Helen Burgess (MAC 1979), Senior Conservation Scientist, Canadian Conservation Institute (CCI), through Season Tse, her colleague at CCI

Interview by Makedonka Gulcev (MAC 2016)

Helen Burgess made important international contributions to the field of paper conservation in terms of analysis and treatment. Her work influenced scientists and conservators, not only because of her ability to investigate large, important scientific questions, but also because of how well she worked with people outside her specific discipline and how clearly she communicated scientific results. Sadly, Helen died in 1999. We are very pleased to be able to present Helen's legacy through the contributions from number of people who knew her, including Season Tse, a colleague at CCI, and Judy Logan and Doug and Louise Fox, Helen's friends and roommates from her time at Queen's. They all met in Ottawa in March 2015 to talk about Helen and Season kindly collected the information from their conversation to give to Makedonka Gulcev, a conservation science student.

Q Helen was well known in the community for contributions to paper conservation. Could you discuss a particular project with which she was involved and that had national or international impact? Why do you think she took up this line of inquiry?

A When Helen first entered the conservation field, there was very little communication between scientists and conservators, who sometimes find scientific concepts difficult to grasp, and there was no one to bridge the gap until Helen came along. She had a way of making complex concepts clear and understandable without patronizing. Below are some of the projects with which Helen was involved and which proved to be of national and international significance. All of them originated from Helen's MAC thesis (1979) and an earlier M.Sc. thesis at UBC on enzymes (1976).

- Conservation bleaching - bleaching review; use of reducing bleaches e.g. sodium borohydride
- Cellulose chemical analysis
  - Degree of polymerization (DP) with cadoxen, carbonyl, iodometric total acid, sensitive techniques for measuring cellulose degradation.
  - Development of CCI paper conservation treatment research for the next 20 years.
  - Use of enzymes for paper conservation; effect of Vikane fumigant on cellulosic materials; effect of water washing, aqueous deacidification, and mass deacidification on paper; role of lignin in paper permanence and development of the ASTM heat-aging method for paper.
  - Gel permeation chromatography with cadoxen to determine the effect of washing on the molecular weight distribution of degraded cellulose textile.

Q Is there a principle that Helen believed was especially important to bear in mind while working in the field?

A Persistence – Helen was not fazed by the size or complexity of any task (e.g. her two theses, gel permeation chromatography (GPC) of cellulose with cadoxen, projects funded by the Canadian Council of Archives (CCA) on alkaline sensitivity, evaluation of mass deacidification systems, and the Permanent Paper project). Her unique ability was to organize large projects and compile results in a way that made sense to scientists and lay persons alike. She was respectful of people's different educational

backgrounds. Helen was a brilliant scientist, but she never talked down to others who didn't possess the same level of scientific knowledge. She was a patient teacher.

Q Is there a person in the conservation field who was particularly inspirational? Or perhaps, how was Helen an inspiration to others or to you? (Response given by Season Tse)

A Robert Feller, Vincent Daniels, Keiko Keyes

Helen was my inspiration and my mentor. I had the good fortune of working with her for 10 years. She showed me what I needed to know about conservation at the beginning of my career. In addition to technical skills, I learned how to plan and execute conservation treatment research projects, how to work closely with conservators in carrying out research, helping them solve problems. I also learned that our research must be practical and useful to conservators. That has been my motto. Whatever I have accomplished, my approach and attitude towards my colleagues and work were influenced by Helen. Another thing I learned from Helen is pursuit of excellence and persistence.

Q How did Queen's prepare Helen for her career?

A The Queen's program gave her a chance to combine her love of science and art and a chance to apply her knowledge of science to conservation. Her research at Queen's consolidated a suite of analytical techniques for studying cellulose degradation and a focus on conservation bleaching that was to benefit the paper and textile conservation field for years to come. It also gave Helen the chance to exercise her gift of communication and teaching, as she helped many of her fellow classmates in understanding complex chemical concepts in conservation. Conservation Science Professor Jim Hanlan provided guidance and support for her research.

Q What are her favourite memories of Queen's?

A She liked to pick flowers from gardens including those from the Faculty Club! She had fun socializing with both faculty and students - she was very close to Jim Hanlan and his family. Her roommates – Judy Logan, Louise Fox and Janet Cowan – became her lifelong friends and colleagues.

Q What advice would she (or you) give to students or new graduates?

A
Be persistent – work hard!
Strive for excellence, be thorough and precise.
Have an inquiring mind – think outside the box.
Keep learning.
Maintain a good relationship with your fellow students – many will become your friends and colleagues.
Be generous with knowledge and help.

Q Tell me about Helen's career path – how did she obtain her job at CCI?

A Helen received her Honours BA in Chemistry from the University of Lethbridge in 1973 and completed her M.Sc. at UBC in 1976. She applied to the CCI Internship program but was not successful. She was accepted in the Queen's MAC program in 1976, however, and here she was able to combine her

knowledge of chemistry with her love for the arts. On graduation from Queen's in 1978, she worked on contract at CCI before getting a permanent position.

Q What do you think Helen enjoyed most about her job?

A While Queen's prepared Helen for her career, CCI gave her the opportunity to realize her abilities as a scientist, a researcher, and a teacher. She loved working at CCI, because it allowed her to carry out research and answer questions related to paper and textile treatments. Cliff McCawley really helped foster her career, by first hiring her and then supporting her in her research.

Helen was unique, in that not only did she have the mind for understanding complex concepts, she also had the persistence, organization and discipline to carry out the research, the ability to organize and interpret enormous amounts of data, and the exceptional talent to communicate it so clearly that her audience could understand what the results meant for them.

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Obituary: Helen Diana Burgess

by Judy Logan
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http://cool.conservation-us.org/byorg/abbey/an/an23/an23-4/an23-404.html

Helen Diana Burgess, known to her family as Diana and to her colleagues as Helen, passed away in August. In the early 1990s, at the height of her career as a conservation scientist, Helen became seriously ill, which led her to take early retirement from her position as senior conservation scientist at the Canadian Conservation Institute. At the time of her retirement, the conservation community lost a valued colleague, and it is with profound sadness that we must now accept this loss as final.

Helen was born and raised in Lethbridge, Alberta, where she attended St. Basil's and Catholic Central Schools. She earned an Honors B.Sc. from the University of Lethbridge, and a M.Sc. in protein chemistry from the University of British Columbia. In 1976, Helen was accepted as a student in the Research stream of the Master of Art Conservation program at Queen's University, Kingston, Ontario. Her interest quickly became focused on the chemistry and degradation of cellulose. She earned a M.A.C. in Science in 1978 and was hired by the Conservation Processes Research Division of CCI the same year.

Helen presented the results of her M.A.C. research at the annual IIC-Canadian Group conference in 1979: 'The effect of bleaching on cellulose; the damage caused, and what this means in conservation.' That presentation marked the beginning of Helen's public career as a conservation scientist whose strengths lay in remarkable clarity of thought, presentation, and analysis. Major research projects which she coordinated include investigation of archival tapes, chemical stabilization of paper with borohydrides, use of enzymes in conservation, mass deacidification, and development of recommendations for alkaline washing. At the time of her retirement, Helen had just begun work on a project to investigate the characteristics of permanent paper.

Helen's contribution to the field of conservation, especially in paper conservation, is immeasurable. Not only was she a rigorous scientist, she served on numerous committees and professional associations. She had a fine aesthetic sense, which served her in both her profession and her hobbies. Helen loved

paper and textiles, flowers, beautiful ceramics and glass, and cats. She was often teased by her friends for picking flowers wherever she could find them, including in one instance, the Faculty Club garden at Queen's. Helen enjoyed painting flowers, and donated several of her watercolors to the Lupus Society.

Helen has left an outstanding legacy of achievement to our profession. She will be missed, and remembered by her friends and colleagues with deep affection and admiration for her kindness, intelligence, talent, and steadfast dedication to the field of conservation