

ZEPHYR



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Atmospheric Environment Service

JULY/AUGUST 1985

CBC "Occupies" Windsor Weather Office during Environment Week.



CBC's Barbara Peacock interviews MET TECH Randy Mawson, at the Windsor weather office during live, Environment Week radio program.

The CBC took over the Windsor, Ontario Weather Office for three hours June 7 as part of a series of high profile events scheduled for this year's Environment Week (proclaimed June 2 - 8) and for several weeks following.

Activities included full length radio and TV programs, participation in CBC open house and shopping mall broadcasts and the production of a number of severe weather announcements aired on various radio stations in this tornado prone area.

The CBC takeover of the Windsor WO4 came about when OIC Joe Adamson got the idea of asking the producers of the CBC morning drive-out show, *Eye Opener* to do some interviews in the weather office. Producer Phil Peck liked the idea so much he decided to run the entire 6 a.m. to 9 a.m. local talk show from the AES facility.

The day before the big broadcast, preparations reached fever pitch. As Adamson wrote in a report to AES Ontario Region: "Preparations for the show were made June 6. Cables were laid, amplifiers installed, microphones and headsets were

ready to go. Phil Peck and on-air hostess Barbara Peacock were here bright and early the next morning to get things rolling. Suddenly, our office had become a combination Weather Office and Radio Station."

Most of the interviews that morning had to do with weather. Malcolm Geast, a Windsor briefer (now at AES Downsview) explained how forecasts are provided to the H.J. Heinz Company during the tomato growing season. Randy Mawson did a "walk around" with Barbara, discussing how various instruments worked in the office.

The highlight of the morning came when Joe Adamson presented two Certificates of Merit to local volunteer weather observers: to Ralph Evans, a severe weather watcher from Essex and to Eric Kuntz who has done volunteer climate observation at the Harrow Agricultural Research Station for 20 years.

To complement the *Eye Opener* radio show, CBC returned that afternoon with a TV crew to do background footage for a special lead-in to their weather package that night.

Continued on pg. 2

Environment Canada: New Names at the top

Tom McMillan, former minister of state for Tourism, has been appointed the new Environment Minister. He succeeds former Environment Minister Suzanne Blais-Grenier who has now become minister of state for Transport.

Mr. McMillan was first elected to the House of Commons in 1979 as MP for Hillsborough in his native Prince Edward Island where he was born in 1945. He subsequently became deputy house leader for question period. He has served on the communications and culture, fisheries and forestry committees as well as on the special committee on acid rain.

Before his election to the Commons Mr. McMillan served as special assistant to former Progressive Conservative leader Robert Stanfield, as executive officer of the Ontario Human Rights Commission and as chairman of the Book and Periodical Development Council of Canada.

A political scientist by profession, he was educated at the University of Prince Edward Island, Queen's University, University of New Brunswick and Trent University.

Named deputy minister of Environment Canada is **Geneviève Sainte-Marie**. Dr. Sainte-Marie obtained her Ph.D in plant physiology from the University of Ottawa.

For the past year she has been assistant deputy minister, Planning and Coordination, Transport Canada and for three years previously served as ADM Coordination for the same federal department.

Dr. Sainte-Marie has also served as director general of the Supply and Services Science Centre and as a financial analyst at the Treasury Board Secretariat. From 1973-75 she served as scientific coordinator, Fisheries Research Board at a time when this organization was part of Environment Canada.

Dr. Sainte-Marie succeeds Jacques Gérin who has been appointed associate deputy minister, Indian and Northern Affairs.

Canada

EDITORIAL

What do you think of the new Zephyr?



Response to our letter-to-the-editor circular sent out with the last issue has been slow so far. While waiting for more of those yellow reply-forms to come in, we decided to go ahead and remodel Zephyr — to give it a new, fresh look, designed to reduce production expenses.

For those of you who haven't commented so far, it might be a good time to write us a note, telling us what you like and dislike about Zephyr and offering suggestions for new articles, features etc. We would particularly like to hear comments about individual articles we have run in the past year. We have noted your comments about staff changes and will continue to give comprehensive coverage of the movements to and fro around AES. Space limitations prevent our expanding this section though.

Please also note that we are prevented from offering costly new features. We are under considerable budgetary restraint and aim to produce a less expensive Zephyr in the coming months. We have set our targets on higher quality, however.

P.S. We still intend to publish a cross-section of your letters.

CBC Occupation Continued

Commenting on the day, Adamson said "that the Environment Week theme of Shared Responsibility was very apt, especially since the CBC radio/television shared so much time with us."

The Windsor Weather Office's media campaign continued well beyond June 7.

On June 28 the weather office provided live weather reports as CBC televised a regular studio session of its *Eye Opener* radio show. On the same day CBC also held an Open House and allowed AES to do more live inserts. In the absence of Joe Adamson, Randy Mawson spent a hectic day commuting between his duties at the weather office and CBC studios. He even found time to appear at an open air spot called Dieppe Gardens along with Windsor Mayor Elizabeth Kishkon.

Finally, the Windsor weather office went ahead with plans to run a series of severe weather audio tapes as public service announcements on several radio stations in the Windsor-Chatham area. The messages in both English and French, include hints on what to do in the event of a tornado.

As a result of the above and other related activities, members of the Windsor Weather Office are being considered for an Achievement Award.

Commenting on their Environment Week and post Environment Week efforts, Phil Aber, regional director, AES Ontario Region, said that the Windsor WO4 "did an exceptionally fine job during this key week in the department's activities. All of them without exception showed initiative and imagination."

Weather Trivia

It has been computed that a small-sized storm lasting 6 to 8 hours releases energy equal to that from 100,000 atomic bomb explosions — at the rate of at least 3-Hiroshima sized blasts per second.

Phil Aber named director AES Ontario Region

Phil Aber has been appointed director, AES Ontario region. He replaces George A. McPherson who has now retired.

Mr. Aber was born in England and moved to Canada in 1940. He graduated from McGill University in 1958 with a B.Sc. degree, joined the Canadian Meteorological Service that year and served as a weather forecaster at Department of National Defence offices across Canada and for four years with the Canadian Armed Forces in Europe.

Mr. Aber then obtained his M.Sc. from McGill and resumed forecasting duties until the AES Training Branch in Toronto as an instructor in 1970. After assuming management positions in various directorates and branches between 1973 and 1979, he then served for three years as director, Training Branch, AES Downsview. In 1982 he became director, Field Meteorological Systems Branch, Field Services Directorate.



ZEPHYR

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Editor: Gordon Black
Phone: (416) 667-4551



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AES Launches Achievement Awards

At a ceremony held in the Downsview Headquarters Auditorium, the Atmospheric Environment Service granted new, high profile recognition to employees making outstanding contributions in their work areas and to AES as a whole.

Addressing some 20 individual and group winners of the first AES Achievement Awards, as well as dozens of well-wishers, co-workers and supervisory staff, Jim Bruce said that the new program is intended to provide timely, personal recognition to individuals or groups who through their own or collective efforts have achieved "outstanding results of significance to AES."

The July 18 presentation came only weeks after one of southern Ontario's worst tornados and the majority of award winners formed part of the team that handled the forecasting and investigation of the severe weather associated with "Black Friday".

Mr. Bruce said the awards would give formal recognition to the outstanding



Hans van Leeuwen receives his AES Achievement Award from Jim Bruce.

Super-bout of energy launches United Way campaign

AES is kicking off its 1985 United Way campaign with a super-bout of energy, aware of the fact that the Service will host the entire Federal Government campaign in Metropolitan Toronto for 1986.

With an over-all target of \$25,500 fixed for the 25-day campaign, AES (Downsview headquarters) is pulling out all the stops to arouse maximum employee interest in Toronto's greatest annual fund raising event.



Seen with ADMA Jim Bruce and Ontario Region director Phil Aber, bottom right, after the Achievement Awards ceremony are, front row, left to right: Dejan Ristic, Ole Jacobsen, Rae Redford, Sheila Gillespie, Sheila Dworka and Jim Davis. Back row, left to right, Hans van Leeuwen, Peter Chen, Michel Jean, Pierre Saindon, Don Rehberg, Gerry Wolfe and Barry Greer.

achievements of staff who "through their skill and dedication, have made a notable contribution in the area of forecasting severe weather events and the fostering of a strengthened positive image of AES."

Referring to the "tragic events" of the May 31 tornados, Mr. Bruce said that these happenings tend to bring out the best or worst in any organization. Fortunately for AES "the best" was exhibited by staff of the Ontario Weather Centre (OWC).

Singling out Mike Leduc as recipient of the first individual award, ADMA praised the meteorologist in charge of the severe weather program at OWC for his excellent forecasts issued on May 31. Mr. Bruce added that Leduc worked a 15-hour day on that occasion, then worked almost every day from May 31 to June 11, taking a major part in the field survey and playing a big role in preparing the report on the event. Unfor-

tunately, due to a bereavement, Mr. Leduc was unable to attend the ceremony. All the other Ontario Region recipients were part of the severe weather forecasting team. (Please see picture for those attending.)

Also present to receive an individual achievement award was Hans van Leeuwen, chief of the Training Coordination Division, AES Downsview. ADMA praised him for his encouragement of young people in the study of meteorology and for developing a close relationship between AES and the university meteorological community.

Lastly, an individual award was prepared for David Phillips superintendent of the Developmental Climatology Section, Canadian Climate Centre. Mr. Phillips was cited for his outstanding work in the creation and design of the Canadian Weather Trivia Calendar. Mr. Phillips was unable to attend the awards presentation.

AES was all set to send two five-member teams to the popular "Sportathon" warm-up scheduled to be held at the Canadian Forces Base, Downsview on September 17. The Department of National Defence is acting as United Way co-host for federal government participation in 1985 (along with the Public Service Alliance of Canada).

AES's own major United Way event is Awareness Day, scheduled for September 25. On this day there will be audio visual presentations in the auditorium and lobby along with talks by some of Metro Toronto's leading United Way organizers. Another highspot will be the serving by Jim Bruce in the AES cafeteria of bouillabaisse cooked according to his own family recipe. Mr. Bruce will also open Awareness Day proceedings in the auditorium.

According to Sonia Ventresca, this year's Environment Canada co-ordinator for the United Way, the interest and enthusiasm

shown so far by AES staff in organizing and canvassing for the 1985 campaign augurs well for 1986, when AES assumes the host role. She adds that there are approximately 50 federal departments totalling 27,000 people in Toronto and surrounding areas that will participate in the 1986 campaign. "The host department is responsible for the development of a campaign strategy, a supporting communications strategy, negotiation of targets, development of a canvasser training program and production of all campaign related materials," adds Ms. Ventresca. "This requires considerable effort on the part of the host department over a period of one year."

Two more key events within AES will be an airline ticket draw to Florida on the campaign's October 18 closing date and the turning in of pledges by canvassers on October 25. On this date the total 1985 AES contribution to the fund will be known.

Tornado Turmoil

by Michael Leduc

May 31, 1985 will long be remember in Ontario. At the Ontario Weather Centre it was the beginning of probably the most hectic couple of weeks in the office's history.

It had seemed ominous from the start. On May 30, as hot humid air began to move into southwestern Ontario, a weak weather disturbance triggered a powerful hailstorm which caused an estimated \$40 million damage to the Essex County vegetable crop.

By the morning of May 31, this extremely unstable airmass covered much of Southern and Central Ontario and all indications were that a powerful cold front would move through in the afternoon. Severe weather watches for all of Southern Ontario were continually updated all morning. As the severe weather meteorologist on duty that day, I came in about an hour earlier than normal anticipating a busy day.

Around 1 p.m. an ominous quiet existed across Southern Ontario. Radars showed that thunderstorms which had been occurring in the morning had disappeared. I was sitting at the severe weather desk carefully monitoring the radars in front of me. All charts indicated that the dynamics would come together shortly. At 1:40 p.m. it started. Thunderstorms began to develop very rapidly just west of the Bruce Peninsula. By 2:25 p.m. radar showed that a line of thunderstorms from the French River to just off the Bruce Peninsula had reached severe levels with the storms continuing to develop rapidly southwards. At this point a series of weather warnings began which would continue for the next 6 hours as the storm moved eastward.

Confirmation Received

Up until 4:00 p.m. the weather centre had no confirmation that severe storms were occurring, although the radar left little doubt that things were happening. Finally around 4:00 p.m. two weather watcher calls from Dundalk and Meaford indicated large hail and damaging winds. But it was not until 4:50 p.m. that confirmation was received at the weather centre of a tornado in the Shelburne area. The next few hours were crazy as reports of the severity of the storm came in. Barry Greer, chief meteorologist, stayed on to field calls arriving in from the press. He ended up being late for George McPherson's retirement dinner that evening. I continued issuing warnings, now for tornadoes, as the storms pushed into Eastern Ontario. The squall line moved into Quebec at about 8:30 p.m.



Remains of a living room in a demolished house on Debra Crescent, Barrie, Ont.

But the evening continued eerie. Gusty winds not associated with thunderstorms developed northwest of Toronto during the evening and raised a lot of dust. This made the clouds in the area appear very black. Residents of some communities hearing the tornado warnings still in effect for Eastern Ontario, and seeing the black clouds, thought they were threatened again. Several alarming calls came into the severe weather desk. A couple of emergency organizations also hearing these rumours delayed going into Tottenham. They also phoned the severe weather desk and requested clarification. By late evening the office was abuzz with rumours. There were fears about how high the death toll might go. (Total fatalities reached 12.) I finally left for home around 11:30 p.m.

The Follow Up

On the morning of June 1 Phil Aber, the new Ontario Region director met with staff from the Ontario Weather Centre. A press

release was prepared clarifying the weather centre's handling of the watches and warnings the previous day. Teams of meteorologists were sent out to investigate the storms. Art Russell and Gerry Wolfe went out to the Arthur-Grand Valley area. Barry Greer went to Barrie. Ole Jacobsen and Dejan Ristic headed towards Peterborough. Pierre Saindon and I went to Tottenham. The teams made detailed maps of the storm tracks, took pictures, and interviewed witnesses. Meanwhile Walter Lawrynuik stayed at the Weather Centre and handled calls from the press.

By Monday, June 3, it had been decided that a full report should be published as soon as possible. However, more information was still coming in. On Tuesday, June 4, the Weather Centre hired a small plane to examine storm tracks from the air. On the same day members of T. Fujita's team from the University of Chicago were in the area also investigating the storms. More reports of storm damage were still being received from



Two industrial sites west of Highway 400 in Barrie were reduced to utter rubble.

many areas of the Province. By the end of the week it was felt that the information was sufficiently complete and the writing of the report began.

Sifting through the reams of data, Ole Jacobsen prepared a series of maps detailing the tracks of the storms. I wrote the portions of the report which detailed the meteorological conditions which led to the storms, the sequence of events on the day of the storm and details on the individual storms. Walter Lawrynuik, Barry Greer and myself prepared recommendations and consulted with Phil Aber to come up with a final draft. This, along with a collection of slides, was ready in time for Walter Lawrynuik to make a keynote presentation at the CMOS Conference in Montreal on June 12. The paper was published on June 14 and copies have been distributed, many of them sold, to insurance companies.

During the two weeks following the storm there continued to be an endless series of media interviews mainly handled by Walter and Barry. One phone call I responded to brought home the sort of emotional impact the storms can have on people. A woman phoned the weather centre concerning her young daughter. The family lived near Barrie and had driven near the devastated area the next morning. The girl was plagued by nightmares that her house would be hit. A doctor suggested she talk to a meteorologist who could reassure her that it was highly unlikely that she would ever be a victim of a tornado. I spoke to the girl. I don't know if I convinced her but she sure gave me a different perspective on my job as severe weather meteorologist.

What Next?

The events of May 31 have certainly heightened people's interest in weather watches and warnings. The main press interviews with the weather centre have been used as a first step in helping the public understand the nature of severe storms and what steps they should take to protect themselves when a severe storm threatens.

The Ontario Weather Centre hopes to improve its severe weather program based on what it has learned from the May 31 events. We need to investigate faster ways of getting the message to the people threatened. Perhaps Doppler radar will provide a way of detecting tornadoes earlier. Studies on the uses of the new King City Doppler radar are planned for the coming year.

May 31 will not be forgotten soon at the Ontario Weather Centre.

Mr. Leduc is severe weather meteorologist at the Ontario Weather Centre.



Cinder block concrete bricks from a Barrie industrial building scattered far and wide give the area the look of a battlefield.

AES and the Tornado

by Doug Payne

The new Ontario regional director of AES and the AES man on our committee is Phil Aber. Early in June, he called together representatives of the Ontario Provincial Police, Emergency Planning Ontario, CBC Regional TV and Radio, Broadcast News, the Toronto Star and RTNDA for a session to isolate some of the problems which arose during and after the May 31 tornado in the Barrie area.

Many news directors say AES did a good job getting out the warnings very early in the day, and following up when the twister touched down in Barrie, but there were some problems. The weather wire, if it isn't right in the newsroom and checked frequently, would not have been as effective a source as it could have been. There is no provision for bulletin bells on the weather wire. BN does have a provision for weather urgents, but their system went down during a critical period.

The OPP noted that during a weather alert, they act as weather watchers, providing information to AES. But their news bureau circuit would not necessarily provide those observations to newsrooms, and in fact, some newsrooms are without the news bureau audio service.

RTNDA expressed concern that AES provided no survival information or advice to those in the path of the twister. This infor-

mation is available in poster form, and AES says they will send those posters to all newsrooms.

It was also noted the Ontario Weatheradio system might provide newsrooms with the best back-up system. These do have an alert tone, and could be installed in the control room, which is always manned. These can be purchased from various sources for about \$100.

AES pointed out there is an educational function that needs to be better handled by the media and by AES itself. Representatives at the meeting expressed the belief that radio and TV newscasts are not the vehicle to educate the public, but perhaps cable TV, newspapers, and community papers were.

There is an official storm season in Ontario, which runs from April first to October first. BN indicated a willingness to run some sort of feature which could be tied to the start of the storm season each year.

From an RTNDA point of view, the twister and its aftermath raised a number of serious concerns that broadcasters should be addressing. Some of the news directors in central Ontario indicated they dropped the warning that severe thunderstorm conditions could lead to tornadoes. I will be putting forward resolutions at the National Convention in Halifax about the lack of co-ordination between emergency planners and the media, and also, a second resolution dealing with stand-by power and our community service obligations during an emergency.

Excerpted from the Radio, Television News' Directors Association publication, News Break. Doug Payne, an experienced television journalist, is a spokesman for RTNDA.

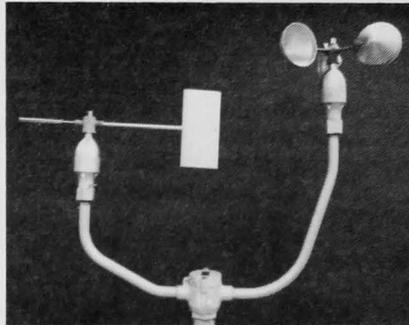
EMPLOYEE EQUIPMENT



Dave McKay is a University of Toronto graduate meteorologist. He spent his first three years in AES as a field weather forecaster. For the past twenty-one years, however, he has worked in weather instrument development (ACSL/M). His most recent project has been the development and production of the 78D anemometer.

The 78D is an anemometer hooked up to a micro-processor capable of storing the information it collects and electronically transmitting it to weather offices at five-second intervals.

Ideas like the computerized anemometer are conceived collectively by the staff of Instrumentation and a number of these ideas are always being developed concurrently. Dave began the work of actually "inventing" the 78D back in 1981 and it is now at the field trial stage. It works very well

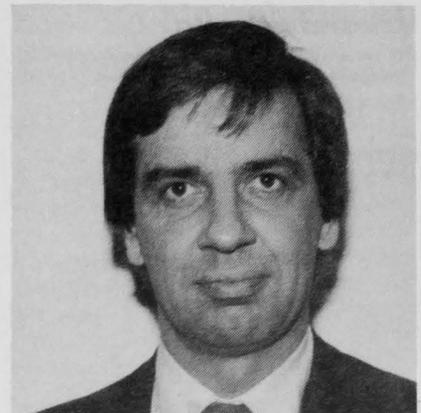


and is a substantial practical advance in the utilization of anemometer weather data.

The 78D is presently being tested in a number of "necessary locations". For the moment, the current model anemometer is still satisfactory for many weather stations but as these models wear out, they will be replaced by the 78D. Dave estimates that there will be 300 or 400 in operation within the next five to ten years.

Dave says that his twenty-one years in Instrumentation have been even-keeled. The work is technically and professionally absorbing but not highlighted by sudden exciting mutations or breakthroughs. Its creative progress may be described as "an accumulation of small advantages". He says it is work that suits him perfectly.

His next project is going to be something Dave calls a "smart" sensor.



Bill Pugsley holds new CCC Science Post

William (Bill) Pugsley has been appointed director of Planning and Scientific Program Development (CCRD) in the Canadian Climate Centre, Centre (CCC)

According to Howard Ferguson, director general of the Canadian Climate Centre, Bill will be responsible for the development, coordination and evaluation of plans and programs providing scientific input to new techniques for climate prediction and applications and for the understanding and detection of climate change.

Mr. Pugsley will specifically be responsible for planning CCC research and computer needs; for managing scientific human resources, for planning contributions to the World Climate Research Program and for monitoring scientific research contracts.

After serving for nine years as a weather forecaster in various parts of Eastern Canada, Mr. Pugsley was seconded to the Prairie Provinces Water Board Study in Calgary in 1971. Following a three-year period teaching post-graduate meteorology at AES Downsview Headquarters, he was appointed superintendent of hydrometeorological projects; then in 1977 became chief of the Hydrometeorological Division, CCC.

During the current assignment, Bill will continue to be the Service's contact for the development of plans for the new hydro-meteorological unit at the National Hydrological Research Centre in Saskatoon and for the preparation of the AES response to the final report of the Pearse Inquiry on Federal Water Policy.

A native of Ontario, Mr. Pugsley received his BSc from the University of Toronto in 1962 and his MSc (Meteorology) from McGill University in 1970. He has published more than a dozen reports and papers dealing with meteorological network planning and improved techniques for flood forecasting. He has served on several national and international committees and is chairman of the World Meteorological Organization's Working Group on Hydrological Data Collection, Processing and Transmission Systems.



Have you worked on Christmas Day?

Zephyr intends to run as part of its November - December issue an article portraying the experiences of AES staff who have worked on December 25 during recent years.

If you have any anecdotes, humorous incidents or general comments on the job during this very special day please write us a short article (between 150 and 250 words). Don't forget to mention precise dates, locations, rank, type of work, telephone number etc. Deadline is October 31.

Our address is:
Zephyr
Information Directorate
Environment Canada
4905 Dufferin St., Downsview, Ontario
M3H 5T4

Displaying old weather instruments just part of this technician's job

We might call Tom Hacking "the curator" of AES's prize antique weather instruments collection. But he denies that his connection with it is either unique or important. In fact his custodianship came as part of his meteorological technician's job. But the truth is, he has an insatiable hobbyist's appetite for just this kind of work. He loves to tinker with old instruments, re-assemble them, admire them and talk about them. A number of AES personnel have contributed as much if not more than he has. He mentions their names with warmth — Pat Connor, Ron Miller, Percy Saltzman, Bill McNaughton, Frank Harris and his colleagues in the Instrument Shop (ACSS).

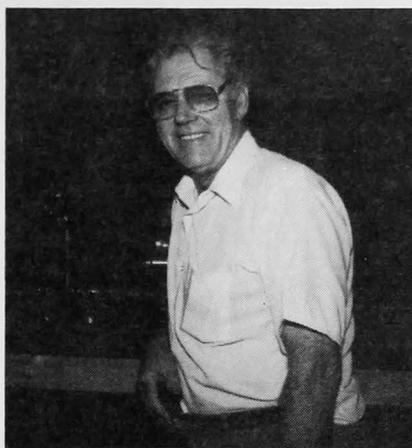
Still, Tom is presently in charge of maintaining and increasing the collection and as things stand knows as much about antique weather instruments as anybody.

The core of the present collection was found one day "in an attic" at Met Service's old Bloor Street headquarters. The idea of refurbishing this attic collection and turning it into an exhibit was, if Tom remembers correctly, ACSM chief Pat Connor's. "It was a centennial project — a contribution to the celebrations that marked, in 1971, the 100th anniversary of Canada's weather service."

Tom was born in Blackpool, England. He and his wife emigrated to Canada in 1952. He wants us to believe as a plain matter of fact that in Blackpool they flipped a coin to decide between Canada, Kenya, and Australia. "We were young and adventurous in 1952 and had complete faith in flips

of a coin." As a result of their flipped coin, the young immigrants emerged from Toronto Union Station with no contacts in the city whatsoever. But there was a taxi stand at the curb right in front of them and the driver sped them off to an inexpensive hotel. The next morning, the nearby immigration office sent Tom out to Avro Aircraft in Malton. While sitting around waiting to be interviewed, his wife landed a job at Avro's reception desk. Tom was startled to hear her voice on the PA summoning him to the interview!

In those days, Avro had its ups and downs and so in 1961 Tom came to AES's predecessor and he has been here ever since.



Tom Hacking

Returning to antique weather instruments — Tom admires an old Kew Photographic Barograph and Thermograph. These two instruments are unique and of great historical interest and value to the AES. They had been in continuous service at the old Toronto headquarters from 1880 to 1940.

There are only two other instruments of their kind surviving and these are on display in London, England: a Barograph in Kew Gardens and a Thermograph in the British Science Museum.

Both the photographic thermograph and barograph will soon be added to the glass-encased exhibition on display in the Downsview building lobby. Tom has had compiled a catalogue which lists 200 antique items. He remembers he donated some plum pieces to Edmonton Weather Centre — remembers it with dismay. "Gosh they were beautiful! I'm sorry I parted with them."

Following the establishment of the collection for the Centennial, the next big restoring and refurbishing event occurred in 1984 as part of the Environment 2000 project. About 25 pieces were restored at that time by two summer employees. These items included an 1840 mechanical calculator and a tipping bucket rain recorder (see *Zephyr Breezes*, November/December 1984).

Tom has now organized some of these antique pieces into a travelling display which has already been exhibited at Sudbury's Science North science centre and in Ottawa. Downsview will remain the home base of the display, however.

With the completion of the restoration of the photo thermograph and the barograph — two magnificent instruments, Tom's care of the collection may be starting to slow down. His retirement from AES looms two or three years down the road. But before surrendering the prize collection, he intends to make one last dash over to the British Science Museum and bring back all the data on old weather instruments he can lay his hands on.

As all antiques do, the collection will grow in value during the years ahead and will make a wonderful inheritance for meteorologists two or three generations from now.



Seen at the opening session of CIMO IX in Ottawa in mid-July are, left to right: Don Smith, deputy secretary general, World Meteorological Organization, Dr. Jaan Kruus, vice president, CIMO, Jacques Gérin former deputy minister DOE and Dr. S. Huovila, president of CIMO. CIMO which stands for Commission for Instruments and Methods of Observation, examined among other things, methods of standardizing WMO weather observations around the world.

The earliest Manitoba climatological data on record were observed at Hudson's Bay Company posts in the 1770s while "official" observations began within two years of the passing of the Manitoba Act in 1870. In 1869 the Canadian and British governments decided that Rupert's Land, which had been managed by the HBC, should become part of Canada. Immediately G.T. Kingston, Director of the Toronto Observatory, wrote to the federal government urging that "a good meteorological station with a full set of instruments" be established in the Red River Settlement. The suggestion was turned down by William McDougall, the Lieutenant Governor designate, but a year later, in October 1870 Kingston wrote to Sir Adam Archibald, the Lieutenant Governor of the new province of Manitoba, suggesting a chief station for Fort Garry and about a dozen other climatological stations in the province.

During the next few months Kingston was in correspondence with both the Dept. of Agriculture and the Dept. of Marine and Fisheries regarding the value of a national meteorological organization to collect climatological statistics and eventually to provide weather forecasts. The minister of Marine and Fisheries, Peter Mitchell, accepted Kingston's "scheme" and on May 1, 1871 the Governor General approved a Minute of the Privy Council authorizing the department to carry it out and appropriating \$5,000 for the purpose.

Later that month Kingston approached Archdeacon McLean of Manitoba as to whether or not the Bishop of Rupert's Land would consider setting up a Chief Station at St. John's College not only to take weather observations but also to recruit and supervise other observers in the region. In July, Kingston heard of James Stewart, a druggist in Winnipeg, who had apparently been taking weather observations for a number of years and wrote to encourage him. At about the same time Kingston was able to officially offer the Bishop \$200 to purchase instruments in England for St. John's College and \$500 to fund observations and administrative duties for the year beginning January 1, 1872. Further, Kingston recommended that the services of Mr. Stewart be utilized in the program.

Unfortunately, Stewart felt that now there were government funds for meteorology, it was being made a "church affair" and that he was being pushed aside. He refused to cooperate with St. John's College and letters from Manitoba College and the news-



Meteorology in Manitoba 1869-1875

by Morley Thomas

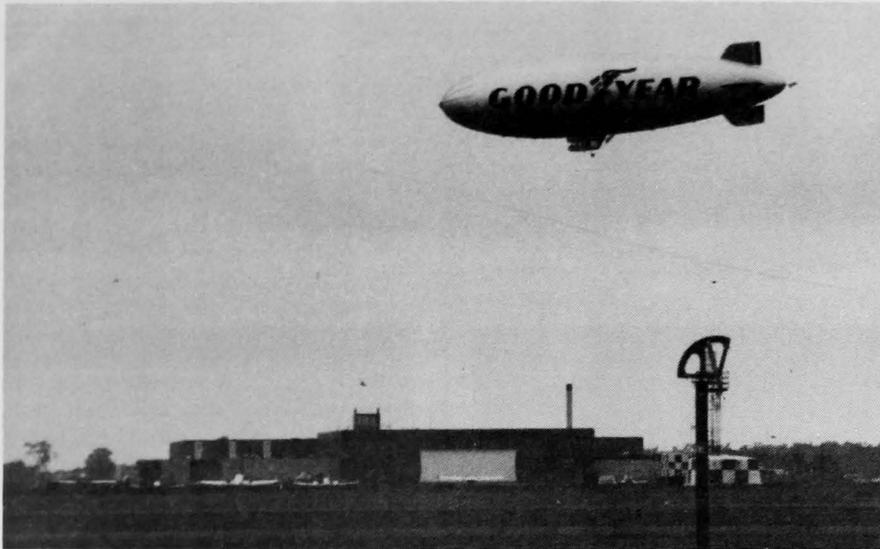
Unfortunately, Stewart felt that now there were government funds for meteorology, it was being made a "church affair" and that he was being pushed aside.

paper Manitoban were sent to Toronto supporting his case. The result was that St. John's became the Chief Station, with observations beginning in March 1872 and Stewart, who had begun sending observations to Toronto in October 1871, started to report by telegraph in the winter of 1872-73 as a paid observer. The college authorities managed to bring some other stations into the meteorological system in the early 1870s — W.G. Finney of Whytewold began reporting in March 1874, D. Gunn of Little Britain in May 1874, J. Fortescu of York Factory in October 1874 and W. Ogilvie of Riding Mountain in January 1875.

Another Dominion organization, the Northwest Mounted Police, was active in early Manitoba meteorology. The NWMP was created by an Act in May 1873 and within a year Col. French, the Superintendent, agreed to start three first class observing stations in the Northwest. Accordingly, when the police party left Toronto early in June 1874 for Winnipeg, via St. Paul and Fargo, they took several boxes of meteorological instruments. It is likely that most of the equipment was used at stations further west than Manitoba but the shipment did contain eight cases of meteorological apparatus addressed to the Lord Bishop of Rupert's Land for use at stations set up by officers of St. John's College.

It is interesting to note that the feeling of nationalism ran high in Canada during this period. In September 1874, Kingston was "vexed" to learn that Stewart had accepted a self-registering anemometer from the U.S. Army meteorological service and wrote to Stewart stating that he should not have accepted a gift from a foreign government and that he was compelled to undertake "the unpleasant task of insisting on making payment for it." In March 1875 Kingston wrote to the Bishop of Rupert's Land remarking that it was "discreditable to the Dominion of Canada" that the U.S. paid observers such as the one at York Factory. Further Kingston denied that Mr. Stewart was being paid by the Americans although he admitted the U.S. Signal Office had offered to supply instruments to him but he, Kingston, had supplied instruments as well as salary.

Mr. Thomas, former director general of the Canadian Climate Centre, is now the AES Historian.



Two famous visitors to St-Hubert A weather station: the Good Year blimp "America" for special events in the eighties and the British airship R-100 in 1930.

St.-Hubert Weather Station remembers the R-100 Airship

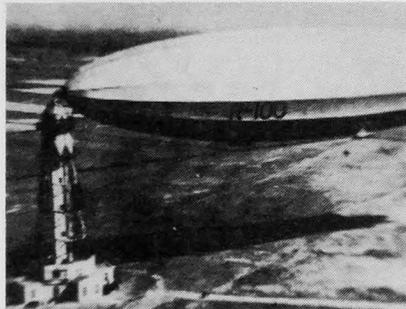
by Marc A. Gélinas

St-Hubert A is the official METSTAT name for the weather station at Saint-Hubert, Quebec. The briefing and observation office is operated by AES and located at an airport which became the first federal airport in Canada in 1930.

The first weather records were made in August 1928, and a complete program of observations was started in 1938. During the Second World War, the armed forces were running all operations at the airport in order to train their pilots, and there are no weather records from September 1941 to June 1949. National Defence ran the airport until 1968, and today there are still AES staff members who began their careers at St-Hubert during this period. In 1968 Transport Canada took over the airport, and in 1971 a briefing office was established.

St-Hubert airport is thirteen kilometres east of downtown Montreal, and Mount Royal is an excellent marker of visibility for observers. The St. Lawrence River lies between Montreal and St-Hubert, and so in winter, banks of steam fog can be seen. On days with strong inversions, a pollution dome can be seen covering the island of Montreal while at Saint-Hubert the sky is cloudless and visibility perfect. However, when southerly winds are blowing, the effect of the Richelieu Valley produces strong gusting, to a degree that our colleagues at Dorval do not experience. Sometimes these winds make things a little warmer than at Dorval since they are coming straight from the Hudson Valley and Lake Champlain.

At present, 24-hr service is provided by a staff of four briefer/observers and the officer-in-charge (who takes a hand in the



operational activities). Among the big consumers of our services are student pilots from the internationally famous flying schools located nearby. Besides Canadians, we serve student pilots from Europe, Africa, South America and Asia. In addition we provide service to agriculture, pleasure boaters, industry, the media and other users (including hot-air balloonists and owners of carrier pigeons).

On August 1, 1930, the British airship R-100 landed here to celebrate the airport's inauguration. And today, the Good Year blimp "America" visits for notable occasions such as Grand Prix car racing. Though still very popular, airships no longer attract crowds or inspire songwriters, as they did in 1930.

Nowadays weather technicians have radar, computers, satellites and ever more sophisticated means of communication available to them. But just as in 1928, they continue to go out every hour to make visual observations of the weather.

On behalf of Jean-Pierre Bernard, Serge-André Gauthier, Jean-Claude Leblanc and Denis Paquette, let me take this opportunity to invite you for a visit if ever you should pass through Saint-Hubert.

*Marc A Gélinas
Officer-in-charge
Weather Office
Saint-Hubert, Que.*

LETTERS

Sir:

In your March-April issue you mentioned in Zephyr Breezes that Charles Daigle worked a 28 hour shift non-stop.

I wouldn't wish to denigrate his effort but must point out this is far from being a record.

During the notorious Frobisher Bay Blizzard (mentioned in the Weather Trivia Calendar), I worked a 39 hour shift and my two colleagues, Sean Malone and Louis Allard, worked 64 and 89 hours respectively.

If further research were done on the subject we might make several more surprising discoveries.

Sincerely,

*Jean-Claude Leblanc
OIC St.-Hubert Weather Office*



John Mills named Field Services Director

John Mills has been appointed director, Field Meteorological Systems Branch, FSD leaving his previous position as director, Meteorology and Oceanography with National Defence in Ottawa (DMETOC).

Born and educated in St. John's, Newfoundland, Mr. Mills first joined the Canadian Meteorological Service (predecessor to the Atmospheric Environment Service) in 1968. He has a broad background of experience both in the field and at headquarters holding positions as shift supervisor, Ontario Weather Centre; chief, Forecast Operations, Western Region; and chief, Program Planning and Evaluation. While working in the program planning area Mr. Mills was responsible for the criterion of the AES Program Activity Structure.

In his new position Mr. Mills will be responsible for the development and implementation of Field Services Directorate policies and plans as well as the headquarters coordination of FSD activities.

ZEPHYR BREEZES

Here comes that Calendar again!

The highly successful AES Weather Trivia Calendar has been updated, re-edited and looking better than ever, will be published on September 16. The format of the 1986 calendar resembles that of 1985 but contains a complete series of new photographs and 1700 weather facts, many relating to 1984-85. For example, one can now read that on January 12, 1984 a local snow squall created a massive 200 car pile-up near Burlington, Ontario injuring 89 people and causing \$1 M damage to vehicles or that on April 21, 1985 the worst April snowstorm in 30 years struck Alberta with falls of up to 50 cm in central Alberta. The September pages give a fairly complete weather itinerary of the Pope's historic visit to Canada. The May pages mention both a white Mother's Day in SW Ontario (May 13, 1984) and the worst tornado outbreak in central Ontario in 30 years at Barrie, Orangeville and other centres on May 31, 1985. All in all there is more trivia than ever. Even the blank days on the calendar are now crammed with juicy weather facts.

In a memo for cross-Canada ID use, AES senior communications advisor Brenda O'Connor says "This is the biggest bargain of the year — hundreds of items of all-Canadian trivia at 20 per cent of the price of the well-known parlor game." Last year copies of the calendar went mainly to AES volunteer observers and to AES staff. This year 20,000 English and 5,000 French calendars will be put on sale to the public at a price of \$4.25, through the department of Supply and Services, Ottawa and in certain bookstores.

An example of Weather Trivia

The average length of a tornado's path is about 5 km and ranges from 160 m to 160 km, but on occasion can reach 500 km. The path width averages about 120 m but swaths can vary from a few metres to 1.5 km wide. The typical speed of a tornado is 50 km/h with the fastest ones travelling at 175 km/h.

Maximum speeds near the ground within the vortex of a tornado have been estimated to exceed 400 km/h on occasion, far higher than that of a hurricane. Minimum pressure within a tornado may be as low as 60 kPa (60% of normal pressure).



Dr. Ian Rutherford, director, Field Services Directorate hands Herb Kruger a gift at farewell party number one.

Two farewell events (neither of them retirements) occurring within three weeks of each other at AES Downsview headquarters are worthy of note. On July 24 a "CASP CAper" picnic was held in nearby Ross Lord park to offer a fond farewell to Herb Kruger, long-time Field Services Directorate guru on the occasion of his departure for the Bedford Institute of Oceanography (Halifax, N.S.) where Herb will continue his work on the Canadian Atlantic Storm Project. The "caper" was attended by some 35 people including Herbs' wife Jockie and Dr. Ian Rutherford (AFDG) who acted as M.C.

The other event was a Korn Roast, held August 15 in the AES cafeteria to honor Bob Vockeroth, now leaving for the Pacific Weather Centre in Vancouver. Bob, who has spent 35 years with the Met. Service, has devoted recent years to developing a high technology successor to the old Pacific weather ships. He will now work on a project to upgrade weather services for west coast fishermen. The Korn Roast was remarkable in that four generations of Vockeroths attended: Bob's mother, Bob and his wife Erie, Bob's daughter and his two grandchildren.

Both men plan eventual retirement from their new postings in the short or medium term.



Jim McCulloch, director, Central Services Directorate hands a gift to Bob Vockeroth at farewell party number two.

Highly recommended is the new Imax film, *The Dream is Alive*, with its breathtaking views of the U.S. and Canadian space programs and intimate footage of life aboard the space shuttle. Directed by Canadian Graham Ferguson, the film shows how it feels to be lifted off by a multi-stage rocket, how it looks to eat breaded shrimps in a state of weightlessness or what's needed to retrieve a maverick satellite (using the often-displayed Canada Arm). Canadian astronaut Marc Garneau, who flew aboard the *Challenger* makes a brief appearance, minus his AES-made sunphotometer. The narrator does, however, mention climate change observations just as the shuttle streaks over the Egyptian desert. Highspots of the film are views of the whole earth taken from the spacecraft. *The Dream is Alive* has been playing since August at the giant-screen Cinesphere at Ontario Place, Toronto. It is scheduled to open September 22 at Edmonton's Space Science Theatre and probably next year at Vancouver's Expo 86.

Also worth seeing is freelance film maker Doug Bailey's documentary *Stop the World*. The subject is isolation and opportunity at AES's Arctic weather stations. The film is both an excellent mood piece and a scenic stunner. *Stop the World* has already been shown

nationally on CBC television, but is likely to be shown again elsewhere in the near future. It deals with transients at the HAWS stations rather than AES personnel, but does present some really interesting insights into the problems of isolation in the North. AES is considering purchasing a copy of the film as an indoctrination piece for those about to be posted to the Arctic.

As forecast, the weather was warm and sunny for the annual golf tournament for employees of the Québec airport. Representing AES were Laurent Foucreault, Roger Déry and Gilles Tardif. (The latter came all the way from the French Editing unit, AES Downsview headquarters). Gilles says he was commended both for his long distance tee-offs and for his 177 score. (He was credited with being the "most honest player.") As a group the three won five out of seven awards. A couple of final remarks from Gilles: "The AES team owed its success to Roger's moral support. In general, the more tee-offs one gets to make, the better the chance of scoring an ace in the hole."

In a feature review of the new and different American daily newspaper USA Today Bryan Johnson of the Globe and Mail confirms what many Canadian readers of this

pyrotechnically colorful journal already know — the weather page both journalistically and meteorologically is a winner. To quote the writer: "In the process, the team assembled by the Gannett newspaper chain took the fundamental precepts of print journalism and knocked them upside down. They began with the weather of all things, hatching the idea of a full-color three-dimensional map that would occupy an entire page."

Later on Johnson quotes managing editor Richard Curtis as saying, "A lot of people laughed at our weather map when we first came out, but I think it has become the one truly remarkable page in the paper. It's almost universally loved by the readers and universally hated by journalists. Yet a whole lot of other papers have copied it."

USA Today has been described as a newspaper trying to imitate TV. Looking at the array of four-color weather maps, charts and statistics for every part of the country conveys a much better idea of the overall weather situation than glancing passively at even the liveliest TV "weather show."

AES Ontario Region has been running a staff photography contest this summer. Open to all employees of AES Ontario Region the contest will award five trophies, including the director's trophy for the best photography of all entries received. Other

trophies will be for the best photography of weather instrumentation, best photography of a summer severe weather event, best photography of weather-sensitive impacts and best photography of clouds and/or precipitation.

Winners will be allowed to keep each winning trophy in his/her office for one year. They will also receive framed enlargements of their prize winning entries. Closing date for the contest is September 30.

Comments regional director Phil Aber, "I would encourage widespread participation regardless of photographic (in)experience."

When Dr. R.K.R. Vupputuri of the Climate Centre's Numerical Modelling Division visited the Tsukuba Meteorological Institute near Tokyo in May he gave a 90-minute seminar on nuclear winter. In a report written to three AES directors general Dr. Vupputuri says that judging by the number of questions during the discussion period the response of the audience was good.

Later Dr. Vupputuri said that he had carefully avoided using the term nuclear winter while on Japanese territory. To avoid Japanese sensibilities on the subject, he had referred to his topic as artificial heating and cooling of the atmosphere.

Richard Asselin Returns to DMETOC Post

Richard Asselin has returned to his post as director, Meteorology and Oceanography, Department of National Defence, after serving for 18 months as director general of Information, Environment Canada.

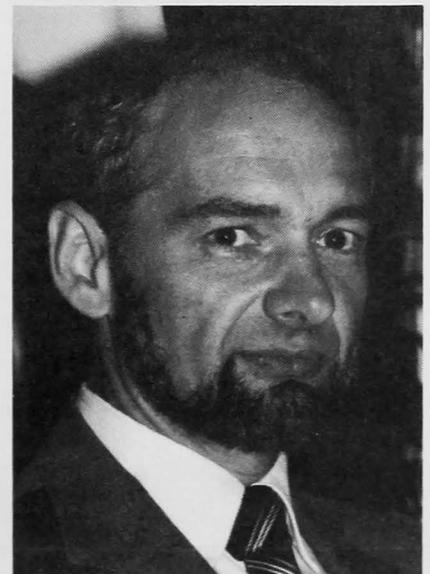
Dr. Asselin joined the former Meteorological Branch of the Department of Transport in 1962 as a research meteorologist at the Central Analysis Office and until 1978 occupied various posts with the division de Recherche en prévision numérique (RPN), Atmospheric Research Directorate in Dorval, PQ.

Dr. Asselin started his university training at the Collège Militaire Royal de St-Jean. He obtained the BSc (honors Maths) from

Université de Montréal and his MSc and PhD in meteorology from McGill University. From 1974 to 1978 he was head of RPN. After graduating from the National Defence College in 1979 he served for a few months as advisor to ADMA and was then appointed to the position often abbreviated to DMETOC.

Dr. Asselin was president of the Canadian Meteorological and Oceanographic Society in 1982-83. He has participated in conferences in Europe and the U.S.A. He has written papers in specialized journals and taught a course in meteorology at McGill University. In 1977-78 he was part of the Global Atmospheric Research Program's Working Group on Numerical Experimentation.

He is married and the father of three sons. He enjoys badminton, cross-country skiing, sailing, curling, gardening and woodworking.



CHANGEMENT DE PERSONNEL / STAFF CHANGES

Avancements/Nominations Promotions/Appointments

R. Spokes (EG-5) tech. en climat des glaces/Ice Tech., Centre de prévision des glaces/Ice Centre, Ottawa, Ont.

R. Lee (MT-7) météorologiste/Meteorologist, chef, exploitation de réseau/Head, Network Operations, AFOO, Downsview, Ont.

G. Korson (SCY-2) secrétaire/Secretary, AFOC, Downsview, Ont.

G.A. Weaver (EG-6) inspecteur régional/Regional Inspector, OAED, Toronto, Ont.

A. Bishnoi (CS-3) surintendant, systèmes informatiques/Supt. Computer Systems, ARMS, Downsview, Ont.

J. Steele (EG-6) tech. en prés./Pres. Tech., ALWC, Edmonton, Alb./Alta.

R. Lakeman (EG-3) tech. en aér./U/A Tech., SM2/WS2, Norman Wells, T. N.-O./N.W.T.

J. McIntyre (EG-3) tech. en aér./U/A Tech., SM2/WS2, Cambridge Bay, T. N.-O./N.W.T.

A. Harou (MT-2) météorologiste/Meteorologist, ARWC, Edmonton, Alb./Alta.

J.L. Cormier (EG-6) tech. en prés./Pres. Tech., BM4/WO4, Goose Bay, T.N./Nfld.

M.L. Miller (EG-6) tech. en prés./Pres. Tech., BM4/WO4, St. John's T.N./Nfld.

K.L. Garrison (FI-1) agent des services financiers/Financial Officer, Bedford, N.-É./N.S.

J.M. St. Pierre (MT-5) météorologiste/Meteorologist, MWC, Bedford, N.-É./N.S.

C. Masse (MT-6) météorologiste/Meteorologist, CMQ/QMC, St-Laurent, Qc/PQ.

H.P. Biron (MT-5) météorologiste/Meteorologist, CMQ/QMC, St-Laurent, Qc/PQ.

T. Drozd (EG-7) chef, sous-section, soutien des projets principaux/Head, Major Projects Support Unit, AFON, Downsview, Ont.

S. Pagé (CR-4) commis/Clerk, QAFAF, St-Laurent, Qc/PQ.

B. Ross (PE-2) agent du personnel/Personnel Officer, PAED, Vancouver, C.B./B.C.

S. Malone (CS-1) programmeur/Programmer, MAED, Bedford, N.-É./N.S.

J.D. Lanctin (EG-1) tech. en mét./Met. Tech., SM3/WS3, Churchill Falls, T.N./Nfld.

L. Lau (CS-2) progr. analyste/Analyst Programmer, ACPP, Downsview, Ont.

A. Van de Mosselaert (EG-1) tech. en mét./Met. Tech., SM3/WS3, Cree Lake, Sask.

A. Green (EG-1) tech. en mét./Met. Tech., SM3/WS3, Estevan, Sask.

R. Simpson (EG-3) tech. en aér. D.1/U/A Tech., SM1/WS1, Eureka, T. N.-O./N.W.T.

T. Gresiuk (EG-3) tech. en aér./U/A Tech., SM1/WS1 Alert, T. N.-O./N.W.T.

S. Witte (EG-3) tech. en aér./U/A Tech., SM2/WS2 Mould Bay, T. N.-O./N.W.T.

L. Caron (MT-2) météorologiste/Meteorologist, CMO/OWC, Toronto, Ont.

D. Daignault (MT-2) météorologiste/Meteorologist, CMO/OWC,

T. Sutherland (MT-3) météorologiste/Meteorologist, CMO/OWC,

E. Lord (MT-3) météorologiste/Meteorologist, CMO/OWC,

O. Jacobsen (MT-2) météorologiste/Meteorologist, CMO/OWC,

S. Forbrich (MT-2) météorologiste/Meteorologist, CMO/OWC,

P. Saindon (MT-2) météorologiste/Meteorologist, CMO/OWC,

D. Ristic (MT-5) météorologiste/Meteorologist, CMO/OWC,

M. Bucken (EG-1) tech. en mét./Met. Tech., Bureau mét. de Toronto, Ont./Toronto Weather Office, Toronto, Ont.

S. Deschamp (EG-1) tech. en mét./Met. Tech., BM4/WO4, Sault Ste. Marie, Ont.

R. Raczyński (EG-6) responsable de station/OIC, SM1/WS1, Big Trout Lake, Ont.

C. Quinn (EG-5) responsable de station/OIC, SM1/WS1, Moosonee, Ont.

Mutations/Transfers

R.J. Daigle (MT-5) Agent en météo/Base Met. Officer, BFC/CFB Greenwood, N.-É./N.S.

D. Gosselin (MT-2) mét. niveau perf./Met. Dev. Level, METOC, Halifax, N.-É./N.S.

B.K. Wong (MT-5) Agent en météo./Base Met. Officer, BFC/CFB Cold Lake, Alb./Alta.

K.D. Thornhill (EG-4) tech. en aér./U/A Tech., SM2/WS2, St. John's, T.-N./Nfld.

I. Soulé (MT-2) mét. niveau perf./Met. Dev. Level, MWC, Bedford, N.-É./N.S.

G. Browne (MT-2) météorologiste/Meteorologist, ARWC, Edmonton, Alb./Alta.

E. Prozny (EG-8) Surintendant, normes et exigences, B.M./Supt. W.O. Stand. & Req. WAED Edmonton Alb./Alta.

D. St-André (EG-1) tech. en prés./Pres. Tech., QAE00, Cape Dyer, T. N.-O./N.W.T.

M. Charbonneau (CR-4) commis/Clerk, QAEAF, St-Laurent, Qc/P.Q.

C. Dale (EG-1) tech. en mét./Met. Tech., SM3/WS3, Cape St. James, C.-B./B.C.

P. Clarabut (EG-1) tech. en mét./Met. Tech., Aéroport int. Vancouver/Vancouver Int'l. Airport, C.-B./B.C.

S. Boutot (EG-4) tech. en mét./Met. Tech. SM3/WS3, Churchill Falls, T.-N./Nfld.

J.M. Couturier (EG-4) tech. en mét./Met. Tech. SM1/WS1, Sable Island, N.-É./N.S.

M. Jean (MT-2) météorologiste/Meteorologist, CMO/OWC, Toronto, Ont.

H. Andrews (EG-2) tech. en prés./Pres. Tech., BM4/WQ4, London, Ont.

Postes temporaires ou intérimaires/ Temporary or Acting Positions

M.A. Teeter (SCY-2) secrétaire/Secretary, ACSN, Downsview, Ont.

J. Martire (CR-3) commis/Clerk, ACSM, Downsview, Ont.

A.J. Malinauskas (MT-6) météorologiste/Meteorologist, CCRD, Downsview, Ont.

B. Lohnes (EG-5) responsable de station/OIC, SMMWS3, Cape St. James, C.-B./B.C.

R. Carbone (DA-PRO-4) Contrôleur du pupitre principal/ Console Controller, CIDO, Dorval, Qc/PQ.

S. Blackwell (MT-6) météorologiste/Meteorologist, CMO/OWC, Toronto, Ont.

Départs/Departures

D. Young, OCC, Toronto, Ont.

M. Crawford, ACTS, Downsview, Ont.

V.E. Cowden, ACSL, Downsview, Ont.

K. Lloyd-Walters, BM3/WO3, Yellowknife, T. N.-O./N.W.T.

P. Minnvielle, SM3/WS3, Slave Lake, Alb./Alta. — Études/Education

Y. Cardinal, Edmonton, Alb./Alta.

D. Polutnik, BM4/WO4, Inuvik, T. N.-O./N.W.T.

C. Fode, Edmonton, Alb./Alta.

K. Dumaresq, Edmonton, Alb./Alta.

P. Gillard, ACPC, Downsview, Ont. — Santé et Bien-être social/Health & Welfare, Toronto, Ont.

D. Shears, ACPE, Downsview, Ont. — Toronto East General Hospital, Toronto, Ont.

Détachements/Secondment

J. Vanos, CMO/OWC, Toronto, Ont. — BFC/CFB Baden Baden, RFA/West Germany

L. Richard, CMO/OWC, Toronto, Ont. — ARWC, Edmonton, Alb./Alta.

B. Beaulieu, CMO/OWC, Toronto, Ont. — BFC/CFB, Nanaimo, C.-B./B.C.

R. Lefebvre, CMO/OWC, Toronto, Ont. — Québec

R. Mandeville, CMO/OWC, Toronto, Ont. — Dir. de la formation/Training Branch

A. Harou, CMO/OWC, Toronto, Ont. — ARWC, Edmonton, Alb./Alta.

A. Leduc, CMO/OWC, Toronto, Ont.

D. Paquette, St. Catharines, Ont. — St-Hubert, Qc/PQ.

Congés autorisés/Leave of Absence

H. Veenendeal OAEW, Toronto, Ont.

Rétraites/Retirements

A.D. Gates, APCO, Hull, Qc/PQ. sept./Sept. 1984

S. Nikleva, Division des services scientifiques/Scientific Services Division, Vancouver, C.-B./B.C. juin/June 1985

F. Sebastian, PRWC, Winnipeg, Man. juillet/July, 1985.

Décès/Deaths

C. Boughner, ancien directeur de climatologie/Former Director of Climatology, AES, Downsview, Ont. août/Aug. 1985