the wrecker's ball, walls painstakingly reassembled and placed in strategic viewing planes, bits and pieces of noble buildings that had survived Hitler's bombs now in Kingsmere's moonlit landscape inspired their beholder with spiritual revelation.

He, William Lyon Mackenzie King, had not only assumed the destined role that Mother and Grandfather had laid upon him, but now this childless man could pass on to his Canadian posterity—the nation that he had shaped for so many years— the material underpinnings for the vision that had inspired him. Kingsmere's "ruins" were in King's personal cosmology the indices to a higher spiritual realm. They were the pillars of the cathedral of a new age of relentlessly idealized faith that had succeeded the collapse of the old, material one. They had ceased being ruins. They were now gateways, arcs of triumph.

Believe it Or Not! The 1930s Was a Technologically Progressive Decade

Michelle Alexopoulos and Jon Cohen

We present new indicators of U.S. technological change for the period 1909-49 based on information contained in the catalogue of the Library of Congress. We use these indicators to estimate the connections between technological change and economic activity, and to investigate the relationship between fluctuations in innovative activity and the Great Depression. Although we do find statistically significant links between technological change, output and productivity, our results suggest that the slowdown in technological progress in the early 1930s does not appear to have contributed significantly to the Great Depression. On the other hand, the remarkable acceleration in innovations after 1934 did play a role in the recovery.

To be more precise, we find the following: First, a significant link existed between technological change, GNP (Gross National Product) per capita and TFP (Total Factor Productivity) in the period 1909-49. Second, our sectoral breakdown indicates that not all advances were created equal – some innovations had a much greater impact on growth and productivity than others. Third, the decade of the 1930s was technologically progressive with the large upswing in inventive activity occurring after 1933. Fourth, while technical change does appear to have helped the U.S. economy recover from the depression, our results fail to support the view that negative technology shocks (at least as captured by our indicators) were a main cause of the economic downturn in the early 1930s in the US.

END

For more information about RALUT please contact us at
(416) 978 7256 or visit our website *www.ralut.utoronto.ca*

Please consider supporting RALUT's initiative
in providing bursaries to undergraduate students.
Any donations to the
RALUT Memorial Fund Student Bursary
are eligible for a charitable tax receipt.

Cheques should be made payable to the University of Toronto
and mailed to:

RALUT
256 McCaul Street,
Suite 404
Toronto ON
M5T 1W5