BOOK REVIEW

TITLE: **The Beginnings of Canadian Meteorology**
AUTHOR: **Morley K. Thomas**
PUBLISHER: **ECW Press**
Toronto, Ontario M4L 3B5
COPYRIGHT: **1991 by Morley K. Thomas, ISBN 1-55022-149-3 Eighteen Chapters, 308 pp.**

Canadian meteorology officially began in 1839 at the Toronto Magnetic and Meteorological Observatory under the auspices of British and European scientists. The work, undertaken by the British Ordnance Department, first centered upon an investigation of the magnetic field of the earth. When the scientists entered the picture in 1840, meteorological observations became a part of the data gathering process as well. Baron von Humboldt, H. Lloyd, Edward Sabine, and Lt. Charles J. B. Ridell all were instrumental in the beginnings of earth sciences, meteorology and geomagnetism at Toronto. Fort Toronto was the first choice as a site in 1839, but in 1840, the University of Toronto agreed to the placement of a permanent headquarters of the Observatory upon its campus.

Maintaining the Observatory was more problematical than its inception. Money for the scientists was a major problem; instruments and observers' salaries were always a demand upon someone's organization's pocketbook. Lt. John H. Lefroy was initially in charge when the observatory was established at the University. He departed in 1843 but returned a year later. No reason was given. Observations included barometric pressure, wet and dry bulb temperatures, relative humidity, wind direction and speed, and general weather. These were recorded several times daily. Magnetic observations were difficult to acquire due to the characteristics of the process and also the need for a special iron-free building that had to be constructed for this operation.

After Lefroy left, Professor J. B. Cherriman became acting director in 1853. At this point, the Observatory officially became a part of the University of Toronto. In May 1855, the major founder of meteorology in Canada, George Templeton Kingston assumed the leadership. He was to serve for more than twenty years.

Kingston first labored to complete the badly needed repairs at the Observatory; workers' salaries and housing became critical goals as well. Kingston's principal task was to establish a Canadian Climate Center. Of course, to do that, a network of observers was essential. For a brief time, Grammar Schools, in the 1850's, were encouraged to submit observations. Meanwhile, Kingston was well aware of the advances that were taking place in the United States. He occasionally contacted American scientists to obtain ideas on how to construct a network. Joseph Henry was one of the people with whom he communicated several times.

By 1854, telegraphy had become an increasingly important factor in the scheme of a network of observers. In the United States, the Smithsonian was setting up a network. Times were difficult during the Civil War and progress in the United States and Canada was interrupted. After the War, Joseph Henry and General Albert J. Meyer rebuilt the U.S. network. Canada was still enthusiastic about a telegraphic network of observers since other nations were already making substantial progress in developing networks.

Kingston struggled with Canadian politicians to obtain financial support. Starting in the early 1860's, he pushed hard for a National Meteorological Service. In 1870, the government finally gave its tentative approval to begin organizing a network by authorizing a $5000 stipend.

Kingston's scheme was to set up several storm warning stations in a telegraphic network. He planned a Central Office with other offices classified numerically from one to three. The first class station was responsible for the acquisition of the most detailed weather observations that included barometric pressure, temperature, relative humidity, weather, cloud conditions, and wind speed and direction; all of these parameters were observed three times daily. In addition, maximum and minimum temperatures and precipitation were also recorded. In contrast, a third class station was responsible only for recording precipitation and general weather.

The United States aided Kingston by setting up the network; the frequency and exchange of observations between the two nations were then agreed upon. However, money was still a problem; observers were supposed to volunteer their services, although several demanded token payments. Telegraphic stations were situated mainly along the Great Lakes and the ocean. All of the initial stations were located in southeastern Canada.

By 1872, the telegraphic network began operating and data were exchanged three times daily. Appeals by Kingston to the telegraph companies to lower their fees fell on deaf ears. Yet the data were badly needed; storm signal stations obtained the highest priority since these were responsible for issuing maritime warnings. A Map Room was set up at the Central Office in Toronto in 1875 and weather reports were charted upon a series of maps. Weather "outlooks" and "probabilities" were then issued to some daily papers in Toronto.

In the early days of weather telegraphy, warnings and bulletins often arrived too late at certain stations where the storm was already in progress. This problem persisted for several years.

In the late 1860's and early 1870's, Kingston, who was about to retire due to illness, wanted more stations established particularly in western Canada. The Canadian Pacific Railway and the Canadian Government Telegraphy System agreed to transport cases of meteorological instruments westward and distribute them to various forts in British Columbia and Vancouver. The Royal Mounted Police and certain Church officials were given the observation duties when the instruments arrived. Unfortunately, some of these forts never reported any data.

The founder of Canadian meteorology, George Templeton Kingston, died in 1886. His legacy included a well-running meteorological service, an adequate staff of part-time observers, all of whom eventually proved themselves to the Canadian Government. This service through the years evolved into the present day Atmospheric Environment Service.

This book provides a meticulously detailed story of Canadian meteorology. It is packed full of numerous dates and names. The photographs, in black and white, appear upon the Frontispiece and in the last three chapters.

Thomas has produced a thorough, detailed account of the history of meteorology in Canada from 1839 to 1886. From that point, he summarizes the remaining years very briefly down to the present day. Chapter 18 is an epilogue that describes the latter period. An interested science historian

will find this book to be of significant interest because of its meticulous detail and extensive notes.

Merlin Zook

ANNOUNCEMENTS

CALL FOR PAPERS-ANNUAL MEETING

The National Weather Association Annual Meeting will be held on October 20–23, 1992, at the Holiday Inn Downtown/ Convention Center 811 N. 9th Street, St. Louis, Missouri. The hotel is conveniently located in the downtown area and is approximately 20 minutes from the Lambert International Airport. Express buses from the airport run every half hour and charge $17 for a round trip. The hotel is extending a special government rate of $49 for single and $54 for double occupancy. There is a $2 daily occupancy charge and a 9.48% tax. A 300 car parking garage is adjacent to the hotel. The current parking charge of $5 includes in and out privileges. The hotel is within walking distance of Laclede's Landing, St. Louis' newest entertainment center, and the St. Louis Centre. The Gateway Arch, Busch Stadium, Riverboats, and Union Station are only minutes away.

Reservations can be made by contacting Holiday Inn Convention Center directly using their own toll-free number, 1-800-289-8338. Be sure to mention the NWA Annual Meeting. Travel arrangements have been made with Media Travel, Tequesta, Florida. The telephone number is: 1-800-283-TRIP.

Pre-registration is encouraged. Registration for members is $75 and $100 for non-members. Send checks to: NWA Annual Meeting, 4400 Stamp Road, #404, Temple Hills, MD, 20748.

The Conference theme is "THE LAST STEP OF WEATHER MODERNIZATION: T^3—TECHNOLOGY, TRANSFER AND TRAINING." The restructuring of the AWS and NWS and the drawdown of NAVOCEANCOM are coincident with several large-scale modernization programs. Transferring new technology to the forecaster requires careful transition and proper training. Joint technology development and training programs have eased the monetary burden, but in the future interagency coordination may be difficult.

This year's program will feature invited and submitted papers, several keynote presentations, poster sessions, demonstrations, workshops and a field trip to St. Charles NWS WSR-88D. You are encouraged to submit abstracts (maximum of one typed page) including authors' names, addresses and telephone numbers to the Program Chairman by July 15, 1992. If abstract is on floppy, please include floppy. Following is a list of topics we'd like to include in this Conference.

- New Technology
- Technique Development
- Training Programs
- Joint Ventures
- Broadcast and Private Sector Weather Services
- Local studies/forecast procedures
- Severe storms
- Satellite applications
- Floods and water management
- Environmental issues

The above list of topics is certainly not exhaustive and we will consider all papers.

You will be notified of abstract acceptance by August 15, 1992.

Authors of papers accepted for presentation will be furnished with detailed information concerning audiovisual preparation. The Program Committee plans to make a concerted effort to ensure high quality presentations. There will not be a pre- or post-print volume. However, presenters are encouraged to submit papers to the NWA Digest for publication.

For more information contact:

Conference Program Chairman
Col. Francis X. Routhier
Chief, Product Improvement Division
Directorate of Technology, Hdqtrs., AWS/XTX
Scott AFB, IL 62225-5008
Telephone, 618-256-4721

AIRIES '92

The 6th Artificial Intelligence Research In Environmental Science (AIRIES '92) Workshop will be held in Monterey, California, October 27–29, 1992.

The purpose of AIRIES is to provide a forum for discussion of environmentally-based artificial intelligence efforts. The topics covered in the Workshop will include but not be limited to:

- Environmental expert systems applications
- Expert systems life cycle/development issues
- Expert systems data base integration
- Knowledge acquisition and representation
- Neural networks
- Image interpretation
- Verification and validation

Both poster and oral presentations are welcomed. Electronic display of current systems is also encouraged. Prospective authors are requested to submit an abstract and indicate their preference (oral, poster, or electronic) by Jun. 1, 1992 to:

Rosemary Dyer
Phillips Laboratory, Geophysics Directorate
Hanscom AFB, MA 01731

For information regarding attendance to the Workshop, contact:

Jim Peak
Computer Sciences Corporation
c/o Naval Research Laboratory
Monterey, CA 93943-5006
Tel: 408-647-4780