July/August 1981

ZEPHYR

Environment Canada
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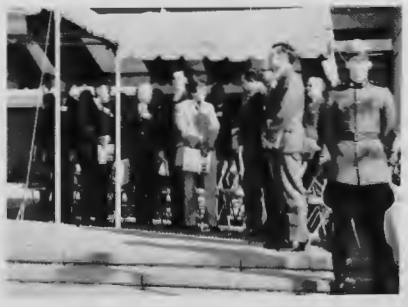

Cover: Along with Environment Canada as a whole and with AES as an organization, the spacious Downsview building is celebrating its tenth anniversary this summer.

Zephyr is a periodical publication for employees of the Atmospheric Environment Service, Environment Canada. It is produced for the Atmospheric Environment Service by the Information Directorate of Environment Canada.

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Environment Canada / Environnement Canada

Atmospheric Environment Service / Service de l'environnement atmosphérique

Morley Thomas wins Patterson medal

Morley Thomas, Director General of the Canadian Climate Centre wins this year's Patterson Medal on the basis of his major contribution to society through climatology. He is one of the few AES directors general to win the top meteorology award in recent years. Preceding him was Dr. Warren Godson, of the Atmospheric Research Directorate in 1968.

Mr. Thomas spent nearly 40 years as a meteorologist and climatologist and, among other positions, held the post of Superintendent of Climatological Operations, where he evolved as the major authority on Canada's climate. He became director of the Meteorological Operations Branch in 1971, Director General, Central Services Directorate (AES) in 1976 and assumed his present position in 1979.

He is author of numerous professional papers and several extensively used Atlases and books including "The Climate of Canada" and the first "Climatological Atlas of Canada."

Mr. Thomas is currently President of the World Meteorological Organization's Commission for Climatology and Applications of Meteorology, and in this capacity has guided the development of the World Climate Program. Within Canada, he is leading the design and execution of the Canadian Climate Program.

Mr. Thomas's award was announced by ADMA Jim Bruce at the 15th Annual Congress of the Canadian Meteorological and Oceanographic Society in Saskatoon on May 28, 1981.

Mongolian delegates visit AES

Three Mongolian scientists spent three weeks in Canada (June 8-29) visiting AES facilities and familiarizing themselves with the most modern techniques in the field of satellite meteorology.

The visit, sponsored by the World Meteorological Organization, is a follow-up on a mission carried out in the spring of 1980 by Graeme Morrissey, chief of the Aerospace Meteorology Division. (See Mr. Morrissey's article in the September-October 1980 Zephyr). Over a six-week period under the auspices of the United Nations Development Program, he helped the Mongolian Hydrometeorological Service (MHS) develop plans to upgrade its satellite program.

As a result of their visit to Canada, the Mongolian scientists were able to prepare detailed requirements for a recently approved Mongolian purchase of a TIROS-N-type High Resolution Picture Transmissions system (HRPT) for their country. The delegates say it is possible some of the equipment may be purchased in Canada which is a leading exporter in the technical area.

Graeme Morrissey, chief of the Aerospace Meteorology Division (centre) and Alex Aldunate, welcome three visitors from Mongolia, all from that country's Hydrometeorological Service. They are, left to right: M. Badarch, director, Meteorological Satellite Centre; G. Dembereldorj, chief, Meteorological Satellite Division and Z. Batjargal, director, Meteorological Computer Centre.

They spent their first week visiting AES facilities at the Downsview headquarters and attending a specially-prepared course in satellite meteorology. They then went to Ottawa to visit the Canadian Centre for Remote Sensing and the Department of Agriculture regarding applications of meteorological satellite data to monitor range lands.

After visiting the Canadian Meteorological Centre in Montreal, they flew to Edmonton to inspect the Arctic and Alberta Weather Centres and NOAA readout facilities and to visit the Alberta Flood Forecasting Centre and the Alberta Centre for Remote Sensing.

Finally, they went to Vancouver to tour the Pacific Weather Centre which has had extensive experience in the use of satellite data for weather forecasting and to the Pacific Forestry Research Centre.

During their visit Mr. Dembereldorj, chief, Meteorological Satellite Division, MHS, said he was very pleased with the reception he and his colleagues had received at AES and was grateful for the "excellent and well-organized program," including the training and the familiarization tours.

"We think our visit to Canada will be extremely useful in helping us prepare detailed requirements for the future Mongolian satellite system," he added.

AES studies nuclear plant pollution curb

Far from being a doomsday exercise, monitoring a nuclear installation can be a routine measurement of industrial pollution.

In March 1980 Fouad Fanaki of the Atmospheric Dispersion Division of the Atmospheric Research Directorate was asked to do a 10-day field study of the Eldorado Nuclear Plant, Port Hope, Ontario after residents had complained that harmful nitric acid fumes caused by a "downwashed" industrial plume were seriously polluting neighborhood air. Dr. Fanaki pointed out the two metre stack atop the three storey building was not tall enough. Factors such as wind speed and direction, topography and thermal stability of the atmosphere, had combined to bring the plume down near the plant. This had produced a "building cavity" and a wake that stopped the plume rising and dispersing the pollutants.

Addressing an AES seminar on atmospheric research and climate in the Downsview Auditorium this March, Dr. Fanaki said in an effort to improve air quality in the Port Hope area, Eldorado had been ordered to reduce its emissions. But he warned such reductions might not be the only solution. "It's important to design a stack to resolve the downwash problem," he said. "This is usually done by increasing the height of the stack by at least 2.5 times the height of the building." But he cautioned this rule could lead to an over-tall, over-expensive stack.

Over-tall stacks are also a contributory cause of both acid rain and transport of long range pollutants, but they are only a problem where there is emission of sulphur dioxide, and according to Dr. Fanaki this is not the case at Port Hope.

For the study team, however, it was a question of obtaining data on windflow, temperature and turbulent structure of the atmosphere boundary around the plant; on the rise of the plant plume (noting its behaviour and dispersal), and on in-site pollutants. This would aid the study team to predict dispersion of pollutants from the plant source.

The AES experimental program included wind and temperature measurements as a function of height, use of balloon-borne minisondes and photographing the plume to observe its behaviour. Measurements of pollutants on the ground and across the plume were also taken and AES equipment and vehicles were used in the study. The project was a joint study of the AES Air Quality and Inter-Environmental Research Branch and the AES Ontario Region.

Dr. Fanaki concluded the Eldorado plume was downwashed by the building about 20 percent of the time, depending on wind direction and wind speed. "Based on the field study a stack height of about 1.7 times the height of the building is recommended." He added that studies of this type provided a scientific basis for planning future industrial developments and formulating policies to ensure acceptable environment quality standards.

This vehicle was used by the Atmospheric Dispersion Division to traverse pollutants under the Eldorado Nuclear Refinery plumes at Port Hope, Ontario.

Communications experts receive merit awards

Two members of AES Field Services Directorate (Downsview) were given Merit Awards at an April ceremony for "exceptional and distinguished contributions to the effectiveness and efficiency of the public service."

Sterling Wood and John Lajoie were praised by Director General Field Services, Jim McCulloch for maintaining AES national and world wide communications links over several days in October 1979 during a time when a group of people using "non-standard procedures" were causing disruption to the system. Among other things the two communications experts spent time monitoring and taking appropriate initiatives to maintain the integrity of the system.

They also "exhibited a very responsible attitude, coupled with a high degree of technical knowledge, and following certain incidents, set up moves and counter moves, which required long periods outside normal office hours."

Mr. Wood has been with the Weather service for 27 years and is currently acting head of Communications (AFFK). Mr. Lajoie has seen 34 years service and is currently acting head of the AES teletype section.

Surrounded by a group of admiring colleagues, Sterling Wood (left) and John Lajoie receive their merit awards from Jim McCulloch, director general of Field Services.

Solar Energy to heat AES building hot water

The second major energy saving project in three months has been launched at AES headquarters building in Downsview. Forty-eight 2 by 1 metre solar panels have been placed on the northwest side of the roof, and will be used to aid in the heating of the building's 6,000 litre domestic hot water system.

Charles D'Arville, project manager for this Public Works Canada (DPW) scheme, says that solar energy can supply anything from 15 percent to 85 percent of the total energy required for the domestic hot water system, depending on the season and the amount of sunshine. The water supply in the building is maintained at a temperature of around 45C.

He added that the $100,000 experimental project was part of a DPW Purchase and Use of Solar Heating (PUSH) plan to encourage Canadian manufacture of solar heating equipment and widespread use of this form of energy in both the public and private sector.

In addition to the panels, the AES building project required installation of two high pressure pumps for circulating the water to the roof, and the placement of an 800 litre control tank in the basement to complement the flow through two adjacent 6,000 litre tanks.

The solar energy project comes hard on the heels of the innovative aquifer underground energy storage experiment begun by DPW at the AES building last December. But Mr. D'Arville says the two projects are not currently related. "Both schemes are testing ways to provide large public buildings with low cost, independent energy supplies and it's entirely possible the two projects could be linked up at some future date," he explained.

These solar panels now installed on the northwest side of the roof of the AES building Downsview, will help heat the structure's domestic hot water system.

Volunteer weather observer turns 90

Vern Tuck, Canada's oldest volunteer weather observer, celebrates his 90th birthday on August 5.

The retired Grimsby optometrist who turned in his lens grinding equipment only two years ago, has been taking twice daily weather measurements in his backyard for the past 37 years. He is one of an army of 350 unpaid Ontario residents who help keep climatological records for AES.

THE SPECTATOR

Vern Tuck, volunteer weather observer, who turns 90 August 5, takes a temperature reading at his Grimsby, Ontario weather station.

Mr. Tuck indicates he did not have any particular meteorological background when he began the work in 1944. . . he simply enjoyed weather as a hobby. He adds that he has vivid memories of Hurricane Hazel which did severe damage to the Grimsby area in October 1954. As for the metric system, obligatory for all voluntary weathermen since 1977, Mr. Tuck says he has never had any trouble with it, since he always used it in connection with his optical work. Steve Hardaker, Ontario Region superintendent of contract, says that despite his age Mr. Tuck is still turning in excellent records. When last inspected in January his weather station was in tip top condition.

Hydrometeorology is theme of 15th CMOS Congress

Assistant deputy minister Jim Bruce presented the theme paper at the 15th Annual Congress of the Canadian Meteorological and Oceanographic Society (CMOS) held in Saskatoon May 27-29 and attended by almost 150 delegates, with an impressive AES contingent.

ADMA said that $4 billion had been invested by Canadians in controlling and managing water resources in 1980 and that the national priorities in energy and environment were closely tied to water resources. Specific matters which needed attention are flood control, drought, hydroelectric power, water pollution, hydrometeorology data bases, climate variability and atmospheric chemistry. "But," commented ADMA, "increased consumption and exploitation of these resources have had an impact on water quality and balance of the entire hydrological cycle."

Mr. Bruce added that these projects represent economic and physical lifetimes of 50 to 100 years. "How to cope realistically with climatic change in design of such projects is one of the most critical technical problems facing water resources managers and hydrometeorologists," he concluded.

The congress was hosted by the University of Saskatchewan where Dr. Leo Kristjanson, president of the University welcomed delegates to the conference and Dr. John Maybank, president of CMOS replied.

Some 104 scientific papers were presented during the 23 sessions spread over three working days. There were two series of meteorological sessions, one dealing mainly with hydrometeorology and the other with general meteorological topics including agrometeorology. A third series covered oceanography.

At the awards banquet Morley Thomas, director general of the Canadian Climate Centre was presented with the Patterson Medal and Paul H. LeBlond and Lawrence Mysack both of the University of British Columbia, (co-authors of a book "Waves in the Ocean") shared the President's prize.

Funding injects new life into satellite programs

A million dollar a year expansion of the Atmospheric Research Directorate's meteorological satellite research program has been approved by Cabinet. The $6 million project to continue over five years, will seek ways of better using satellite data in weather and sea ice forecasting operations and will form an integral part of the Canadian space program.

Graeme Morrissey, chief of the Aerospace Meteorology Division of AES (ARMA) says that the program aims to improve the service's ability to exploit the opportunities of satellite data. He explains a key characteristic of satellites is "radiance," but adds that most of the satellite data currently used by AES is in the form of imagery. "These images have been very useful," he says "and some form of similar display will still be around forecast offices well into the next century. But as the service moves slowly, yet methodically towards fully objective forecasting, methods must be found to conduct geophysical measurements via radiance."

Mr. Morrissey says the program contains the following projects: RAINSAT, a short range precipitation forecasting system based on weather radar and geostationary satellite data: TOVS, a project to develop products based on satellite sounding data with emphasis on severe weather forecasting; ICE STATUS, a computer-aided analysis system to obtain ice information from radiance measurements, and finally, a research and development (R & D) program applying microwave radiance to weather sea state and ice forecasting.

Mr. Morrissey adds that all these programs require a substantial increase in ARMA's satellite data processing system including the introduction of the latest computer graphic technology. He says most of the additional funding will be used for R & D in the university and industrial sectors "so that an industrial base will be set up to allow rapid integration of new systems into AES operations once these have passed the demonstration phases."

John Lewis (left) and Alex Aldunate stand by the satellite laboratory communication controls in the AES Downsview building.

Plans approved for improved computer forecasts

Cabinet recently approved plans for special computer facilities at the Canadian Meteorological Centre (CMC) in Montreal.

The new computer facilities will permit Canadian weather forecasts issued by Environment Canada to become more detailed and accurate over the next few years. The forecasts will also extend further into the future than the present 5-day outlook period.

The planned computer facilities will be unique in Canada. They are especially designed for handling the mathematical equations found in fluid motions such as those observed in the atmosphere. The facilities will also be made available to government researchers on climatology, oceanography, and other related fields. Canadian university researchers who have had to use computers outside of Canada, should also be able to repatriate their research on the CMC facility after its installation in 1983.

According to Kirk Dawson, Director, AES Computing Services Branch, climatologists should be able to develop seasonal forecasts and more accurately assess future climate changes, such as the impact of increased carbon dioxide and other atmospheric contaminants on climate. Comments Dr. Dawson, "These applications and longer-range weather forecasts require the use of mathematical models of the atmosphere over the whole earth instead of the limited northern-hemisphere models now is use." He adds that the new super computer would integrate meteorological information taken at fixed times around the world together with continuous data transmitted from satellites, automatic weather stations, and instrumented drifting buoys.

Dr. Dawson says accurate and extended forecasts are essential to industries directly affected by weather conditions such as agriculture, fishing, construction, recreation, forestry and transportation. "Our present facilities can no longer meet Canada's needs for weather, ice and sea-state information for the Arctic and offshore energy frontiers," he states.

AES Downsview celebrates its 10th anniversary

This summer the Atmospheric Environment Service (AES) celebrates a modest but important anniversary. It's the 10th birthday of its impressive building, located at 4905 Dufferin Street, Downsview in the north west corner of Metropolitan Toronto.

In actual fact a great deal more than the anniversary of a piece of real estate is being commemorated. It is just 10 years since the Canadian Meteorological Service, formerly under the Department of Transport, became AES, and it is also a decade since the Department of Environment came into being with AES as one of its key arms.

The 10th anniversary of the building is the "concrete" event however. Looking back over a decade it will be recalled that the structure, located in a spacious, wooded 15-acre site, was finished in June 1971, after a rapid two year construction period. And it will be remembered that the building began with a couple of other good omens: it was actually completed for less than its estimated cost – for slightly under $8 million instead of for slightly more than this amount. Furthermore, the reinforced concrete structure cost only $23.10 per square foot to build compared to $30 a square foot for most buildings of similar type at that time.

Official opening in October

The official opening did not take place until October 29. Despite the lateness of the season, the weather was exceptionally fine and summer-like. There was a large gathering of invited guests. A special platform was set up in front of the building, flanked by scarlet-coated RCMP officers. An orchestra was specially commissioned. There was an official ribbon-cutting ceremony by Arthur Laing the then minister of Public Works, whose department has continued to be responsible for the physical maintenance of the building, and by Jack Davis, at that time minister of the Environment, Reg Noble the then assistant deputy minister also played a leading role in the ceremony, which was followed by a reception and by tours of the building.

The premises were open for inspection not only by invited guests, but by members of the public, 10,000 of whom trooped through its airy corridors and shiny new installations on self-guided tours during a two day open house period. The route covered the entire building and included such highlights as the 30-meter wind tunnel, the satellite labs and the spacious library. There were also free movies in the auditorium and hostesses on hand to help out in case visitors got lost.

Tours are a tradition

The tradition of arranging tours of the building has been maintained over the decade. The reputation of Canada's number one weather building has spread far and wide, and it's considered a landmark, not only in Toronto, but right across the country. During the year ending April 1981 Information Directorate conducted some 20 group tours of the premises consisting largely of teachers, adult students and special interest groups.

Tour leader Jean Schlenkrich reports that the wind tunnel and the satellite lab are still the most popular attractions but that there is considerable interest in the instrument calibration shop, the computer centre, the instrument displays in the

A mountie stands guard as dignitaries gather for the Downsview building opening ceremony, October 29, 1971.

FEATURES

Tours of the building have been a tradition ever since its opening. Tour leader Jean Schlenkrich (ID) is seen pointing out satellite imagery to some visiting students.

In fine weather tours are extended to the immediate surroundings of the building. Fences enclose the instrument compound and the big satellite dish just south of the premises.

Photos by Bill Kiely

The graciousness of the headquarters building lobby with its hanging tapestries and display of weather instruments old and new is the first thing to strike the visitor. Head commissionnaire Aex Ochocinski has manned the enquiry desk ever since the building opened.

The spacious third floor library is an AES showpiece and is consulted by professionals from all over the country.

The satellite lab, receives frequent reports from the GOES satellite and is one of the most popular "attractions" for visiting teachers, students and special interest groups alike.

large entrance lobby and, during fine weather, in the big white satellite tracking dish and the instrument compound immediately south of the building. ID would have given even more tours if requests from teachers wanting to bring classloads of younger students had been accepted. Because of the difficulty of controlling younger visitors and of the fragility and cost of the material in the building, however, these requests are usually re-directed to the Ontario Science Centre.

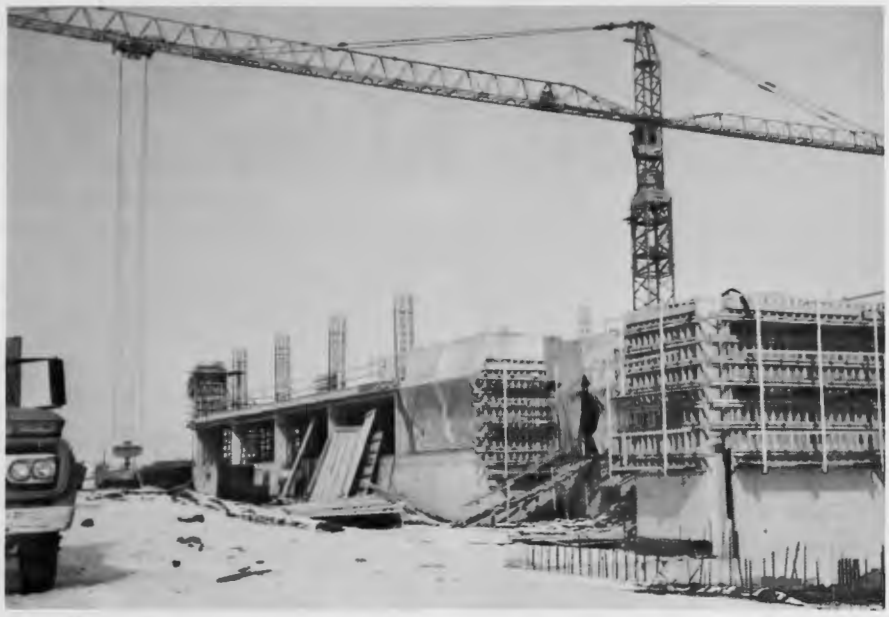
More generally, visitors to the building comment on its spacious horizontal layout which makes it easier for personnel in various branches to rub shoulders with one another in other places than the elevator. They also speak about its beautiful surrounding parkland, its leafy inner courtyards and its extensive parking lots.

Even more than the wind tunnel or the satellite dish, the object that symbolizes the building in the eyes of countless passersby is the huge clanging Ron Baird sculpture. Many visitors think its anemometer-like cup wheels or sun-shaped metal disks serve some scientific purpose and are surprised to learn that their function is purely decorative. Its protective oxide coat has ensured that over the years it has rusted in harmony with the weather, yet its steel core has remained intact. Most AES employees tend to ignore the 25 meter high "weather monster" but for almost everyone else it's a living, whirring example of meteorology apotheosized into art.

First observatory dates back to 1840

Morley Thomas, director general of the Canadian Climate Centre, has supplied some historical notes which go a long way to explain the whys and wherefores of the current AES building.

He says the present Downsview building is the third meteorological main location in Toronto. The first observatory was built on the grounds of the University of Toronto in 1840. In 1909 the observatory outgrew its original site and moved to a specially constructed building at 315 Bloor Street West, where it was to remain until the 1971 move. Mr. Thomas adds that this building had become too small for its activities as early as 1940 and during the next decade or two, headquarters branches had moved into more than half a dozen buildings spread over mid and downtown Toronto. As had happened several times earlier in the past there were vague plans to move the entire meteorological office to Ottawa (the "logical" place, since until after World War II, the Meteorological Service was the only federal government operation with headquarters outside Ottawa). A period of government restraint prevented a move in the 1950s.



The AES building was a mere skeleton of itself when this photo was taken in February 1970.

Speaking at his own retirement dinner, Andrew Thomson, the then meteorological controller, spoke of the "promised land" and revealed his hopes for a large new building. . . on the same site at 315 Bloor Street West. But it was a period of decentralization, and an enormous gravitation to the suburbs. At first a headquarters site at Malton airport was seriously considered, but Dr. McTaggart-Cowan, another meteorological controller decided to accept the Downsview site.

Mr. Thomas gave two important reasons for taking the Downsview site. The Meteorological service had just acquired a "farm" in the Woodbridge area to carry out experiments, and it was advantageous to have the headquarters near the farm to avoid having to house employees on the farm. The other reason was that the Downsview land was owned by the University of Toronto, and it had long been a Met Service tradition to build on this university's land.

Concluding his comments, Mr. Thomas said: "Except for the newly installed rooftop solar panels, the building has not changed in outside appearance in the decade we have been there. There has been considerable moving around and consolidation of space inside. There was lots of space when we moved in. In subsequent years, however, we had to find space for more people, reduce office space and individual working areas. Mr. Thomas adds, "The AES Downsview building compares very favorably with other international meteorological premises. In fact, I would rate it number one! It is an excellent building, well sited and landscaped."

Storm trapped many in building

A complete history of the building would need to outline the activities and achievements of the various directorates and branches. . . how they succeeded in using the available space and equipment to carry out their complex operations, or research and development programs. It might also mention fairly frequent visits to the building by Cabinet ministers, prize-winning scientists and world-renowned meteorologists. In the limited space available, however, it is wiser to zero in on a single graphic event that certainly remains in the memory of many AES employees. It's the great storm of April 3, 1975, when Dufferin Street traffic was completely snowed in, and some 300 AES staff were trapped overnight in the building. Some played bridge, some munched on sandwiches in the cafeteria, some watched late-night movies on closed circuit TV, some helped wash the dishes, some stretched out fitfully to doze on secretary's posture chairs, some sat all night at their desks catching up on their work. It reminded many of being posted to an isolated northern weather station. But it was a learning experience that a lot of AES employees actually enjoyed. □

Progress made tracking killer tornadoes

by Abdel R. Maarouf

Because of their intense destructive power and capricious behaviour, tornadoes are remembered longer and receive more public attention than any other weather phenomenon. There are countless reports of human misery, property destruction and offbeat happenings like straws driven into tree trunks, people carried great distances, or chickens plucked of their feathers. On the other hand good progress is being made in the location and tracking down of tornadoes.

One of the major new tools in severe storm detection is Doppler radar. This is like a conventional radar, but has the added capability of detecting target speeds. Rotating winds forming deep within the cloud can be detected an average of 20 minutes before the first damage. As Doppler radar systems become widely used, they will increase the warning time before tornadoes occur. Warning areas may be reduced significantly by having precise tornado location and forecast track information available. Downbursts from thunderstorms and abrupt changes of wind speed or direction causing serious hazards to aircraft will be closely monitored.

This tornado struck La Rivière, Manitoba on July 20, 1968. A funnel cloud moved over farmland raising huge amounts of dust, leading some observers to believe it was smoke from a burning farm.

For its part, AES has started to implement a Severe Weather Watch project in its Quebec, Ontario and Central regions. (The latter two being especially tornado-prone.) The Weather Watch is carried out by volunteers who supply the nearest weather office with observations of localized severe weather. This key information is added to other reports supplied to the forecaster to help him issue a weather warning.

Although there has been a small but steady increase in tornado reports over the past 30 years, these have only been for storms with little effect on people. This suggests that public awareness, not meteorological factors, accounts for the increasing number of tornadoes reported. It has also meant a decline in tornado fatalities despite overall population growth.

Tornadoes are categorized according to their accompanying wind speed into: WEAK (less than 180 km/hr.) STRONG (180-330 km/hr.), and VIOLENT (greater than 330 km/hr.). Of all reported tornadoes, about 65% are rated as weak, while less than 2% are ranked as violent and they account for 68% of the deaths. A typical tornado has a path length of 3 to 3.5 km, a width of 40 meters and devastates an area of only 0.16 square km. While they can develop at any time of day, almost 60% occur between noon and sunset, the hottest and most humid part of the day, and they are least likely during the early morning before sunrise. Killer tornadoes are most frequent in the late afternoon. About 85% of all tornadoes move from the southwest into the northeast quadrant. Those moving towards the west are extremely rare.

In the United States, tornadoes are observed throughout the year, with a peak during the month of May, and are least frequent in January. The season in Canada starts in early April and extends to mid-October, with a peak during June and July. The number of tornadoes reported in Canada is much lower than in the United States. However, as the population increases and new settlements develop, the number reported in Canada is expected to rise. Tornado funnels are extremely rare in northern Canada and Alaska. Normally, they do not reach the ground or cause any damage.

The picture shows the mature funnel of one of a family of tornadoes that narrowly missed Regina on June 25, 1975. It was followed by $12 million in flood damage.

The largest outbreak of tornadoes ever documented in the U.S. occurred between April 3-4, 1974. In this brief 24 hour period 148 were recorded with a total damage path length of about 4,200 km. 315 deaths and 5,484 injuries. One of these tornadoes struck Windsor, Ontario leaving 9 dead and 30 injured.

Forecasting these devastating storms is very difficult, mainly because they are localized and short-lived. The existing observational network is not dense enough to reveal fine details in the weather patterns. Nevertheless, forecasters do their best to analyze, coordinate and assess all the meteorological variables.

The severe-weather forecaster uses data not normally required to make other routine weather forecasts. He must pay meticulous attention to transitory features and minor changes in the atmosphere. He uses as much information as possible from remote-sensed observations such as satellite reports and radar data, in addition to other ground-based observations, and computerized guidance. He is then in a position to calculate the possibility of severe storm development. □

Mr. Maarouf is a Research Meteorologist in the Forecast Research Division at AES Downsview, Ontario.

AES building tops paper recycling project

Employees at AES Downsview headquarters recovered 671/2 tons of waste paper in the past year, topping a list of six federal buildings with waste recovery programs in the Toronto area.

This, according to Joanne Opperman, federal waste paper recycling co-ordinator for the area, puts AES 20 percent per capita ahead of its nearest rival, the Alexander Mackenzie Building and some 420 percent ahead of the "loser", the Joseph Sheppard Building.

Miss Opperman adds that the 671/2-ton figure represents 1,147 trees that did not need to be cut, 5,396 gallons of gasoline conserved, $3,269 revenue earned, $1,686 disposal costs saved and $6,071 Canada did not need to spend to import waste paper.

A study of government buildings in Toronto showed that the average worker discards slightly more than half a kilogram of waste paper a day. In 1976 Environment Canada launched a waste paper recovery program in a big office building in Hull. It proved so successful it was widely adopted in public service buildings all over Canada.

Miss Opperman recently toured the AES building, meeting management and section heads and searching for "contaminants" or non-recyclables in the waste bins. She says next year nine federal buildings should participate in the Toronto program, but that the AES building has a good chance of maintaining its lead. (AES has been participating since February 1978).

Co-ordinator for the building waste paper recycling program is Chris Stuart (AAG). She is the contact person for general information, bins, holders and cartons for boxing low grade paper such as computer print outs. A display of contaminants was set up outside the AES cafeteria May 11-13, showing such items as kraft envelopes, newspapers, carbon paper, coffee cups and candy wrappers. The display also showed "collectables" like xerox paper, white envelopes, computer cards, letterheads and bond paper.

Chris Stuart of the General Administration Division, AES headquarters building waste paper recycling coordinator, stands by the in-house display set up to explain the difference between collectables and contaminants.

AES plays a major role in EARP

Evelyn Wilson of the Air Quality Assessment Section (ARQN) presented a seminar on the AES role in the Federal Environmental Assessment Review Process (EARP) May 5 in the AES Downsview auditorium.

Mrs. Wilson's presentation covered a case study of the Norman Wells Oil Field Expansion and Pipeline Development Project (NWT), including a discussion of its various stages: the public hearings held in Yellowknife and the showing of slides of an overflight of the Mackenzie Valley.

Mrs. Wilson explained that ARQN had the AES responsibility for reviewing Air Quality related Environmental Impact Statements (EIS) for federal projects undergoing formal review under EARP. She added that EARP had given agencies or government departments and public interest groups the opportunity to intervene at public hearings on the development projects and to present their viewpoint, and that based on the reviews and hearings, an EARP panel makes recommendations to the minister and DOE on the environmental acceptability of the project.

Terry Alsopp, EARP co-ordinator, (Downsview) was scheduled to be co-speaker at the seminar, but was unable to attend.

He commented later that Environment Canada was just one of several intervenors in the Norman Wells project. He added that Western and Northern Region led the team for AES, and that the AES headquarters group provided input for the regional office by reviewing the Environmental Impact Statement.

George Legg retires

George Legg, regional director, AES Western Region, retired May 15 after almost 40 years with Canada's meteorological service. He joined the department of Transport in June 1941 and his first assignments were to a number of RAF and RCAF training bases operated under the auspices of the British Commonwealth Air Training Plan.

After a short time Mr. Legg was recalled to meteorological headquarters in Toronto to assist in the instruction of meteorologists. Through the years his career has had great variety: he has served in the Maritimes, at Lethbridge (Alta.) as officer-in-charge of the Whitehorse (Yuk.) weather office, as a forecaster in Montreal, as superintendent of Forecast Office Operating requirements, as liaison meteorologist in Ottawa, as leader of the meteorology branch collective bargaining project, as supervisor, Resources Unit, Forecast Division, as superintendent, Water and Ice section (Ice Branch), and finally as regional director, Western Region.

During his final week with AES, Mr. Legg was feted at a luncheon given by his colleagues on the Regional Director's Committee, DOE. And at one of the AMC meetings held in the Western Region, ADMA Jim Bruce presented him with a silver medallion recognizing 40 years of service to the Canadian public.

George Legg, former regional director, AES Western Region poses for a gag shot with an unknown constabulary colleague at his retirement party in Edmonton, May 15.

Retirement of Ken Pettit

Kenneth George Pettit has retired from the Atmospheric Chemistry Criteria and Standards Division of the Atmospheric Research Directorate after 37 years in the Canadian Meteorological Service.

Born in London, Ontario, Mr. Pettit joined the Meteorological Service of the then Department of Transport in 1943 after concluding his B.A. in Physics and Chemistry at the University of Western Ontario. He began his early career as a weather forecaster at Vulcan, Alberta and served in similar capacities in various locations in Manitoba and Ontario when flying was in its infancy and Canada was busy with the giant Commonwealth Air Training Plan.

With his natural ability, experience and aptitude in instrumentation he used his meteorological knowledge on assignment to the National Research Council Low Temperature Laboratory in the early 1950s, part of a team conducting research into aircraft icing. Hundreds of hours were logged on an RCAF North Star aircraft known as the "Rockcliffe Ice Wagon" as it sought out natural icing conditions and made cloud property measurements throughout much of Canada and the northern United States. This team made a unique contribution to the early knowledge on aircraft icing and protection systems before the fiery demise of the aircraft in a hangar at Dorval Airport.

Mr. Pettit continued his secondment to NRC providing meteorological advice and consultation on icing, turbulence and low temperature problems until 1965. In the latter part of this tour he was responsible for the cloud physics instrumentation installed on B-25 Mitchell aircraft during the Precipitation Physics Project and experiments on rainfall modification conducted over northwestern Quebec from 1959 to 1963.

Since coming to the AES Downsview Headquarters in 1965 he has been engaged in the Atmospheric Research Directorate activities in cloud physics, fog modification and most recently in the AES carbon dioxide program. He has acquired many interests beyond meteorology, over his career and pursues hobbies of fishing, photography and music. He now intends to kindle a latent curiosity in anthropology by taking courses at the University of Toronto.

Dr. Warren Godson, director general, Atmospheric Research Directorate (left) presents retiree Ken Pettit with a long service certificate.

A retirement luncheon was held at the Black Hawk Motor Inn lounge in Richmond Hill on May 6 when Dr. Warren Godson, Director-General of Atmospheric Research presented him with a long service certificate and medal. Howard Ferguson (ARQD) presented a passport wallet and purse on behalf of his many friends and colleagues. Mr. Pettit and his wife Beatrice will continue to reside at their home in Unionville and look forward to a trip to South Africa in the near future.

AES Western Region has new regional director

AES Western Region has a new regional director. Bev Burns who has worked with government meteorological services since 1963 and has acquired an enormous knowledge of Western Canadian weather and climatic conditions, was appointed to the position on May 19.

Mr. Burns will be responsible for providing weather services for Alberta, the Yukon and the western portion of Northwest Territories with shared responsibility in northeastern B.C.

Mr. Burns's first posting was as a weather briefer and forecaster in Calgary. From 1967-71 he served as a senior forecaster in the Alberta and Arctic Weather Centres. Moving to AES headquarters in Downsview, he held several positions including resources manager for the Field Services Directorate, technology transfer meteorologist in Research and financial projects officer in Administration. In 1976 he returned to Edmonton where he was appointed chief, Data Acquisition Division. He also recently served for a year as scientific program advisor to the Western and Northern Regional director general of Environment Canada.

Mr. Burns's new position will also include the responsibility for applying meteorological science to a variety of environmental and economic problems in the region.

Now here's a bevy of Bevs!

This note has been passed on to us by Judy Fisher, regional information officer, Western Region, Environment Canada, concerning Bev Burns's recent appointment as the new AES Western regional director. "Visitors to Mrs. Burns's office may be slightly surprised to learn that Mr. Burns's secretary is also named Bev. And although the secretary was selected before his appointment, one can't help but wonder about a secret adoration Mr. Burns must have for others named Bev, especially when it is revealed that Mr. Burns's wife is also named Bev. Mr. Burns, of course, pleads coincidence."

WOMEN ON THE MOVE

The AES Equal Opportunities for Women Committee, in conjunction with Ontario Area Personnel (OAP) presented a successful five part career seminar series called "Opportunities in the Eighties" May 27-June 24 in the Downsview auditorium.

The series attempted to answer such questions as, Where are we going in the Eighties? and How do we get there? According to series organizer Chris Upton (OAP) the seminars were designed to stimulate an awareness of the need for career planning, and to assist women in developing the necessary skills for successfully competing in the job market in the 1980s.

The speaker for the first four seminars, Karen Fraser, was well qualified to give advice in this field. A York University sociology graduate, Karen has her own business, 'Women Like Me', a company which specializes in courses for women entering the business world, and for those already working who wish to change careers or move ahead.

Karen Fraser, speaker at the first four sessions of the Opportunities in the Eighties seminars is seen (left) with Chris Upton, Ontario Area Personnel organizer of this AES Equal Opportunities for women event.

Comments Miss Upton, "The seminars were informative, relevant and basic. The role of working women and the change in the values system from the 1930s to the present day, were among the topics presented. The real value of these sessions was the discussion that ensued. Attitudes towards these and other topics vary among women themselves."

The fifth and last seminar in the series was on the Competitive Process in Government, presented by Ray Jackson of OAP. It dealt with the process of getting ahead in the Public Service, and was of interest to all employees.

BOOK REVIEW

Storm by Victor Boesen,
Putnam, New York, 1978,
159 pages, illustrated, $11.

Reviewed by Gordon Black

This slim volume describes the struggles, frustrations, achievements and occasional triumphs of a major private weather forecaster. As a long range specialist Irving Krick was first to predict the California drought of the seventies. As meteorological advisor to General Eisenhower, he predicted the weather for the D-Day landings. A pioneer in weather modification, he used silver iodide generators to increase rainfall over vast areas of parched crop land. A super-confident "salesman-scientist," and former Dean of Meteorology at the California Institute of Technology, Krick claimed if more government agencies, including the US Weather Bureau had backed him, he might have stopped the drought altogether.

Author Boesen paints him as a powerful, controversial, almost legendary figure, and gives the impression all government weather people are unimaginative, suspicious, stick-in-the-muds. Krick developed his theory of weather types and sequences at Cal-Tech around 1933. He battled officialdom because he was an innovative researcher ahead of his time. The new super-computers using whole earth models seem more suited to Krick's global techniques. At Cal-Tech he employed 40 people to read countless weather maps to do the same job. When he foresaw the great drought or predicted the right weather for the Eisenhower, Kennedy and Johnson inaugurals, people called him a "magician".

The best chapters cover Krick's wartime exploits. In February 1944 he predicted a break in the weather over Germany – just long enough to let allied bombers raid Leipzig – and end German air superiority. He helped General Patton select a day with minimum sea swell for his ship-borne invasion of North Africa. His most famous weather prediction however was D-Day.

As a youth in Brighton on the south coast of England, one of the key assembly points, I remember that cloudy, blustery June weekend, when everyone in this frontline town agreed bad weather meant postponing the "second front". Little did anyone think a US major called Krick was overruling the British Admiralty and Air Ministry and telling Eisenhower to ignore the storm and invade, because by Tuesday the sun would be shining. Eureka! on June 6 the sky *did* clear, and I saw the invasion begin.

Somehow *Storm* falls short of its tempestuous title. Its jerky style reads like a mediocre radio documentary. A general sidles up to Krick during a post-war Pentagon visit and says, "Say, do you remember the day we won the war together?" Or a tycoon phones to ask, "What's the weather going to be, Doc?"

The book oversimplifies. He tends to paint everyone black or white with few subtle in-betweens. There is no objective analysis of Krick's controversial methods. He claims 81 percent accuracy for his hero but the book makes him almost never wrong. (An exception: being asked by actor Humphrey Bogart to plot a course for a yacht race to Mexico, then seeing the star's ship get becalmed and drop out).

Boesen praises all private forecasters, for offering specialized services to businessmen, municipalities or utilities. He notes Krick was congratulated by the Alberta Hail Insurance Board when his cloud seeding operations producted a 71 percent drop in wheat losses there. Among his many overseas clients Krick counted both the French and Spanish governments. But all too often in his own country, he has been a prophet without honor.

Mr. Black is a staff writer with ID, Downsview.

DEPARTMENTS

STAFF CHANGES

Promotions/ Appointments

D. Aggarwal (CR-3) Clerk, AAF, Downsview, Ont.
T. Allan (CR-3) Clerk, AAG, Downsview, Ont.
K.A. Anderson (CR-3) Serials Clerk, AAL, Downsview, Ont.
L. Armstrong (SCY-2) Secretary, CCAS, Downsview, Ont.
R.B. Barrett (EG-ESS7) Chief Inspector, CAED, Winnipeg, Man.
L. Bayrak (CR-3) Clerk, WAED, Edmonton, Alta.
J. Beaudet (SCY-2) Secretary, QAEO, St-Laurent, Que.
H. Bouffard (CR-3) Clerk, WAED, Edmonton, Alta.
J. Bullas (MT-6) Meteorologist, WAED, Edmonton, Alta.
P. Burge (SCY-2) Secretary, Ice Forecasting Central, Ottawa, Ont.
B. Burns (MT-9) Meteorologist, Regional Director, Edmonton, Alta.
W. Burrows (RES-2) Research Scientist, ARDG, Downsview, Ont.
J. Campbell (SCY-3) Secretary, QAED, St-Laurent, Que.
P.R. Chadwick (MT-4) Meteorologist, CFWS, North Bay, Ont.
B. deLorenzis (MT-5) Meteorologist, Ice Forecasting Central, Ottawa, Ont.
A. Faseruk (CR-4) Clerk, CAED, Winnipeg, Man.
W.G. Grandy (CM-7) Communicator, Maritimes W.O. Bedford, N.S.
B. Hewitt (ST-SCY-3) Secretary, WAED, Edmonton, Alta.
S.J. Hickey (EG-7) Officer-in-Charge, Saint John, N.B.
E.N.E. Holmberg (EG-2) Met. Tech. WO4, Banff, Alta.
C.E.T. Holmberg (EG-5) Pres. Tech. WO4, Edmonton, Alta.
R. Jones (MT-6) Meteorologist, Training Unit, St-Laurent, Que.
R. Leaitch Visiting Fellow, ARQT, Downsview, Ont.
F.J. Lemire (MT-9) Director, CMC, Dorval, Que.
H. MacDougall (DAPRO-3) Ops. Cont. Tech. ARMA, Downsview, Ont.
N. Michaud (MT-5) Meteorologist, Ice Forecasting Central, Ottawa, Ont.
O. Prescod (DAPRO-3) Ops. Cont. Tech. ARMA, Downsview, Ont.
R.H. Robinson (MT-8) Meteorologist, Chief, Operational Development Div. CMC, Dorval, Que.
D. Sanderson (LS-2) Cataloguer, AAL, Downsview, Ont.
D. Steeves (CS-1) Maritimes W.O. Bedford, N.S.
M. Strange (EG-6) Officer-in-Charge, WO4, Inuvik, N.W.T.
D. Tolhurst (EG-5) Pres. Tech. WO4, Inuvik, N.W.T.
R. Tweddell (DAPRO-3) Ops. Cont. Tech. ARMA, Downsview, Ont.
R. Webster (EG-5) Pres. Tech. WO4, Edmonton, Alta.
E. Wilson (MT-6) Meteorologist, LLO, Downsview, Ont.
B.K. Wong (MT-4) Meteorologist, CFWS, Winnipeg, Man.

Transfers

B. Barette (EG-ESS4) U/A Tech. Frobisher Bay, N.W.T.
G. Cormick (EG-6) Pres. Tech. WO4, Calgary, Alta.
M.I. Darr (EG-5) Pres. Tech. WO4, Fort Nelson, B.C.
A.B. Ferguson (EG-6) Pres. Tech. Halifax W.O., N.S.
K. Ford (CR-4) Clerk, LLO, Downsview, Ont.
J.R. Gagnon (MT-7) MOP, AFDG, Downsview, Ont.
M. Gladish (EG-2) Met. Tech. WO4, Edmonton, Alta.
G. Mainprize (EG-2) Met. Tech. WO4, Calgary, Alta.
N. McNeil (MT-2) Meteorologist, CFWS, Greenwood, N.S.
L. Neil (MT-2) Meteorologist, CFWS, Comox, B.C.
D. Patrick (MT-2) Meteorologist, Ontario WC, Toronto, Ont.
R.L. Penner (MT-2) Meteorologist, CFWS, Greenwood, N.S.
D. Petrunik (EG-5) Pres. Tech. WO4, Calgary, Alta.
D. Porter (CS-2) CFWS, Halifax, N.S.
S. Roy (MT-2) Meteorologist, Maritimes W.O. Bedford, N.S.
M.M. Savard (EG-ESS4) U/A Tech. Inoucdjouac, Que.
R. Servranckx (MT-2) Meteorologist, Ontario W.C., Toronto, Ont.
J. Steele (EG-6) Pres. Tech. WO4, Calgary, Alta.

Departures from AES

S. Alleyne, ARMD, Downsview, Ont.
W.J. Appleby, APCO, Ottawa, to EMR, Ottawa, Ont.
C. Bluck, Hope, B.C.
P. Carroll, Pacific W.C. Vancouver, B.C.
J.E. Clark, ARPD, Downsview, Ont.
R. Haley, WS3, Cape Parry, N.W.T.
C. Labonne, QAEW, St-Laurent, Que.
H. Loo, CR, AAF, Downsview, Ont. to Public Works.
D. Paige, ACRP, Downsview to Ontario Region, DOE, Toronto, Ont.
D. Pegg, WS2, Stony Plain, Alta.
P. Perreault, Upper Air, Fort Chimo (Kuujjuaq), Que.
R.V. Portelli, Air Quality, Downsview, Ont. to Concord Scientific.
T. Sawchuk, Data Acquisition, WAED, to private oil firm.
C.A. Shaw, Ice Forecasting Central, Ottawa, Ont.
J. Simpson, PAED, Vancouver, B.C. to EPS.
C. Smith, WS3, Pincher Creek, Alta. to Inland Waters.
A. Stuart, ADEC, Downsview to Interra Consultants.
H. Ward, ARMD/RPN, Dorval, Que.
R.J. Woodrow, Ice Forecasting Central, Ottawa, Ont.

Temporary or Acting Positions

Y. Bernier (MT-8) Liaison Meteorologist, ADMA, Ottawa, Ont.
H. Davidovich (CR-3) Clerk, AAF, Downsview, Ont.
D.M. Galli (CR-5) Clerk, CFWS, Ottawa, Ont.
R. Harvey (MT-6) Meteorologist, CCAI, Downsview, Ont.
R.K. Jecks (AS-3) Regional Com. Officer, Vancouver, B.C.
D.A.R. Mettam (MT-7) Meteorologist, CFWS, Winnipeg, Man.
A. Sevigny (MT-6) Meteorologist, Shift Supervisor, St-Laurent, Que.
A. Sirois (MT-2) Meteorologist, ARQT, Downsview, Ont.
R.E. Wilson (AS-4) Head, Programs & Traffic, AFFC, Downsview, Ont.
L. Zangao (SCY-2) Secretary, QAEW, St-Laurent, Que.

Retirements

G. Legg, Regional Director, WAED, Edmonton, Alta. May 1981.
K. Pettit, ARQA, Downsview, Ont. May 1981.
E.J.A. Hamilton, CFWS/DMETOC, Ottawa, Ont. June 1981.

Promotions, appointments, transfers, temporary or acting positions sections provide information on new postings including location. Only temporary or acting positions which involve a change of location are listed. Retirements and departures indicate the last posting.

Abbreviations used are:

MT –	meteorologist
EG –	engineering & scientific support
SE-RES –	research scientist
PC –	physical scientist
ES –	economist, sociologist, or statistician
SX –	senior executive
DA-PRO –	data processing
EL –	electronics technologist
ENG –	engineer
GL-VHE	general trades
ST –	secretary
FI –	financial officer